Treatise on medical jurisprudence / By Francis Wharton ... and Moreton Stille.

Contributors

Wharton, Francis, 1820-1889.
Stillé, Moreton, 1822-1855.
Harvey Cushing/John Hay Whitney Medical Library

Publication/Creation

Philadelphia : Kay and brother, 1855.

Persistent URL

https://wellcomecollection.org/works/b2n4sa39

License and attribution

This material has been provided by This material has been provided by the Harvey Cushing/John Hay Whitney Medical Library at Yale University, through the Medical Heritage Library. The original may be consulted at the Harvey Cushing/John Hay Whitney Medical Library at Yale University. where the originals may be consulted.
This work has been identified as being free of known restrictions under copyright law, including all related and neighbouring rights and is being made available under the Creative Commons, Public Domain Mark.

You can copy, modify, distribute and perform the work, even for commercial purposes, without asking permission.

Wellcome Collection
183 Euston Road
London NW1 2BE UK
T +44 (0)20 7611 8722
E library@wellcomecollection.org
https://wellcomecollection.org

RA1051
855W

YALE COLLEGE LIBRARY

SIGILL : COL : YALEN : NOV : PORT : NOV : ANGL

ET

LUX

VERITAS

Presented by
Dr. David P. Smith
1881

TRANSFERRED TO
YALE MEDICAL LIBRARY

David P. Smith A.M. M.D.

Digitized by the Internet Archive
in 2012 with funding from
Open Knowledge Commons and Yale University, Cushing/Whitney Medical Library

http://www.archive.org/details/treatiseonmedica00whar

KAY & BROTHER,

LAW BOOKSELLERS AND PUBLISHERS,

17 & 19 SOUTH FIFTH STREET, EAST SIDE,

FIRST STORE ABOVE CHESTNUT,

PHILADELPHIA,

PUBLISH THE FOLLOWING

NEW AND VALUABLE LAW BOOKS:

I.

WHARTON AND STILLE'S AMERICAN MEDICAL JURISPRUDENCE.

A Treatise on Medical Jurisprudence, adapted to the use of the Professions of Law and Medicine in the United States. By FRANCIS WHARTON, Esq., Author of "American Criminal Law," &c., &c., and MORETON STILLE, M. D. 1 vol. 8vo. 848 pages.

II.

WHARTON'S AMERICAN CRIMINAL LAW, NEW AND THIRD EDITION.

A Treatise on the Criminal Law of the United States: Comprising a Digest of the Penal Statutes of the General Government, and of Massachusetts, New York, Pennsylvania and Virginia; with the Decisions of Cases arising upon those Statutes, and a General View of the Criminal Jurisprudence of the Common and Civil Law. By FRANCIS WHARTON, Author of "Precedents of Indictments and Pleas." Third Edition. 8vo. 1128 pages. Price $7.00.

III.

WHARTON'S PRECEDENTS OF INDICTMENTS AND PLEAS.

Precedents of Indictments and Pleas, adapted to the use both of the Courts of the United States, and those of the several States; together with Notes on Criminal Pleading and Practice, embracing the English and American Authorities generally. By FRANCIS WHARTON, Author of a Treatise on "American Criminal Law," &c. 8vo. 716 pages. Price $5.50.

*** Wharton's "American Criminal Law" and Wharton's "Precedents of Indictments and Pleas," comprise, the former the Science, and the latter the

Practice of the Criminal Law of the State and Federal Courts of the United States. Together they form a Complete Body of the American Law on the subject. Although entirely independent of each other, they are intended to be used jointly, and may be considered as two volumes of one work.

IV.

WHARTON ON THE AMERICAN LAW OF HOMICIDE.

A Treatise on the Law of Homicide in the United States; to which is appended a Series of Leading Cases, now out of print, or existing only in manuscript. By FRANCIS WHARTON, Author of "A Treatise on the Criminal Law of the United States," "Precedents of Indictments and Pleas," &c. 1 vol. 8vo. 537 pages. Price $4.50.

V.

WHARTON'S LAW DICTIONARY.

The Law Lexicon, or Dictionary of Jurisprudence: Explaining all the Technical Words and Phrases employed in the several Departments of English Law. Including also the various Legal Terms used in Commercial Transactions; together with an Explanatory as well as Literal Translation of the Latin Maxims contained in the Writings of the Ancient and Modern Commentators. By J. J. S. WHARTON, Esq., S. C. L., Oxon., of the Middle Temple, Barrister at Law, &c. 8vo. 1084 pages. Price $3.00.

VI.

BRIGHTLY'S EQUITY JURISPRUDENCE.

A Treatise on the Equitable Jurisdiction of the Courts of Pennsylvania; with Notes of Pleading and Practice in Equity, and an Appendix of Practical Forms. By FREDERICK C. BRIGHTLY, Esq., of the Philadelphia Bar. Author of "The Law of Costs," "Nisi Prius Reports," &c., Editor of "Purdon's Digest," "Binns's Justice," &c. 1 vol. 8vo. 782 pages. Price $5.00.

*** This work, although adapted to the Practice of the Courts of Pennsylvania, is, in no proper sense, a local one; the Principles of Equity are of universal application, and the Practice of Courts of Chancery, except where altered by legislative enactment, is everywhere the same. Except, therefore, as illustrating the Principles and Practice of Equity by a reference to the decisions of the Pennsylvania Courts, this work is not confined to the practice of a single State, but will be found to be one of general usefulness.

VII.

TROUBAT ON LIMITED PARTNERSHIP.

A Treatise on the Law of Limited Partnership in the United States. With a Copious Appendix of Forms of Deeds of Limited Partnership, the Statutes of Limited Partnership enacted by the different States, and Reports of all the Decisions on this branch of the law which have been made in the American Courts. By FRANCIS J. TROUBAT, Esq., of the Philadelphia Bar. 8vo. 752 pages. Price $5.00.

VIII.

LIBRARY OF LAW AND EQUITY.

14 vols. in 12, bound and lettered uniformly. Price $15.00. This Series contains the following Works, constituting a Grand Total of 6696 beautifully printed pages: namely,

CONTENTS.

1. Williams on Real Property.
2. Wigram on Wills.
3. Greening's Forms of Declarations and other Pleadings, with American Additions.
4. Daniell's Chancery Practice, 3 vols.
5. Welford's Equity Pleadings.
6. Hildyard on Marine Insurance.
7. Hindmarch on Patents, with the Acts of Congress and Decisions of the Courts of the United States on the subject, and Forms for obtaining Letters Patent.
8. Bisset on Partnership, with full Notes of American Cases.
9. Finlason's Leading Cases on Pleading and Parties to Actions.
10. Blackburn on the Contract of Sale.
11. Gresley's Equity Evidence, by Calvert.
12. Pritchard's Digest of English Admiralty Cases, with Notes from the American Reports, and an Appendix of American Equity Cases.
13. Wharton's Law Dictionary.

PREPARING FOR PUBLICATION.

I.

BURTON'S COMPENDIUM OF THE LAW OF REAL PROPERTY.

An Elementary Compendium of the Law of Real Property. By WALTER HENRY BURTON, Esq. Late one of the Fellows on Mr. Viner's Foundation for the Study of the Common Law in the University of Oxford. With Notes, showing the Alterations in the Law to the present time: To which is now prefixed an Introductory Chapter, giving a concise Historical Outline of

such parts of the Law as have been the subject of Statutory Alteration. By Edward Priestly Cooper, Esq., of the Middle Temple, Barrister at Law. From the last (the Seventh) London Edition. With full American Annotations. 1 vol. 8vo.

II.

A DIGEST OF THE LAWS OF THE UNITED STATES,

ON THE PLAN OF

"PURDON'S DIGEST—1700 TO 1855."

Kay & Brother beg leave to announce that they have in course of preparation, A Digest of the Laws of the United States, which will be compiled on the model which, in the case of their Eighth Edition of Purdon's Digest, has given so much satisfaction to the Legal Profession and the Public. The Alphabetical Arrangement; the Marginal References; the Foot Notes of Judicial Decisions; the Analytical Contents; the Digested Syllabus of each Title; the References at the foot of the page to the Statutes from which each Section is taken; the ample Index, giving not only the Page, but also the Section; and the same regard to Accuracy in the Verification of all the References, and to Convenience of Size of Volume, will characterize this work. The price will be Five Dollars per Copy; as the Publishers have the conviction that the universal demand for its possession will reimburse them for their heavy outlay in its publication.

From the Hon. John K. Kane. Gentlemen,—I have examined with great satisfaction the Specimen pages which you sent me of the forthcoming "Purdon's Digest," by Mr. Brightly. Its scheme of Arrangement and Reference is excellent, and the execution such as must make it a Model Book of the class. I have occasion to wish every day that some one as assiduous and learned as Mr. Brightly would undertake the same office for the Statutory system of the United States. J. K. KANE.

III.

LINN'S ANALYTICAL INDEX.

An Analytical Index of Parallel Reference to the Cases adjudged in the several Courts of Pennsylvania; with an Appendix containing a Collection of Cases overruled, denied, doubted, or limited in their application. By Samuel Linn. 1 vol. 8vo. Price $5.00.

A

TREATISE

ON

MEDICAL JURISPRUDENCE.

BY

FRANCIS WHARTON,

AUTHOR OF "A TREATISE ON AMERICAN CRIMINAL LAW," "PRECEDENTS OF INDICTMENTS," "AMERICAN LAW OF HOMICIDE," ETC.

AND

MORETON STILLÉ, M. D.,

LECTURER ON THE PRINCIPLES AND PRACTICE OF MEDICINE IN THE PHILADELPHIA ASSOCIATION FOR MEDICAL INSTRUCTION.

PHILADELPHIA:
KAY & BROTHER, LAW BOOKSELLERS AND PUBLISHERS.
17 AND 19 SOUTH FIFTH STREET, EAST SIDE,
FIRST STORE ABOVE CHESTNUT.
1855.

ENTERED according to Act of Congress, in the year 1855, by KAY & BROTHER, in the Office of the Clerk of the District Court of the United States in and for the Eastern District of Pennsylvania.

RA1051
855W

PRINTED BY HENRY B. ASHMEAD,
GEORGE STREET ABOVE ELEVENTH.

PREFACE.

THE two points which were mainly before the authors of the following treatise when they entered upon its preparation, and the hope of reaching which formed their chief inducement in approaching a topic which has already been in other respects so ably and fully discussed elsewhere, were first, the incorporation in its pages of the results of late continental and particularly French and German research; and secondly, the bringing together stereoscopically—if the metaphor can be permitted—of the Legal and Medical points of vision, so that the information required by each profession might be collected and viewed at the same time and within the same compass. It was felt that in the usual range of medico-legal exposition, there was a great deal that, though interesting to the medical man, is unnecessary to the legal practitioner; and, on the other hand, it is equally clear that there are many points upon which the latter needs information, which the former, either from inadvertence or from what would be to him their extreme simplicity, may forbear to touch. The converse also is true, viz., that the legal writer who undertakes such a work, except in subordination to medical advice, may exhibit very satisfactorily the necessities of legal practice, but will fail to supply the information by which these necessities can be met.

These two points, viz., the absorption of recent medico-legal research in France and Germany, and the union of the medical and legal stand points, it was here hoped to reach, not so much by a concurrent authorship of each page, as by a general preliminary comparison of views and adjustment of material by the two writers by whom the task was undertaken, followed up by a division of the subject matter between them in subordination to the plan previously agreed upon. In pursuance of this scheme, the second, third, fourth, and fifth books,—viz., those on the Fœtus and New-born child, on Sexual Relations, on Identity, and on the Causes of Death, were assigned to Dr. Stillé, with the exception of those sections in the two former which concern the legal relations of gestation, abortion and rape; while to the present writer fell the pre-

paration of the first and sixth books, embracing Mental Unsoundness and the Legal Relations of Homicide, together with the general disquisition on Indicatory Evidence with which the latter book concludes.

Of the manner in which was performed at least a portion of the task whose history is now given, it may not be unsuitable for the writer who now survives to speak. It was to the preparation of this portion that the last year of Dr. Stillé's short but distinguished professional career was given. It was a year of patient and severe research, marked, to an extent of which the annals of science afford few parallels, by the most self-denying industry, as well as by a rigorous and almost fastidious conscientiousness in the pursuit, not only of truth, but of the most appropriate terms by which that truth could be expressed. And the labor was not one which derived any portion of its severity from the want of prior preparation. Dr. Stillé had not only enjoyed great opportunities for literary and professional culture, but what is rarer, these opportunities were faithfully improved. The liberalizing influences of European culture, as well as the simpler discipline of home instruction, passed not over him in vain. The schools of Europe received from him in the prime of his early manhood the same single and conscientious attention as the schools of Philadelphia in his youth. He found the pleasures of travel and the desultory influences of foreign habits of no more avail in drawing him from a laborious personal attendance on the hospitals—those great repositories of disease which, in the development of God's wonderful providence, are made the arsenals which supply the weapons by which the maladies that necessitate them are to be combated—than he found the more primitive habits and more limited associations of his native city. The great continental tongues, in their scientific as well as their popular relations, were mastered by him to a completeness of which, among persons of his age, we have rare examples. Few men, even among the most mature, have gone to the grave so richly fraught with the literature of a profession, which to him was a philosophy as well as an art. And few, at so early age, have gone to the grave with faculties under more complete moral discipline. To one of his most remarkable qualities,—that delicate and yet modest firmness of perception which, unwarped on the one side by pride in his own opinion, or on the other by undue deference to that of others, enabled him, after the most difficult and subtile research, not only to reach but to express the truth—no one has had better cause to testify than the present writer. The work which these lines now close was one which brought both of those who engaged in it into the most intimate and affectionate personal intercourse for many months; and the one who survives can now

scarcely look back upon the preparation of a single page without having additional cause to remember and record those high mental qualities and culture, whose value in the present case was only increased by the gentleness, the refinement and the fine sense of personal honor with which they were associated.

Dr. Moreton Stillé was born in Philadelphia, on October 27th, 1822, and after having gone through a preliminary course at the Edgehill Seminary, at Princeton, entered the Department of Arts of the University of Pennsylvania in 1838, and graduated on July 15th, 1841. He immediately began his professional studies in the office of his brother, Dr. Alfred Stillé, to whose training and instruction he became so greatly indebted; and in the spring of 1844 he received from the Medical School of the same University the degree of Doctor of Medicine, his thesis, on "Cyanosis," having obtained the rare compliment of having been called for by the Faculty for publication. In October, 1844, he embarked for Liverpool; from November 1844, to March 1845, was engaged in attendance upon the hospitals and schools in Dublin; and was employed in the same duties from March 1845, to September, in London; and from September 1845, to March 1846, in Paris. After travelling for some time, he visited Vienna, where he was occupied in study from October 1846, to April 1847; and finally returned to Philadelphia in the fall of 1847, when he entered at once into practice. In the summer of 1848 he became a candidate for and was elected to the post of resident physician at the Pennsylvania Hospital, where he continued until April 1849; and it is no slight evidence of the zeal with which he pursued his profession, and the generous and self-denying spirit by which he was actuated, that in the succeeding summer, upon the appearance of the cholera in a malignant type at the Blockley Hospital, he volunteered to attend at that institution, and remained there until he was himself attacked and prostrated by the epidemic. Perhaps, indeed, even in a profession whose history has been so marked by acts of zeal and of disinterestedness, when we take into consideration the fact that Dr. Stillé was impelled by no other motive than that of professional love and enterprise in the severe course of study and self-sacrifice in which he was engaged, there will be found few cases where these qualities have been so eminently exhibited as the present. Possessed of an ample fortune, he was one of those uncommon instances in which the most arduous and protracted courses of preliminary trial are gone through with under the calm and equal effect of a will which is impelled neither by necessity nor the desire of present applause, but by the faith in a distant future, in which the result will be none the less precious because it is the longer delayed.

But this future was one which to Dr. Stillé—and to the great loss of popular as well as of medical science—was only in part to arrive. Early in 1855, he received the appointment of Lecturer on the Practice of Medicine in the Philadelphia Association for Medical Instruction, and at the end of June closed the first portion of a course of lectures of which it is not too much to say that they were received with unmixed satisfaction by the class to whom they were addressed, and the colleagues with whom he was associated. In the first week of July he sent from his office the last of the manuscript of that portion of the following pages which fell under his charge, and almost immediately afterwards was stricken down by a disease which found him with strength impaired by the exhausting studies of the preceding winter. On August 20, 1855, he died at Saratoga, almost at the moment when the press was issuing the last sheets of a work which contains so much worthy of being erected as a monument in which his professional brethren will recognize the impress of his high intellectual gifts and culture. And now, when on this the final inscription is being recorded, it will not be considered out of place to add to it a single tribute to those eminent domestic virtues, which it is here hardly possible justly and at the same time delicately to express, and yet which gave to Moreton Stillé, when living, and now places on his monument when dead, a character which is the highest that human standards can afford,—that of a husband, son and father always true, tender and just.

F. W.

Philadelphia, *October* 1*st*, 1855.

Philadelphia, August 23, 1855.

At a meeting of the Students of the Philadelphia Association for Medical Instruction, held this morning, the following preamble and resolutions were unanimously adopted:—

Whereas it has pleased an all-wise Providence to remove suddenly from our midst a valuable instructor and friend, Dr. Moreton Stillé, Lecturer on the Principles and Practice of Medicine in the Association, whose able and conscientious discharge of his duties has filled us with esteem, and whose moral worth and valuable counsels have thrown around us the closest ties of affection. Therefore,

Resolved, That while we bow submissively to the Divine decree, we make this expression of heartfelt sorrow for his death, and respect for his memory; feeling, that not to ourselves alone, but that to the Medical Science at large, his loss is one of no ordinary character.

At a special meeting held by the Association this evening for the purpose of taking action in regard to the death of their late associate Moreton Stillé, M. D., who departed this life on the 20th inst., it was unanimously

Resolved, That in Dr. Moreton Stillé we have to lament a most zealous and efficient colleague; one who in all the relations of life was most exemplary and unexceptionable; as a friend, earnest and steadfast; as a man, upright and punctilious; as a gentleman, affable and courteous; as a physician, mature in judgment, skillful and humane, and self-sacrificing in his efforts to promote the interests of his profession.

TABLE OF CONTENTS.

BOOK I.

MENTAL UNSOUNDNESS.

CHAPTER I.

MENTAL UNSOUNDNESS IN ITS LEGAL RELATIONS.

I. WHAT DEGREE OF UNSOUNDNESS INVALIDATES A CONTRACT OR WILL, § 2.

As to Lunatics or Idiots, § 2.

General legal principle is, that contracts or wills of idiots or lunatics will not be enforced.

Cases where there is a sufficient degree of sanity to create responsibility for crime, and yet when a contract or will will be avoided.

1st. IMBECILITY GENERALLY, AND HEREIN OF FRAUD AND COMPULSION.

Fraud itself vitiates a contract, and in this the contracting party's intellect becomes an essential item for consideration, § 3.

Lord Portsmouth's case, § 3.

Acts and contracts of persons of weak understanding will be held void, when such persons have been imposed upon by cunning or undue influence, § 4.

In cases of wills this is peculiarly the case, § 5.

The testator must have had a *disposing* memory, § 5.

Over-importunity of controlling friends may destroy capacity, § 5.

The question in reference to contracts and wills does not depend upon mere subjective capacity, and hence no positive definition can be given, § 6.

Idiocy, to make it a positive incapacity, must be shown to have been accompanied with business disability, § 7.

The question of capacity will be greatly affected by the reasonableness or unreasonableness of the act attempted to be set aside, § 8.

The inquiry in many cases is, whether the testator or grantor had capacity or information enough to comprehend and disregard any attempt at fraud or coercion, § 9.

Difficulties in such cases from conflict of medical opinion, § 9.

A distinction is taken between the cases where the court is asked to *annul* an *executed* contract, and where it is asked to execute an *un*executed one, § 11.

Weakness of intellect, from extreme old age, works a disability, § 12.

But great caution should be exercised in this respect; the object being to *protect* old age, not to render it still more defenceless, § 12.

How far the deaf and dumb are thereby incompetent, § 13.

2d. PARTIAL INSANITY, § 14.

Rule in this country is, that unless the contested act is the product of an insane delusion, it is not vitiated by it, § 14.

The present English rule, however, seems to be that the existence of an insane delusion destroys testamentary capacity altogether, § 15.

Opinion of Lord Brougham on this point, § 17.
Objections to this view, § 18.
Compatibility of hallucinations with sound disposing memory, § 19.
Instances of existence of hallucinations in persons otherwise sane, § 21.
3d. Lucid Intervals.
When *habitual* insanity is shown, the presumption is, that the act was committed in an insane period, § 33.
The character of the act goes a great way in determining whether it was committed in a lucid interval, § 35.
4th. Intoxication.
When actually existing, renders a party civilly incompetent.
A party, however, cannot use his drunkenness as a means of imposition, § 36.
Difference in this respect between executed and unexecuted contracts, § 37.
In actions for torts, drunkenness is no defence on the merits.
Drunkenness avoids a will when acted on by fraud or imposition, § 38.

II. WHAT IS NECESSARY TO BE PROVED, IN ORDER TO DEPRIVE A PARTY OF THE MANAGEMENT OF HIS ESTATE, § 40.
When a party is incapable, the practice is to appoint a committee, who take the alleged lunatic's place, § 41.
In what way the question of lunacy under such circumstances is tried, § 42.
General and not *partial* incompetency must be shown, § 42.
The test is, Is the respondent capable of managing his own estate? § 42.
What in such cases is required of medical witnesses, § 43.
The same process lies in a case of habitual drunkenness, § 44.
The test here is, Is there a fixed habit of drunkenness? § 44.

III. WHAT DEGREE OF UNSOUNDNESS AVOIDS RESPONSIBILITY FOR CRIME, § 45.
The difficulties in this respect have arisen from mistaken *dicta* given in particular cases for general and absolute rules.
Ill consequences arising from looseness of citation, § 45, *n.*
The true doctrine is that medical science is a part of the common law of the land, and is to be treated as such, § 45, *n.*
1st. Cases where the defendant is incapable of distinguishing right from wrong in reference to the particular act, § 46.
Under this head fall cases of idiocy and amentia, § 46.
2d. Cases where the defendant is acting under an insane delusion as to circumstances, which, if true, would relieve the act from responsibility, or where his reasoning powers are so depraved as to make the commission of the particular act the natural consequence of the delusion.
An act committed under a bona fide belief of its necessity in self-defence, will be regarded as if there really was such necessity, § 47.
And the gauge here is the *defendant's* capacity, § 47.
An honest insane delusion is to be viewed in the same light, § 48.
But the delusion must have been the *cause* of the crime, in order to excuse it, and not *collateral*, § 49.
3d. Cases where the defendant is impelled by a morbid and uncontrollable impulse to commit the particular act, § 53.
The doctrine of homicidal mania has been recognized by the courts of this country, § 53.
Chief Justice Shaw, § 53.
Chief Justice Gibson, § 54.
Chief Justice Lewis, § 55.
Chief Justice Hornblower, *contra*, § 57.
The right and wrong test is impracticable as an absolute rule, § 60, 61.

IV. HOW FAR INTOXICATION AFFECTS RESPONSIBILITY FOR CRIME, § 62.
1st. Insanity produced by delirium tremens affects responsibility in the same way as insanity produced by any other cause, § 62.
2d. Insanity immediately produced by intoxication does not destroy responsibility where the patient, when sane and responsible, made himself voluntarily intoxicated, § 66.
3d. While intoxication is, per se, no defence to the fact of guilt, yet when the question of intent or premeditation is concerned, it is material for the purpose of determining the precise degree, § 70.

CHAPTER II.

MENTAL UNSOUNDNESS CONSIDERED PSYCHOLOGICALLY.

Classification of Dr. Ray, § 74.
" " Flemming, § 75.
" " Ellinger, § 76.
" " Present Treatise, § 77.

I. GENERAL THEORIES OF MENTAL UNSOUNDNESS, § 78.
1st. PSYCHOLOGICAL THEORY, § 99.
2d. SOMATIC THEORY, § 80.
3d. INTERMEDIATE THEORY, § 81.
Difficulties attending each of the first two, § 82.
Questions as to moral responsibility of lunatics, § 83.
Views of President Edwards, § 84.
of Dr. Barlow, § 85.

II. HOW MENTAL UNSOUNDNESS IS TO BE DETECTED, § 86.
1st. BY WHOM, § 86.
Medical expert necessary for this purpose, § 86.
Great skill and experience needed, § 87.
Dangers of an inexperienced examiner being baffled, § 88.
Responsibility in law of medical examiner, § 89.
Importance of examiner adapting his manner to patient's condition, § 90.
Important that legal and medical officers should, in such cases, act in concert, § 92.
Manner in which medical witness is to be examined on trial, § 94.
2d. AT WHAT TIME, § 95.
(1.) Time of act, § 95.
(2.) At trial, § 97.
(3.) At and after sentence, § 98.
3d. BY WHAT TESTS, § 100.
(1.) Physiognomy, § 100.
Relations of the different features, § 101.
(2.) Bodily health and temperament, § 102.
State of bowels, § 102.
Physical disorganization, § 103.
Insensibility to pain and cold, § 104.
Irregularity in action of senses, § 105.
Change in disposition, § 106.
(3.) Hereditary tendency, § 107.
Importance of this test, § 108.
Admissible in point of law, § 108.
Opinion of Gibson, C. J., § 108.
(4.) Conversation and deportment, § 110.
Necessity of great circumspection in this respect, § 110.
Cases illustrating this, § 111.
(5.) Nature of act, § 112.
(*a*) Insensibility, § 112.
(*b*) Its incongruity with antecedents, § 113.
(*c*) Its motivelessness, § 114.
(*d*) Its inconsequentiality, § 115.

III. FROM WHAT MENTAL UNSOUNDNESS IS TO BE DISTINGUISHED.
1st. EMOTIONS, § 116.
(1.) Remorse, § 116.
(2.) Anger, § 118.
(3.) Shame, § 122.
(4.) Grief, § 124.
(5.) Homesickness, (*Nostalgia*,) § 125.
2d. SIMULATED INSANITY, § 127.
Necessity for close examination, § 127.
Tests to be applied, § 128.

Delirium most usually counterfeited, but the most difficult, § 129.
Physiognomy and health to be examined, § 130.
Case to be compared with other recorded cases, § 131.
Simulation not to be inferred from absence of a trace of insanity at the examination, § 132.
Causes why such signs may be suppressed, § 132.
Pretended insanity frequently turns into real, § 133.
How examination is to be conducted, § 134.
Patient to be brought into a succession of relations, § 135–8.
To be furnished with pen, ink and paper, and other methods of examination, § 135–8.
Insania Occulta, features of, § 139.
Necessity of guarding against, § 139.

IV. MENTAL UNSOUNDNESS, AS CONNECTED WITH DERANGEMENT OF THE SENSES, AND DISEASE, § 140.
1st. DEAF AND DUMB, § 140.
2d. BLIND, § 141.
3d. EPILEPTICS, § 142.
Peculiar tendency of epilepsy to insanity, § 142.
Nature of epilepsy, § 143.
Distinction between the several classes, § 144.
Different stages of the disease, § 145.
Actions committed during attack, not valid, § 146.
Rule as to intermediate stages, § 147.
Tests laid down by Clarus, § 148.

V. MENTAL UNSOUNDNESS, AS CONNECTED WITH SLEEP, § 149.
General effect of sleep on the senses, § 149.
1st. SOMNOLENTIA OR SLEEP-DRUNKENNESS, § 151.
2d. SOMNAMBULISM, § 159.

VI. MENTAL UNSOUNDNESS, AS AFFECTING THE TEMPERAMENT, § 163.
1st. DEPRESSION, § 163.
2d. HYPOCHONDRIA, § 166.
3d. HYSTERIA, § 169.
4th. MELANCHOLY, § 170.

VII. MENTAL UNSOUNDNESS, AS AFFECTING THE MORAL SYSTEM, § 174.
1st. GENERAL MORAL MANIA, § 174.
Effect of, § 174.
General symptoms, § 175.
Illustrations, § 176.
2d. MONOMANIA, § 177.
Doctrine of *Mania sine Delirio*, § 178.
Difference of opinion as to its existence, § 179.
Tests to be applied to it, § 180.
Tendency in this country to recognize its existence, § 183.
(1.) Homicidal mania, § 186.
Cases where Esquirol supposes it to exist, § 186.
Precautions necessary in its recognition, § 170.
Tests suggested by Dr. Ray, § 190.
" " Dr. Taylor, § 190.
Dr. Mayo's objections to the entire theory, § 191.
(2.) Kleptomania—(morbid propensity to steal,) § 192.
(3.) Pyromania—(morbid incendiary propensity,) § 195.
How far recognized in England, § 197.
Necessary tests, § 198.
(4.) Aidomania—(morbid sexual propensity,) § 199.
(5.) Pseudonomania—(morbid lying propensity,) § 202.
(6.) Oikeiomania—(morbid state of domestic affections,) § 204.
(7.) Suicidal mania—(morbid propensity to self-destruction,) § 206.
Tendency to this in cases of melancholy, &c., § 207.
Legal consequences in actions against life insurers, § 208.
(8.) Fanatico-mania, § 209.
(*a*) Supernatural or pseudo-supernatural demoniacal possession, § 210.

Testimony of ancient writers to this, § 210.
" of the New Testament, § 211.
(*b*) Mental alienation on religious subjects, § 214.
Tendency of infidelity to insanity, § 214.
Conservative influence of Christianity, § 215.
Insane delusion the result of a *departure* from Christianity, § 216.
Illustrations of this, § 217.
Legal bearings of religious insanity, § 219.
(9.) Politico-mania, § 220.
How far an epidemic, § 221.
Causes likely to generate it, 221.

VIII. MENTAL UNSOUNDNESS, AS CONNECTED WITH INTELLECTUAL PROSTRATION, § 222.
1st. IDIOCY, § 222.
Nature of, § 222.
Physical incidents of, § 223–5–6.
Cretinism, § 228.
2d. IMBECILITY, § 229.
With concomitant insanity, § 230.
Original, § 230.
Supervening, § 230.
Specious, § 230.
With confusion of mind, § 230.
Without insanity, § 231.
Distinction between innocent and malignant imbecility, § 232.
3d. DEMENTIA, § 234.

IX. MENTAL UNSOUNDNESS ACCOMPANIED WITH DELIRIUM, § 235.
1st. GENERAL DELIRIUM, § 235.
(*a*) Depressed Delirium, § 236.
(*b*) Maniacal delirium, § 237.
(*c*) Delirium tremens, § 238.
(*d*) Puerperal mania, § 239.
2d. PARTIAL DELIRIUM, § 240.

X. MENTAL UNSOUNDNESS, AS CONNECTED WITH DELUSIONS AND HALLUCINATIONS, § 241.
1st. GENERAL, § 241.
Marked by general derangement of the perceptive faculties, § 241.
Various phases it assumes, § 242.
Tests of Ellinger, § 243.
Effect of general delusion, § 244.
2d. PARTIAL, 245.
Delusions and hallucinations, § 245.
When there is no other sign of mental unsoundness, § 245.
When mental unsoundness has made some progress, § 247.
In cases of drunkenness, &c., § 248.
In cases of developed insanity, § 249.
Causes of delusions, § 250.
Abercrombie's classification, § 252.
Hallucination in regard to a change into, or a possession by, wild animals, § 253.

XI. MENTAL UNSOUNDNESS, AS CONNECTED WITH LUCID INTERVALS. § 254.

XII. TREATMENT OF INSANE CRIMINALS, § 459.

Necessity of separate places of confinement in which insane criminals can be placed, § 259.
(1.) FOR RETRIBUTION, § 260.
In most, if not all, cases of crime resulting from insane impulse, there is original responsibility, § 260.
Insanity, in most cases, the result of moral excess, § 261–9.
Qualified responsibility of lunatics, § 261–9.
(2.) FOR PREVENTION, § 270.
Mischief to society if monomaniacs are suffered to go at large, § 270.
Necessity of restraint, § 271.

(3.) For Example, § 272.
Contagiousness of unchecked crime, § 272.
(4.) For Reform, § 273.
Impossibility of patient recovering when permitted to run at large, § 273.
Injury to the community from the want of secondary punishments, the result being acquittals of dangerous parties, from an unwillingness to see the severer penalties inflicted, § 274.
Ordinary penitentiaries inadequate, § 275.
And so of lunatic asylums, § 276.

BOOK II.

QUESTIONS RELATIVE TO THE FŒTUS AND NEW-BORN CHILD.

CHAPTER I.

Signs of Pregnancy, § 277.
Suppression of the menses, § 278.
Enlargement of the abdomen, &c., § 279.
Changes in the mouth and neck of the womb, § 281.
Quickening, § 282.
Sympathetic phenomena, § 284.
Pulsation of the fœtal heart, § 289.
Kiestein in the urine, § 291.

CHAPTER II.

Delivery, § 292.
Signs of recent delivery, § 292.
Signs of delivery in the dead, § 296.
Corpus luteum, § 297.
Feigned delivery, § 301.

CHAPTER III.

Duration of Pregnancy, § 302.
Presumption that the child born in wedlock is legitimate, § 302.
Protracted gestation, § 303.
Legal decisions, § 322.
Early viability, § 323.

CHAPTER IV.

Superfœtation, § 328.

CHAPTER V.

Abortion or Fœticide, § 335,
Natural causes, § 335.
Savin and oil of tansy, § 337.
Venesection, § 341.
Mechanical means, § 341.
Signs of abortion, § 346.

CHAPTER VI.

Infanticide, § 356.
The tests of live birth, § 369.
Causes of death in new-born child, § 379.
Causes of death before or during birth, § 380.
Compression of and by the umbilical cord, § 380.

Protracted delivery, § 384.
Debility, § 385.
Hemorrhage from the umbilical cord, § 386.
Length of the umbilical cord, § 388.
Fractures of the skull, § 389,
Causes of death after birth, § 393.
Exposure, § 394.
Suffocation, 396.
Strangling, § 398.
Drowning, § 399.
Wounds, § 400.
Dislocation of the neck, § 401.
Unconscious delivery, § 402.
Poisoning, § 404.

BOOK III.

QUESTIONS ARISING OUT OF THE DIFFERENCE OF SEX.

CHAPTER I.

Doubtful Sex, § 406.
Male hermaphrodites, § 408.
Female " § 409.
Real " § 410.
Absence of sexual organs, § 412.

CHAPTER II.

Sexual Disability, § 415.
Sterility, § 415.
Impotence, § 419.
Congenital absence of the testes, 419.
Castration, § 420.
Diseases of the testes, § 421.
Defect in size and malformation of the penis, § 422.
Obstructions from large hydroceles or hernia, § 423.

CHAPTER III.

Rape, § 426.
Rape upon children, § 427.
" on adult females, § 438.
" on persons under the influence of ether or chloroform, § 443.
Condition of the hymen, § 466.
It is not always destroyed by the first connection, § 447.
It may be lost from other causes than coition, § 448.
Seminal stains, § 450.
Feigned rape, § 454.
Pœderasty—(Sodomy), § 456.
Legal relations of rape, § 457.
Submission of Prosecutrix.
From artificial stupefaction, § 458.
From ignorance of the nature of the act, § 460.
From mistake of person, § 464.
From fear, § 465.
Prior want of character of prosecutrix, § 466.
Susequent suppression of the fact by the prosecutrix, § 468.
Extent to which coition was carried, § 469.
Want of age of defendant, § 472.
Want of sexual capacity of defendant, § 472.

BOOK IV.

QUESTIONS RELATIVE TO IDENTITY.

CHAPTER I.

IDENTIFICATION OF THE LIVING OR DEAD, § 473.
Age, § 474.
Teeth, § 477.
Sex, § 478.
Fractures, deformities, and peculiarities, § 479.
Cicatrices, § 481.
Hair, § 483.
Length of time which has elapsed since death, § 484.
Putrefaction in the fœtus, § 491.
Influence of lime on the putrefactive process, § 492.

BOOK V.

QUESTIONS RELATIVE TO THE CAUSES OF DEATH.

PART I.

POISONING.

GENERAL CONSIDERATIONS, § 493.
Mode of action of poisons, § 494.
Evidence of poisoning, § 498.
Differential diagnosis of poisoning, § 505.
Classification of poisons, § 518.

IRRITANT POISONS.—ACIDS.

CHAPTER I.

SULPHURIC ACID—(oil of vitriol,) § 519.

CHAPTER II.

NITRIC ACID—(aqua fortis,) § 530.
HYDROCHLORIC ACID—(spirit of salt,) § 536.

CHAPTER III.

OXALIC ACID, § 540.
TARTARIC ACID, § 548.
ACETIC ACID, § 549.

IRRITANT POISONS.—ALKALINE.

CHAPTER IV.

POTASH, SODA, &c., § 551.
NITRATE OF POTASSA, § 551.
BARYTA, § 557.

IRRITANT POISONS.—METALLOIDAL.

CHAPTER V.

PHOSPHORUS, § 561.

CHAPTER VI.

BROMINE, § 566.
IODINE, § 567.
CHLORINE, § 570.

IRRITANT POISONS.—METALLIC.

CHAPTER VII.

METALLIC ARSENIC, § 571.
ARSENIOUS ACID—(arsenic,) § 572.
SUBOXID OF ARSENIC—(fly powder,) § 612.
SULPHURETS OF ARSENIC, § 615.
ARSENIURETTED HYDROGEN, § 616.
ARSENITE OF POTASH, § 617.
ARSENITE OF COPPER—(Scheele's green,) § 618.

CHAPTER VIII.

CORROSIVE SUBLIMATE—(bi-chloride of mercury,) § 620.
NITRATE OF MERCURY, § 630.

CHAPTER IX.

DELETERIOUS EFFECT OF MERCURIAL PREPARATIONS, § 632.

CHAPTER X.

SALTS OF LEAD, § 640.

CHAPTER XI.

SALTS OF COPPER, § 648.

CHAPTER XII.

TARTRATE OF ANTIMONY AND POTASSA—(tartar emetic,) § 653.

CHAPTER XIII.

SALTS OF ZINC, § 659.
TIN, § 663.
SILVER, § 664.
IRON, § 665.

IRRITANT POISONS.—VEGETABLE.

CHAPTER XIV.

COLCHICUM AUTUMNALE—(colchicum, meadow saffron,) § 669.
DRASTIC PURGATIVES, § 671.
CASTOR SEEDS OR BEANS, § 672.
FUNGI—(mushrooms,) § 673.

IRRITANT POISONS.—ANIMAL.

CHAPTER XV.

CANTHARIDES, § 677.
SAUSAGES, § 681.
POISONOUS CHEESE, § 686.
POISONOUS FISH, § 687.
UNSOUND MEAT, § 689.
MECHANICAL IRRITANTS, § 690.

NARCOTIC POISONS.

CHAPTER I.

Opium and its preparations, § 692.

CHAPTER II.

Hydrocyanic or prussic acid, § 705.

CHAPTER III.

Chloroform and ether, § 728.

CHAPTER IV.

Alcohol, § 734.
Camphor, § 738.
Hyoscyamus niger—(henbane,) § 740.

NARCOTICO-ACRID POISONS.

CHAPTER I.

Datura stramonium—(Jamestown weed,) § 745.
Nicotiana tabacum—(tobacco,) § 747.
Conium maculatum—(common or spotted hemlock,) § 753.

CHAPTER II.

Nux vomica—(Strychnia,) § 756.
Aconite—(monkshood, wolfsbane,) § 761.
Lobelia inflata,—(Indian tobacco,) § 765.

CHAPTER III.

Cedar oil, § 766.
Taxus baccata—(yew,) § 770.
Oil of tansy, § 771.
Cocculus indicus, § 773.

CHAPTER IV.

Atropa belladonna—(deadly nightshade,) § 776.
Digitalis purpurea—(foxglove,) § 778.
Quinia, § 780.
Mezereon, § 781.

POISONOUS GASES.

CHAPTER I.

Carbonic acid gas, § 782.

PART II.

OTHER FORMS OF VIOLENT DEATH.

CHAPTER I.

WOUNDS.

General Considerations, § 792.
Examination of the body, § 796.
Wounds made before or after death, § 798.
Ecchymosis or sugillation, § 802.
Ecchymosis from natural causes, § 805.

CHAPTER II.

Classification of wounds, § 807.
Incised and punctured wounds, § 808.
Lacerated and contused wounds, § 809.
Gunshot wounds, § 811.
Wounds from small shot, § 814.
Wounds from wadding and gunpowder, § 815.

CHAPTER III.

Homicidal, suicidal, and accidental wounds, § 816.
Situation of the wound, § 816.

CHAPTER IV.

Blood stains, § 820.
Chemical examination of suspected stains, § 821.
Microscopical evidence, § 831.

CHAPTER V.

Cause of death in wounds, § 833.
Hemorrhage, § 834.
Age and disease, § 834.
Shock, § 835.
Mechanical injury, § 836.
Wounds inflicted on pregnant women, § 838.
Erysipelas, § 841.
Hospital gangrene, § 842.
Nervous delirium, § 843.
Secondary hemorrhage, § 843.
Purulent resorption, § 843.

CHAPTER VI.

Wounds of various parts of the body, § 846.
Concussion of the brain, § 847.
Fractures of the skull, § 848.
Wounds of the substance of the brain, § 849.
Wounds of the face, § 852.
Wounds of the neck, § 853.
Wounds and injuries of the spine, § 854.
Wounds of the chest, § 855,
Wounds of the diaphragm, § 862.
Wounds and ruptures of the bladder, § 863.
Wounds of the genitals, § 865.

CHAPTER VII.

Burns and scalds, § 866.
Appearance of burns made upon the dead body, § 867.
Wounds upon the burned, § 870.
Effects on the system, § 872.
Post-mortem appearances, § 873.

CHAPTER VIII.

Spontaneous combustion, § 874.

CHAPTER IX.

Heat, § 880.
Sun-stroke, § 881.
Post-mortem appearances, § 882.
Lightning, § 883.
Post-mortem appearances, § 884.

CHAPTER X.

Cold, § 885.
Starvation, § 888.
Symptoms, § 890.
Post-mortem appearances, § 891.

CHAPTER XI.

Suffocation, § 893.
Post-mortem appearances, § 894.
Accidental suffocation, § 895.
Suicidal suffocation, § 896.
Homicidal suffocation, § 897.

CHAPTER XII.

Strangulation, § 899.
Marks of violence upon the neck, § 900.
Suicidal strangulation, § 903.
Homicidal strangulation, § 905.

CHAPTER XIII.

Hanging, § 907.
Marks of the cord, § 910.
Was the hanging suicidal or homicidal? § 915.
Position of the body, § 916.
Marks of violence, § 921.

CHAPTER XIV.

Drowning, § 927.
Paleness and coldness of the skin and cutis anserina, § 931.
Abrasion of the hands, mud and sand under the nails, and substances grasped in the hands, § 932.
Water in the lungs, § 933.
Froth in the lungs, § 934.
Water in the stomach, § 935.
Marks of violence, § 938.

CHAPTER XV.

Medico-legal examinations, § 943.
1st. Locality, § 944.
2d. Identity, § 945.
3d. Indications of violence or unnatural death, § 946.
4th. Manner of conducting the autopsy, § 947.
5th. Natural aspect of the internal organs, § 953.

BOOK VI.

LEGAL RELATIONS OF HOMICIDE, FŒTICIDE, AND INFANTICIDE.

A. ELEMENTARY DEFINITIONS, § 964.
I. Murder, § 966.
General definition of, § 966–7.
Malice an essential ingredient, § 968.
Malice either express or implied, § 968.
When malice to be presumed, § 968.
1st. Murder from general malice, § 968.
When homicide is committed from general malevolence it is murder, § 968.

But when from wantonness, but manslaughter, § 968.
2d. Murder from individual malice, § 969.
(1.) In reference to the party killed, § 970.
How such malice to be proved, § 970.
In what it consists by the civil and common law, § 970.
(*a*) Intent to kill, § 971.
In this case the offence is always murder, § 971.
How such intent may be proved, § 972.
Declarations and acts of defendant admissible for this purpose, § 972, 1133, 1150.
(*b*) Intent to do bodily harm, § 973.
In this country such homicide generally is murder in the second degree, § 973.
The grade, therefore, depends on the intent, § 973.
(2.) In reference to the party killed, when the blow falls on the deceased by mistake, § 974.
When in an attempt to produce abortion, the mother is unintentionally killed, § 974.
3d. From collateral malice, § 975.
This includes those cases where the malice is directed to an object other than that of human life or limb, § 975.
II. Manslaughter, § 976.
General definition of, § 976.
Involuntary manslaughter, § 977.
III. Excusable Homicide, § 978.
1st. Where a man doing a lawful act without any intention of hurt, by accident kills another, § 978.
2d. Where a man kills another in self-defence, § 978.
The distinction between excusable and justifiable homicide, is in this country merely theoretrical, § 979.
IV. Justifiable Homicide, § 980.
1st. When committed by unavoidable necessity, § 980.
2d. When committed in advancement of public justice, § 980.
V. Murder in the second degree, § 981.
Object of distinction is the restriction of capital punishment to those cases only in which there is an intent to take life, § 981–2.
The distinguishing feature between the two degrees is a specific intent to take life, § 982–3–4–5–6.
Homicide by poisoning not necessarily murder in the first degree, § 987.
Homicide collateral to rape, robbery, &c., is necessarily murder in the first degree, § 985.
Homicide of A., when the intent was to kill B., is murder in the second degree, § 986.
Specific intent to take life to be inferred from circumstantial evidence, and from declarations, &c., § 987.

B. CORPUS DELICTI.
I. That a Death took place, § 988.
Universal rule of civil and common law, that the fact of death should be proved, § 988.
Identification of dead body—see *ante*, § 473, &c.
Cases of conviction of innocent parties, from neglect of this precaution, § 988–990.
Exceptions to the rule, § 991.
1st. Possession of body is unnecessary when decease is proved by eye-witnesses, § 991.
2d. And where it is proved that the body was destroyed by chemical or mechanical agents, § 992.
Webster's case reported, § 993–1068.
II. That the Death was from violence.
It must appear that it was not natural, § 833–46.
How autopsy to be conducted, *ante*, § 947–62, p. 658, *n*.
1st. Poisoning.
(See *ante*, 493–791.)
General summary of the cases, § 1067–8–9.
Chemical proof of the existence of poison in the stomach, in sufficient

quantities to have caused death, though important, is not essential to conviction, § 1068.
Importance of chemical examination of stomach and its contents, § 1068. (See *ante*, as to nature and character of post mortem, § 501, 503, 514, 515, 516, 522, 532, 537, 544, 563, 582, 622, 646, 649, 654, 669, 684, 700, 716, 731, 746, 748, 768, 772; p. 628, n.
When, however, this is prevented by the accused, he cannot set up the want of it, § 1069.
On the other hand, neglect by the prosecution to procure it, if in its power, is a powerful presumption in favor of the accused, § 1069.
Summary of reported cases in the common law courts:
Donellan's case, 1781, § 1071.
Donnall's case, 1817, § 1073.
Anonymous, 1835, § 1074.
Chapman's case, 1831, § 1076.
Tawell's case, 1845, § 1077.
Graham's case, 1845, § 1079.
Bocarmé's case, 1851, § 1081.
Hartung's case, 1854, § 1127.
2d. Wounds or blows, § 1132.
Legal definitions of wounds, § 1132.
Medical definition—see *ante*, 792.
3d. Hanging, § 907–928.

C. INTENT AND DESIGN, FROM WHAT TO BE INFERRED, § 972, 1133, 1150.
I. Prior attempts, preparations and threats, § 1133.
Evidence of such always admissible, § 1133–50.
And so as to obtaining instruments of mischief, and possession of them, § 1134.
Cases illustrative of this, § 1135–6.
Threats to be received for the same purpose, § 1137.
Cases illustrative of this, § 1137.
II. Marks of violence, § 1138.
Presumptions to be drawn from such, § 1139.
Presumptions to be drawn from nature of gun-shot wounds, § 811.
It must appear that the alleged violence was the cause of death, either in part or in whole, § 1140.
Distinction between wounds made before and after death, § 798, 804, see p. 658–9, n.
Blood stains, § 820–831.
Suicidal or homicidal, § 810, 816.
III. Instrument of death, § 1141.
The use of a lethal instrument leads to the presumption that death was intended, § 1141.
Suicide may be inferred from the position of the weapon, § 1142.
Other presumptions to be drawn from instrument of death, § 819, 1143–5.
IV. Liability of deceased to attack, § 1146.
1st. Possession of money, § 1147.
Avarice and ambition, § 1147.
2d. Old Grudge, § 972, 1133, 1150.
3d. Jealousy, § 1151.
V. Position of deceased, § 946, 1152.
Presumption to be drawn from this as to suicide, § 819, 1152.
In cases of hanging, § 907, 926.
In cases of drowning, § 938.
In cases of poisoning, § 1152.
VI. Materials appropriate to be converted into instruments of crime, § 1154.
Importance of indicatory evidence in this respect, § 1154.
Purchase of poison and powder; preparation of other materials, § 1154.
VII. Detached circumjacent bodies, § 1155.
Dress of deceased. Footprints. Presumptions to be drawn from the latter, § 1157–8–9, see § 1144.
Detached articles of clothing, § 1158.
Wadding of gun, &c., § 1156.
Cases illustrative of the importance of this species of evidence, § 1162, 1169.
VIII. Possession of fruits of offence, § 1170.
Illustration of the general value of indicatory evidence, § 1171–1212.

D. INFANTICIDE AND FŒTICIDE, § 1213. (See for the Medical view of this subject, *ante*, § 335, 355.)

I. How far fœticide is effected by the degree to which gestation has proceeded, § 1213.

At common law destruction of an unborn infant is a misdemeanor. Late differences of opinion as to whether there must be a quickening. Better opinion is, that all attempts of this character are misdemeanors, no matter what be the stage of gestation, § 1213–14, 282.

II. How far the offence is affected by the fact of birth, § 1215.

When a child dies *after* birth, from a wound inflicted before, the offence is murder; when the death takes place *before* birth, it is at common law but a misdemeanor, § 1216–17.

III. Tests of viability recognized by the Courts, § 1217.

Viability medically considered, § 356, 378.

Time of gestation—see *ante*, § 310, 327.

Difference of opinion as to actual degree of birth which is requisite to constitute the legal offence, § 1218.

General propositions of law bearing on this topic:

(1.) Where there is a malicious wound inflicted on an infant, with intent to produce death, and death ensues *after birth*, the offence is murder, § 1218.

(2.) Where there is a malicious exposure of an infant, with intent to produce death, and death ensues after birth, it is murder, § 1218.

(3.) Where there is a wanton exposure of an infant, without the intent to procure death, but with the expectation of shifting the support of the infant upon some third person, and death ensues after birth, it is manslaughter, § 1218.

(4.) Where there is an exposure resulting from necessity, ignorance, or insanity, and death ensues after birth, the offence is excusable homicide, in which, in accordance with American practice, the defendant is entitled to an acquittal, § 1218–20–21.

IV. Corpus delicti in Infanticide, § 1221.

Difficulties arising in this respect from

(1.) The uncertainty of the fact of pregnancy, § 1221. See *ante*, § 310, 329.

(2.) The uncertainty of the time of death, § 1221.

(3.) Uncertainty of presumptions, § 1221.

(4.) Casualities of gestation and delivery, § 1221. See this subject medically considered, *ante*, § 379, 398, p. 659–660.

TABLE OF CASES.

	SECTION.
Abbey *v.* Lill, (5 Bing, 299)	94
Abner Baker's case reviewed, 2 Am. Jour. of Insan., 26	187
Andress *v.* Weller, (2 Green, C. R. 604)	39
Ayrey *v.* Hill, (2 Adams, 206)	39
Baker *v.* Lewis, (4 Rawle, 356)	5
Baldwin *v.* State, (1 Missouri, 223)	94
Bannatyne *v.* Bannatyne, (15 Jur. 864; 14 English R. 581)	2,6,8,34
Barry *v.* Butlin, (1 Curtis, 637)	5
Beals *v.* Lee, (10 Barr, 56)	2, 11
Beavan *v.* McDowell, (24 English R. 486)	11
Beckworth *v.* Sydebotham, (1 Camp. 116)	94
Bennett *v.* State, (Mart. & Yerg. 133)	64
Blackford *v.* Christian, (1 Knapp's Rep. 73	4
Black *v.* Ellis, (3 Hill, S. C. 68)	39
Blanchard *v.* Nestle, (3 Denio, 37)	5
Bocarmé's Case, (MSS.)	1081
Bonsall *v.* Chancellor, (5 Wharton, R. 37)	11
Borradale *v.* Hunter, (5 Man. & Gr. 639)	208
Bowler *v.* Bingham, (2 Munf. 442)	302
Bowler's case, (67 Hans. Par. Deb. 480)	46
Boyd *v.* Eby, (8 W. 70)	14
Breasted *v.* Farmers' Loan Co., (3 Am. Law Reg. 358)	208
Brown *v.* Mollison, (3 Wh. 129)	5
Brydges *v.* King, (1 Hag. Ec. R. 256)	5
Buckminster *v.* Perry, (4 Mass. 593)	94
Burrow's case, (1 Lewin, 238)	46, 68
Campo *v.* State, (3 Kelly, 417)	466
Case of Mary Norket and others, (14 Ho. St. Tr. 1324)	1160
Ceaver *v.* Phelps, (11 Pick. 304)	11
Chase *v.* Lincoln, (3 Mass. 27)	94
Clarke *v.* Sawyer, (3 Sanf. Ch. R. 351)	5
——— *v.* State, (12 Ohio, 483)	94
Cleft *v.* Schwabt, (3 Man. & Gr. 437)	208
Colver *v.* Haslam, (7 Barbour, 374)	94
Com. *v.* Bangs, (9 Mass. 387)	1214
—— *v.* Beale, Phila., 1854	471
Com. *v.* Bob, (4 Dal. 125)	976
—— *v.* Carey, (2 Peck, 47)	94
—— *v.* Chapman, (Pamp. 1831)	1076
—— *v.* Chauncey, (2 Ashmead, 227)	974
—— *v.* Clarey, (2 Ired. 78)	94
—— *v.* Demain, (6 P. L. J. 29)	1214
—— *v.* Farkin, (3 P. L. J. 482)	46
—— *v.* Fritz, (8 P. L. J. 43)	305
—— *v.* Furbush, (9 Am. Jour. of Insan. 151)	187
—— *v.* McCarty, (4 P. L. J. 140)	305, 322
—— *v.* McPike, (3 Cush. 181)	976
—— *v.* Mitchell, (1 Va. Cas. 716)	976
—— *v.* Mosler, (4 Barr, 267)	46
—— *v.* ———, Mss., Phila., 1845	94
—— *v.* Parker, (9 Metc. 263)	1214
—— *v.* Rogers, (7 Metc. 500)	46, 48, 94
—— *v.* Sheppard, (6 Binn., 283)	302
—— *v.* Stricker, (1 Br. App. xlvii.)	302
—— *v.* Thomas, (1 Va. Cases, 307)	471
—— *v.* Wentz, (1 Art. 269)	302
—— *v.* Wood, Mss., Phila., 1836	94
Combe's case, (Moore, R. 759)	5
Cornwall *v.* State, (Mar. Yer. 142)	64, 69
Cottril *v.* Mason, (3 Fairf. 222)	45, 94
Couch *v.* Couch, (7 Alab. 519)	8
Davis *v.* Mason, (4 Peck, 156)	94
Den *v.* Clark, (1 Adams, 279)	15
Denn *v.* Johnson, (2 South, 454)	5
Denton *v.* Franklin, (9 B. Monr. 28)	5
De Witt *v.* Barley, (13 Barbour, 550)	94
Dietrick *v.* Dietrick, (5 S. C. R. 207)	5
Dodge *v.* Meech, (1 Hag. Ev. R. 620)	5
Donellan's case, (MSS., 1817)	1071
Dunick *v.* Beichenback, (10 S. & R. 84)	5
Fenton *v.* Halloway, (13 Stark, 126)	36
Fenwick *v.* Bell, (1 C. & K. 312)	94
Fitzgerald *v.* Reed, (9 Sm. & Mar.)	11
Folkes *v.* Chadd, (3 Dougl. 157)	94
Ford *v.* Ford, (7 Humph. 92)	5
Freeman *v.* People, (4 Denio, 10)	46
Gardener *v.* Gardner, (21 Wend. 526)	5, 39
Gass *v.* Gass, (3 Humph. 278)	33

	SECTION.
Gibson *v.* Gibson, (9 Yerg. 329)	94
Gibson's case, Edinburgh, Dec. 1844	109
Goble *v.* Grant, (1 Green C. R. 629)	5, 33
Grabel *v.* Barr, (5 Barr, 441)	5
Graham's case, (MSS., 1845)	
Granger *v.* State, (5 Yerger, 459)	48
Grant *v.* Thompson, (4 Conn. 203)	11, 94
Hacker *v.* Newborn, (Style, 427)	5
Hadfield's case, (67 Hans. Par. Deb. 480)	46
Hammond's case, (2 Greenl. 33)	94
Hartung's case, 1854	
Harrison *v.* Rowen, (3 W. C. C. R. 580)	5, 33
Hathorn *v.* King, (8 Mass. 371)	5
Hays *v.* People, (1 Hill. 351)	462, 1213
Hinchman *v.* Ritchie, (Brightly R.)	143, 43
Hix *v.* Whittemore, (4 Metc. 545)	33
Hoge *v.* Fisher, (1 P. C. C. R. 163)	33
Horne *v.* Horne, (9 Ired. 99)	5
Howard *v.* Coke, (7 B. Monr. 655)	5
Hubley *v.* Vanhorne, (7 S. & R. 185)	94
Hulings, *v.* Laird, (9 Harris, 268)	41
Jackson *v.* Vandusen, (5 Johns. 144)	33
Johnson *v.* Moore, (1 Litt. 371)	32
Kelly *v.* State, (3 Smedes & Mar. 518)	69
—— *v.* Webster, (8 Shep. 46)	33
King *v.* Com. (2 Ma. Cas. 78)	976
Kinne *v.* Kinne, (9 Conn. 102)	5, 94
Lackey *v.* Lackey, (2 B. Monr. 478)	42
La Rue *v.* Gettyson, (4 Barr, 375)	11
Lee *v.* Lee, (4 McCord, 183)	32
Leech *v.* Leech, (1 Pa. L. Jour. 179)	122, 1, 43
Lester *v.* Pittsford, (7 Vt. 158)	94
Level's case, (Cro. Car. 438)	152
Lodge *v.* Phipher, (11 S. & R. 333)	94
Long *v.* Whidden, (2 N. H. 435)	11
Lord Cornwallis' case, (Don. Proc. 1678)	976
Lowe *v.* Williamson, (1 Green ch. 82)	5, 12
Ludwick *v.* Com., (6 Harris, 173)	44
Lyon *v.* Lyman, (9 Conn. 55)	94
Malton *v.* Nesbit, (1 C. & P. 70.)	94
Marsh *v.* Tyrel, (2 Hag. Ec. 84, 141)	5
Marquis of Winchester's case, (6 Rep. 24)	
McAllister *v.* State, (17 Alab. 434)	46, 94
McCandless *v.* McWha, (Am. Jour. Med. Sci., Jan. 1854, p. 273)	645
Means *v.* Means, (5 Strobh. 167)	8
Mills *v.* Com., (1 Harris, 631)	1214
Mitchell *v.* Kingman, (5 Pick. 431)	11
Molton *v.* Camroux, (2 Exch. R. 487; 4 Exch. R. 17)	11, 2
Monroe *v.* State, (5 Geo. 85)	48
Moody *v.* Rowel, (17 Pick. 490)	94
Morse *v.* Crawford, (17 Vt. 499)	94
Norris *v.* State, (16 Alab. 776)	94
Nottridge *v.* Ripley, (Dundee, 1849)	43
Nussear *v.* Arnold, (13 S. &. R. 323)	5
Patterson *v.* Patterson, (6 S. & R. 55)	5
Penns *v.* Levin, (Addison 279)	976
—— *v.* Sullivan, (Add. 143)	471
People *v.* Abbott, (19 Wend. 192)	466
—— *v.* Griffin, (2 Am. Jour. of Insan. 227)	187
—— *v.* Kleim, (2 Am. Jour. of Insan. 245)	187
—— *v.* McLeod, (1 Hill, 420)	48
—— *v.* Metcalf, (1 Wheel. C. C. 378)	464
—— *v.* Pine, (2 Barbour, 168)	48
—— *v.* Sprague, (6 Am. Jour. of Insan. 254)	187
Poole *v.* Richardson, (3 Mass. 330)	94
Portsmouth *v.* Portsmouth, (1 Hag. Ec. R. 355)	3
Potts *v.* House, (6 Georg. 324)	5, 94
Pirtle *v.* State, (9 Hamp. 663)	49, 93
Queen *v.* Farmer, (York Spring Assizes, 1837)	114
—— *v.* Milligan, (Lincoln Aut. Assizes, 1836)	157
—— *v.* West, (Carrington and Kirwan's Nisi Prius Rep., Vol. II. p. 784)	341
R. *v.* Allen, (9 C. & P. 31)	469
— *v.* Angus (Burnett's C. L. of Scotland, 575)	1222
— *v.* Barker, (3 C. & P. 589)	466
— *v.* Barton, (3 Cor. C. C. 275)	46
— *v.* Brain, (6 C. & P. 349)	1217
— *v.* Carrol, (7 C. & P. 145)	71
— *v.* Case, (1 Eng. R. 544)	461, 1213
— *v.* Champlin, (1 Car. & K. 746)	458
— *v.* Conner, (1 C. & P. 438)	974
— *v.* Cruse, (8 C. & P. 541)	71
— *v.* Davidson, (1 Hume's Com. 486)	1216
— *v.* Enoch (5 C. & P. 539)	1217
— *v.* Frances, (4 Cox C. C. 57)	94
— *v.* Gammon, (5 C. & P. 321)	468, 469
— *v.* Goode, (7 Ad. D. L. 536)	46
— *v.* Goule, (Durham Summer Assizes, 1845)	114
— *v.* Grindley, (1 Rus. on Cr. 8, *note* n)	71
— *v.* Grunnell, (Wills on Circum. Ev. 205)	1216
— *v.* Higginson, (1 C. & K. 129)	46
— *v.* Hodgson, (R. & R. 2)	464
— *v.* Hughes, (8 C. & P. 752)	470
— *v.* Jackson, (R. & R. 487)	464
— *v.* Jordan, (9 C. & P. 118)	469
— *v.* Layton, (4 Cox. C. C. 149)	46
— *v.* Lines, (1 C. & K. 393)	470
— *v.* Martin, (6 C. & P. 562)	466
— *v.* Mawgridge, (Kel. 124)	976
— *v.* M'Rue, (8 C. & P. 641)	470
— *v.* Meakin, (7 C. & P. 297)	64, 68, 71
— *v.* Moore, (reported 6 Law Rep., N. S. 581)	71
— *v.* Offord, (5 C. & P. 168)	46, 94
— *v.* Oxford, (9 C. & P. 533)	46

	SECTION.
R. *v.* Poulton, (5 C. & P. 329)	1217
— *v.* Reeves, (9 C. & P. 25)	1217
— *v.* Russen, (1 East P. C. 438, 439)	469
— *v.* Saunders, (3 C. & P. 265)	464
— *v.* Searle, (1 Mood & Rob. 75)	94
— *v.* Senior, (1 Mood, C. C. 346)	1213–18
— *v.* Sidwell, (1 McNally's Evid. 606)	469
— *v.* Simplon, (Cummin on Proof of Infanticide, p. 40)	1216
— *v.* South, (Norf. Aut. Circ., 1834)	404
— *v.* Staunton, 1 Car. & Kir. 415)	461
— *v.* Stocks, (3 C. & K. 185)	46
— *v.* Thomas, (7 C. & P. 817)	64, 68, 71
— *v.* Trilloe, (1 Car. & Mars. 650)	1217
— *v.* Vaughan, (1 Cox, C. C. 80)	46
— *v.* Walters, (2 Car. & Marsh, 170)	1219
— *v.* West, (2 Car. & Kir. 783)	1215
— *v.* White, (Wilts Sum. Assizes, 1846)	197
— *v.* Williams, (3 C. & P. 286)	464
— *v.* Wright, (9 C. & P. 754)	1217
— *v.* ———, (R. & R. 451)	94
Rambler *v.* Tyron, (7 S. & R. 90)	94
Rabello's case, (2 Am. Jour. of Insan. 41)	187
Rennie's case, (1 Lewin, C. C. 76)	64, 68
Revett *v.* Braham, (4 T. R. 497)	94
Reynolds *v.* Reynolds, (1 Spear, 756–7)	13
Rice *v.* Peet, (13 Johns. 543)	11
Roberts *v.* Slate, (3 Georg. 310)	48
——— *v.* Trawick, (13 Alab. 68)	8
Schaller *v.* State, (14 Missouri, 502)	72
Schwabt *v.* Clift, (2 Car. & Kir. 134)	208
Scribner *v.* Crane, (2 Page, C. C. R. 147)	5
Scruby *v.* Fordham, (1 Addams, 90)	8
Selfridge's Trial, 158	976
Sentance *v.* Poole, (3 C. & P. 1)	36
Schaller *v.* State, (14 Missouri, 502)	69
Shaw *v.* Thackray, (23 Eng. Reports, 21)	37
Sheafe *v.* Rowe, (3 Lees R. 415)	94
Shorter *v.* People, (2 Comstock, 197–202)	48
Sill *v.* McNight, (7 W. & Ser. 245)	44
Sloan *v.* Maxwell, (2 Green, Ch. 563)	5
Smith *v.* Kramer, (1 Am. Law Reg. 353)	108
——— *v.* State, (3 Reddig. 48)	974
State *v.* Benton, (2 Dev. & Bat. 196)	974
State *v.* Cooper, (1 Green, N. J. R.)	974
—— *v.* ———, (2 Zab. 57)	1214
—— *v.* Gardner, (Wright's Ohio R. 392)	46
—— *v.* Hill, (4 Dev. & Bat. 491)	978
—— *v.* Leblanc, (3 Brevard, 339)	471
—— *v.* Lorkey, (2 Kel. 8)	976
—— *v.* John, (8 Ired. 330)	69
—— *v.* Norris, (1 Hay, 429)	976
—— *v.* Roane, (2 Dev. 58)	980
—— *v.* Rutherford, (1 Hawks, 457)	980
—— *v.* Scott, (4 Iredell, 409)	48
—— *v.* Shepherd, (7 Conn. 54)	464
—— *v.* Spencer, (1 Zabriskie, 196)	465–7
—— *v.* Travers, (2 Wheel. C. C. 506)	976
—— *v.* Turner, (1 Wright, 30)	69
Stegall *v.* Stegall, (2 Brock, 256)	302
Stevens *v.* Vancleve, (4 W. C. C. R. 262)	5,33
Stewart *v.* Lispenard, (26 Wend. 255)	8, 10
Stroud *v.* Com., (11 S. &. R. 177)	471
Taggart *v.* Tompson, (2 Harris, 149)	6
Tawell's case, (MSS., 1845)	1077
Thornton *v.* Royal, (Exch. Co. Peak, 25)	94
Tulloch *v.* Allison, (3 Hag. 527)	5
Tyner *v.* State, (5 Humph. 383)	988
U. S. *v.* Clarke, (1 Cranch, C. C. R. 158)	65, 69
—— *v.* Drew, (5 Mason, U. S. Rep. 28)	64
—— *v.* Harman, (4 Barr, 269)	1220
—— *v.* Hewson, (7 Bost. Law Rep. 361)	58
—— *v.* McGlue, (1 Curtis C. C. R. 1)	65, 66
—— *v.* Wiltberger, (3 Washburn, 515)	980
Van Alst *v.* Hunter, (5 Johns. Ch. 148)	12
Vance *v.* Com., (2 Virg. C. 132)	46
Waring *v.* Waring, (6 Moore, P. C. Cases, 349)	17
Webster's case, (Boston, 1850)	993-1068
Wheeler *v.* Alderson, (3 Hagg. 602)	39
——— *v.* Wheeler, (3 Hagg. 574)	94
Whitenack *v.* Striker, (1 Green C. R. 8)	2, 33
Wogan *v.* Small, (11 S. & R. 141)	94
Woodward *v.* James, (3 Strob. 552)	5
Wynn *v.* Allard, (5 W. & S. 525)	38

BOOK I.

MENTAL UNSOUNDNESS.

ANALYTICAL TABLE.

CHAPTER I.

MENTAL UNSOUNDNESS IN ITS LEGAL RELATIONS.

I. WHAT DEGREE OF UNSOUNDNESS INVALIDATES A CONTRACT OR WILL, § 2.

As to Lunatics or Idiots, § 2.

General legal principle is, that contracts or wills of idiots or lunatics will not be enforced,

Cases where there is a sufficient degree of sanity to create responsibility for crime, and yet when a contract or will will be avoided,

1st. IMBECILITY GENERALLY, AND HEREIN OF FRAUD AND COMPULSION,

Fraud itself vitiates a contract, and in this the contracting party's intellect becomes an essential item for consideration, § 3.

Lord Portsmouth's case, § 3.

Acts and contracts of persons of weak understanding will be held void, when such persons have been imposed upon by cunning or undue influence, § 4.

In cases of wills this is peculiarly the case, § 5.

The testator must have had a *disposing* memory, § 5.

Over-importunity of controlling friends may destroy capacity, § 5.

The question in reference to contracts and wills does not depend upon mere subjective capacity, and hence no positive definition can be given, § 6.

Idiocy, to make it a positive incapacity, must be shown to have been accompanied with business disability, § 7.

The question of capacity will be greatly affected by the reasonableness or unreasonableness of the act attempted to be set aside, § 8.

The inquiry in many cases is, whether the testator or grantor had capacity or information enough to comprehend and disregard any attempt at fraud or coercion, § 9.

Difficulties in such cases from conflict of medical opinion, § 9.

A distinction is taken between the cases where the court is asked to *annul* an *executed* contract, and where it is asked to execute an *un*executed one, § 11.

Weakness of intellect, from extreme old age, works a disability, § 12.

But great caution should be exercised in this respect, the object being to *protect* old age, not to render it still more defenceless, § 12.

How far the deaf and dumb are thereby incompetent, § 13.

2d. Partial Insanity, § 14.
Rule in this country is, that unless the contested act is the product of an insane delusion, it is not vitiated by it, § 14.
The present English rule, however, seems to be that the existence of an insane delusion destroys testamentary capacity altogether, § 15.
Opinion of Lord Brougham on this point, § 17.
Objections to this view, § 18.
Compatibility of hallucinations with sound disposing memory, § 19.
Instances of existence of hallucinations in persons otherwise sane, § 21.
3d. Lucid Intervals.
When *habitual* insanity is shown, the presumption is, that the act was committed in an insane period, § 33.
The character of the act goes a great way in determining whether it was committed in a lucid interval, § 35.
4th. Intoxication.
When actually existing renders a party civilly incompetent.
A party, however, cannot use his drunkenness as a means of imposition, § 36.
Difference in this respect between executed and unexecuted contracts, § 37.
In actions for torts, drunkenness is no defence on the merits.
Drunkenness avoids a will when acted on by fraud or imposition, § 38.

II. WHAT IS NECESSARY TO BE PROVED, IN ORDER TO DEPRIVE A PARTY OF THE MANAGEMENT OF HIS ESTATE, § 40.
When a party is incapable, the practice is to appoint a committee, who take the alleged lunatic's place, § 41.
In what way the question of lunacy, under such circumstances, is tried, § 42.
General and not *partial* incompetency must be shown, § 42.
The test is, is the respondent capable of managing his own estate? § 42.
What in such cases is required of medical witnesses, § 43.
The same process lies in cases of habitual drunkenness, § 44.
The test here is, is there a fixed habit of drunkenness? § 44.

III. WHAT DEGREE OF UNSOUNDNESS AVOIDS RESPONSIBILITY FOR CRIME, § 45.
The difficulties in this respect have arisen from mistaking *dicta* given in particular cases for general and absolute rules.
Ill consequences arising from looseness of citation, § 45, *n*.
The true doctrine is, that medical science is a part of the common law of the land, and is to be treated as such, § 45, *n*.
1st. Cases where the defendant is incapable of distinguishing right from wrong in reference to the particular act, § 46.
Under this head fall cases of idiocy and amentia, § 46.
2d. Cases where the defendant is acting under an insane delusion as to circumstances, which, if true, would relieve the act from responsibility, or where his reasoning powers are so depraved as to make the commission of the particular act the natural consequence of the delusion.
An act committed under a bona fide belief of its necessity in self defence, will be regarded as if there really was such necessity, § 47.
And the gauge here is the *defendant's* capacity, § 47.
An honest insane delusion is to be viewed in the same light, § 48.
But the delusion must have been the *cause* of the crime in order to excuse it, and not *collateral*, § 49.
3d. Cases where the defendant is impelled by a morbid and uncontrollable impulse to commit the particular act, § 53.
The doctrine of homicidal mania has been recognized by the courts of this country, § 53.
Chief Justice Shaw, § 53.
Chief Justice Gibson, § 54.
Chief Justice Lewis, § 55.
Chief Justice Hornblower, *contra*, § 57.
The right and wrong test is impracticable as an absolute rule, § 60, 61.

IV. HOW FAR INTOXICATION AFFECTS RESPONSIBILITY FOR CRIME, § 62.
1st. Insanity produced by delirium tremens affects responsibility in the same way as insanity produced by any other cause, § 62.

2d. INSANITY IMMEDIATELY PRODUCED BY INTOXICATION, DOES NOT DESTROY RESPONSIBILITY WHERE THE PATIENT, WHEN SANE AND RESPONSIBLE, MADE HIMSELF VOLUNTARILY INTOXICATED, § 66.

3d. WHILE INTOXICATION IS PER SE, NO DEFENCE TO THE FACT OF GUILT, YET WHEN THE QUESTION OF INTENT OR PREMEDITATION IS CONCERNED, IT IS MATERIAL FOR THE PURPOSE OF DETERMINING THE PRECISE DEGREE, § 70.

CHAPTER II.

MENTAL UNSOUNDNESS CONSIDERED PSYCHOLOGICALLY.

Classification of Dr. Ray, § 74.
" " Flemming, § 75.
" " Ellinger, § 76.
" " Present Treatise, § 77.

I. GENERAL THEORIES OF MENTAL UNSOUNDNESS, § 78.
1st. PSYCHOLOGICAL THEORY, § 79.
2d. SOMATIC THEORY, § 80.
3d. INTERMEDIATE THEORY, § 81.
Difficulties attending each of the first two, § 82.
Question as to moral responsibility of Lunatics, § 83.
Views of President Edwards, § 84.
Of Dr. Barlow, § 85.

II. HOW MENTAL UNSOUNDNESS IS TO BE DETECTED, § 86.
1st. BY WHOM, § 86.
Medical expert necessary for this purpose, § 86.
Great skill and experience needed, § 87.
Dangers of an inexperienced examiner being baffled, § 88.
Responsibility in law of medical examiner, § 89.
Importance of examiner adopting his manner to patient's condition, § 90.
Important that legal and medical officers should, in such cases, act in concert, § 92.
Manner in which medical witness is to be examined on trial, § 94.
2d. AT WHAT TIME, § 95.
(1.) Time of act, § 95.
(2.) At trial, § 97.
(3.) At and after sentence, § 98.
3d. BY WHAT TESTS, § 100.
(1.) Physiognomy, § 100.
Relations of the different features, § 101.
(2.) Bodily health and temperament, § 102.
State of bowels, § 102.
Physical disorganization, § 103.
Insensibility to pain and cold, § 104
Irregularities in action of senses, § 105.
Change in disposition, § 106.
(3.) Hereditary tendency, § 107.
Importance of this test, § 108.
Admissible in point of law, § 108.
Opinion of Gibson, C. J., § 108.
(4.) Conversation and deportment, § 110.
Necessity of great circumspection in this respect, § 110.
Cases illustrating this, § 111.
(5.) Nature of act, § 112.
(*a*) Insensibility, § 112.
(*b*) Its incongruity with antecedents, § 113.
(*c*) Its motivelessness, § 114.
(*d*) Its inconsequentiality, § 115.

III. FROM WHAT MENTAL UNSOUNDNESS IS TO BE DISTINGUISHED.
1st. EMOTIONS, § 116.

(1.) Remorse, § 116.
(2.) Anger, § 118.
(3.) Shame, § 122.
(4.) Grief, § 124.
(5.) Homesickness, (*Nostalgia*,) § 125.

2d. Simulated Insanity, § 127.
Necessity for close examination, § 127.
Tests to be applied, § 128.
Delirium most usually counterfeited, but the most difficult, § 129.
Physiognomy and health to be examined, § 130.
Case to be compared with other recorded cases, § 131.
Simulation not to be inferred from absence of a trace of insanity at the examination, § 132.
Causes why such signs may be suppressed, § 132.
Pretended insanity frequently turns into real, § 133.
How examination is to be conducted, § 134.
Patient to be brought into a succession of relations, § 135–8.
To be furnished with pen, ink and paper, and other methods of examination, § 135–8.
Insania Occulta, features of, § 139.
Necessity of guarding against, § 139.

IV. MENTAL UNSOUNDNESS, AS CONNECTED WITH DERANGEMENT OF THE SENSES, AND DISEASE, § 140.
1st. Deaf and Dumb, § 140.
2d. Blind, § 141.
3d. Epileptics, § 142.
Peculiar tendency of epilepsy to insanity, § 142.
Nature of epilepsy, § 143.
Distinction between the several classes, § 144.
Different stages of the disease, § 145.
Actions committed during attack, not valid, § 146.
Rule as to intermediate stages, § 147.
Tests laid down by Clarus, § 148.

V. MENTAL UNSOUNDNESS, AS CONNECTED WITH SLEEP, § 149.
General effect of sleep on the senses, § 149.
1st. Somnolentia or sleep-drunkenness, § 151.
2d. Somnambulism, § 159.

VI. MENTAL UNSOUNDNESS, AS AFFECTING THE TEMPERAMENT, § 163.
1st. Depression, § 163.
2d. Hypochondria, § 166.
3d. Hysteria, § 169.
4th. Melancholy, § 170.

VII. MENTAL UNSOUNDNESS, AS AFFECTING THE MORAL SYSTEM, § 174.
1st. General moral mania, § 174.
Effect of, § 174.
General symptoms, § 175.
Illustrations, § 176.
2d. Monomania, § 177.
Doctrine of *Mania sine Delirio*, § 178.
Difference of opinion as to its existence, § 179.
Tests to be applied to it, § 180.
Tendency in this country to recognize its existence, § 183.
(1.) Homicidal mania, § 186.
Cases where Esquirol supposes it to exist, § 186.
Precautions necessary in its recognition, § 190.
Tests suggested by Dr. Ray, § 190.
" " Dr. Taylor, § 190.
Dr. Mayo's objections to the entire theory, § 191.
(2.) Kleptomania—(morbid propensity to steal), § 192.
(3.) Pyromania—(morbid incendiary propensity), § 195.
How far recognized in England, § 197.
Necessary tests, § 198.

(4.) Aidoiomania—(morbid sexual propensity), § 199.
(5.) Pseudonomania—(morbid lying propensity), § 202.
(6.) Oikeiomania—(morbid state of domestic affections), § 204.
(7.) Suicidal mania—(morbid propensity to self-destruction), § 206.
Tendency to this in cases of melancholy, &c., § 207.
Legal consequences in actions against life insurers, § 208.
(8.) Fanatico-mania, § 209.
(*a*) Supernatural or pseudo-supernatural demoniacal possession, § 210.
Testimony of ancient writers to this, § 210.
" of the New Testament, § 211.
(*b*) Mental alienation on religious subjects, § 214.
Tendency of infidelity to insanity, § 214.
Conservative influence of Christianity, § 215.
Insane delusion the result of a *departure* from Christianity, § 216.
Illustrations of this, § 217.
Legal bearings of religious insanity, § 219.
(9.) Politico-mania, § 220.
How far an epidemic, § 221.
Causes likely to generate it, § 221.

VIII. MENTAL UNSOUNDNESS, AS CONNECTED WITH INTELLECTUAL PROSTRATION, § 222.
1st. Idiocy, § 222.
Nature of, § 222.
Physical incidents of, § 223–5–6.
Cretinism, § 228.
2d. Imbecility, § 229.
With concomitant insanity, § 230.
Original, § 230.
Supervening, § 230.
Specious, § 230.
With confusion of mind, § 230.
Without insanity, § 231.
Distinction between innocent and malignant imbecility, § 232.
2d. Dementia, § 234.

IX. MENTAL UNSOUNDNESS ACCOMPANIED WITH DELIRIUM, § 235.
1st. General Delirium, § 235.
(*a*) Depressed delirium, § 236.
(*b*) Maniacal delirium, § 237.
(*c*) Delirium tremens, § 238.
(*d*) Puerperal mania, § 239.
2d. Partial Delirium, § 240.

X. MENTAL UNSOUNDNESS, AS CONNECTED WITH DELUSIONS AND HALLUCINATIONS, § 241.
1st. General, § 241.
Marked by general derangement of the perceptive faculties, § 241.
Various phases it assumes, § 242.
Tests of Ellinger, § 243.
Effect of general delusion, § 244.
2d. Partial, § 245.
Delusions and hallucinations, § 245.
When there is no other sign of mental unsoundness, § 246.
When mental unsoundness has made some progress, § 247.
In cases of drunkenness, &c., § 248.
In cases of developed insanity, § 249.
Causes of delusions, § 250.
Abercrombie's classification, § 252.
Hallucination in regard to a change into, or a possession by, wild animals, § 253.

XI. MENTAL UNSOUNDNESS, AS CONNECTED WITH LUCID INTERVALS, § 254.

XII. TREATMENT OF INSANE CRIMINALS, § 259.
Necessity of separate places of confinement in which insane criminals can be placed, § 259.
(1.) For Retribution, § 260.
In most, if not all, cases of crime resulting from insane impulse, there is original responsibility, § 260.
Insanity, in most cases, the result of moral excess, § 261–9.
Qualified responsibility of lunatics, § 261–9.
(2.) For Prevention, § 270.
Mischief to society if monomaniacs are suffered to go at large, § 270.
Necessity of restraint, § 271.
(3.) For Example, § 272.
Contagiousness of unchecked crime, § 272.
(4.) For Reform, § 273.
Impossibility of patient recovering when permitted to run at large, § 273.
Injury to the community from the want of secondary punishments, the result being acquittals of dangerous parties, from an unwillingness to see the severer penalties inflicted, § 274.
Ordinary penitentiaries inadequate, § 275.
And so of ordinary lunatic asylums, § 276.

CHAPTER I.

MENTAL UNSOUNDNESS CONSIDERED LEGALLY.

§ 1. Three questions exist in which mental unsoundness becomes a subject of inquiry in the courts of the United States:

I. Capacity to perform particular acts for the disposal of property, such as making contracts or gifts, and executing deeds or wills, in which cases the question is brought up by contesting the validity of the particular act itself.

II. General business capacity, in which case the question arises upon a petition to the chancellor or proper judicial officer of the jurisdiction, for a decree pronouncing the party to be incapable from lunacy or habitual drunkenness, of managing his estate, and transferring the custody of it to a committee.

III. Responsibility for crime.

In each of these relations the tests of unsoundness are distinct. In the first a very modified degree of incapacity will be sufficient, as will presently be seen, when accompanied with fraud, imposition or over exercise of authority, to set aside a contract or to invalidate a will. In the second a much less degree of general capacity is sufficient, than is necessary in the third; for there must always be a number of cases in which a party is morally capable of crime, and yet intellectually incapable of business. Keeping these facts in view, it is proposed to discuss the subject under the following heads:

I. What degree of unsoundness invalidates a contract or will.

1st. Imbecility generally, and herein of fraud and compulsion.

2d. Partial insanity.

3d. Lucid intervals.

4th. Intoxication.

II. What is necessary to be proved in order to deprive a party of the management of his estate.

III. What degree of unsoundness avoids responsibility for crime.

I. What degree of unsoundness invalidates a contract or will.

§ 2. With regard to lunatics or idiots, in the popular sense, there can be no question in this connection. Upon them the law affixes its visible stamp, and by virtue of a commission of lunacy,(*a*) to be considered under the next head, pronounces them incapable of transferring property. Nor to invalidate their acts is it necessary that a decree of lunacy should have been actually pronounced. The madman, even though his madness be a mere temporary delirium, cannot, by an executory contract,(*b*) bind himself either in person or in property; and consequently in such a class of cases the judgment of the law must relieve him from responsibility. In this respect the test is the same in the criminal and the civil courts. There are, however, a large class of cases in which, as has been noticed, a contract or a will will be declared void, but in which there is a sufficient degree of intellect to create a responsibility for crime. These may be ranked as follows:

1st. Imbecility generally, and herein of fraud and compulsion.
2d. Partial insanity.
3d. Lucid intervals.
4th. Intoxication.

1*st. Imbecility generally, and herein of fraud and compulsion.*

§ 3. Of this an illustration may be found in Lord Portsmouth's case, which has been too often erroneously supposed by medical writers to sustain the position, that mere mental debility is enough, by itself, to avoid even the most solemn contract. Lord Portsmouth was married for the second time in March, 1813, to a young woman who was the daughter of one of his trustees, the solicitor of the family, under whose charge he was at the time living. From earliest childhood he had displayed great weakness, both moral and mental, being cruel, timid and fickle in his management of his household, and exceedingly capricious in his tastes. Upon his arrival at twenty-one, however, his incapacity was such, as to induce his family to take steps to put him under the charge of a committee, and at their instance he joined with his father in suffering common recoveries, and making a new settlement of the estate. It was not disputed that he mixed in society generally,

(*a*) A prior inquisition of lunacy is competent, but not conclusive evidence of incapacity, (Whitenack *v.* Striker, 1 Green C. R. 8,) but even when the jury find that the lunacy was prior to the disputed act, and without lucid intervals, the finding may be collaterally impeached. (Bannatyne *v.* Bannatyne, 15 Jur. 864; 14 English R. 581.)

(*b*) It should always be borne in mind, that in point of practice there is a great distinction between contracts *executed*, (i. e., those which have already been performed,) and contracts executory, (i. e., those whose performance is sought to be enforced.) The *latter* a court will not in general lend its aid to execute, when the party sought to be effected was at the time a lunatic. But on the other hand, when in good faith a party makes a contract with a lunatic, supposing him to be of sound mind, and it is impossible to restore the parties to their original position, the contract cannot afterwards be rescinded and the purchase money or other consideration recovered back. (See Beavan *v.* M'Donnell, 24 English Rep. 486; S. C. 9 Wels. H. & G. 310; Molton *v.* Camroux, 2 Exch. R. 487, 4 Exch. R. 17; see also cases cited, 9 Wels. H. & G. 314, *n.*) See post, § 11.

corresponded with his friends, and settled his own accounts with his steward. His first marriage was in 1799, and took place under his family's directions, with a lady several years older than himself, who it was understood took a general supervision of his affairs. In the settlement made at that marriage the father of his second wife was one of the trustees. The first wife died in November, 1813, and in February, 1814, Lord Portsmouth went down to London with his medical attendant, and being left in his trustee's hands, a week afterwards contracted a second marriage to the trustee's daughter. In 1823, not until after the birth of a child, which took place in 1822, a commission was issued to inquire into his lunacy, the result of which, after a long contest, was a finding that he was of unsound mind, and had been so since January, 1809. The committee appointed under this procedure immediately filed a petition in the Ecclesiastical court to annul the second marriage. Sir John Nicholl, in deciding the case said, "That considerable weakness of mind, circumvented by proportionate fraud, will vitiate the fact of marriage, whether the fraud is practised on his ward by a party who stands in the relation of a guardian, as in the case of Harford against Morris,(*c*) which was decided principally on the ground of fraud; or whether it is effected by a trustee, procuring the solemnization of the marriage of his own daughter with a person of very weak mind, over whom he has acquired great ascendency. A person incapable from weakness of detecting the fraud, and of resisting the ascendancy practised in obtaining his consent to the contract, can hardly be considered as binding himself in point of law by such an act. At all events, the circumstances preceding and attending the marriage itself may materially tend to show the contracting party was of unsound mind, and was so considered and treated by the parties engaged in fraudulently effecting the marriage. In respect to Lord Portsmouth's unsoundness of mind, the case set up is of a mixed nature, not absolute idiocy, but weakness of understanding,—not continued insanity, but delusions and irrationality on particular subjects. Absolute idiocy, or constant insanity, would have carried with them their own security; for in either case, the forms preceding, and the ceremony itself, could not have been gone through without exposure and detection; but here a mixture of both, by no means uncommon, is set up,—considerable natural weakness, growing at length from being left to itself and uncontrolled, into practices so irrational and unnatural as in some instances to be bordering on idiocy, and in others to be attended with actual delusion—a perversion of mind—a deranged imagination—a fancy and belief of the existence of things which no rational being, no person possessed of his powers of reason and judgment, could possibly believe to exist. * * * It appeared that in February, 1814, Lord Portsmouth was brought to London by his medical attendant, and delivered up to his trustees, Hanson being one and then in town—that day week he was married to the daughter of Mr. Hanson. The confidential solicitor of the family, one of the trustees, who had a great ascendency over him, who owed him every possible protection, married him to one of his daughters! It is unnecessary to state the jealousy with which

(*c*) 2 Hag. Cons. R. 423.

the law looks at all transactions between parties standing in these relations to each other. The whole transaction will bear but one interpretation: every part of it is the act of the Hansons! Lord Portsmouth is a mere instrument in their hands, to go through with the necessary forms; the settlement is begun in forty-eight hours after Lord Portsmouth's arrival in London! The contents of that settlement; the mode in which it was prepared; the concealment of the whole from the friends and the other trustees who were in town, some in the same house with Lord Portsmouth, all these particulars bear the same character. The necessary forms are gone through with, but in support of these mere forms, not a witness is produced to show that this nobleman was conducting himself as a man understanding what he was doing, or capable of judging, or acting as a free and intelligent agent; nothing tending to show he was a person of unsound mind; nothing in his conduct inconsistent with unsoundness of mind; every circumstance conspires to prove that he was the mere puppet of the Hanson family, and that the celebration of this marriage was brought about by a conspiracy among them to circumvent Lord Portsmouth, over whom, they, and particularly the father, had a complete ascendency, so as to destroy all free agency and rational consent on his part to this marriage. A marriage so had, wants the essential ingredient to make the contract valid—the consent of a free and rational agent. The marriage itself, and the circumstances immediately connected with it, do not tend to establish restored sanity; it was neither 'a rational act' nor was it 'rationally done,'—the whole 'sounds to folly' and negatives sanity of mind. The Hansons, in the mode of planning and conducting the transaction, show that they treated and considered Lord Portsmouth as a person of unsound mind, and Lord Portsmouth in submitting and acquiescing, and not resisting, confirms his own incompetency. Even if no actual unsoundness of mind, strictly so called—if no insane derangement existed—if only weakness of mind—and all admit that he was weak—yet considering the passiveness and timidity of his character on the one hand—the influence and relation of Hanson, his trustee, on the other—and the clandestinity and other marks of fraud which accompanied the whole transaction—I am by no means prepared to say, that without actual derangement in the strict sense, the marriage would not be invalid—but in my judgment Lord Portsmouth was of unsound mind, as well as circumvented by fraud."(*d*)

§ 4. While, therefore, the learned judge before whom this case was heard came to the conclusion that Lord Portsmouth was of "unsound mind," the position was broadly taken by him that weakness alone, when circumvented by fraud, would be sufficient to invalidate even so solemn a contract as marriage, and on this position his decision in part rested. Still more unequivocal was the decree of the Privy Council in dismissing an appeal from the Court of Chancery of the Isle of Man, setting aside two deeds, on the ground that the grantor in both of them was of unsound mind at the time he executed them, and that they were obtained from him by fraud and undue means. The evidence showed that the grantor, an old man, feeble both in body and mind, separated from all his relations, without a friend to advise him, and surrounded

(*d*) Portsmouth *v.* Portsmouth, 1 Hag. Ec. R. 355.

by those only who were contriving to get his fortune, conveyed away nearly all that he was possessed of, even the house he lived in, to persons not related to him, either in blood or connection: and all his estate in lease was to become the property of the same strangers after his death. The consideration of £100 was inserted for conveying away property worth £1400; and this was not to be paid to the grantor, but to his executor after his death, without any interest being charged on it in the meantime. Lord Wynford in giving the opinion of the Privy Council said, that the law would "not assist a man who is capable of taking care of his own interests, except in cases where he has been imposed upon by deceit, against which ordinary prudence could not protect him. If a person of ordinary understanding, on whom no fraud has been practised, makes an improvident bargain, no court of justice can release him from it. Inadequacy of consideration is not a substantial ground for setting aside a conveyance of property. But those, who from imbecility of mind are incapable of taking care of themselves, are under the special protection of the law. The strongest mind cannot always contend with deceit and falsehood; a bargain, therefore, into which a weak one is drawn under the influence of either of these, ought not to be held valid, for the law requires that good faith should be observed in all transactions between man and man. If this conveyance could be impeached on the ground of the imbecility of the grantor only, a sufficient case has not been made out to render it invalid; for the imbecility must be such as to justify the jury, under a commission of lunacy, in putting his property and person under the protection of the Chancellor; *but a degree of weakness of intellect far below that which would justify such a proceeding, coupled with other circumstances to show, that the weakness, such as it was, had been taken advantage of, will be sufficient to set aside any important deed.*"(*e*) This same view has been uniformly acted on in the English and American courts, and it is expressed by Mr. Justice Story with his usual precision.(*f*) "The acts and contracts of persons who are of weak understandings, and who are thereby liable to impositions, will be held void in courts of equity, if the nature of the act or contract justify the conclusion, that the party has not exercised a deliberate judgment, but has been imposed upon, circumvented or overcome by cunning or undue influence."(*g*)

§ 5. With even greater emphasis has the same doctrine been announced by courts of law in respect to wills. Peculiarly liable as is a dying man, even though his intellect be of average strength, to have his comfort destroyed, if not his purpose overturned, by those in whose society he is placed, the policy of the law has anxiously sought for every safeguard by which such intrusions upon the sanctity of dissolution, as well as upon the rights of families, can be deprived of motive. "The same memory for the making of a will," agreed all the judges of England at an early date, "is not at all times when the party can answer to any thing with sense, but he ought to have judgment to discern and to be of perfect memory, otherwise the will is void."(*h*) "He ought to have a disposing memory," said Lord Coke, "so that he is able to

(*e*) Blachford *v.* Christian, 1 Knapp's Rep. 73; Shelford on Lunacy, 272.
(*f*) 1 Story Eq. Juris. § 238. (*g*) See also 1 Fonbl. Eq. B. 1, ch. 2, § 3.
(*h*) Combe's case, Moore R. 759.

make a disposition of his lands with understanding and reason; and that is such a memory as the law calls sane and perfect."(*i*) While, therefore, it is only necessary that there should be the capacity of reasonable disposition, great jealousy has been exercised for the correction of extraneous influence on the testator. Thus wills have been set aside when they were preceded by over-importunity of friends standing in confidential relations,(*j*) where the housekeeper and physician were shown to have earnestly urged a non-natural scheme of distribution;(*k*) where the wife in fact dictated the will, the testator being at the time unable to speak, she pretending to understand him, and making herself the sole devisee for life, and imposing as a devisee in remainder a fictitious niece;(*l*) where one relation produced the disinheritance of another by false representations as to his character;(*m*) where the testator was old and feeble, and the will was made under the direction and to suit the purposes of a colored woman in the family,(*n*) and where a husband exercised coercion.(*o*) In short, whenever the provisions of a will are inconsistent with natural justice, it will require strong proof of capacity and volition to sustain it, and slight proof of undue influence or fraud to set it aside.(*p*) Where a presumption of imposition exists, e. g., from the fact of the penman of the will taking a pecuniary benefit under it, the courts exact "the most decisive proof of the complete absence of influence and excitement at the preparation and making of the asserted will, and must require unimpeachable evidence of unbiassed volition and of clear capacity, and must expect it to be shown by instructions coming from the deceased himself."(*q*) To authorize a will in favor of a wife, however, to be set aside, the influence alleged to have been exerted must be shown to have reached coercion, destroying the husband's free agency,(*r*) or fraud itself must be proved.(*s*) In ordinary cases also, it will not be enough

(*i*) Marquis of Winchester's case, 6 Rep. 24; 2 Buls. 211. The same point is put with still greater simplicity by Judge Washington: "Had he a disposing memory—was he capable of recollecting the property he was about to bequeath—the manner of distributing it and the objects of his bounty." (Stevens *v.* Vanclerc, 4 W. C. C. R. 262.) Proof, however, of intellect having been impaired by disease, or of intellectual feebleness alone, will not avail by itself to defeat a will, when adequate capacity remains. Sloan *v.* Maxwell, 2 Green. Ch. 563; Andrews *v.* Weller, ibid. 604; Dunick *v.* Reichenback, 10 S. & R. 84. The cases will be found enumerated in 1 Powell on Devises, 127; Shelford on Lunacy, 275–6; 4 Kent's Com. 566; 1 Jarman on Wills, 28. See also Converse *v.* Converse, 21 Vt. 168; Horne *v.* Horne, 9 Ired. 99; Harrison *v.* Rowan, 3 W. C. C. R. 580; Grabil *v.* Barr, 5 Barr, 441; Denn *v.* Johnson, 2 South. 454; Kinne *v.* Kinne, 9 Conn. 102; Ford *v.* Ford, 7 Humph. 92; Howard *v.* Coke, 7 B. Monr. 655; Blanchard *v.* Nestle, 3 Denio, 37; Modern Probate of Wills, 91. In Scotland an arbitrary test is applied, it being there provided that no settlement or gift executed after the commencement of the disease of which a person dies, except those in the ordinary administration of the estate, shall be valid. If the testator survives sixty days afterwards, or has been to market unsupported, the will is validated. Bell's Dict. "Death Bed."

(*j*) Hacker *v.* Newborn, Style, 427. (*k*) *Ex parte* Fearon, 5 Ves. 633.

(*l*) Scribner *v.* Crane, 2 Paige C. C. R. 147.

(*m*) Dietrick *v.* Dietrick, 5 S. & R. 207; Nussear *v.* Arnold, 13 S. & R. 323; Patterson *v.* Patterson, 6 S. & R. 55.

(*n*) Denton *v.* Franklin, 9 B. Monr. 28. (*o*) Marsh *v.* Tyrel, 2 Hag. Ec. 84, 141.

(*p*) Brydges *v.* King, 1 Hag. Ec. R. 256; Goble *v.* Grant, 1 Green C. R. 629; Baker *v.* Lewis, 4 Rawle, 356.

(*q*) Dodge *v.* Meech, 1 Hag. E. R. 620; Barry *v.* Butlin, 1 Curtis, 637; see 2 Jarman on Wills, (Am. ed.) 421.

(*r*) Clarke *v.* Sawyer, 3 Sanf. Ch. R. 351; Gardiner *v.* Gardiner, 22 Wend. 526.

(*s*) Scribner *v.* Crane, 2 Paige C. R. 147.

to prove mere influence, without proof of fraud or contrivance,(*t*) or such coercion as destroys free agency.(*u*) "Honest intercession and persuasion," "and fair and flattering speeches," though abundantly proved to have been used, do not affect the instrument's validity.(*v*) The fact of the paper being entirely in a party's handwriting gives a strong presumption of sanity, which is not effaced by proof of generally impaired intellect, nor by the fact, that when the paper is a will, in it omissions of property exist.(*w*) The same presumption exists when the testator has a distinct recollection, at the time of the execution of the will, of the terms he directed at the time it was prepared.(*x*)

§ 6. It is obvious, therefore, that no fixed minimum of capacity can be determined upon, which will be necessary to sustain a contract or will. While, on the one hand, it is clear that a madman or a drunkard, during the prevalence of the insane or drunken delusion is totally incompetent for such a purpose, it is equally clear that persons whose intellects are abundantly strong enough to create an entire responsibility for their acts in a criminal court,(*y*) will yet be held incompetent to pass away their property, when it appears undue influence or fraud has been used upon them to produce an unjust result.

§ 7. The existence of idiocy, when that alone is set up, can be determined by comparatively simple tests. If the pretended idiot can be shown to have intelligently performed acts of business during the period in which idiocy is claimed to exist, the allegation of incompetency falls, unless fraud or constraint be shown. Thus in a case determined in Doctors' Commons in March, 1852,(*z*) Dr. Lushington said, "Before entering upon this branch of the case, I must bear in mind what the nature of the case set up in opposition to the will is. I must repeat that it is not lunacy—it is not monomania—it is not any species of mental disorder, the symptoms of which it may, at periods, be difficult to detect; but the case presented is that of idiocy or imbecility, the characteristic of which is permanence, with little or no variation, though often, in case of idiots, it does sometimes happen that there will be a greater degree of excitement demonstrated than at other periods. How is such a case to be met? I apprehend, to meet it and to show that such a state of things did not exist at any given period, proofs of acts of business are most important evidence. Many acts of business could possibly be done by a lunatic, and the lunacy not detected; but it is scarcely possible to predicate the same of an idiot or lunatic, or an imbecile person. I shall look, therefore, in the first instance, to the acts of business. It is proved by Mr. Falkner, that the deceased kept an account with Messrs. Tuckwell, at Bath, for four years, from 1818 to 1821, and during all that period, occasionally drew drafts, and all those drafts were paid to himself over the counter. According to

(*t*) Lowe *v.* Williamson, 1 Green C. R. 82; Blanchard *v.* Nestle, 3 Denio, 37; 1 Jarman on Wills, (2d Am. ed.) 36; 1 Williamson on Exs. (2d Am. ed.) 37.

(*u*) Brown *v.* Mollison, 3 Wh. 129; Potts *v.* House, 6 Georg. 324; Woodward *v.* James, 3 Strob. 552; see 1 Jarman on Wills, (2d Am. ed.) 36.

(*v*) 1 Jarman on Wills, (2d Am. ed.) 37.

(*w*) M'Daniel's Will, 2 J. J. Marsh, 331; Fullock *v.* Allison, 3 Hag. 527.

(*x*) Hathorn *v.* King, 8 Mass. 371.

(*y*) See M'Taggart *v.* Thompson, 2 Harris, 149.

(*z*) Bannatyne *v.* Bannatyne, 16 Jur. 864, 14 English R. 581.

the evidence, the deceased came himself to the counter, and there is no proof of any one accompanying him on such occasions; he asked for the sum he wanted; the clerk filled it in, he signed it, and took the money. Surely no idiot could have done this, for he must have exercised thought to go to the bank, memory and judgment as to the thing required; and moreover, his conduct and demeanor could not at such times have been as described by the witnesses against the will, or, from the glaring colors in which his imbecility is depicted, it must have been discovered, and the business never could have been transacted at all. * * * I consider these transactions, then, of first rate importance towards solving all the difficulties of this case; for here, after the lapse of about thirty years, the court has the advantage of facts proved, with the dates duly affixed to them. There is, I must say, not the least evidence to show that in any one of these acts of business the deceased was assisted by any person whatever, the presumption is the other way; and to put these acts upon the very lowest basis on which they can be placed, they do utterly disprove idiocy or imbecility. I will simply repeat what I have already indeed said, that those who are afflicted with lunacy, sometimes have the management of, and can manage, their pecuniary affairs—an idiot, never."

§ 8. It should be kept in mind, that the question of competency is intimately affected by the character of the act or instrument which it is sought to annul. A reasonable marriage, such as that of Lord Portsmouth to his first wife, entered upon under the advice of his family, and to a person every way competent to secure his position and his character from disgrace or injury, may be sustained; while an unsuitable one, to a woman of light character, will be set aside, when it appears that it was influenced by overpowering authority or trickery. A will, making a just distribution of an estate, will be held *per se* strong evidence of disposing capacity, while one turning the testator's property into an unnatural channel, gives at least some presumption to the contrary.(*a*) This is broadly stated by Sir John Nicholl in a recent case,(*b*) where he declares, that where a will is traced into the hands of a testator whose sanity is fairly impeached, but of whose sanity or insanity at the time of doing or performing some act with relation to the will, there is no direct evidence, the agent is to be inferred rational, or the contrary, from the character of the act.(*c*)

§ 9. In all cases except those when the act sought to be annulled was committed during actual insanity, the question is not whether the party had a capacity to do the particular thing intelligently, but whether he had capacity and information enough to comprehend and disregard any attempt which may have been made to coerce or deceive him. Precedents and authority on this branch of law, consequently, must stand by themselves, and cannot be considered as applying to the more important part of the present chapter, where this subject of responsibility for criminal offences is considered.

(*a*) Stewart *v.* Lispenard, 26 Wend. 255; Means *v.* Means, 5 Strobh. 167; Roberts *v.* Trawick, 13 Alab. 68; Couch *v.* Couch, 7 Alab. 519; Bannatyne *v.* Bannatyne, 16 Jur. 864, 14 English Rep. 581.

(*b*) Scruby *v.* Fordham, 1 Addams, 90.

(*c*) See generally 1 Jarman on Wills, (2 Am. Ed.) 69.

Mr. Shelford's views in this point are worthy of grave consideration. "One person," he says, "seeing a testator in extreme age, or under extreme sickness, thinks that if he knows those about him, and can answer an ordinary question with respect to the state of his illness, or his wants, such and similar matters render him capable of giving effect to a disposition by will, however complicated it may be, by the mere formal execution of the instrument; while another person may be of opinion, that though a testator, in the ordinary management of his affairs, can hold reasonable conversation, can fully comprehend all the usual and simple transactions of life, yet, if he is unable to take the active management of all his concerns, however involved those concerns may be, or if he is liable to become confused by entering into intricate transactions, he is totally incapable, and cannot enter into a testamentary disposition, however plain and simple it may be. Now, when opinions are formed by such opposite standards, it is obvious much contrariety will occur. Sir John Nicholl observed that experience in the Ecclesiastical Court teaches us, that evidence upon questions of capacity is almost always contradictory, such evidence being commonly that of opinion merely; and this contrariety proceeds from the obvious grounds, that of the witnesses, no two, possibly, have seen the party whose estate is deposed to, at precisely the same circumstances; and that each, again, of the several witnesses, no matter how numerous, measures, possibly, testamentary capacity by his own particular standard. These sources of discrepancy, and many more might be enumerated, are common to all cases of this description. There is an additional source, when the transaction of which they have to speak is remote, a circumstance sufficient in itself to account for no inconsiderable degree of contrariety of evidence, even where the witnesses have to speak of facts merely, and not of opinions formed and inferences built upon facts, of which most of the evidence furnished upon questions of capacity is commonly made up. If the Court, therefore, on questions of capacity, is accustomed to rely but little upon such evidence, so far as it is that of mere opinion, but to form its own judgment from the facts and the conduct of the parties at the time, it becomes it to do so, more peculiarly when much of the evidence not merely consists of opinions delivered long subsequently to the transactions which they profess to have suggested them, upon loose recollections, too, and after repeated discussions of the subject matter with interested parties."(*d*)

§ 10. The lowest test of capacity was applied in a very much contested case in New York, which is cited at large by Dr. Beck, and which excited great interest from the immense property at stake, and the respectability of the parties. It was there ruled,—and for the facts it is not necessary to do more than refer to the pages of the report, or to Dr. Beck's excellent summary,—that where a female had been always under the control of her friends, had never attempted to transact business, and manifested intellect and understanding only to a very low degree, a will executed by her in favor of a relative with whom she had spent the latter portion of her life, which was in accordance with intentions previously expressed by her, which was reasonable in itself, and

(*d*) Shelford on Lunacy, 277–8.

the object of which she understood, was valid, though it did not appear that she had given previous instruction for the draft of the will.(*e*) The authority of the case, it is true, is greatly weakened by the fact that it was decided by a vote of 12 to 6 of the Court of Errors of New York, which, under the constitution then in force, was the Senate of the State, and being chiefly a lay court, never possessed high professional authority, and which in the present instance reversed a decision to the contrary of the late very able Chancellor. Without regarding this case, therefore, as of great weight, so far as the authority of the senators who concurred with the majority are concerned, it may nevertheless be cited as a powerful illustration of the reluctance felt in both the professional and popular mind to overturn a will which in itself is in accordance with common sense and proper feeling.

§ 11. Upon similar principles the contracts of a person claimed to be imbecile or lunatic, are to be tested. An important distinction, however, is to be noticed in this respect. While on the one hand the courts will not lend their aid to *execute* or carry into effect a contract entered into by an incapable person, unless, perhaps, for necessaries,(*f*) where the fact of incapacity was known to the creditor; yet such is not the law when the incapacity was unknown, and no advantage has been taken, particularly when the contract has been in part executed.(*g*) "Where a person," says Pollock, C. B.,(*h*) "apparently of sound mind, and not known to be otherwise, enters into a contract for the purchase of property which is fair and bona fide, and which is executed and completed, and the property, the subject matter of the contract, has been paid for and fully enjoyed, and cannot be destroyed, so as to put the parties in *statu quo*, such contract cannot afterwards be set aside, either by the alleged lunatic, or those who represent him."(*i*) It is true that the leaning of American authority was for some time towards the position that the contracts of a lunatic, executed or unexecuted, were *per se* void, unless for necessaries ;(*j*) but more recently the justice of the exceptions already noticed have been recognized.(*k*) Nothing, however, but a strong case of fairness, innocence, and fullness of consideration, can validate a deed when the grantor is insane.(*l*)

§ 12. Testamentary incapacity does not necessarily presuppose the existence of insanity, in its technical sense. Weakness of intellect from extreme old age, whether arising from great bodily infirmity, or from intemperance, when it disqualifies the testator from knowing or appreciating the nature, effect, or consequences of the act he is engaged in, works a similar disability.(*m*) Great caution, indeed, should be used,

(*e*) See 2 Beck's Med. Jur. 828, &c.; Stewart *v.* Lispenard, 26 Wend. 255.
(*f*) Chitty on Contracts, 112; Story on Contracts, § 27; Addison on Contracts, 873.
(*g*) Molton *v.* Camroux, 4 Exch. 17; S. C. 2 Exch. R. 49. See *ante* § 2.
(*h*) 2 Exch. 503.
(*i*) See also Beavan *v.* M'Dowell, 24 English R. 486; 9 Wells, H. and G. 309.
(*j*) La Rue *v.* Giltyson, 4 Barr, 375; Mitchell *v.* Kingman, 5 Pick. 431; Rice *v.* Peet, 13 Johns. 543; Grant *v.* Thompson, 4 Connect. 103; Long *v.* Whidden, 2 N. H. 435; Fitzgerald *v.* Reed, 9 Sm. & Mar.; Ceaver *v.* Phelps, 11 Pick. 304.
(*k*) Beals *v.* See, 10 Barr, 56.
(*l*) Desilver's Est. 5 Rawle, 11; Bonsall *v.* Chancellor, 5 Wharton R. 37.
(*m*) Leech *v.* Leech, 11 Penn. Law J. 177. See in this connection Dr. Day's "Practical Treatise on the Domestic Management of the Most Important Diseases of Advanced Life." T. & W. Boome, London. 1849.

lest the existence of extreme old age should lead the medical witness to presume consequent imbecility. Against such a sequence the policy of the law and the interest of humanity unite in protesting. "It is one of the painful consequences of extreme old age," very beautifully said Chancellor Kent, in one of his earlier judgments, "that it ceases to excite interest, and is apt to be left solitary and neglected. The control which the law still gives to a man over the disposal of his property, is one of the most efficient means which he has in protracted life to command the attention due his infirmities. The will of such an aged man ought to be regarded with great tenderness, when it appears not to have been procured by fraudulent acts, but contains those very dispositions which the circumstances of his situation and the course of the natural affections dictated."(*n*)

In harmony with these views, wills have been sustained when the testator was eighty years of age, very deaf, and partially blind;(*o*) where he was of the same age, and was afflicted with a palsy, so that he could neither write nor feed himself;(*p*) and when he was between ninety and a hundred, and greatly debilitated.(*q*) It is true that when in old age the testator is shown to have been imposed upon or coerced, the will will be set aside; but this rather tends to strengthen than invade the sanctity of the testamentary privilege.(*r*)

The same view is to be taken of the bodily infirmities peculiar to old age. If they produce mental debility, of course, they work incapacity. But their mere existence will not be sufficient to produce this result. As long as can be done so consistent with public justice, the policy of the law requires that the protection to old age, afforded by the right of testamentary disposal, should continue unimpaired; and it is permitted to cease only when actual wrong would be done to third parties by its continuance, or where, by exposing the possessor to undue solicitation or to imposition, it proves an annoyance rather than an advantage. Nor is this rule without its foundation in the results of observation. The truth that the mind is not necessarily affected by bodily infirmity, is illustrated by numerous cases, one of the most striking of which is that of Dugald Stewart, who when unable from disease to take general exercise, to use his right hand, or to articulate distinctly, composed the third and fourth volumes of his Philosophy of the Human Mind.

§ 13. While a person blind, or deaf and dumb, is fully competent to make a will, the burden is upon the party setting the will up to prove that the testator knew the contents of the will, and was not imposed upon.(*s*) It has been questioned whether a person who was both blind and deaf and dumb, is competent to execute any instrument requiring consideration,(*t*) though in a late South Carolina case the possibility of a contrary view seems to be intimated.(*u*) And however wisely such may have been held to be the law at a time when to be deaf, dumb, and blind was equivalent to being utterly deprived of the avenues of perception, such can hardly be considered to be the case now, when to that

(*n*) Van Alst, *v.* Hunter, 5 John. Ch. 148.
(*o*) Lowe *v.* Williamson, 1 Green Ch. 82.
(*p*) Reed's Will, 2 B. Monr. 79.
(*q*) Van Alst, *v.* Hunter, 5 Johns. Ch. 148.
(*r*) 1 Jarm. on Wills, (2d Am. Ed.) 53.
(*s*) 1 Jarman on Wills, (2d Am. Ed.) 48.
(*t*) Ibid.
(*u*) Reynolds *v.* Reynolds, 1 Spear, 756–7.

unfortunate class a method of communication has been opened which may fit them to sustain and appreciate the relations of society.

2nd. *Partial Insanity.*

§ 14. It was for a long time the law in England, and remains so still in most of the American States, that proof of the existence of partial insanity is insufficient to defeat a will, unless the will be its direct offspring: provided that, at the time of making the will, the testator be sane in other respects upon ordinary subjects.(*v*) "It appears to me," says Mr. Justice Sergeant, in delivering an opinion of the Supreme Court of Pennsylvania in 1839,(*w*) "that the only question in such a case is, whether the person was of sound memory and discretion, considering the act done in all its bearings, and judging of the soundness of the mind of the supposed testator by his conduct and declarations at the time, and as connected with his previous insanity, and the degree of restoration of mind in the interval; and that if the erroneous and groundless impressions, received during the time of his delirium, shall retain their hold, (whether by some physical derangement of the brain, or by some indelible stamp on the thinking faculties,) that person must be considered still under a delusion—the effect continues, and it is only by effects we can judge of the existence of the exciting cause—and if he is under a delusion, though there be but a partial insanity, *yet if it be in relation to the act in question, it is well settled it will invalidate contracts generally, and defeat a will which is the direct offspring of this partial insanity.*"

The converse of this result, depending, however, on the same principle, is illustrated by a case decided by Judge King, in Philadelphia, in 1851, remarkable as being the last judgment of that eminent and clear-headed judge, who was then closing a judicial career of twenty-seven years' duration. "A monomaniacal delusion," he said, "inveterately entertained by a testator against one who would otherwise have been the natural object of his bounty, and shown to be the reason which has excluded him from it, and to have had no other existence except in the distempered imagination of the testator, would invalidate a will made under such influence. And for the very plain reason that a will made under the suggestion of such an insane delusion, is not what the law requires a will to be, the product of a mind capable of reasoning rightly. For although the law recognizes the difference between general and partial insanity, yet if the will has been made under the influence of such partial insanity, and as the product of it, it is as invalid as if made under the effects of an insanity never so general. Eccentricities of conduct, absurd opinions, or belief in things appearing to us extravagant, although they may be and are evidences of testamentary incapacity, do not constitute it necessarily and in themselves. A man may believe in witches and witchcraft, as it seems this testator did, or like him he may have believed his health to have been permanently affected by

(*v*) Shelford, Lunacy, 41, 296; 1 Jarm. on Wills, (2d Am. Ed.) 58.
(*w*) Boyd *v.* Eby, 8 W. 70.

slow poisons surreptitiously administered to him, and yet be competent to make a will, where such will is not shown to have some connection with such absurd opinions or extravagant belief, and where the mind is shown to be in other respects sound and vigorous, and the judgment intelligent and clear. This testator was upwards of eighty-three years old when he died, and consequently received his early impressions when the belief in witches and witchcraft still lingered among persons of a much higher social position, and of much better education than himself. Colonial America either inherited from the mother country, or received from the emigration of continental Europe, this absurd notion. Pennsylvania did not so far escape the general contagion as to make it very surprising that a man in the condition of life occupied by the testator, born before the American Revolution, should have participated in it."(*x*)

§ 15. The English rule was for a long time considered settled on the same basis, and was set forth with great fullness by the Prerogative Court, during Sir J. Nicholl's presidency.(*y*) The question there was as to the testamentary capacity of a gentleman named Stott, an eminent electrician, who had an only child, against whom he had, without cause, imbibed an uncontrollable disgust and aversion, which manifested itself in acts of great cruelty and oppression, and ultimately in a will by which she was cut off in favor of collateral relations. Sir J. Nicholl pronounced against the will, saying, "The deceased's state of mind at the time of making his will, is intimately, I think, connected with his state of mind on the subject matter of his will—understanding by this, the disposal, by will, of his property. If the deceased were at *all* times of unsound mind on the subject matter of his will, he *must* have been of unsound mind at *the* time of making his will. To suppose the contrary would be to suppose the deceased both sane and insane at the *same* time and on the *same* subject; a supposition, I apprehend, equally absurd in a legal and moral point of view. And, subject to these considerations, the question in the end to be determined, the point at final issue is,—not whether the deceased's insanity in certain *other* particulars, as proved by the daughter, should have the effect of defeating *a* will, *generally*, of the deceased, or even this *identical* will—but it is, whether his insanity, on the subject of his daughter, *as*, also proved by the daughter, should have the effect of defeating, not so much any will, (*a* will, *generally*,) of the *deceased*, as this identical will—and to the decision of that question I am to be understood as solely addressing myself in the following observations:

"Now the daughter being in this case the sole next of kin, the deceased's only child, it is quite impossible, I think, to disconnect the daughter from the subject matter of his will, that is of his property—they are subjects, in effect, identified. Hence the deceased's insanity on the subject of his daughter, *generally speaking*, being proved at *all* times, in my judgment, it follows that his insanity, at the time of making his will, is also proved, in my judgment—unless the contrary is to be inferred from the will itself. But the inference furnished by the

(*x*) Leech *v.* Leech, 11 Pa. L. J. 179.
(*y*) Dew *v.* Clark, 1 Addams, 279; 2 Ibid. 102; 3 Ibid. 79.

will itself, (and it is for this only that I refer to the dispositive part—to the contents of the will at all,) is quite the other way. For the prominent feature of the deceased's insanity, in respect to the daughter, was aversion or antipathy to the daughter, so pleaded and so proved; and the will is a will plainly inofficious, so far as regards the daughter, being a will by which she is, in effect, disinherited—disinherited, too, in favor of parties nearly utter strangers to the deceased, (for so it appears,) though not remotely connected with him by blood, being his sister's children. Therefore it follows that, in my judgment, the deceased is proved, upon the whole matter, to have been insane at the time of his making this will: which was the daughter's case. * * * Had the contents of the will furnished a contrary inference—had the will, so far as respects the daughter, been in all parts of it, an officious will, the conclusion on this head, and so upon the whole case, *might* have been different; the very contents of the will would in that case have inferred that however partially insane (insane on the subject of his daughter,) the deceased might have been, generally speaking, still, that such partial insanity was not in actual operation at the time of his making the will, in which respect the will *might* have been valid. * * * It has been said repeatedly by the counsel for the residuary legatees, that this 'partial insanity' is a something unknown to the law of England. Now if it be meant by this, that the law of England never deems a person both sane and insane at one and the same time, upon one and the same subject, the assertion is a mere truism, (as well, indeed, in reason as in law,) and as such is incapable of being effectively opposed. At the same time, as no such sort of partial insanity is set up by the daughter, the case of partial insanity which she has *really* undertaken to sustain, is at no risk from the truth of that position, so understood, being conceded. But if, by that position, it be meant, and intended, that the law of England never deems a party both sane and insane at *different* times, upon the *same* subject; and both sane and insane at the same time upon *different* subjects—(the most usual sense, this last, of the phrase '*partial insanity*,' and the one in which I take it to have been used throughout, by the counsel for the next of kin,) there can scarcely be a position more destitute of legal foundation; or rather, there can scarcely be one more adverse to the streams and current of legal authority." The learned judge sustained himself by the authority of Locke, who says, "A man who is very sober, and of a right understanding in all other things, may in *one* particular, be as frantic as any man in Bedlam;" and of Lord Hale, who expressly declares "there is a partial insanity of mind, and a total insanity. The former is either in respect to things, [*quoad hoc, vel quoad illud insanire*—some persons, that have a competent use of reason in respect to some subjects, are yet under a particular *dementia* in respect of some particular discourses, subjects, or applications], or else it is partial in respect of degrees; and this is the condition with very many, especially melancholy persons, who, for the most part, discover their defect in excessive fears and grief, and yet are not wholly destitute of the use of reason."

§ 16. It is true, that when in the same case a bill of review was applied for to Lord Chancellor Lyndhurst, he limited with evident caution his approval of the judgment of Sir J. Nicholl in such a way as to re-

serve the question of partial insanity as above stated. "I have read his judgment," he says,(z) "with great attention; and I collect from it that his meaning is this: that there must be unsoundness of mind to invalidate a will, but that the unsoundness may be evidenced in reference to one or more subjects. All that the learned judge meant to convey was, that it was no objection to the imputation of unsoundness, that it manifested itself only or principally with reference to one particular question, or one particular person."

§ 17. But in 1848, in a very remarkable case before the Privy Council, an opinion was delivered, without dissent, by Lord Brougham, as the judgment of himself, Lord Langdale, Dr. Lushington, and Mr. T. Pemberton Leigh, in which the notion of partial insanity on one point as consistent with testamentary capacity, was explicitly repudiated.(a) It is true that the case was one in which the same result could have been reached even on Sir J. Nicholl's reasoning. The testatrix, who was advanced in years, was excessively penurious and eccentric, was extremely irritable, wrangled with her servants to an excess, at times indulged in very obscene conversation, believed herself the object of various amorous enterprises, and among others from Lord Melbourne, and Lord J. Russel, who she believed prowled about the house as fishwomen. All this, and more, on Sir J. Nicholl's hypothesis, might have been consistent with a testamentary capacity. But in addition to this, it was shown that the testatrix had an insane delusion that her brother, whom she disinherited, had joined the Catholics, to whom she had an aversion, and haunted her house, also in disguise. Certainly, even on the theory of partial insanity, this, coupled as it was with an inquisition of lunacy, would have been enough to have vacated the will. But Lord Brougham, in delivering the judgment of the Privy Council, went further. "The question being," he said, "whether the will was duly made by a person of sound mind or not, our inquiry, of course, is, whether or not the party possessed his faculties, and possessed them in a healthful state. His mental powers may be still subsisting, no disease may have taken them away, and yet they may have been affected with disease, and thus may not have entitled their possessor to the appellation of a person whose mind was sound.

"Again, the disease affecting them may have been more or less general; it may have extended over a greater or a less portion of the understanding, or rather, we ought to say, that it may have affected more, or it may have affected fewer of the mental faculties. For we must keep always in view that which the inaccuracy of ordinary language inclines us to forget, that the mind is one and indivisible; that when we speak of its different powers or faculties, as memory, consciousness, we speak metaphorically, likening the mind to the body, as if it had members or compartments, whereas, in all accuracy of speech, we mean to speak of the mind acting variously, that is, remembering, fancying, reflecting, the same mind in all these operations being the agent. We therefore cannot in any correctness of language speak of general or partial insanity; but we may most accurately speak of the mind exerting itself in consciousness without cloud or imperfection; but

(z) 5 Russ. Ch. Cases, 163. (a) Waring *v.* Waring, 6 Moore P. C. Cases, 349.

being morbid when it fancies; and so its owner may have a diseased imagination, or the imagination may not be diseased, and yet the memory may be impaired, and the owner be said to have lost his memory. In these cases we do not mean that the mind has one faculty, as consciousness, sound; while another, as memory or imagination is diseased; but that the mind is sound when reflecting on its own operations, and diseased when exercising the combination termed imaginary, or casting the retrospect, called recollecting.

"This view of the subject, though apparently simple, and almost too unquestionable to require, or even to justify a formal statement, is of considerable importance when we come to examine cases of what are called, incorrectly, 'partial insanity,' which would be better described by the phrase 'insanity,' or 'unsoundness,' always existing, though only occasionally manifest.

"Nothing is more certain than the existence of mental disease of this description. Nay, by far the greater number of morbid cases belong to this class. They have acquired a name;—the disease called familiarly, as well as by physicians, 'Monomania,' on the supposition of its being confined, which it rarely is, to a single faculty or exercise of the mind: a person shall be of sound mind, to all appearance, upon all subjects save one or two, and on these he shall be subject to delusions,—mistaking for realities the suggestions of his imagination. The disease here is said to be in the imagination; that is, the patient's mind is morbid or unsound when it imagines; healthy and sound when it remembers. Nay, he may be of unsound mind when his imagination is employed on some subjects, in making some combinations, and sound when making others, or making one single kind of combination. Thus he may not believe all his fancies to be realities, but only some or one. Of such a person we usually predicate that he is of unsound mind only upon certain points. I have qualified the proposition thus on purpose; because if the being or essence which we term the mind is unsound on one subject, provided that unsoundness is at all times existing on that subject, it is quite erroneous to suppose such a mind really sound on other subjects. It is only sound in appearance; for if the subject of the delusion be presented to it, the unsoundness which is manifested by believing in the suggestions of fancy, as if they were realities, would break out; consequently, it is absurd to speak of this as a really sound mind (a mind sound when the subject of the delusion is not presented), as it would be to say that a person had not the gout, because, his attention being diverted from the pain by some more powerful sensation by which the person was affected, he, for the moment, was unconscious of his visitation. It follows, from hence, that no confidence can be placed in the acts, or in any act, of a diseased mind, however apparently rational that act may be, appear to be, or may in reality be. The act in question may be exactly such as a person without mental infirmity might well do. But there is this difference between the two cases: the person uniformly and always of sound mind could not, at the moment of the act done, be the prey of morbid delusion, whatever subject was presented to his mind; whereas, the person called partially insane, —that is to say, sometimes appearing to be of sound, and sometimes of unsound mind, would inevitably show his subjection to the disease

the instant the topic was suggested. Therefore, we can, with perfect confidence, rely on the act done by the former, because we are sure that no lurking insanity, no particular, or partial, or occasional delusion does mingle itself with the person's act, and materially affect it. But we never can rely on the act, however rational in appearance, done by the latter, because we have no security that the lurking delusion, the real unsoundness does not mingle itself with, or occasion the act. We are wrong in speaking of partial unsoundness; we are less incorrect in speaking of occasional unsoundness: we should say that the unsoundness always exists, but it requires a reference to the peculiar topic, else it lurks and appears not. But the malady is there, and as the mind is one and the same, it is really diseased, while apparently sound; and really its acts, whatever appearance they may put on, are only the acts of a morbid or unsound mind. Unless this reasoning be well founded, we cannot account for the unanimity with which men have always agreed in regarding as the acts of an insane mind those acts, to all appearance rational, which a person does who labors under delusions of a plainly extravagant nature, though there is nothing in the act done, and nothing in the conduct of the party while doing it, at all connected with the morbid fancies. If these fancies only affect the party now and then; if for some months he is free from them,—laboring under them at other times, then his acts apparently rational would not be regarded as those of a person mentally diseased. But if we were convinced that at the time of doing the acts the delusion continued, and was only latent by reason of the mind not having been pointed to its subject, and would have instantly shown itself had that subject been presented, then the act is at once regarded as that of a madman. Thus there have been many cases of persons laboring under the delusion that they were other than themselves; have believed themselves deceased emperors or conquerors; others, supernatural beings. Suppose one, who believed himself the Emperor of *Germany*, and, on all other subjects, was apparently of sound mind, did any act requiring mind, memory, and understanding. Suppose he made his will, and either did not sign it (before signing was required), or, if he did, signed it with his own name; but suppose we were quite convinced that, had any one spoken on the German diet, or proceeded to abuse the German Emperor, the testator's delusion would at once break forth, then we must at once pronounce the will void, but as officious and as rational, in every respect, as any deposition of property could be; of course, no one could propound such a will with any hopes of probate, if it happened that while making it the delusion had broken out, even although the instrument bore no marks of its existence at the time of its concoction, it must always be a question of evidence, on the whole facts and circumstances of the case, whether or not the morbid delusion existed at the time of the *factum;* that is, whether, had the subject of it been presented, the chord been struck, there would have arisen the insane discord which is absent, to all outward appearance, from the chord not having been struck. The principles which have been laid down do not at all differ from those on which the courts have acted, which text writers have construed, and which scientific men, both moralists and physicians, have approved. In the well known case of Dew *v.* Clark,

reported 3 Addams, 97, but also reported, with the great advantage of the learned Judge's corrections, and published separately by Dr. Haggard, we find Sir *John Nicholl* stating that mere eccentricity is not enough to constitute mental unsoundness, nor great caprice, nor violence of temper, but that there must be an aberration of reason; and he adopts a definition of delusion given by the learned counsel in the cause (now a member of this court), deeming it well described by the expression that "it is a belief of facts which no rational person would have believed." Perhaps, in a strictly logical view, this definition is liable to one exception, or, at least, exposed to one criticism, namely: that it gives a consequence for a definition; and it may be more strictly accurate to term "delusion" the belief of things as realities which exist only in the imagination of the patient. The frame or state of mind which indicates his incapacity to struggle against such an erroneous belief, constitutes an unsound mind. Sir John Nicholl justly adds that such delusions are generally attended with eccentricities, often with violence, very often with exaggerated suspicions and jealousies." * * * * "The existence of delusions being proved, and their continuance proved or assumed, at the date of the *factum*, so that the Court is satisfied of the testatrix then laboring under their influence, it is wholly immaterial that they do not appear in the will itself. The party propounding often approached this point in argument, and repeatedly adverted to the fact—perhaps we should say the assertion or assumption—that this will betrays no marks of the alleged delusions, or generally of an unsound mind. There was a manifest disposition to lay down a rule that no person laboring under monomania, or partial insanity, can be deemed intestable, unless the kind of insanity appears on the face of the will. But there was wanting the courage to lay down a proposition which would at once have been rejected, and must have been met with the question, Could any court admit to probate the will of the man who said (in the case cited by Sir *John Nicholl* in Dew *v.* Clark), 'I am the Christ,' although that will bore no marks whatever of an unsound mind, still less of the dreadful delusion under which the party labored?"

§ 18. It may therefore be considered as the present law of England, that a person partially insane is incompetent, so far as the making of wills or contracts is concerned, though as yet there has been no attempt to adopt the rule in this country. In fact its practical operation would be attended with many difficulties. It is true there are many cases, such as that just commented on, in which the particular monomania overshadows the entire intellect, or where it at least infringes upon the peculiar province of testamentary capacity. But it cannot be denied that in practice, cases of partial insanity or monomania frequently occur, in which there is an inflection of reason so definite and appreciable, as to make it impossible to exclude it from the general class of delusions, and yet which is found to be perfectly consistent with right reason, and with recognized business capacity in other respects. These cases will briefly be noticed.

§ 19. In the first place may be considered that common species of hallucination by which the mind, on being presented with a particular object, groups round it in a kind of reverie, the circumstances by which

it is ordinarily associated, and then assumes these circumstances as substantive existing facts. This is familiar to every one in the common process of a dream. "Thus," says Sir Walter Scott, "a dreamer hears a noise not sufficiently loud to awaken him entirely; at the same time something accidentally touches him. These impressions instantly form a part of his dreams, and adapt themselves to the tenor of the ideas that occupy his mind, whatever they may be. Nothing is more remarkable than the rapidity with which the imagination furnishes a complete explanation of this interruption to sleep, according to the manner in which ideas are presented by the dream, even without requiring a moment's respite for this operation. For example, if a duel is the subject of the dream, the noise that is really heard becomes the discharge of the pistols of the combatants. If an orator, in his dream, is making a speech, the noise becomes the plaudits of his supposed auditory. If the dreamer is transported in his dreams to the midst of ruins, the noise appears that of the fall of some portion of the walls. In a word, an explanatory system is adopted, in which the rapidity of thought is so great, that if we suppose the noise heard to be the first efforts of some one to awaken the sleeper, the explanation, although requiring a certain train of deductions, is usually finished and complete before a second effort has perfectly awakened the sleeper. There exists in the succession of ideas during sleep, an intuition so rapid, that it recalls the vision in which the prophet Mohammed saw all the wonders of heaven and hell, although the water contained in the jar, which was upset when his ecstasy commenced, was not completely emptied when he recovered the use of his ordinary faculties."

§ 20. The same process of association exists in many temperaments when the faculties are awake, and the hallucination becomes so blended with the reality as to become part of the texture of actual consciousness.

A vivid illustration of this—though in this instance the hallucination was fleeting while for the time entire—is cited from Wigan by de Boismont.(*b*) "I was in Paris," says the former, "at a soirée given by M. Bellart, some days before the execution of the Prince of Moskowa. The usher, having the name of M. Maréchal *ainé*, announced M. le Maréchal Ney. An electric shudder ran through the assembly, and, for my part I own that the resemblance to the prince was for a moment as perfect to my eyes as reality."

§ 21. An instance of hallucination, produced by association, of a much more permanent character, occurred to the present writer. Having occasion to receive a check as a dividend, for an amount which was readily remembered, as it was the same as had been received on the same day for several previous years, he deposited it, as he supposed, with the teller of the particular bank, which may be called bank A., where he kept an account. It so happened that at the opposite wing of the same building, with an entrance precisely similar, stood another bank, which may be called bank B. He went by mistake into the latter bank, and at once, supposing himself to be in the former, he invested it with the same drapery which it would have had if his supposition had been correct. Not having his bank-book with him, he presented the

(*b*) Rational History of Hallucination, 106.

check to the receiving teller, asking him to credit him with it as a deposit. It so happened that it had been his custom to hold a conversation in reference to a particular matter in which they had a common interest with the teller of bank A. When some weeks afterwards he discovered, on applying to bank A. for the entry in his own book of the deposit, that no such deposit had been noted by the teller, he turned back to the particular day when the check was received, of which the day and the amount was accurately planted on his memory, for the reasons already mentioned, and the actual fact of the deposit was brought to his recollection, grouped with the hallucination that it was bank A. that he had gone into—that it was the teller of bank A. whom he met—and that the particular inquiry so frequently before put to him in bank A. had been put to him then. The fact had been that on forming for himself an arbitrary and fictitious stand-point, he grouped around it the associations which would have attended the reality. So fixed, indeed, was his belief in the reality of the whole scene, that he would have testified to it under oath with as much positiveness as to any fact in his recollection. It was not until some time had expired that his mistake was discovered, and then only upon his accidentally being in bank B. and receiving an inquiry from the teller whether he meant to follow up the isolated deposit he had made on the particular day.

§ 22. Dr. Johnson was confident that he heard his deceased mother's voice crying "Samuel;" nor was this hallucination ever corrected; and yet no one would maintain that he was incapable of making a will.

§ 23. Lord Castlereagh, a short time before his very solemn death, and under every sanction which could exclude jesting, gave a narrative of a supposed apparition, in which he firmly believed, and which exercised a material influence on his life. When in the Irish Parliament, he went to visit a friend at a castle in the north of Ireland. Shown into a dark and venerable chamber, where there existed every material which would excite a superstitious imagination, having dismissed his valet, he went to bed. Hardly, however, was his candle extinguished when he became aware of a glimmer of light in his room. No fire had been lighted—the curtains were closed—and no explanation affording itself of this phenomenon, he rose from the bed, when, to his surprise, on turning to the point whence the light proceeded, he perceived the figure of a young and beautiful child, with a halo encircling its brow. With perfect confidence in the reality of the object, but believing it had been got up artificially as a joke, he followed it until it nestled in the arch of the great chimney, and at last sunk beneath the fireboard. The next morning he sought in vain for a clue by which the mystery could be dispelled. It was a subject which his host evidently shunned. On putting the question pointedly, however, Lord Castlereagh was informed that it was true that such a spectre as that had been reported in former times to have appeared under the title of the "Radiant Child." Once again the phantom appeared to the same noble and capable statesman—but no longer, it is said, with a radiant crown. This last appearance was not long before his own self-destruction, and yet, if the exterior alone was considered, when he was at the height of his power and glory. Certainly the spectre can now be easily explained, because a man who is weak enough to commit suicide, is not too strong to be haunted in a dream by an ap-

parition of whose traditional reputation he had undoubtedly heard, though the recollection afterwards escaped him. And yet we have here a case of an hallucination so entire as to produce partial insanity on that point, and perhaps to have been a motive power in his own suicide. Still it would hardly have been maintained that Lord Castlereagh, than whom no man of his day exhibited, when in public life, greater coolness or business clearness, was incapable, because of this single delusion, of making a contract or will.

§ 24. It is immaterial, so far as the principle is concerned, whether the hallucination be the result of a morbid imagination, as was the case with Lord Castlereagh, or of imposition on the part of others. In either case, if the hallucination be groundless and absurd, the seizing upon it by the mind as an item of faith, equally constitutes partial insanity.

§ 25. A butcher in full health, many years ago, as was related by an eminent physician of Philadelphia, was on his way to the city, when he was met by a party of medical students, who determined to see what would be the effect on him of an attempt to persuade him that he was affected with the premonitory symptoms of a fever then prevalent. At different points, one by one, they accosted him with inquiries as to what was the cause of his paleness, of the livid state of his skin, &c., and as to whether he was aware that marks of the epidemic were on him, &c. At first he sturdily repelled the supposition, but gradually became frightened, and at last returned home to be attacked by the very disease which had been attributed to him. Hearing that their experiment had been carried too far, his tormentors set to work in earnest to undeceive him; but it was too late. "You are joking now; or you are trying to cure a dying man by a trick," was his reply. "You were right at first; you cannot deceive me now by telling me it was a hoax."

It was the firm belief of Lord Herbert, of Cherbury, that a divine vision had indicated to him the correctness of a particular course of religious speculation which, on the faith of the supposed vision, he published, and which he made the basis of his future action. The second Lord Lyttleton was equally persuaded that a divine warning had admonished him of his approaching death. And no less confident, though less serious in its consequences, was the conviction of Philip, second Earl of Chesterfield, of the reality of a similar preternatural interference. One night, in the year 1652, he saw something white, like a spread sheet, at the head of his bed. He tried to seize it, but it slid away, and disappeared. His thoughts immediately turning to his wife, who was at Networth, with her father, he hurried there, but was met by a servant, with a letter from his wife, which informed him that precisely the same apparition had appeared to her, and had been the cause of the journey of the messenger whom she had dispatched to inquire as to his health.

§ 26. Abercrombie gives an illustration of habitual hallucination which at the same time was consistent with reason. The patient, when he met a person in the street, was uncertain whether the latter was a real person or a phantom, though with close observation he was able to detect the dissimilarity. The features of the real person would be more decided and more complete than those of the phantom; but the power of discrimination by this process was too uncertain to be relied on, and

the only test of which the patient felt certain was that of the voice, footstep, or touch. The phantom had none of these; the substance, of course, had all. He had the faculty of recalling his visions at will, by powerfully fixing his attention on the conceptions of his mind, but while the hallucination could be invoked at will, it could not be arbitrarily dispelled. That it *was* a hallucination, he was perfectly convinced; and that it was entirely consistent with general reason was demonstrated by his clearness of head and business capacity.

§ 27. A recent case in this country illustrates the same position with remarkable point. A merchant who had for years managed with shrewdness and success an extensive business, became thoroughly imbued with the spirit rapping and spirit conversing hallucination. Though he conducted his business as well as those who were not thus afflicted, his family conceived that this and cognate eccentricities made him a fit subject for a commission of lunacy. This he soon discovered, and laid his plans accordingly. He had theretofore done a cash business, and his punctuality and accuracy had won him extensive credit. He immediately proceeded to buy a large stock of goods from a number of the most sagacious business men within his reach, and gave long notes in exchange. "I do not know how it strikes you," was the way he broached the matter to his family, "but whatever may have been your chances once, they are but light now. All I have to do is to subpœna my friends to whom I have just given my notes, and you may depend upon it, they will not only testify strongly as to their opinion of my sanity, but will bring that opinion down to this particular hour."

§ 28. If the principle announced by Lord Brougham be correct, in no one of the preceding cases could the party affected be considered as possessed of testamentary capacity, or the capacity to contract. "Insane on one point, insane on all," would certainly disfranchise multitudes who are now considered practically competent to discharge all the business relations of life. Of such a doctrine it is difficult to estimate the perilous consequences. A party who cannot be compelled, on the ground of lunacy, to complete his own contract, cannot compel others to complete theirs, and the practical operations of society would be therefore seriously deranged.

§ 29. The cases which have just been noticed, comprise chiefly those in which, while the hallucination is positive, the practical inflection of conduct produced thereby is slight. This, however, cannot be said to be the case with those instances in which a supposed supernatural vision or monitor is received as a guide on the most momentous actions of life. Napoleon declared on many critical occasions that he was conscious of the preternatural vision of a star, which sometimes even appeared in his own cabinet, by which he allowed himself to be guided. Bernadotte, beyond doubt, on one important movement at least, was swerved from his course by the vision of an old woman. Constantine felt or feigned a similar impressibility. These cases, it is true, may be suspected, but suspicion cannot be thus cast on the multitudes of brave men who were driven in border or highland contests from the battle field by a threatening wraith, or who were encouraged to the wildest sacrifices by the beckoning of an imaginary finger or the invocations of a preternatural voice.

§ 30. There are, however, other cases in which there is a general morbid derangement of all, or of a material portion of the organs. To these, as well as to the great mass of instances where hallucination forms the ground work, the observations of de Boismont, on the case of a man who supposed that he had sank all his wealth at the bottom of a well, apply with great force. "It may be asked whether, in the state of mind in which the patient was, whose history we have related, he was capable of making a will. This is a very difficult question; but its solution is not an impossibility. When the conduct of the individual does not depart from received usages, when it is not controlled by one of those false ideas that make him hate his relations and friends without any motive, and when he regulates his expenses prudently, we do not think that whimsical actions, or words, the results of an erroneous belief, but having no influence on the prominent acts of his life, should deprive a person of his civil liberties, and of the power of making his will."

§ 31. Nor should it be forgotten that the effects of such incapacitation would be most cruel to the sufferer himself. Society is prone enough to make eccentricities and weaknesses the subject of contempt, ridicule or insult. The courts should be cautious how, by taking away the power to ensure respect, they thus increase the misfortune of a class into which no man can assure himself he may not fall—which includes almost the whole of those whose lot it is to reach extreme old age—and which already carries a burden sufficiently heavy. If such persons cannot reward by their bounty those by whom they are treated with tenderness, and by whose means their comfort is guarded, they will lose, in most instances, the only means remaining to them of self preservation. The law which thus deprives them of their own means of self support, should tender them in return a refuge by which, by public sanction, they could exact that attention which their own influence no longer enables them to secure. This, however, is certainly not done now, nor could it be done on any intelligible basis, without consigning a large proportion of the most efficient members of society to an asylum. As society at present stands, the only remedy seems to be to throw the same tender guardianship around the feeble minded and the eccentric, as in a passage already cited has been so touchingly invoked by Chancellor Kent for the old.

§ 32. In this country, as has already been seen, the law continues to be, that a vein of partial insanity does not affect testamentary capacity, except where it enters into the texture of the will. This has been expressly held to be the case with regard to mere eccentricities, no matter how extravagant, such as a belief in witches, or in the loss of health from the application of slow poison surreptitiously administered.(*c*) When they enter into the subject matter of the will, however, it of course falls.(*d*) And a will, otherwise capable of being sustained, was upheld, notwithstanding it appeared that the testator believed in reference to a future state of existence that there were degrees of happiness therein correspondent to and sympathizing with

(*c*) Leech *v.* Leech, 11 Penns. Law J., 177; Lee *v.* Lee, 4 M'Cord, 183.
(*d*) Johnson *v.* Moore, 1 Litt. 371.

the circles of society on earth,—that as a man stood in the latter, so he stood in the former,—and that there his position would be very much determined by the amount of property which he had acquired here.(*e*)

3d. *Lucid Intervals.*(*ee*)

§ 33. Of course, a person who is actually at the time a lunatic, cannot bind himself civilly, and so far as this, there is no ground for discussion. When a party is once proved to have been at the time insane, all question is at an end. The difficulty, however, is to the fact of *time*. Unless what in the courts has been called *habitual* insanity be shown, *i. e.*, such insanity as is, in its nature, continuous and chronic, the fact of the existence of a prior period of lunacy does not suffice even to throw the burden of proof on the party setting up competency. The case, however, is otherwise when such habitual insanity is shown to have existed; in which case the presumption is that the party was insane at the time, and the burthen is on those seeking to prove the contrary.(*f*) "If you can establish," says Sir Wm. Wynne, as cited by Mr. Jarman,(*g*) "that the party afflicted habitually by a malady of the mind has intermissions, and if there was an intermission of the disorder at the time of the act; that being proved, is sufficient, and the general habitual insanity will not affect it; but the effect of it is this: it inverts the order of proof and presumption; for, until proof of habitual insanity, the presumption is, the party agent, like all human creatures, was rational; but when an habitual insanity in the mind of the person who does the act is established, then the party who would take advantage of the fact of an interval of reason must prove it." And in a recent Massachusetts case, Dewey, J., said, "Neither observation nor experience shows us that persons who are insane from the effect of some violent disease, do not usually recover the right use of their mental faculties. Such cases are not unusual, and the return of a sound mind may be anticipated from the subsiding or removal of the disease which has prostrated their minds. It is not, therefore, to be stated as an unqualified maxim of the law, 'once insane, presumed to be always insane;' but reference must be had to the peculiar circumstances connected with the insanity of an individual, in deciding upon its effects upon the burthen of proof, or how far it may authorize the jury to infer that the same condition or state of mind attaches to the individual at a later period. There must be kept in view the distinction between the inferences to be drawn from proof of an habitual or apparently confirmed insanity, and that which may be only temporary."(*h*)

§ 34. In case of idiocy, a slightly different rule seems laid down. Thus, in a late case, the evidence showed that the deceased was, in 1815, placed in confinement as a lunatic, and there remained till 1817,

(*e*) Gass *v.* Gass, 3 Humph. 278.

(*ee*) See for the psychological view of this question, *post*, § 254.

(*f*) Hoge *v.* Fisher, 1 P. C. C. R. 163; Whitenack *v.* Strykee, 1 Green, C. R. 8; Harrison *v.* Rowan, 3 W. C. C. R. 580; Gable *v.* Grant, 2 Green, C. R. 629; Stevens *v.* Vancleve, 4 Wash. C. C. R. 262; Jackson *v.* Vandusen, 5 Johns. 144; Kelly *v.* Webster, 8 Shep. 46; 1 Jarm. on Wills, (2d Am. ed.) 65.

(*g*) 1 Jarm. on Wills, (2d Am. ed.) 65.

(*h*) Hix *v.* Whittemore, 4 Metc. 545.

when he was released. In 1820, about which time he was proved to have committed certain rational acts of business,(*hh*) he made a rational will. In 1822 he was again placed in confinement, and so remained till his death, in 1849. In 1833 he was found, on a commission, to have been of unsound mind, without lucid intervals, since 1815. The will was sustained on the ground that though it is otherwise with regard to lunacy, yet when idiocy is set up, it is disproved by contemporaneous intelligent acts of business.(*i*)

§ 35. Where no extraneous influence is shown to have been exerted, the character of the act itself, as has already been noticed, goes far to determine the capacity of the party at the particular time. In a very late case(*j*) Dr. Lushington said, "In the opinion of a very great judge, Sir William Wynne, in the celebrated case of Cartwright *v.* Cartwright, he said where a rational act was done in a rational manner, such was the strongest and best proof which could arise even as to a lucid interval. Now, I cannot say that I subscribe altogether to this observation of Sir William Wynne, for I do not, but it is entitled to great weight; and, to a certain extent, a rational act done in a rational manner, though not, I think, the strongest and best proof of a lucid interval, does contribute to the establishment of a lucid interval."

4th. *Intoxication.*

§ 36. As has been already incidentally observed, intoxication, when at the time prevailing, renders a party incompetent to make a contract or execute a will. It is true that most of the cases go on the ground of express or implied fraud, so far as acts *inter vivos* are concerned; for it is certainly only a little less culpable to enforce a bargain made with a drunken man than it is to make him drunk on purpose to secure it.(*k*) But the general position is well expressed by Pothier:(*l*) "Drunkenness," he says, "when it goes so far as absolutely to destroy the reason, renders a person, so long as it continues, incapable of contracting, since it renders him incapable of consent."(*m*) So rigorously has this doctrine been applied, that it was even held that drunkenness is a good defence by an endorser of a note against an innocent and bona fide holder;(*n*) though when a man is sober enough to write his own name correctly, it will require strong evidence of stupefaction or delirium to induce a jury to sustain his irresponsibility against an innocent third party. But drunkenness, though it is a shield, cannot be made an offensive weapon; and the law will not permit a man to use his drunkenness as a means of cheating others. Thus, a man who after buying goods when drunk retained them when sober, was held responsible for the price.(*o*)

§ 37. The distinction in this respect is thus stated by Vice-Chancellor Stuart: "The principles acted upon in Cook *v.* Clayworth were

(*hh*) See *ante*. § 7.
(*i*) Bannantyne *v.* Bannantyne, 16 Jur. 864, 14 English R. 581. (*j*) Ibid.
(*k*) Parke, B., Gore *v.* Gibson, 13 M. & W. 626; 2 Greenleaf on Ev. § 170; Pitt *v.* Smith, 3 Campb. 33; Fenton *v.* Halloway, 13 Stark, 126. (*l*) Obligations, N. 49.
(*m*) See also Chitty on Contracts, 112; Story on Contracts, 27.
(*n*) Sentance *v.* Poole, 3 C. & P. 1. (*o*) Alderson, B., Gore *v.* Gibson, *ut supra*.

that a party being in liquor when he entered into an agreement, was no reason for the Court to refuse a decree for specific performance, and they pointed out the rule to be acted on in these cases. In Cory *v.* Cory, and, subsequently, in Nagle *v.* Baylor, the same rule had been acted upon. The course of the Court had been, in cases of this kind, that it would not assist a person who had obtained or wished to get rid of an agreement or deed on the mere ground of intoxication; but only where any contrivance was used to draw him in to drink, or any unfair advantage taken of his situation, or in that extreme state of intoxication which deprived a man of his reason, did the Court interfere. The Court was disinclined to interfere in such cases; and if a bill were filed to enforce an agreement and it appeared that no fraud had been used, the duty of the Court was to dismiss the bill."(*p*)

§ 38. In actions, however, for *torts* (*i. e.* cases where the gist is personal injury), drunkenness is no defence to the merits. Thus, if a man is sued for injury to my property or person, it is no defence that he was drunk at the time, for the policy of the law is both to redress such wrongs and to discountenance intoxication.(*q*) And the plaintiff may even introduce the fact of drunkenness as an aggravating item, when the question is whether proper care was used in avoiding an accident. Thus, in a suit for injury to the plaintiff by running a sleigh against him, a very eminent American Judge, Gibson, C. J., said "the evidence of intoxication ought to have been received, not because the legal consequences of a drunken man's acts are different from those of a sober man's acts, but because, where the evidence of negligence is nearly balanced, the fact of drunkenness might turn the scale, inasmuch as a man partially bereft of his faculties would be less observant than if he were sober, and less regardful of the safety of others. For this purpose, but certainly not to inflame the damages, the evidence ought to have been admitted."(*r*)

§ 39. Drunkenness to such an extent as to render a party unconscious of what he is engaged in, or drunkenness even to a slight degree, when its effect is to render a party subject to the influence of others, avoids a will;(*s*) though the mere fact of the testator being at the time under the influence of liquor, will not suffice, unless consequent disability be proved.(*t*) Long continued prior habits of intoxication also, will not, of themselves, afford a presumption of incapacity, unless the testator was proved to have been drunk at the time.(*u*) The reason of this distinction between drunkenness and insanity is well pointed out by Sir John Nicholl. Insanity, he argued, may often be *latent*, whereas there can scarcely be such a thing as latent ebriety; and, consequently, all that is required to be shown, in ordinary cases, is the absence of excitement at the time of the act done; at least, the absence of excitement in any such degree as would vitiate the act done; "for," he said, "I suppose it will be readily conceded that, under a mere slight degree

(*p*) Stuart, V. C., Shaw *v.* Thackeray, 23 Eng. Reports, 21.
(*q*) Ray. Med. Jur. 292; Co. Lit. 247(*a*); 4 Rep. 124 (*b*); 4 Bl. Com. 25.
(*r*) Wynn *v.* Allard, 5 W. & S. 525. (*s*) Shelford on Lunacy, 274, 304.
(*t*) Shelford on Lunacy, 276; Starret *v.* Douglass, 2 Yeates, 48; Andress *v.* Weller, 2 Green, C. R., 604; Gardner *v.* Gardner, 21 Wend. 526.
(*u*) Ibid. Black *v.* Ellis, 3 Hill, S. C. 68; Ayrey *v.* Hill, 2 Addams, 206; Shelford on Lunacy, 276.

of that excitement, the memory and the understanding may be, in substance, as correct as in the total absence of any exciting cause. Whether, where the excitement in some degree is proved to have actually subsisted at the time of the act done, it did or did not subsist in the requisite degree to vitiate the act done, must depend, in each case, upon a *due* consideration of all the circumstances of that case in particular; it belonging to a description of cases that admits of no more definite rule, applicable to the determination of them, than the one I have suggested, that I am aware of."(*v*) Where the will was executed under the influence of drink intentionally and fraudulently administered, of course it falls, by the operation of a rule already noticed with regard to contracts; but where such is not the case, actual derangement of the reasoning faculties, arising by undue excitement, must be shown.(*w*) Certainly the effect would be most deleterious if the mere existence of excitement produced by stimulants was held to vitiate any act performed during its continuance.

II. What is necessary to be proved in order to deprive a party of the management of his estate.

§ 40. In most of the United States, as in England, process exists by which, when a party is incapable of the management of his estate, whether from mental unsoundness or from habitual drunkenness, a committee may be appointed, to whom the custody of his property is committed. It would be out of place to set forth here the statutes by which this process is defined and settled; it is enough now to notice the general scheme of practice which exists in England, and which has been with the exceptions of only slight alterations of detail, adopted in this country.

§ 41. When there is reason to believe that a party, from unsoundness of mind or habitual drunkenness is incapable of managing his affairs, a petition lies, generally from any person interested in his person or estate, for the issuing of a commission. Upon the reception of the petition, the court directs a commission to issue to one or more persons—generally required to be learned in the law—directing the inquiry by commissioner and jury, as to the facts of the petition. The commissioner being thus authorized, directs a precept to the sheriff, commanding him to summon a jury, who, when they meet, hear testimony, —on both sides if desired—on the matter submitted to them, and after being charged by the commissioner as to the law of the case, return a finding as to whether, from the lunacy or habitual drunkenness complained of, the respondent is incapable of managing his estate. Should the finding be in the affirmative, the court will appoint a committee who will take charge of the respondent's estate,(*x*) subject however to the absolute right(*y*) of the respondent to traverse the finding,—i. e., to put in a formal denial of it, in which case the question is determined

(*v*) 1 Jarman on Wills, (2d ed.,) 54.
(*w*) Wheeler *v.* Alderson, 3 Hagg. 602; 1 Jarman on Wills, (2d ed.,) 54–5.
(*x*) See as to the practice in regard to the appointment and removal of committees, Black's Est. 6 Harris, 434; Hulings *v.* Laird, 9 Harris, 268.
(*y*) Cumming in Re. 11 Eng. Law & Eq. 202.

before a court and jury, in the same way with any contested fact. Whether the alleged lunatic really is capable of volition as to a traverse, and desires that a traverse should be entered, will be determined, it seems, by the chancellor himself by personal examination or otherwise.(*z*)

§ 42. It will be seen that the point at issue under a commission of lunacy or habitual drunkenness, is the *general*, and not the *partial* or *particular* incompetency of the party who is the subject of the inquiry. It is a matter of some moment also, that the fullest opportunity of examination be given. When a particular instrument is sought to be vacated, or a particular crime to be excused, the testimony of the medical witness is necessarily drawn from but casual observation, made in most cases at a time when he had no reason to suspect the existence of the disease. Great incentives to fraud also exist, and it is well known how acute must be the penetration, and how sharp the tests which are not sometimes baffled by the simulation of mental unsoundness. On the other hand, a commission of lunacy is executed with deliberation, after a calm and full review of the previous life of the party under consideration. Nor is he likely himself to aid the inquiry by any undue sympathy, for his interests and his pride are both enlisted in resisting his moral and intellectual disfranchisement. It becomes, therefore, a simple test, Is the respondent prevented by mental unsoundness or habitual drunkenness from managing his own estate? If not, no matter how responsible he may be for crime, or capable at particular times of making a bargain, the finding must be against him. Upon a recovery of competency, the commission, on due cause shown, will be superseded.(*a*)

§ 43. "In commissions of lunacy," says Dr. Winslow, "the witness must not only be prepared to give an opinion as to the then state of mind of the party, and competency to take care of his person and manage his affairs, but he must be prepared occasionally to pronounce judgment as to a prior questionable condition of brain and mind. The alleged lunatic may, under the exercise of undue influence, have previously alienated his property by will, or been induced to execute other important documents. The witness will be called upon to depose as to the probable state of the brain at the time, and as to the length of the alleged existing attack of insanity. Well-marked symptoms of organic cerebral disease may be present, and it will in some cases be an important point to decide, whether such a condition of physical ill-health has not been of some years' duration, impairing the mental vigor, destroying all power of rational conduct and healthy continuity of thought, and thus interfering with a right exercise of the judgment and affections in the legitimate disposal of property."(*b*)

In a case which attracted much popular attention at the time,(*c*) Chief Baron Pollock declared, that "no person ought to be confined in

(*z*) Cumming in re. 11 Eng. Law & Eq. 202.

(*a*) See Lackey *v.* Lackey, 2 B. Monr. 478; Matter of Russell, 1 Barbour C. R. 38; Matter of Barbour, 2 ib. 97; Matter of Mason, 1 ib. 436; John Beaumont's case, 1 Wharton R. 52.

(*b*) Winslow on Medico Legal Evidence in cases of Insanity, 129, 130.

(*c*) Nottridge *v.* Ripley, before Chief Baron Pollock, sitting at Nisi Prius, June, 1849, reported in full in Journ. of Pscy. Med. vol. 2, p. 630.

a lunatic asylum unless dangerous to himself and others." This *dictum*, which certainly is inconsistent with the necessities of medical practice, has been combated and exploded with great ability by very eminent psychological authority,(*d*) and has not been followed by the current of American judicial opinion. There are necessarily cases when the safety of property and the health of the patient himself, require confinement in an asylum, though there be no danger of violence to himself and others, and it is not likely that the existence of such cases will be again judicially questioned. Whether the confinement, in any particular case, was proper or not, will be for the court and jury, if an action of false imprisonment be brought, to determine specially. And the law in such a case undoubtedly is, that confinement is justifiable, if either the safety of the patient or others require it, or it is necessary for his restoration to health.(*e*)

§ 44. In respect to *drunkenness* the law is, that while occasional acts of intoxication will not justify a finding of "habitual" drunkenness, yet on the other hand, it is not necessary for such a finding that the party should be constantly in an intoxicated state. Thus recently in Pennsylvania, Knox, P. J., in putting the case upon a traverse to the jury, said, "Neither was it necessary to make out the case that a person should be constantly in an intoxicated state, that a man might be an habitual drunkard, and yet be sober at times for days and weeks together. That the question was, had the traverser a fixed habit of drunkenness? Was he habituated to intoxication whenever the opportunity offered? The question is one of fact for the jury to find, but the court has no hesitation in saying, that the man who is intoxicated or drunk the one half of his time, should be pronounced an habitual drunkard." And in the Supreme Court, Rogers, J., said, "To constitute an habitual drunkard, it is not necessary that a man should be always drunk. It is impossible to lay down any fixed rule as to when a man shall be deemed an habitual drunkard. It must depend upon the decision of the jury under the direction of the court. It may, however, be safely said, that to bring a man within the meaning of the act, it is not necessary that he should always be drunk. Occasional acts of drunkenness, as the Judge says, do not make one an habitual drunkard. Nor is it necessary he should be continually in an intoxicated state. A man may be an habitual drunkard, and yet be sober for days and weeks together. The only rule is, has he a fixed habit for drunkenness? Was he habituated to intemperance whenever the opportunity offered? We agree that a man who is intoxicated or drunk one half his time is an habitual drunkard, and should be pronounced such. We also concur with the court, that if the jury found the traverser to have been at the date of the inquisition an habitual drunkard, it was necessary to decide whether he was capable or incapable of managing his estate. His incapacity in that event is a conclusion of law. It is not

(*d*) See a remonstrance with the Lord Chief Baron, touching the case of Nottridge *v.* Ripley, by John Conolly, M. D., 1849. A letter to the Lord Chancellor on the defect of the law regulating the custody of lunatics, by Charles Curten Cooper, London, 1849. Psychological Review, vol. 2, p. 564; ib. vol. 3, p. 14. A letter to the Right Hon. Lord Ashley, M. P., relative to the case of Nottridge *v.* Ripley, Dundee, 1849.

(*e*) Hinchman *v.* Ritchie, Brightly R. 143.

necessary to say, it is a *presumptio juris et de jure;* but, at least, it throws the burden of proof of capacity on the traversers. Indeed, it may be well doubted, whether his management or mismanagement of his estate is a matter of inquiry. It is very certain, under the act of the 13th of June, 1836, proceedings may be instituted against an habitual drunkard who has no estate. But this cannot be if the mismanagement of it be necessary. It is well said, that there must be an evidence of squandering property, to support a proceeding to declare an individual an habitual drunkard, else the object of the act in many cases would be defeated. For it is precautionary in its design, and hence a disposition of mind or body which might lead to the wasting of an estate, is sufficient to justify the enforcement of its provisions.(*f*) It is indeed impossible that a man can be an habitual drunkard without waste or mismanagement, as the very act of drunkenness is itself waste. In this case, even if required, the evidence was full and plenary to this point."(*g*)

III. What degree of unsoundness avoids responsibility for crime.

§ 45. The difficulties that have attended the discussion of this branch of the law of lunacy, have arisen from an attempt to reduce into an inflexible code, opinions which while relatively true in their particular connection, were not meant for general application. Thus, for instance, when a defendant in whom there is no pretence for mania or homicidal insanity, claims to be exempt from punishment on the ground of incapacity to distinguish right from wrong, the Court very properly tells the jury that the question for them to determine is, whether he labors under such incapacity or not. The error has been to seize such an expression as this as an arbitrary elementary dogma, and to insist on its application to all other cases. Or, take the converse, and suppose the defence is merely homicidal insanity. In such a case it would be very proper to tell the jury that, unless they believe the homicidal impulse to have been uncontrollable, they must convict. And yet nothing would be more unjust than to make this proposition, true in itself, a general rule to bear on such cases as idiocy. It is proposed to avoid this difficulty by treating this question practically, in the only way in which it can arise in the courts, and to consider briefly, not what is the general limit of moral responsibility in the abstract, but in what cases such responsibility ceases to exist.(*h*) These will be considered as follows:

1. Where the defendant is incapable of distinguishing right from wrong in reference to the particular case.

(*f*) Sill *v.* M'Night, 7 W. & Ser. 245. (*g*) Ludwick *v.* Com. 6 Harris, 173.

(*h*) The difficulty in this respect has been increased by the looseness with which legal adjudications are cited by even some of the more eminent text-writers. In fact, while the exigencies of counsel and the duty of judges require a constant recourse to the text books on this particular science, in making up such text books, the authorized law reports have not been sufficiently relied upon. Dr. Beck, it is true, in his valuable treatise, has spread on his pages reports of several of the older cases, and the same line of authorities has been more cursorily reviewed by others. And even in the very recent edition of Dr. Ray's work on this particular subject—"The Medical Jurisprudence of Insanity"—a work as remarkable for precision of expression and elegance of style as for general judicious-

2. Where he is acting under an insane delusion as to facts which, if true, would have relieved the act from responsibility, or when, in

ness and accuracy—it is declared that "judging from the few cases that have been reported, the course of practice in the English criminal courts has been in strict conformity with the principles laid down by Hale." The "principles laid down by Hale" are those which that humane judge and laborious text-writer—who prided himself in having never, on speculations of his own, advanced an opinion or pronounced a judgment—had drawn from the medical authorities of that day. These principles have since then been greatly modified both by legal and medical writers; and it is to be regretted that either class, in reviewing the matter, should confine themselves to the earlier authorities, and then declare that the old law continues unaltered, "judging from the few cases that have been reported." The fact is that both in this country and in England the cases "reported" on the subject are not "few" but numerous; and if they had been examined in detail, it would have been found that they kept pace with almost equal step with the advance of medical science. How far the latter has kept pace with them may be estimated from the fact that Dr. Ray—the author of the fullest and most recent work on this vexed subject—has, even in his edition of 1853, cited scarcely a single volume of the thousands in which the authorized reports of the American Courts are published. It is true that several American cases are noticed, and delicate shades of opinion declared to have been settled by them, but they are cited from the "notes of counsel," from "Niles' Register," from the "Dollar Newspaper," and from "Zion's Herald." Were no authorized reports to be had, these references might be received, though even then with great allowances; but in two, at least, of the four cases mentioned, authorized reports, both in pamphlet and in aggregate form, have been for some years before the public. Of course, not even substantial exactness can be secured by the use of evidence not only so entirely secondary, but which at the time it was issued, was meant only for popular use.

Of the mistakes arising from looseness of citation in this respect, we may take as an illustration Wood's case, which is relied upon with much complacency by Dr. Winslow, in his late Lectures on Insanity, (p. 102,) to show that in America "a verdict of lunacy" will be recorded, under circumstances which really show nothing more than vehement passion and morbid excitement. In that case, which occurred in Philadelphia in 1838, a father shot his daughter in a paroxysm of rage, caused by her improvident marriage. The prosecution was abandoned by the Attorney-general, under circumstances which were not at all connected with the defendant's sanity or insanity; and a verdict of *acquittal* was rendered—not of lunacy—in the teeth of a charge from the very able and humane judge—Judge King—who tried the case, that the defence of insanity had not been in any degree substantiated. The verdict is no authority whatever. It was produced by circumstances very derogatory to public justice—it was received with unbroken disapprobation by the entire community—and it was in direct opposition to the charge of the Court, instead of being responsive to it. Had the official report of the case been resorted to, the last fact, at least, would have been discovered.

Some degree of the severity of the censure with which the common law has been visited in this connection, will be abated by the accomplished gentlemen who have pronounced it, when they consider these facts. In fact, when the nature of the COMMON LAW—words oftener used than understood—is considered, a much modified view will be taken. The common law has been defined to be statutes worn out by time; it may more properly be treated as the precipitate of the wisdom of all ages—all professions—all countries. If a question is to be tried involving the most delicate point of mechanics, the testimony of experts is taken, and what they declare to be the law of philosophy, the judge declares to be the law of the land. If a question of marine right is to be determined, the mysterious laws of the sea are invoked—the "sweet influences of the Pleiades and the bands of Orion"—and as taught by science, they become part of the common law. And so on a trial where the question at issue was whether a certain species of fish was able to surmount obstructions by which a river in Maine had been dammed up by parties interested in the soil, it was held that the observations of scientific men, versed in this particular topic, were part of the common law of the land for the specific case; and that therefore naturalists, who had given attention to the habits of this fish under such circumstances, could be called to give their opinion on the merits. (Cottrill *v.* Mason, 3 Fairf. 222. See more fully as to cases in which the opinions of experts are evidence, post, § 94.) And the great works of the masters in all professions have become, also, part of the common law. Even by a judge of remarkable rigidity as a literal commentator on the older writers, this is freely admitted. "I consider the administrators of criminal law greatly indebted to them, (writers on medical jurisprudence, &c.,) for the results of their valuable experience, and professional discussions on the subject of insanity; and I believe that those judges who carefully study the medical writers, and pay the most respectful but discriminating attention to

connection with such insane delusion, his reasoning powers are so depraved as to make the commission of the particular act a natural result of the delusion.

3. When he is impelled by a morbid and uncontrollable impulse to commit the particular act.

After which will be considered,

4. The relations of drunkenness to responsibility for crime.

When other cases arise in which a sober and enlightened medical observation declares that there is no real moral responsibility in the patient, the same opinion will be adopted by the courts upon trial.

At present the reported cases may be classed under the preceding heads, to which attention is now invited.

1st. *When the defendant is incapable of distinguishing right from wrong in reference to the particular act.*

§ 46. Under this head may be enumerated persons afflicted with idiocy or amentia, or with general mania. It is certain that wherever such incapacity is shown to exist, the Court will direct an acquittal; or if a jury should convict in the teeth of such instructions, the Court will set the verdict aside. The authorities to this effect are so numerous, that a general reference to them is all that is here necessary, it being observed at the same time, that while the earlier cases lean to the position that such depravation of understanding must be general, it is now conceded that it is enough, if it is shown to have existed in reference to the particular act.(*i*)

To precisely this effect is the answer of the fifteen judges to the ques-

their scientific researches on the subject, will seldom if ever submit a case to a jury in such a way as to hazard the conviction of a deranged man." (Hornblower, C. J., 1 Zabriskie, 196.) So that when in any particular instance, ignorance may be exhibited or injustice done, it must be attributed, not to a want of flexibility in the system, but to an imperfect dissemination of truth by those who have assumed its guardianship.

Newspaper and other unofficial reports, in fact, however interesting, are of no legal authority, and they should be to a peculiar degree received with the same qualifications which have been noticed as required by all *nisi prius* charges. What a judge tells a jury is meant for a particular issue. If the evidence should show an old grudge, his duty would undoubtedly be, to say to the jury, that drunkenness must be left entirely out of consideration. If the defendant and the deceased were mere strangers, and the defendant in sudden passion, from what, to a man in his state of mind, would be adequate provocation, killed the deceased, it would be proper to tell the jury that drunkenness in this case would lower the case to manslaughter. It is plain, however, that expressions directed to a particular state of facts, cannot properly be severed from the context, and propounded as absolute independent principles applicable to all cases whatever. It is only by carefully marshaling the facts, that we learn what the opinions of the judge trying the case really was, and even then the position of the Court, the opportunities it has possessed for revision and a consultation of authorities after argument, and the authenticity and accuracy of the report, enter largely into the question how far the opinion so expressed is of weight.

(*i*) 1 Inst. 247; Bac. Abr. Idiot. Co. Litt. 247, (*a*); 1 Russ. on Cr. by Greaves, 13; 1 Hawk. cl. s. 3'; 4 Bla. Com. 24; Collinson on Lunacy, 573, 673,(*n.*); R. *v.* Oxford, 9 C. & P. 533; Burrow's Case, 1 Lewin, 238; R. *v.* Goode, 7 Ad. & El. 536; 67 Hans. Par. Deb. 728; Bowler's Case, Hadfield's Case, Ibid. 480; 1 Russ. 11; 27 How. St. Tr. 1316; Com. *v.* Rogers, 7 Metc. 500; 7 Bost. Law Rep. 449; Com. *v.* Mosler, 4 Barr, 267; Freeman *v.* People, 4 Denio, 10; State *v* Spencer, 1 Zabriskie, 196; State *v.* Gardiner, Wright's Ohio R. 392; Com. *v.* Farkin, 3 Penn. L. J. 482; Vance *v.* Com. 2 Virg. C. 132; M'Allister *v.* State, 17 Alab. 434; R. *v.* Barton, 3 Cox C. C. 275; R. *v.* Offord, 5 C. & P. 168; R. *v.* Higginson, 1 C. & K. 129; R. *v.* Stokes, 3 C. & K. 185; R. *v.* Layton, 4 Cox, C. C. 149; R. *v.* Vaughan, 1 Cox, C. C. 80.

tions propounded to them by the House of Lords in June, 1843—answers which were extra-judicially delivered, and which, therefore, though of weight as *opinions*, are not binding as *authority*. "The jury," they said, "ought to be told in all cases that every man is presumed to be sane, and to possess a sufficient degree of reason to be responsible for his crimes until the contrary be proved to their satisfaction; and that to establish a defence on the ground of insanity, it must be clearly proved that at the time of committing the act, the party accused was laboring under such a defect of reason, from disease of the mind, as not to know the nature and quality of the act he was doing, or if he did know it, that he did not know he was doing what was wrong."(*j*)

2d. *When the defendant is acting under an insane delusion as to circumstances, which, if true, would relieve the act from responsibility, or where his reasoning powers are so depraved as to make the commission of the particular act the natural consequence of the delusion.*

§ 47. The answer of the English judges on this point is worthy of notice. The question propounded to them in this respect, was, "If a person, under an insane delusion as to existing facts, commits an offence in consequence thereof, is he thereby excused?" "To which question," they replied, "the answer must of course depend on the nature of the delusion: but, making the same assumption as we did before, namely, that he labors under such partial delusion only, and is not in other respects insane, we think he must be considered in the same situation as to responsibility, as if the facts with respect to which the delusion exists, were real. For example; if under the influence of his delusion, he supposes another man to be in the act of attempting to take away his life, and he kills that man, as he supposes, in self defence, he would be exempt from punishment. If his delusion was, that the deceased had inflicted a serious injury to his character and fortune, and he killed him in revenge for such supposed injury, he would be liable to punishment."

§ 48. So far as the law thus stated goes,—and it is stated with extreme caution,—it has been always recognized as binding in this country. Even where there is no pretence of insanity, it has been held in one State, that if a man, though in no danger of serious bodily harm, through fear, alarm, or cowardice, kill another under the impression that great bodily injury is about to be inflicted on him, it is neither manslaughter nor murder, but self defence;(*k*) and though this proposition is too broadly stated, as is remarked by Bronson, J., when commenting on it in a recent case in New York, and should be qualified as to make it necessary that there should be facts and circumstances existing which would lead the jury to believe that the defendant had reasonable (in proportion to his own lights) ground for his belief, yet with this qualification it is now generally received.(*l*) And, indeed, as shown by Mr. Justice Bronson, in the case just noticed, after the general though tardy acquiescence in Selfridge's case, where

(*j*) 1 Car. & Kir. 134; 8 Scott, N. R. 595. (*k*) Granger *v.* State, 5 Yerger, 459.
(*l*) Shorter *v.* People, 2 Comstock, 197–202, S. C. 4 Barb. 460; Monroe *v.* State, 5 Geo. 85; State *v.* Scott, 4 Iredell, 409; People *v.* M'Leod, 1 Hill, 420; People *v.* Pine, 2 Bar-

the same view was taken as early as 1805 by Chief Justice Parker of Massachusetts, and after the almost literal incorporation of the leading distinctions of the latter case in the revised Statutes of New York, as well as into the judicial system of most of the States, the point must be considered as finally at rest. Perhaps the doctrine, as laid down originally in Selfridge's case, would have met with a much earlier acquiescence had not the supposed political bias of the court in that extraordinary trial, and the remarkable laxity shown in the framing of the bill and in the adjustment of bail, led to a deep-seated professional prejudice which struck at even such parts of the charge as were indisputably sound.(*m*)

§ 49. In none of the cases which have just been noticed, is the *actual* existence of danger an essential ingredient, and certainly, as the intentions of an assailant are incapable of positive ascertainment, such a danger can never be absolutely shown to exist. It is true that when the point has not been directly before the judicial mind, *dicta* have been thrown out to the effect, that the danger must be such as to alarm a reasonable man, but whenever the requisite state of facts has been presented, courts have not hesitated to say that the danger must be estimated, not by the jury's standard, but by that of the defendant himself. Thus, a very enlightened and learned judge in Pennsylvania, one who would be among the last to weaken any of the sanctions of human life, in a late case directed the jury to take into consideration "the relative characters, as individuals," of the deceased and the defendant, and, in determining whether the danger really was imminent or not, to inquire "whether the deceased was bold, strong, and of a violent and vindictive character, and the defendant much weaker, and of a timid disposition." And to the same effect will be found the cases in the Supreme Courts of Massachusetts and Pennsylvania, to be presently more particularly noticed.

§ 50. If, therefore, a delusion that a party is in danger, whether such delusion be the result of insanity or of physical causes, is a justification of violence adequate to remove the supposed danger,—and the answer of the English judges on this point corresponds with our own,—

bour 168; Roberts *v.* Slate, 3 Georg. 310; Com. *v.* Rogers, *supra*. See generally Wharton on Homicide, 216, 7, 8, 9, &c., and a very interesting series of notes in 7 Bost. Law Rep. (U. S.) 575, 689, &c.

(*m*) In a former work, (Wharton's C. L. 2d ed. 390,) the present writer went into a critical examination of Selfridge's case, and advanced the opinion that the verdict at least, as well as the preliminary proceedings, were inconsistent with a just appreciation of human life, and with the dignity of public justice. This view is by no means retracted; and the gradual development of the political correspondence of those days shows that an approval of Selfridge's course,—the shooting down by a man of thirty of a lad of eighteen, then an undergraduate in Harvard College, *because* the latter thought proper to suppose that the former, whose father he had just posted, might be ready to avenge the insult,—was made a party test. Indeed, John Adams (Cunning. Cor. 70,) tells us that "the great political parties in the State, were arranged under their respective standards on the simple question of the guilt or innocence of an individual under a criminal accusation." But it is due to the excellent jurist who presided at the trial to say that, however, in the reception and adjustment of bail,—two thousand dollars,—he may have been influenced by those political heats to which even the bench in those times was subject, his charge is a fair statement of the English common law, as adapted to our social condition. And however great may have been the zeal with which the case has been assailed, it is now impossible to refuse to recognize it as having been largely and definitely influential in settling this branch of American Jurisprudence.

it is difficult to avoid the conclusion, that a delusion as to the amount of force necessary to obviate the imagined attack should be equally potent. Thus, for instance, it is stated by the English judges, that if the party is under an insane delusion that the deceased is about to take his life, and he kills him to prevent it, he is to be exempt from punishment. The gist of this position consists in the *delusion*. If, therefore, by an insane delusion, or *depravation* of the reasoning faculty, the defendant insanely believes, either that the imagined evil is so intolerable as to make life-taking necessary or justifiable in order to avert it, or that while the evil is of a lesser grade, life-taking is an appropriate and just way of getting rid of it, the same reasoning applies. The principle may logically be stated thus:—

1. Any species of insane delusion exempts from punishment the perpetrator of an act committed under its influence.

2. The belief, unfounded in fact, that a party is in immediate danger of his life from another, may be such a delusion.

Or the belief that taking the life of another is the appropriate remedy for a minor though imagined evil, may be also an insane delusion.

3. Therefore, homicide, under such a delusion, is not liable to punishment.(*n*)

§ 51. The minor premise, it will at once be seen, may be varied, without weakening the conclusion, by inserting in its place any insane delusion, the existence of which would deprive the act of guilty consciousness. That an insane delusion, as to the value or meaning of human life, will have this effect, even though the party himself knows when committing the act that he is doing wrong, and is violating the laws of the land, is illustrated by Lord Erskine, in a well-known case: "Let me suppose," he said, "the character of an insane delusion consisted in the belief that some given person was any brute animal, or an inanimate being (and such cases have existed), and that upon the trial of such a lunatic for murder, you, being on your oaths, were convinced, upon the uncontradicted evidence of one hundred persons, that he believed the man he had destroyed to have been a potter's vessel; that it was quite impossible to doubt that fact, although to other intents and purposes he was sane,—answering, reasoning, acting as men, not in any manner tainted with insanity, converse and reason and conduct themselves. Suppose, further, that he believed the man whom he destroyed, but whom he destroyed as a potter's vessel, to be the property of another, and that he had malice against such supposed person, and that he meant to injure him, knowing the act he was doing to be malicious and injurious; and that, in short, he had full knowledge of all principles of good and evil; yet would it be possible to convict such a person of murder, if, from the influence of the disease, he was ignorant of the relation in which he stood to the man he had destroyed, and was utterly *unconscious* that he had struck at the life of a human being?"(*o*)

(*n*) It is important that by "punishment," as here used, should be understood such punishment as is inflicted on persons of sound mind. It is essential, however, to the policy of the present more humane mode of treatment for the insane that, in all cases where a party is acquitted *on ground of insanity*, strict confinement should be directed, in such a way as will exempt the community from any probable recurrence of such delirius outrages. This will hereafter be more fully considered: *post*, § 259–276.

(*o*) Winslow on Plea of Insanity, 6.

Again: in a case which has more than once occurred within the walls of a lunatic asylum, a man fancies himself to be the Grand Lama or Alexander the Great, and supposes that his neighbor is brought before him for an invasion of his sovereignty, and he cuts off his head or throttles him. He knows he is doing wrong; perhaps, from a sense of guilt, he conceals the body: he may have a clear perception of the legal consequences of his act. According to Mr. Wigan, such an association of a consciousness of the objective guilt and consequences of an act with an insane delusion, as to its subjective relation, is readily explained on the principle of the duality of the human mind; but however this may be, it is a matter in which all observers agree that the lunatic is, in most instances, conscious of the civil and social relations of his conduct.(*p*) Nor, even under the severe sanction of the older English text writers (who have, by their failure to reach this point, demonstrated how dangerous it is, with our own imperfect experience, to attempt to codify or dogmatize the laws into a few absolute propositions), has this truth evaded the practical recognition of the courts. Thus, in a case where it was proved that the defendant had taken the life of another under the notion that he was set about with a conspiracy to subject him to imprisonment and death, Lord Lyndhurst, while quoting with apparent entire acquiescence, Hale's doctrine, as promulgated by Sir James Mansfield in Bellingham's case, thought it not too liberal a sweep for him to tell the jury that they might "acquit the prisoner on the ground of insanity, if he did not know, when he committed the act, what the effect of it was with reference to the crime of murder." Certainly, without indulging in any levity, it might be readily imagined that an acquittal would be easy enough if it was necessary, in order to create responsibility, that the party should know the effect of it with reference to a question whose meaning, even to the Court itself, appears to have been enveloped in so much mist. But there can be no doubt, after careful examination of the whole case, that the point Lord Lyndhurst decided was, that a man who, under an insane delusion, shoots another, is irresponsible when the act is the product of the delusion. Such, indeed, on general reasoning, must be held to be the law in this country, and such will it be held to be when any particular case arises which requires its application. The fact that against this view militate certain expressions—*obiter dicta*—in recorded opinions, as well as in the answers of the English judges, will not prevent its practical recognition, any more than Lord Lyndhurst was prevented, by the first class of authorities, from advising the acquittal of Offord, and afterwards maintaining that that acquittal was consistent with the very precedents now cited against it.

§ 52. The delusion, however, must go to the root of the crime; or, in other words, the crime must have been the result of the delusion. Dr. Casper(*q*) has given us a pregnant illustration of this: A merchant, named Schraber was convicted of cheating by false pretences

(*p*) Wigan on Insanity, &c., London, 1844, 65; Winslow, Plea of Insanity, 16; Ray. Med. Jur. of Ins., § 17; Siebold Gericht, Med. § 219; Pinel Traite sur alienation mentale, 2d ed., Par. 1809, 156; Riel, Fieberlehre, 4 Bd. 396; Groos, Die Lehre von der Mania sine Delirio, Heidelberg, 1830; De Boismont on Halluc., Phil. 1853, 506.

(*q*) Wochenschrift, Nr. 31–32.

and false information, and was sentenced to imprisonment for six years. On an application to the Court to reconsider the sentence, insanity was set up, and it appeared that the prisoner either felt or feigned a belief that he was a legitimate son of the late Duke Charles of Mecklenberg Strelitz; which certainly if not a mere fiction, was an insane delusion. Much reason existed to believe that the whole thing was simulated; but, independently of this, the Court was clear that as the mania, if real, had no connection with his crime, it formed no ground for a revision of the sentence.

3rd. *Where the defendant is impelled by a morbid and uncontrollable impulse to commit the particular act.*

§ 53. The questions propounded to the English judges related solely to the doctrine of insane delusions; and the replies, though containing general expressions, can hardly, even in England, be considered as authoritative in a case where the defence is monomaniac impulse. In this country, the effect of such a defence, as distinguished from that of insane delusion, has been the subject of special consideration. The first case in which it was gravely considered is that of Commonwealth *v.* Rogers, before the Supreme Court of Massachusetts, in the spring of 1844.(*r*) Chief Justice Shaw—whose conservative tendencies on the great sanctions of human life cannot be suspected—found himself, in preparing his charge, embarrassed by the conflict between the dogmas of the older judges and the necessities of the particular case, and there is an evident struggle on his part to preserve as much as he could of the letter of the former, and at the same time to establish a principle by which the latter could be properly respected. He begins—we cite from the authorized report—by laying down two propositions of great breadth. "In order to constitute a crime," he says, "a person must have intelligence and capacity enough to have a criminal intent and purpose; and if his reason and mental powers are either so deficient that he has no will, no conscience, *or* controlling mental power, *or* if, through the overwhelming violence of mental disease, his intellectual power is for the time obliterated, he is not a responsible moral agent, and is not punishable for criminal acts. These extremes," he then proceeds to state, "are easily distinguished, and not to be mistaken. The difficulty lies between these extremes, in the cases of partial insanity, where the mind may be clouded and weakened, but not incapable of remembering, reasoning, and judging; or so perverted by insane delusion, as to act under false impressions and influences." To such cases—to those where the mind is not "incapable of judging," &c., and to those where it acts "under false impressions and influences,"—and to such alone, he applies the "right and wrong" test; reserving to it a very small sphere of action, since the defence of insanity would scarcely be ventured where there was both a capacity to judge, reason, and remember, and a freedom from false "impressions and influences." Taking up the particular de-

(*r*) This case is reported with great fullness, in pamphlet shape, by Messrs. Bemes & Bigelow, and is incorporated, in a condensed form, in the 7th volume of Mr. Metcalf's Reports, p. 500.

fence of monomania, which was that advanced in the case before him, he proceeds to state the law, with a liberality in entire accordance with the weight of medical authority. "This" (monomania) "may operate as an excuse for a criminal act in one of two modes. 1. Either the delusion is such that the person under its influence has a real and firm belief of some fact, not true in itself, but which, if it were true, would excuse his act: as where the belief is that the party killed had an immediate design upon his life, and under that belief the insane man kills in supposed self-defence. A common instance is where he fully believes that the act he is doing is done by the immediate command of God, and he acts under the delusive but sincere belief that what he is doing, is by the command of a superior power, which supersedes all human laws, and the laws of nature. 2. Or this state of delusion indicates, to an experienced person, that the mind is in a diseased state; that the known tendency of that diseased state of the mind is to break out into sudden paroxysms of violence, venting itself in homicide, or other violent acts towards friend and foe indiscriminately; so that, although there were no previous indications of violence, yet the subsequent act, connecting itself with the previous symptoms and indications, will enable an experienced person to say, that the outbreak was of such a character that for the time being it must have overborne memory and reason; that the act was the result of the disease and not of a mind capable of choosing; in short, that it was the result of uncontrollable impulse, and not of a person acted on by motives, and governed by will." * * * "Are the facts of such a character, taken in connection with the opinion of professional witnesses, as to induce the jury to believe that the accused was laboring for days under monomania, attended with delusion, and did thus indicate such a diseased state of the mind, that the act of killing the warden, was to be considered as an outbreak or paroxysm of disease, which for the time being overwhelmed and superseded reason and judgment, so that the diseased was not an accountable agent? If such was the case, the accused is entitled to an acquittal."

§ 54. In the fall of 1846 a similar defence was started before three of the judges of the Supreme Court of Pennsylvania, then holding an Oyer and Terminer in Philadelphia. In his charge to the jury, Chief Justice Gibson—a most able judge, thoroughly disciplined in and wedded to the common law, but at the same time endowed with an energy of perception and a delicacy of appreciation which gave him a remarkable zest for and a mastery over collateral sciences—after, in the first place, vehemently repudiating the doctrine that partial insanity excuses any thing but its direct results, and sliding, in reference to such cases, into the "right and wrong" test, proceeds: "But there is a *moral or homicidal* insanity, consisting of an irresistible inclination to kill or to commit some other particular offence.(s) There may be an unseen ligament pressing on the mind, drawing it to *consequences which it sees but cannot avoid*, and placing it under a coercion which, while its results are clearly perceived, is incapable of

(s) The charge was oral, having been reported by the present writer, and but hastily revised by the Judge himself, which may account for the want of literal exactness in this and other expressions.

resistance. The doctrine which acknowledges this mania is dangerous in its relations, and can be recognized only in the clearest cases. It ought to be shown to have been habitual, or at least to have evinced itself in more than a single instance. It is seldom directed against a particular individual; but that it may be so, is proved by the case of the young woman who was deluded by an irresistible impulse to destroy her child, *though aware of the heinous* nature of the act. The frequency of this constitutional malady is fortunately small, and it is better to confine it within the strictest limits. If juries were to allow it as a general motive, operating in cases of this character, its recognition would destroy social order as well as personal safety. To establish it as a justification in any particular case, it is necessary either to show, by clear proofs, its contemporaneous existence evinced by present circumstances, or the existence of an habitual tendency developed in previous cases, becoming in itself a second nature."

§ 55. In a still earlier case in Pennsylvania, Judge Lewis, then presiding in Lycoming county, and now Chief Justice of Pennsylvania, a judge by whom the subject of medical jurisprudence has received peculiar and careful attention—recognized the same doctrine, though with even greater reluctance. "Moral insanity arises from the existence of some of the natural propensities in such violence, that it is impossible not to yield to them. It bears a striking resemblance to vice, which is said to consist in an undue excitement of the passions and will, and in their irregular or crooked actions leading to crime. It is therefore to be received with the utmost scrutiny. It is not generally admitted in legal tribunals as a species of insanity which relieves from responsibility for crime, and it ought never to be admitted as a defence, until it is shown that these propensities exist in such violence, as to subjugate the intellect, control the will, and render it impossible for the party to do otherwise than yield. Where its existence is fully established, this species of insanity relieves from accountability to human laws. But this state of mind is not to be presumed without evidence, nor does it usually occur without some premonitory symptoms indicating its approach."(*t*)

§ 56. And, indeed, in all cases where clear proof is not presented of the existence of such a malady—difficult though it be to secure—it is important to keep in mind the striking observations of Lord Brougham, when the question was in discussion in the House of Lords. "With respect to the point, of a person being an accountable being, that was, an accountable being to the law of the land, a great confusion had pervaded the minds of some persons whom he was indisposed to call reasoners, who considered accountability in its moral sense, as mixing itself up with the only kind of accountableness with which they, as human legislators, had to do, or of which they could take cognizance. He could conceive of the case of a human being of a weakly constituted mind, who might by long brooding over real or fancied wrongs, work up so perverted a feeling of hatred against an individual that danger might

(*t*) The same view was, some years after, repeated by the same enlightened and able judge; Lewis Cr. Law, 404; and by Judge Edmonds, (2 Am. Jour. of Ins.); and Judge Whiting, (Freeman's Trial—Pamph.)

occur. He might not be deluded as to the actual existence of injuries he had received, but he might grievously and grossly exaggerate them, and they might so operate upon a weakly framed mind and intellect as to produce crime. He could conceive that the Maker of that man, in his infinite mercy, having regard to the object of his creation, might deem him not an object for punishment. But that man was accountable to human tribunals in a totally different sense. Man punished crime for the purpose of practically deterring others from offending, by committing a repetition of the like act. It was in that sense only that he had any thing to do with the doctrine of accountable and not accountable. He could conceive a person whom the Deity might not deem accountable, but who might be perfectly accountable to human laws."(*u*)

§ 57. Chief Justice Hornblower, it is true, in a charge, which bears the impress of his single authority, not having been reviewed by the Court, in banc, took still more decided ground, involving an emphatic disclaimer of moral insanity *in toto*. At the same time he rejects in a manner quite unexampled for its summariness, all the old tests, and reduces the inquiry to a point which, after all, leaves the widest margin. "In my judgment, the true question to be put to the jury is, whether the prisoner was *insane* at the time of committing the act; and in answer to that question there is little danger of a jury's giving a negative answer, and convicting a prisoner who is proved to be insane on the subject matter relating to or connected with the criminal act, or proved to be *so far* and *so generally* deranged as to render it difficult, or almost impossible, to discriminate between his sane and insane acts."(*v*) Had the most liberal doctrine of the test writers been given instead of this, the jury could hardly have been allowed greater latitude.

The great weight of American judicial authority, therefore, inclines to the recognition of homicidal insanity as a distinct basis of defence. And, in fact, this concession is but a legitimate consequence of the position already generally noticed, and to be presently more specifically considered, that the testimony of medical men is, on medical questions, to be received by Court and jury as authoritative.

§ 58. When such a view is taken there can be no doubt of the result. Those to whom the guardianship and study of the insane is committed, unite in saying that moral insanity is a distinct, well known malady, which arbitrarily impels its victim to involuntary crimes which he detests but cannot avoid. Judge Story, with his usual tenderness, refused to allow the conviction of a young woman who in a fit of puerperal mania threw her infant overboard, though she was perfectly conscious of the enormity of the act;(*w*) and what this humane and very able judge did, in the teeth of the old dogmas, from the necessity of the case, the modern psychologists teach to be in accordance with experience and right reason. The English and American writers, it may not be out of place here to notice, are distinct to this effect.(*x*)

§ 59. Nor is the testimony of the Continental Psychologists less em-

(*u*) Hans. Par. Deb. LXVII. 728. (*v*) State *v.* Spencer, 1 Zabriskie, 196.
(*w*) U. S. *v.* Hewson, 7 Bost. Law Rep. 361.
(*x*) Winslow on Plea of Insan. 35, 64; Ray's Med. Jur. 188, 192, 218; Guy's Med. Jur. 329; Rush on the Mind, 261; Wigan on Insanity, 81; 1 Beck's Med. Jur. 10th Ed. 774–5; *post* § 174—221.

phatic, as will hereafter be more fully considered when the general psychological characteristics of insanity are considered.(*y*) It is true that more recent observers have doubted the metaphysical accuracy of the definition given in the older treatises—*Mania sine delirio.* Thus it is justly noticed by Schürmayer,(*z*) that it is contrary to all received psychological theories to suppose that a particular passion or moral relation can become depraved without an intellectual inflection to some extent corresponding. But be this as it may, there is a uniform recognition by all the authoritative writers of this particular species of insanity, whether it be generally defined according to the popular English idiom, as moral insanity or moral monomania, or according to the phraseology of Ettmüller as *Melancholia sine delirio seu perturbatio mentis melancholia sine delirio*, or that of Pinel, as *Manie sans delire;* or whether as by the more recent and exact authorities, it be presented rather through the particular forms in which it exhibits itself, than through a positive and absolute definition.

§ 60. The limits of the present work will not permit a full consideration of the psychological and physiological reasoning by which the absurdity as well as the impossibility of the right and wrong test is demonstrated; and less difficulty is felt at this omission, as the task has been performed with great ability by Dr. Ray, in the preliminary views to his work on Insanity; by Mr. Winslow, in his essay on the Plea of insanity; by Mr. Wigan, in his remarkable treatise on the Duality of the Human Mind. Two prominent points, however, cannot be passed over:

1. The "right and wrong test" can never be rightly applied, because it rests in the conscience, which no human eye can penetrate.

2. It is useless, even if possible, as almost every case of decided insanity is accompanied with a moral sense.(*a*)

§ 61. To the illustrations which are adduced of this position by Esquirol, de Boismont, Ray, and Winslow, the present writer may be permitted to add one within the range of his own experience. A man named John Billman, who had been sent to the Eastern Penitentiary of Pennsylvania for horse stealing, murdered his keeper under circumstances of great brutality, and yet with so much ingenuity as to elude suspicions of his intentions, and almost conceal his flight. He hung a noose on the outside of the small window which is placed in the door of the cells to enable persons outside to look in. He then induced the keeper, in order to look at something on the floor directly at the foot of the door, to put his head entirely through. The noose was then drawn, and but for an accident, the man would have been suffocated. Notwithstanding this attempt, the same keeper was inveigled into the cell alone, a few days afterwards, on the pretence of Billman being sick, and was there killed by a blow on the head with a piece of washboard. Billman undressed him; changed clothes with him; placed him on the bed in such a position as to induce the general appearance of his being there himself; traversed in his assumed garb, the corridor with an unconcerned air; addressed an apparently careless question to the

(*y*) *Post* § 174–221. (*z*) Gericht. Medicin, Erlangen, 1850, § 549.
(*a*) Winslow's Plea of Insan. 6, 11, 19; Ray Med. Jur. 34, 5, 6.

gate-keeper, and sauntered listlessly down the street on which the gate opened. He was, however, soon caught; but his insanity was so indisputable, that the prosecuting authorities, after having instituted a careful and skilful medical examination, became convinced of his irresponsibility, and united upon the trial in asking a verdict of acquittal on the ground of insanity. He was then remanded to confinement, under the Pennsylvania practice; and some time afterwards, when in a communicative mood, disclosed the fact of his having several years back murdered his father under circumstances which he detailed with great minuteness and zest. Inquiries were instituted, and it was found that he had told the truth. The father had been found strangled in his bed; the son had been arrested for the crime; but so artfully had he contrived the homicide, that he was acquitted by means of an alibi, got up by means of a rapid ride at midnight, and a feigned sleep in a chamber, into which he had clambered by a window. Here, then, was not only a sense of guilt, but a keen appreciation of the consequences of exposure, and an abundance of evidence of long harbored intention and intelligent design.

A still more emphatic illustration of the same sense of accountability among lunatics, as a class, is to be found in an anecdote related by Dr. Winslow.(*b*) When Martin set York Minster on fire, a conversation took place among the inmates of a neighboring lunatic asylum, having reference to this general topic. The question was, whether Martin would be hanged, when, in the course of the discourse, one madman announced to the others a position, in which they all acquiesced, that Martin would not be hanged, because he was "one of themselves." It certainly will not be maintained that a consciousness of the legal relations of crime, such as this remark exhibited, confers responsibility where it does not otherwise exist.

IV. How intoxication affects responsibility for crime.

The law in this connection may be summed up as follows:—

1st. Insanity, produced by *delirium tremens*, affects responsibility in the same way, as insanity produced by any other cause.

2nd. Insanity, immediately produced by intoxication, does not destroy responsibility, if the patient, when sane and responsible, makes himself intoxicated.

3rd. While drunkenness *per se* is no defence to the *fact* of guilt, yet when the question of *intent* or *premeditation* is concerned, it becomes a material item of consideration.

1*st. Insanity produced by delirium tremens affects the responsibility in the same way as insanity produced by any other cause.*

§ 62. If a man who, laboring under *delirium tremens*, kills another, is made responsible, there is scarcely any species of insanity which on

(*b*) Lectures, &c. 108.

like principles would not be subjected to the severest penalties of criminal law. "It may be the immediate effect," says Dr. Ray,(c) "of an excess, or series of excesses, in those who are not habitually intemperate, as well as in those who are; but it most commonly occurs in habitual drinkers, after a few days total abstinence from spirituous liquors. It is also very liable to occur in this latter class when laboring under other diseases, or severe external injuries, that give rise to any degree of constitutional disturbance. The approach of the disease is generally indicated by a slight tremor and faltering of the hands and lower extremities, a tremulousness of the voice, a certain restlessness and sense of anxiety which the patient knows not how to describe or account for, disturbed sleep, and impaired appetite. These symptoms having continued two or three days, at the end of which time they have obviously increased in severity, the patient ceases to sleep altogether, and soon becomes delirious. At first the delirium is not constant, the mind wandering during the night, but, during the day, when its attention is fixed, capable of rational discourse. It is not long, however, before it becomes constant, and constitutes the most prominent feature of the disease. Occasionally the delirium occurs at an earlier period of the disease, and may even be the first symptom of any disorder. This state of watchfulness and delirium continues three or four days, when, if the patient recover, it is succeeded by sleep, which at first appears in uneasy and irregular naps, and lastly in long, sound, and refreshing slumbers. When sleep does not supervene about this period, the disease is fatal; and whether subjected to medical treatment or left to itself, neither its symptoms nor its duration are materially modified. The character of the delirium in this disease is peculiar, bearing a stronger resemblance than any other form of mental derangement, to dreaming. It would seem as if the dreams which disturb and harass the mind during the imperfect sleep that precedes the explosion of the disease, continue to occupy it when awake, being then viewed as realities, instead of dreams. The patient imagines himself, for instance, to be in some peculiar situation, or engaged in certain occupations, according to each individual's habits and profession; and his discourse and conduct are conformed to this delusion, with this striking peculiarity, however, that he is thwarted at every step, and is constantly meeting with obstacles that defy his utmost efforts to remove. Almost invariably, the patient manifests, more or less, feelings of suspicion or fear, laboring under continual apprehension of being made the victim of sinister designs and practices. He imagines that certain people have conspired to rob or murder him, and insists that he can hear them in an adjoining apartment, arranging their plans and preparing to rush into his room; or that he is in a strange place, where he is forcibly detained and prevented from going to his own home. One of the most common hallucinations is, to be constantly seeing devils, snakes, vermin, and all manner of unclean things around him and about him, and filling every nook and corner of his apartment. The extreme terror which these delusions often inspire, produces in the countenance an unutterable expression of anguish, and, in the hope of escaping from his fancied tormentors, the wretched patient

(c) Med. Jur. 438.

endeavors to cut his throat or jump from the window. Under the influence of these terrible apprehensions he sometimes murders his wife or attendant, whom his disordered imagination identifies with his enemies, though he is generally tractable, and not inclined to be mischievous. After perpetrating an act of this kind, he generally gives some illusive reason for his conduct, rejoices in his success, and expresses his regret at not having done it before."(*cc*)

§ 63. As far as concerns temporary incapacity, therefore, *delirium tremens* acts in the same way as any other *delirium*, and when complete, destroys the moral as well as the intellectual responsibility. The only question, therefore, is whether there is anything in the *source* from which it is derived which requires that it should be exempted from the general rule by which delirium forms a good defence to an indictment for a criminal offence. In the *dicta* of one or two of the older law writers, this exception is sought to be sustained on the ground that a drunkard, in every stage, is a voluntary demon, and that he can no more use his consequent mania as a defence, than can the man who kills another by a sword allege that it was the sword, and not himself, that was the guilty agent. But to this the answer is three-fold:(1) that *delirium tremens* is not the *intended* result of drink in the same way that drunkenness is; (2) that there is no possiblity that *delirium tremens* will be voluntarily generated in order to afford a cloak for a particular crime; (3) that, so far as original cause is concerned, it is not peculiar in being the offspring of indiscretion or guilt, for such is the case with almost every other species of insanity. These points scarcely need to be expanded. The fact is, *delirium tremens* runs the same course with almost every other species of insanity known in the criminal courts. It is the result, like most other manias, of prior vicious indulgence; but it differs from intoxication in being shunned rather than courted by the patient, and in being incapable of voluntary assumption for the purpose of covering guilt.

§ 64. Reason, therefore, undoubtedly teaches us that a person who is incapacitated from moral and intellectual agency, by reason of *delirium tremens*, is irresponsible; and such is the law, as decided in repeated instances.(*d*) Thus, in the leading American case, Story, J., declared criminal responsibility not to attach where the delirium is the "remote consequence" of voluntary intoxication, "superinduced by the antecedent exhaustion of the party, arising from gross and habitual drunkenness. However criminal," he proceeded to say, "in a moral point of view, such an indulgence is, and however justly a party may be responsible for his acts arising from it, to Almighty God, human tribunals are generally restricted from punishing them, since they are not the acts of a reasonable being. Had the crime been committed when Drew (the defendant) was in a fit of intoxication, he would have been liable to be convicted of murder. As he was not then intoxicated, but merely insane from an abstinence from liquor, he cannot be pronounced guilty of the offence. The law looks to the immediate, and not to the remote

(*cc*) See an interesting case of *Oinomania* in 8 Am. Jour. of Insan. 3.

(*d*) U. S. *v.* Drew, 5 Mason, U. S. Rep. 28; Bennett *v.* State, Mart. & Yerg. 133; Cornwell *v.* State, ibid. 14; R. *v.* Thomas, 8 C. & P. 820; R. *v.* Meakin, 7 C. & P. 299; Rennie's case, 1 Lew. C. C. 76; 1 Hale, 32; 1 Rus. on Cr. 7; 4 Black. Com. 26.

cause; to the actual state of the party, and not to the causes which remotely produced it. Many species of insanity arise, remotely, from what, in a moral view, is a criminal neglect or fault of the party; as from religious melancholy, undue exposure, extravagant pride, ambition, &c. Yet such insanity has always been deemed a sufficient excuse for any crime done under its influence."

§ 65. In a still earlier case of at least equal authority, the court told the jury that if they "should be satisfied by the evidence, that the prisoner, at the time of committing the act charged in the indictment, was in such a state of mental insanity not produced by the immediate effects of intoxicating drinks, as not to have been conscious of the moral turpitude of the act, they should find him not guilty." (*e*) And expressly to this very point is a very recent case, where a federal judge of high authority told the jury that if the defendant was "so far insane as not to know the nature of the act, nor whether it was wrong or not, he is not punishable, although such *delirium tremens* is produced by the voluntary use of intoxicating liquors." (*f*)

2d. *Insanity immediately produced by intoxication does not destroy responsibility, where the patient when sane and responsible, made himself voluntarily intoxicated.*

§ 66. There can be no doubt on this point, either on principle, policy or authority. Drunkenness, so long as it does not prostrate the faculties, cannot be distinguished from any other kind of passion. If the man who is maddened by an unprovoked attack upon his person, his reputation or his honor, be nevertheless criminally responsible,—if hot blood form no defence to the fact of guilt,—it would be a most extraordinary anomaly if drunkenness voluntarily assumed should have that effect, independently of all extraneous provocation whatever. If, as is assumed,—or else there is no ground for the exception,—drunkenness so incapacitates the reason as to make it at least partially incapable of distinguishing between right and wrong, or else so inflames the passions as to make restraint unsupportable, then comes in the familiar principle that the man who voluntarily assumes an attitude or does an act which is likely to produce death in others, is responsible for the consequences, even though he had at the time no specific intentions to take the life of any one. Thus, if a man breaking an unruly horse wilfully ride him among a crowd of persons, the probable danger being great and apparent, or if a workman out of sport or mischief, slide a plank from the top of a roof into a crowded street, or if a manufacturer deliberately and knowingly leave in the cellar of an uninhabited house a keg of powder, and death ensue, it is murder at common law. (*g*) And so it must also be held that the steamboat captain who deliberately dashes his boat into a crowd of smaller craft, so that life is taken, is in like manner responsible. There can be no question as to this. The man who voluntarily arms himself with weapons of destruction, and then throws them hap-

(*e*) U. S. *v.* Clarke, 2 Cranch. C. C. R. 158. (*f*) U. S. *v.* McGlue, 1 Curtis, C. C. R. 1.
(*g*) See Wharton on Homicide, 45, where these points are fully established.

hazard among the innocent or unoffending, without even the excuse of specific malice or provocation, is at least as dangerous as the assassin who picks out his victim in advance. Against the last there may be some checks,—against the first none. Caution may ward off the one, or innocence escape it, but to the other the most innocent and benevolent would be as likely to fall victim as the most malevolent. The mind in the last case may be inflamed with revenge,—that "Wild Justice," as Bacon calls it,—which though no defence, is yet capable of being reached by reason and averted by care. But in the former, the motive is mere gross sensual indulgence, and the blow cannot be restrained by strength, or avoided by inoffensiveness.

§ 67. As a mere matter of legal *policy*, the same position holds good. There never could be a conviction for homicide if drunkenness avoided responsibility.(*gg*) As it is, most of the premeditated homicides are committed under the stimulus of liquor. The guilty purpose is at first sedately conceived, but there are few men whose temperaments are so firmly knit as to enable them to enter a scene of blood, without first fortifying themselves for the task to be performed. The head dreads the heart's cowardice, and seeks to insure against it by drink. It will be found in fact that there is scarcely a case of violent homicide, in which it does not appear that the defendant strengthened his nerves for the execution of his guilty plan by drink; just in the same way that he strengthened his hand by the fatal weapon. If, therefore, drunkenness imparts irresponsibility, there are not only but few convictions which have heretofore taken place which are good, but there will be no convictions at all for the future. If the assassin will not take liquor to strengthen his nerves, he will to avoid conviction. There would be no species of *deliberate* homicide, under such a dispensation, that would not avoid punishment. It would be the indeliberate only that would be made responsible.

§ 68 The tenor of common and civil law authority to this effect is clear. Even the German text writers, who generally attenuate to so wide and thin a texture the doctrine of moral responsibility, do not undertake to treat drunkenness as a defence. Sir E. Coke scarcely goes beyond the tenor of civil as well as of common law writers, when he says, "As for a drunkard who is *voluntarius dæmon*, he hath, as has been said, no privilege thereby, but what hurt or ill soever he doth, his drunkenness doth aggravate it. *Omne crimen ebrietas et incendit et detegit.*"(*h*) And although now drunkenness cannot be said to aggravate a crime in a judicial sense, yet it is well settled that it forms no defence to the fact of guilt. Thus Judge Story, in a case already cited, after noticing that insanity, as a general rule, produces irresponsibility, went on to say, "An exception is, when the crime is committed by a party while in a fit of intoxication, the law allowing not a man to avail himself of the excuse of his own gross vice and misconduct, to shelter himself from the legal consequences of such crime." Lord Hale says, "The third sort of madness is that which is *dementia affectata*, namely, drunkenness. This vice doth deprive a man of his reason, and puts many men into a perfect but temporary

(*gg*) See *post*, § 92. (*h*) Co. Litt. 247, *a*.

phrensy; but by the laws of England, such a person shall have no privileges by his voluntarily contracted madness, but shall have the same judgment as if he were in his right senses."(*i*) And so Parke, B., a very authoritative English crown judge, said to a jury in 1837, "I must also tell you, that if a man makes himself voluntarily drunk, it is no excuse for any crime he may commit whilst he is so; he takes the consequences of his own voluntary act, or most crimes would go unpunished."(*j*) And Alderson, B., said in 1836, "If a man chooses to get drunk, it is his own voluntary act; it is very different from madness which is not caused by any act of the person. That voluntary species of madness which it is in a party's power to abstain from, he must answer for."(*k*) In harmony with this is the whole current of English authority.(*l*)

§ 69. In this country the same position has been taken with marked uniformity, it being invariably held that drunkenness is no defence to the *factum* of guilt; the only point about which there has been any fluctuation, being the extent to which evidence of drunkenness is receivable to determine the exactness of the intent or the extent of deliberation.(*m*)

3d. *While Intoxication* per se *is no defence to the fact of guilt, yet when the question of intent or premeditation is concerned, it is material for the purpose of determining the precise degree.*

§ 70. Great caution is undoubtedly necessary in the application of this doctrine, for, as has already been remarked, there are few cases of premeditated violent homicide, in which the defendant does not previously nerve himself for the encounter by liquor, and there would in future be none at all, if the fact of being in liquor at the time is enough to disprove the existence of premeditation. The true view, therefore, would seem to be, not that the fact of liquor having been taken is of any value at all on the question of intent or premeditation, but that when there is no evidence of premeditation *aliunde*, and where the defendant is proved at the time of the occurrence to be in a state of mental confusion of which drink was the cause, the fact of such mental confusion may be received to show either that there was no specific intent to take life, or that there was no positive premeditation. In the cases arising out of the statutes resolving murder into two degrees, in which the distinguishing test is a specific intent to take life, this position receives several pregnant illustrations. Thus, in the Philadelphia riot cases of 1844, where it was shown that bodies of men were inflamed by sectarian and local prejudices, and blinded by a wild ap-

(*i*) 1 Hale, 7; 4 Black. Com. 26; Wharton's C. L. (3d. edition,) 92; 1 Gabbett, C. L. 9; and see a very learned article in 6 Law Rep. (N. S.) 554.

(*j*) R. *v.* Thomas, 7 C. & P. 817.

(*k*) R. *v.* Meakin, 7 C. & P. 297.

(*l*) Burrow's Case, 1 Lewin C. C. 75; Rennie's Case, 1 Lewin C. C. 76; 1 Russel on Cr. 8.

(*m*) U. S. *v.* Clarke, 2 Cranch C. C. R. 158; U. S. *v.* M'Glue, 1 Curtis C. C. R. 1; Kelley *v.* State, 3 Smedes & Mar. 518; Cornwall *v.* State, Mar. & Yer. 147; Pirtle *v.* State, 9 Humph. 663; State *v.* John, 8 Ired. 330; State *v.* Turner, 1 Wright, 30; Schaller *v.* State, 14 Missouri, 502; Wh. Cr. Law, (3d ed.,) 92; Wh. on Homicide, 369.

prehension of danger to such an extent as to make them incapable of discrimination, or of precise or specific purpose, it was held that they could not be considered as guilty of that species of "wilful and deliberate" murder which constitutes murder in the first degree(*n*) Precisely analogous to this is the case of the drunkard, who in a fight slays an antagonist without any prior sober premeditation. In his intoxication he is incapable of such mental action as the term "premeditates" describes. His mental condition may be such as to deprive him of the capacity to form a "specific intent" to take life, or to do any thing else. And yet at the same time, at common law, the offence would, strictly speaking, fall under the head of murder, for it would possess the incident of malice, and would be independent of that of provocation. Under such circumstances the offence properly is to be ranked as murder in the second degree, and such has repeatedly been decided by the courts.(*o*)

§ 71. The same general view is taken as to the question of *intent*.

(*n*) Wharton on Homicide, 371, 2.

(*o*) Com. *v.* Jones, 1 Leigh, 612; Com. *v.* Haggerty, Lewis' C. L. 403; Pirtle *v.* State, 9 Hump. 434; Swan *v.* State, 4 Hump. 131; Penns. *v.* Fall, Addison, 257. In a very recent case in Tennessee, the Court thus speak: "Upon the trial, there was evidence that the prisoner was intoxicated at the time he committed the homicide. Upon the subject of the defendant's intoxication told the jury that 'voluntary intoxication is no excuse for the commission of crime; on the contrary it is considered by our law as rather an aggravation; yet if the defendant was so deeply intoxicated by spirituous liquors at the time of the killing, as to be incapable of forming in his mind a design deliberately and premeditatedly to do the act, the killing under such a state of intoxication, would only be murder in the second degree.' It is insisted that his honor did not state the principle upon this subject, as it has been ruled by this court. In the case of Swan *v.* the State, Judge Reese, who delivered the opinion of the Court, says: 'But although drunkenness in point of law constitutes no excuse or justification for crime, still, when the nature and essence of a crime is made to depend by law, upon the peculiar state and condition of the criminal's mind at the time, and with reference to the act done, drunkenness, as a matter of fact, affecting such state and condition of the mind, is a proper subject for consideration and inquiry by the jury. The question in such case is, what is the mental status? It is one of self-possession, favorable to a fixed purpose, by deliberation and premeditation, or did the act spring from existing passion, excited by inadequate provocation, acting, it may be, on a peculiar temperament, or upon one already excited by ardent spirits? In such a case it matters not that the provocation was inadequate, or the spirits voluntarily drank; the question is, did the act proceed from sudden passion, or from deliberation or premeditation? What was the mental status at the time of the act, and with reference to the act? To regard the fact of intoxication as meriting consideration in such a case, it is not to hold that drunkenness will excuse crime, but to inquire whether the very crime which the law refines and punishes, has been in point of fact committed. In these remarks the Court intend to be understood as distinctly indicating, that a degree of drunkenness by which the party was greatly excited, and which produced a state of mind unfavorable to deliberation and premeditation, although not so excessive as to render the party absolutely incapable of forming a deliberate purpose, might be taken into consideration by a jury, in determining whether the killing was done with premeditation and deliberation.' The whole subject was ably reviewed by Judge Turley, in the case of Pirtle *v.* the State. In delivering the opinion of the Court, in that case, the Judge says, at page 671: 'It will frequently happen necessarily, when the killing is of such a character as the common law designates as murder, and it has not been perpetrated by means of poison, or by lying in wait, that it will be a vexed question, whether the killing has been the result of sudden passion produced by a cause inadequate to mitigate it to manslaughter, but still sufficient to mitigate it to murder in the second degree, if it be really the true cause of the excitement, or whether it has been the result of premeditation and deliberation; and in all such cases, whatever few is able to cast light upon the mental status of the offenders is legitimate proof: and among others, the fact that he was at the time drunk; not that this will excuse and mitigate the offence, if it were done wilfully, deliberately, maliciously, and premeditatedly; (which it might

Thus in an Ohio case, it was very properly held, that when the charge was knowingly passing counterfeit money, with intent to cheat, the drunkenness of the defendant at the time of the offence, was a fit subject for the consideration of the jury, there being no ground to suppose that the defendant knew the money to be counterfeit *before* he was drunk.(*p*) And when the defendant was indicted for an attempt to commit suicide by drowning, and it was alleged that she was at the time unconscious of the nature of her act from drunkenness, Jervis, C. J., said to the jury, "If the prisoner was so drunk as not to know what

well be, though the perpetrator was drunk at the time,) but to show that the killing did not spring from a premeditated purpose, but sudden passion, excited by inadequate provocation, such as might reasonably be expected to arouse sudden passion and heat, to the point of taking life, without premeditation and deliberation.' Here the Court explicitly lays down the rule to be, that in all cases where the question is between murder in the first and murder in the second degree, the fact of drunkenness may be proved, to shed light upon the mental status of the offender, and thereby to enable the jury to determine whether the killing sprung from a premeditated purpose, or from passion excited by inadequate provocation. And the degree of drunkenness which may then shed light upon the mental state of the offender, is not alone that excessive state of intoxication, which deprives a party of the capacity to frame in his mind a design deliberately and premeditatedly to do an act; for the court says that in the state of drunkenness referred to, a party well may be guilty of killing wilfully, deliberately, maliciously, and premeditatedly; and if he so kill, he is guilty as though he were sober. The principle laid down by the Court is, that when the question is, can drunkenness be taken into consideration, determining whether the party be guilty of murder in the second degree, the answer must be, that it cannot; but when the question is, what were the actual mental state of the perpetrator, at the time the act was done, was it one of deliberation and preparation, then it is competent to show any degree of intoxication that may exist, in order that the jury may judge, in view of such intoxication, in connection with all the other facts and circumstances, whether the act was premeditatedly and deliberately done. The law often implies malice from the manner in which the killing was done, or the weapon with which the blow was stricken. In such case it is murder, though the perpetrator were drunk. And no degree of drunkenness will excuse in such case, unless by means of drunkenness an habitual or fixed madness be caused. The law in such cases does not seek to ascertain the actual state of the perpetrator's mind, for the fact from which is implied having been proved, the law presumes its existence, and proof in opposition to this presumption, is irrelevant and inadmissible. Hence a party cannot show he was so drunk as not to be capable of entertaining a malicious feeling. The conclusion of law is against him. But when the question is, whether a party is guilty of murder in the first degree, it becomes indispensable that the jury should form an opinion as to the actual state of mind with which this act was done. All murder in the first degree, (except that committed by poison, and by lying in wait,) must be perpetrated wilfully, deliberately, maliciously, and premeditatedly. The jury must ascertain as a matter of fact, that the accused was in this state of mind when the act was done. Now according to the cases of Swan *v.* the State, and Pirtle *v.* the State, any fact that will shed light upon this subject, may be looked to by them, and may constitute legitimate proof for their consideration. And among other facts, any state of drunkenness being proved, it is a legitimate subject of inquiry, as to what influence such intoxication might have had upon the mind of the offender, in the perpetration of the deed. We know that an intoxicated man will often, upon a slight provocation, have his passions excited and rashly perpetrate a criminal act. Now, it is unphilosophical for us to assume that such a man would in the given case, be chargeable with the same degree of premeditation and deliberation, that we would ascribe to a sober man, perpetrating the same act upon a like provocation. It is in this view of the question, that this court held, in Swan's case, and in Pirtle's case; that the drunkenness of a party might be looked to by the jury, with the other facts in the case, to enable them to decide whether the killing were done deliberately and premeditatedly. But his Honor, the circuit Judge, told the jury, that drunkenness was an aggravation of the offence, unless the defendant was so deeply intoxicated, as to be incapable of forming in his mind a design deliberately and premeditatedly to do the act. In this charge there is error, for which the judgment must be reversed. Reverse the judgment, and remand the cause for another trial." Hale *v.* State, 11 Humph. 154.

(*p*) Pigman *v.* State, 14 Ohio, 555.

she was about, how can you find that she *intended* to destroy herself?"(*q*) So again, when the charge was assault with intent to murder, Patterson, J., said, "A person may be so drunk as to be utterly unable to form any intention at all, and yet he may be guilty of very great violence. If you are not satisfied that the prisoners, or either of them, had formed a positive intention of murdering the child, you may find them guilty of an assault."(*r*)

Beyond this the advance has been fluctuating. The furthest step taken was in an English case, decided in 1819,(*s*) where Holroyd, J., is reported by Sir W. Russell, who adopts his opinion as text law, to have said, that the fact of drunkenness might be taken into consideration to determine the question whether an act was premeditated or done only with sudden heat and impulse. This would make drunkenness an item in every question of provocation or hot blood, and would of course open the way to the same difficulties as to general policy, which we have already pointed out in another connection. In 1835, however, this case was expressly repudiated by Parks, J., who said, in referring to Holroyd, J.'s language, as just given, "Highly as I respect that late excellent judge, I differ from him, and my brother Littledale agrees with me. He once acted upon that case, but afterwards retracted his opinion. There is no doubt that that case is not law. I think there would be no safety in human life, if it were to be considered as law."(*t*) But the very next year, Alderson, B., in a case of stabbing, retraced at least a part of the retreat which had been thus so emphatically sounded. "It is my duty to tell you," he said, "that the prisoner being intoxicated, does not alter the nature of the offence. If a man chooses to get drunk, it is his own voluntary act; it is very different from a madness which is not caused by any act of the person. That voluntary species of madness which it is in a party's power to abstain from, he must answer for. *However, with regard to the intention, drunkenness may perhaps be adverted to according to the nature of the instrument used. If a man uses a stick, you would not infer a malicious intent so strongly against him, if drunk, when he made an intemperate use of it, as you would if he had used a different kind of weapon; but where a dangerous instrument is used, which, if used, must produce grievous bodily harm, drunkenness can have no effect on the consideration of the malicious intent of the party.*"(*u*) Perhaps this is doing no more than reiterating the principle we have already announced, that when there is evidence of *sober* premeditation, intermediate drunkenness cannot be received to affect the question of intent; but that, when there is no such evidence, it can. And it would hardly be possible to strain farther than this the following charge, in 1837, by Parke, B., (to be distinguished from Park, J., whose opinion, two years before, has been just noticed)—"I must tell you, that if a man makes himself voluntarily drunk, that is no excuse for any crime he may commit while he is so; he must take the consequence of his own voluntary act; or most crimes would otherwise be unpunished. But drunkenness may be taken into consideration in cases where what the law deems sufficient provocation

(*q*) R. *v.* Moore, reported 6 Law Rep., (N. S.), 581.
(*r*) R. *v.* Cruse, 8 C. & P., 541.
(*s*) R. *v.* Grindley, 1 Rus. on Cr. 8, note *n*.
(*t*) R. *v.* Carrol, 7 C. & P., 145.
(*u*) R. *v.* Meakin, 7 C. & P., 297.

has been given; because the question is, in such cases, whether the fatal act is to be attributed to the passion of anger, excited by the previous provocation, and that passion is more easily excitable in a person when in a state of intoxication, than when he is sober. So, where the question is, whether words have been uttered with a deliberate purpose, or are merely low and idle expressions, the drunkenness of the person uttering them is proper to be considered. But if there is really a previous determination to resent a slight affront in a barbarous manner, the state of drunkenness in which the prisoner was, ought not to be regarded, for it would furnish no excuse. You will decide whether the subsequent act does not furnish the best means of judging what the nature of the previous expression really was."(*v*)

§ 72. The American cases present the same general result, depending in principle, if not in terms, on the position that where the encounter was sudden, and the defendant, prior to such encounter, had no malice or old grudge, intoxication at the time of the encounter, can be taken into consideration, to ascertain whether the defendant, when under a legal provocation, acted from malice or from sudden passion.(*w*) These cases have been arranged as follows, by a late learned writer.(*x*)

"In 1848 the question of intoxication was before the Supreme Court of Alabama, on an indictment for an assault with intent to kill. The Court was asked in that case to charge the jury, that, "although drunkenness does not incapacitate a man from forming a premeditated design of murder, yet as it clouds the understanding and excites passion, it might be evidence of passion only, and of a want of malice and design." This the Court refused, but told the jury that "drunkenness could have no effect in their consideration." The prisoner excepted, and on the hearing in full Court, Chilton, J., declared that it was a general rule, that although drunkenness reduces a man to a state of temporary insanity, it does not excuse him, or palliate an offence committed in a fit of intoxication, and which is the immediate result of it; and that if the prisoner had killed the deceased with the deadly weapon (a knife) with which he stabbed him, in a state of intoxication, the crime would not have been reduced from murder to manslaughter by his intoxication, which must be presumed, in absence of contrary evidence, to be voluntary; and the Court remark, upon the cases of Penna *v.* Nutall,(*y*) and Swan *v.* The State,(*z*) that there it was important to ascertain whether the homicide was that "*wilful, deliberate, malicious, and premeditated* killing," which, by statute, constituted murder in the first degree. The mental state required for that crime, being one of deliberation and premeditation, the fact of the prisoner's drunkenness was material, not as an excuse for the crime, but to show it had not been committed. *The State* v. *Bullock.*(*a*) Possibly this case may have gone too far in refusing to allow drunkenness to be given in evidence upon question of the intention. The Supreme Court of North Carolina has declared the same law. In 1848 a prisoner was indicted for murder. One defence was drunkenness. The judge told the jury that

(*v*) R. *v.* Thomas, 7 C. & P., 817.
(*w*) See Schaller *v.* State, 14 Missouri, 502.
(*x*) 6 Law Rep., (N. S.,) 556, &c.
(*y*) Add. 257.
(*z*) 4 Humph. 136.
(*a*) 13 Alabama, 413, A. D. 1848.

drunkenness would not lessen the prisoner's guilt, if they believed him sane before he became drunk. A new trial being moved for, on the ground of misdirection, Battle, J. said, "All the writers on the criminal law, from the most ancient to the most recent, so far as we are aware, declare that voluntary drunkenness will not excuse a crime committed by a man otherwise sane, while acting under its influence. Even the cases relied on by the counsel for the prisoner, Rex *v.* Meakin,(*b*) Rex *v.* Thomas,(*c*) all acknowledge the general rule; but they say that when a legal provocation is proved, intoxication may be taken into consideration, to ascertain whether the slayer acted from malice or from sudden passion, excited by the provocation. Whether the distinction is a proper one or not we do not pretend to say. It has been doubted in England, Rex *v.* Carroll,(*d*) and it is a dangerous one, and ought to be received with great caution. But whether admitted or not, has no bearing upon the present case. There is not a particle of testimony to show that the prisoner was acting, or can be supposed to have been acting under a *legal* provocation; and there was therefore no cause for the application of the principle for which the counsel contends. The State *v.* John.(*e*) The case of Preble *v.* State,(*f*) is an important case on this point. The defendant was indicted for murder. At the time of the commission of the offence he was intoxicated from the use of ardent spirits. "And in relation thereto the Judges charged the jury, that the fact of such drunkenness could not be taken into consideration by them, unless the defendant was so far gone as not to be conscious of what he was doing, and did not know right from wrong." "Out of this charge," said Turley, J., "arises the point to be considered by the Court in this case, and that is, how far drunkenness in law is a mitigation or excuse for the commission of offences. This is no new question, presented for the first time for consideration, but one of the earliest consideration in the law of offences; one which has been again and again adjudicated by the Courts of Great Britain and the United States, and, as we apprehend, with a consistent uniformity rarely to be met with in questions of a like interest and importance. Upon the subject we have nothing to discover; no new principle to lay down; no philosophical investigation to enter into, in relation to mental sanity or insanity; but only to ascertain how the law upon this subject has been heretofore adjudged, and so to adjudge it ourselves."

"In the case of Cornwall *v.* The State of Tennessee,(*g*) the able Judge who delivered the opinion of the Court, in speaking upon this subject, uses the following very emphatic language:

"A contrary doctrine ought to be forced out of circulation, if it has obtained it, by every friend to virtue, peace, quietness and good government. All civilized governments must punish the culprit who relies on so untenable a defence; and in doing so, they preach a louder lesson of morality to all those who are addicted to intoxication, and to parents and guardians, and to youth and to society, than comes in the cold abstract from pulpits. To the justice and correctness of these remarks, all who have had experience in the annals of crime can bear testimony.

(*b*) 7 C. & P. 297. (*c*) Ibid. 817. 1 Russell on Crimes, 8. (*d*) 7 C. & P. 145.
(*e*) 8 Jud. 330. (*f*) 9 Hump. 663, A. D. 1849. (*g*) Mar. & Ser. 147, 149

It is only at the present term of the Court that we have seen it proven that an offender, a short time before the perpetration of a horrid murder, inquired of a grocery-keeper what kind of liquor would make him drunk soonest, and swallowed thereon a bumper of brandy. We have had three cases of murder, and one of an assault with an intent to murder, before us at this term of Court, in every one of which these are convictions in the Circuit Court and affirmances in this; every one of which is of aggravated character, and in every one of which the perpetrator, at the time of the commission of the offence, was laboring under *dementia affectata*, drunkenness; an awful illustration of the necessity of holding to the law as it has been adjudged upon this subject. There is, in our judgment, no conflict of authority upon this point of law; every case which may have such appearance, being a case of exception, on the application of the rule, or a case of no authority upon the subject. Lord Hale, in his work before referred to,(*h*) says: "If, by means of drunkenness, an habitual or fixed madness be caused, that will be excuse, though it be contracted by the vice and will of the party; for this habitual or fixed phrensy puts a man in the same condition as if it were contracted at first involuntarily. And it was to this principle the Circuit Judge was alluding, when he charged the jury in the present case, that the drunkenness of the prisoner could not be taken by them into consideration, unless he were so far gone as to be unconscious of what he was doing, and did not know right from wrong, in saying which he put the case most favorable for the prisoner; for a man may be so intoxicated as to be unconscious of what he is doing, and not to know right from wrong; and yet not have contracted an habitual and fixed phrensy, the result of intemperance, of which Lord Hale is speaking above."

§ 93. In Kelly *v.* State,(*i*) the same question came before the High Court of Error and Appeals of Mississippi. The court below declined to charge the jury that intoxication was evidence of intention in determining whether the killing was murder. The prisoner was convicted of manslaughter only, but the court above in remarking upon this question, lays down the law as well established, that drunkenness is no excuse for crime, although sometimes held proper for consideration, where the sole question is whether the act done was premeditated or done only with sudden heat or impulse, which might be as truly said of anger or any other excitement arising from sudden provocation or peculiar circumstances; but not much importance was to be attached to it, as might be conceived from the presumption which was equally great that the design might have previously existed, and intoxication have been employed to nerve the criminal to the commission of the crime: that the law discriminates between the delusion of intoxication and the insanity which it may ultimately produce. If drunkenness, they said, were to be considered an excuse for crime, there would be established a complete emancipation from criminal justice.

The same principle was recognized in this country in State *v.* M'Cante, (*j*) being somewhat differently applied. The court here held "That if a crime was committed upon a provocation, which, if acted upon instantly

(*h*) P. C. pt. 1, ch. 4. See *ante*, § 67. (*i*) 3 Smedes & Marshall, 518, A. D. 1844.
(*j*) 1 Spears, 384.

by a sober man would mitigate his offence, evidence of intoxication was admissible upon the question whether such provocation was, in fact, acted upon when the act was done. If a man uses a stick upon you, you would not infer a malicious intent so strongly against him if drunk, when he made an intemperate use of it, as you would if he had used a different kind of weapon. But where a dangerous instrument is used, which if used must produce grievous bodily harm, drunkenness can have no effect on the consideration of the malicious intent of the party."

In a late case in Tennessee, already cited,(*k*) it was said by Turley, J., "The case of R. *v.* Grindley, decided at Worcester Sum. Ass., 1819, by Holroyd, J., not reported but referred to by Russell in his work upon Crimes, page 8, and now insisted upon by the prisoner as putting the Circuit Judge in the wrong in his charge to the jury, and holding different principles upon this subject, is expressly overruled by Park and Littledale, judges, in the case of R. *v.* Carroll, (*l*) and if it were not, it is an anomalous case; and perhaps was not intended or considered by Holroyd to be in conflict with principles so well and so long settled. The case as stated by Russell, holds that 'though voluntary drunkenness cannot excuse from the commission of crime, yet when upon a charge of murder the material question is whether an act was premeditated or done only with sudden heat and impulse, the fact of the party being intoxicated is a circumstance proper to be taken into consideration.' Now, in relation to this principle as thus laid down, it may be observed that cases may arise, even of murder at common law, in which it would be proper to receive such proof as explanatory of intention. To constitute murder at common law, the killing must have been done with malice aforethought; the existence of this malice necessarily implies the absence of all circumstances of justification, excuse or mitigation arising from adequate provocation; and this malice is either express or implied: express, when it has been perpetrated by poison, lying in wait, or other deliberate and premeditated manner; implied, from the nature of the weapon, the violence of the assault, and the inadequacy of the provocation. It may become important in a case to know whether poison which has been imbibed was administered knowingly and designedly or accidentally. And if it be wilful, which it is in the case of a medicine, there being two on the table, one a poison and the other not, and the poison be administered, is not the fact that the person who administered it, was drunk at the time, legitimate proof for the purpose of showing that it was a mistake which a drunken man might make, though a sober one would not. This would be, not to protect him from the punishment for his crime, but to show that he had not given the poison premeditatedly, and therefore was guilty of no crime. So if the question be, whether the killing is murder or manslaughter, the defence being adequate provocation, and it be doubtful whether the blow be struck upon the provocation or upon an old grudge, it seems to us, proof that the prisoner was drunk when he struck the blow is legitimate, not to mitigate the offence but in explanation of the intent, that is, whether the blow was struck upon the provocation or upon the old grudge; for the law only mitigates the offence to manslaughter, upon adequate pro-

(*k*) Pirtle *v.* State, 9 Hamp. 663. (*l*) 7 C. & P. 145.

vocation, out of compassion to human frailty; and, therefore, though there be adequate cause for such mitigation, yet if, in point of fact, one avail himself of it to appease an old grudge, it is murder and not manslaughter; and in all such cases the question necessarily is, whether the blow was stricken premeditatedly, or upon sudden heat and impulse produced by the provocation, and the fact of the self-possession of the perpetrator of the crime is very material in a conflict of proof upon the subject. If this be the extent of the opinion of Holroyd, in the case of Rex *v.* Grindley, we are not prepared to hold that it is not law. But if it be understood to hold that a killing may be mitigated from murder to manslaughter in consequence of the drunkenness of the perpetrator, thereby making that adequate provocation in the case of a drunken man which could not be so in the case of a sober one, we are prepared to hold with Park and Littledale, that it is not law."

CHAPTER II.

MENTAL UNSOUNDNESS CONSIDERED PSYCHOLOGICALLY.

§ 74. "THE various diseases included in the general term insanity, or mental derangement," says Dr. Ray, "may be conveniently arranged under two divisions, founded on two very different conditions of the brain; the first being a want of its ordinary development, and the second, some lesion of its structure subsequent to its development. In the former of these divisions, we have Idiocy and Imbecility, differing from each other only in degree. The various affections embraced in the latter general division may be arranged under two subdivisions, Mania and Dementia, distinguished by the contrast they present in the energy and tone of the mental manifestations. Mania is characterized by unnatural exaltation or depression of the faculties, and may be confined to the intellectual or to the affective powers, or it may involve them both, and these powers may be generally or partially deranged. Dementia depends on a more or less complete enfeeblement of the faculties, and may be consecutive to injury of the brain, to mania, or to some other disease; or it may be connected with the decay of old age. These divisions will be more conveniently exhibited in the following tabular view:

INSANITY.	Defective development of the faculties.	IDIOCY.		1. Resulting from congenital defect. 2. Resulting from an obstacle to the development of the faculties, supervening in infancy.
		IMBECILITY.		1. Resulting from congenital defect. 2. Resulting from an obstacle to the development of the faculties, supervening in infancy.
	Lesion of the faculties subsequent to their development.	MANIA.	INTELLECTUAL,	1. General. 2. Partial.
			AFFECTIVE,	1. General. 2. Partial.
		DEMENTIA.		1. Consecutive to mania, or injuries of the brain. 2. Senile peculiar to old age."(*a*)

(*a*) Ray on Insanity, 71.

§ 75. The following classification of Flemming,(*b*) while less simple, is very valuable both for the delicate precision of its analysis, and for the important aid it affords to the nomenclature of forensic psychology:

I. INFIRMITAS. (Geistesschwäche.) Imbecility, the characteristic being the diminution in psychical power.

1st. As to origin.

(1.) *Primaria seu congenita,* (Syn. *Idiotismus.*) A defective development perceptible either at birth or infancy.

(2.) *e morbo,* arising from wounds on the head, brain or nervous fevers, or epilepsy.

(3.) *Senilis,* arising from decrease in vitality in the extreme stages of old age.

2d. As to extent.

(1.) *Infirmitas, Adstricta.* Limited imbecility, the characteristic being diminution of particular organic powers.

(*a*) *Dysmenia.* Weakness of memory, the characteristic being the feebleness of the reproductive power of the perceptive faculty, and the symptoms, an inability to remember things either recent or remote, distinctly or at all.

(*b*) *Infirmitas adstricta surdo-mutorum.* Imbecility of the deaf and dumb.

(*c*) *Infirmitas adstricta cœcorum.* Imbecility of the blind.

(2.) *Infirmitas sparsa.* General weakness of mind, the characteristic being the absolute or relative weakness of all the mental and moral functions, and the symptoms, obtuseness and feebleness of the perceptive and attentive powers; feebleness of comprehension, of ratiocination, of imagination, of memory, in a variety of gradations.

II. VESANIA, (Geistes verwirrung.) Mental confusion, the characteristic being a depravity (depravation) of the psychical powers arising from excess or perversion.

1st. *Vesania dysthymodes,* or *dysthymia,* disorder of temperament, the characteristic being the depravity (*depravation*) of the psychical powers connected with an overpowering disturbance of the temperament. Symptoms; an anomalous condition of the sensibility, the mental tone, the inclinations, and the impulses. The consequent deliria are the invariable effect of the dysthymia, and depend upon the prevailing feeling or sentiment.

(1.) *Dysthymia transitoria seu subita.* Sudden dysthymia, the characteristic being the suddenness and rapidity of its approach. Symptoms; irritability, proneness to agitation, irascibility, excessive disgust, fear of death, extreme timidity, despair of happiness. It occurs frequently in the *Stadium prodromorum* of cerebral affections and nervous fevers, or of epilepsy and the cognate complaints; and is sometimes, though more rarely, accompanied by the sudden suicidal impulse. It should be observed that *dysthymia remittens* sinks in the remission into the mere *dysacthesis.*

(2.) *Dysthymia adstricta,* or partial dysthymia, the characteristic being an anomalous condition of particular states of feeling, inclinations, and impulses.

(*a*) *Atra,* (the *Melancholia Lypemonia,* of Esquirol,) or gloomy *Dysthymia,* the characteristic being sadness, fear, dread, suspicion, malevolence, homesickness, (*nostalgia,*) and the wildness and ferocity of the intoxicated. (*Ferocitas et morositas ebriosorum.*)

(*b*) *Dysthymia candida,* cheerful *Dysthymia,* (*Melancholia hilaris, Chœromanie Chambeyron,*) the characteristics being hilarity, recklessness of manner, raillery, proneness to see all things in the most vivacious light.

(*c*) *Dysthymia mutabilis,* variable *Dysthymia,* the characteristic being vacillation between the two foregoing forms.

(3.) *Dysthymia sparsa,* (*apathica,*) general Dysthymia, (*Melancholia Attonita.*) The characteristics being, apparent obtuseness, dull, heavy reveries and abstractions, prevalence of an indistinct sensation of discomfort, apathy to all extraneous impressions.

2d. *Vesania Annoetos,* or *Anoesia.* Disturbance of the understanding. The characteristics being the depravity (depravation) of the psychical powers, with a controlling anomalousness of the intellectual faculties. Symptoms, deliria of various kinds, with manifestations of Dysthymia, which, however, are merely subordinate.

(1.) *Anoesia Transitoria,* or *Subita.* Sudden Anoesia. The characteristics being unexpected appearance and rapid subsidence.

(*b*) Psychiatrisches Journal, Bd. I. Hft. 1. p. 112.

(*a*) *Anoesia e febre.* Febrile delirium.
(*b*) *Anoesia e potu nimio,* (*ebrietas.*) Drunkenness.
(*c*) *Anoesia ex affectu,* madness caused by agitation of mind.
(*d*) *Anoesia semisomnis.* Confusion of mind in sleep. Sleep-drunkenness.
(*e*) *Anoesia Somnambula,* or *Spastica;* Somnambulism.

(2.) *Anoesia continua, chronic Anoesia.*
(3.) *Anoesia remittens.* Remittent Anoesia.
(4.) *Anoesia adstricta,* partial Anoesia or Lunacy. The characteristics being delirium in particular intellectual departments.
(*a*) *Anoesia ad sensationes.* Hallucinations, (deliria of the senses,) (Var. *a fallacia sensuum et hallucinatio ebriosorum,* derangement of the senses consequent on excess of drinking.
(*b*) *Anoesia ad cogitationes,* eccentricity, fixed insane ideas.
(5.) *Anoesia sparsa.* General Anoesia or lunacy, the characteristics being Deliria in every department of the intellectual faculties. Var. *a Anoesia potatorum,* (*Delirium tremens.*)

3d. *Vesania maniaca seu Mania.* The characteristic being a depravity (depravation) of the psychical functions, with a concurrent anomalousness of the emotional and intellectual faculties. The symptoms are a violent and perverse temper, inclinations and impulses, with violent deliria, which mutually sustain and aggravate each other.
(1.) *Mania transitoria subita,* sudden mania, the characteristics being a sudden breaking out of mania without perceptible premonitory stages, and without previous *Dysthymia* or *Anoesia;* generally a crisis in sleep, or transition to the second class.
(*a*) *Mania subita a febre,* (*Delirium encephaliticum,*) sudden delirium, with feverish symptoms of the brain and nerves.
(*b*) *Mania subita a potu nimio,* arising from and during intoxication.
(*c*) *Mania subita ex affectu,* mania caused by excessive agitation of the affections.
(*d*) *Mania subita e partu,* mania connected with parturition.
(*e*) *Mania subita e morbo occulto,* (vulgo) *Amentia occulta,* which also includes the previous species.
(2.) *Mania continua,* permanent mania.
(3.) *Mania remittens,* Remittent mania. (Remark—Remittent mania in remission turns into Anoesia, in some cases immediately into Dysthymia.)
(4.) *Mania adstricta seu instinctiva.* Moral Insanity. (*Mania sine delirio* of Pinel; *Monomanie instinctive* of Marc; Mania affectiva; Folie raisonante;) the characteristics being insanity, apparently confined to specific morbid impulses. This class is almost always connected with the symptoms of *Mania transitoria seu subita.*
(5.) *Mania Sparsa,* general mania is the characteristics being a depravity (depravation) of both the moral and intellectual powers.

§ 76. To Ellinger(*c*) we are indebted for the following:

I. Diseases of the affections, when the affections, sentiments and desires are preponderatingly alienated, while the intellectual faculties are affected in an inferior or at least a secondary degree.
(*a*) Melancholy, the prevalent type being sadness, depression, fear, dread and despair.
(*b*) Phrensy, the prevalent type being mirth, mischievousness, anger.
(*c*) Volatility, (Launenhaftigkeit.) Alternation between the two last mentioned phases.

II. Delirium, the sentiments and intellectual faculties are equally affected, and both the subjective and objective relations alike distorted.
(*a*) (*b*) (*c*) Characterized by melancholy, phrensy, and the alternation of the two.

III. Diseases of the intellect, where the affections take a subordinate part and the intellect is mainly disordered.
(*a*) Partial.
(*b*) General.
(*c*) Debility, including idiocy and imbecility.

§ 77. Without attempting a formal analysis, it is now proposed to consider the several points in which Psychology comes in contact with the law of the land, in the following order:—

(*c*) Ueber die antropologischen Momente der Zurechnungs fähigkeit. Ludwigsburg, 1846.

I. GENERAL THEORIES OF MENTAL UNSOUNDNESS, § 78.
1st. Psychological theory, § 79.
2d. Somatic theory, § 80.
3d. Intermediate theory, § 81.
Difficulties attending each of the first two, § 82.
Question as to moral responsibility of Lunatics, § 83.
Views of President Edwards, § 84.
Of Dr. Barlow, § 85.

II. HOW MENTAL UNSOUNDNESS IS TO BE DETECTED, § 86.
1st. By whom, § 86.
Medical expert necessary for this purpose, § 86.
Great skill and experience needed, § 87.
Dangers of an inexperienced examiner being baffled, § 88.
Responsibility in law of medical examiner, § 89.
Importance of examiner adapting his manner to patient's condition, § 90.
Important that legal and medical officers should, in such cases, act in common, § 92.
Manner in which medical witness is to be examined on trial, § 94.
2d. At what time, § 95.
(1.) Time of act, § 95.
(2.) At trial, § 97.
(3.) On and after sentence, § 98.
3d. By what tests, § 100.
(1.) Physiognomy, § 100.
Relations of the different features, § 101.
(2.) Bodily health and temperament, § 102.
State of bowels, § 102.
Physical disorganization, § 103.
Insensibility to pain and cold, § 104
Irregularities in action of senses, § 105.
Change in disposition, § 106.
(3.) Hereditary tendency, § 107.
Importance of this test, § 108.
Admissible in point of law, § 108.
Opinion of Gibson, C. J., § 108.
(4.) Conversation and deportment, § 110.
Necessity of great circumspection in this respect, § 110.
Cases illustrating this, § 111.
(5.) Nature of act, § 112.
(*a*) Its insensibility, § 112.
(*b*) Its incongruity with antecedents, § 113.
(*c*) Its motivelessness, § 114.
(*d*) Its inconsequentiality, § 115.

III. FROM WHAT MENTAL UNSOUNDNESS IS TO BE DISTINGUISHED.
1st. Emotions, § 116.
(1.) Remorse, § 116.
(2.) Anger, § 118.
(3.) Shame, § 122.
(4.) Grief, § 124.
(5.) Homesickness, (*Nostalgia*,) § 125.
2d. Simulated Insanity, § 127.
Necessity for close examination, § 127.
Tests to be applied, § 128.
Delirium most usually counterfeited, but the most difficult, § 129.
Physiognomy and health to be examined, § 130.
Case to be compared with other recorded cases, § 131.
Simulation not to be inferred from absence of a trace of insanity at the examination, § 132.
Causes why such signs may be suppressed, § 132.
Pretended insanity frequently turns into real, § 133.
How examination is to be conducted, § 134.
Patient to be brought into a succession of relations, § 135–8.

To be furnished with pen, ink and paper, and other methods of examination, § 135–8.
Insania Occulta, features of, § 139.
Necessity of guarding against, § 139.

IV. MENTAL UNSOUNDNESS, AS CONNECTED WITH DERANGEMENT OF THE SENSES, AND DISEASE, § 140.
1st. DEAF AND DUMB, § 140.
2d. BLIND, § 141.
3d. EPILEPTICS, § 142.
Peculiar tendency of epilepsy to ipsanity, § 142.
Nature of epilepsy, § 143.
Distinction between the several classes, § 144.
Different stages of the disease, § 145.
Actions committed during attack, not valid, § 146.
Rule as to intermediate stages, § 147.
Tests laid down by Clarus, § 148.

V. MENTAL UNSOUNDNESS, AS CONNECTED WITH SLEEP, § 149.
General effect of sleep on the senses, § 149.
1st. SOMNOLENTIA OR SLEEP-DRUNKENNESS, § 151.
2d. SOMNAMBULISM, § 159.

VI. MENTAL UNSOUNDNESS, AS AFFECTING THE TEMPERAMENT, § 163.
1st. DEPRESSION, § 163.
2d. HYPOCHONDRIA, § 166.
3d. HYSTERIA, § 169.
4th. MELANCHOLY, § 170.

VII. MENTAL UNSOUNDNESS, AS AFFECTING THE MORAL SYSTEM, § 174.
1st. GENERAL MORAL MANIA, § 174.
Effect of, § 174.
General symptoms, § 175.
Illustrations, § 176.
2d. MONOMANIA, § 177.
Doctrine of *Mania sine Dèlirio*, § 178.
Difference of opinion as to its existence, § 179.
Tests to be applied to it, § 180.
Tendency in this country to recognize its existence, § 183.
(1.) Homicidal mania, § 186.
Cases where Esquirol supposes it to exist, § 186.
Precautions necessary in its recognition, § 190.
Tests suggested by Dr. Ray, § 190.
" " Dr. Taylor, § 190.
Dr. Mayo's objections to the entire theory, § 191.
(2.) Kleptomania—(morbid propensity to steal), § 192.
(3.) Pyromania—(morbid incendiary propensity), § 195.
How far recognized in England, § 197.
Necessary tests, § 198.
(4.) Aidoiomania—(morbid sexual propensity), § 199.
(5.) Pseudonomania—(morbid lying propensity), § 202.
(6.) Oikeiomania—(morbid state of domestic affections), § 204.
(7.) Suicidal mania—(morbid propensity to self-destruction), § 206.
Tendency to this in cases of melancholy, &c., § 207.
Legal consequences in actions against life insurers, § 208.
(8.) Fanatico-mania, § 209.
(*a*) Supernatural or pseudo-supernatural demoniacal possession, § 210.
Testimony of ancient writers to this, § 210.
" of the New Testament, § 211.
(*b*) Mental alienation on religious subjects, § 214.
Tendency of infidelity to insanity, § 214.
Conservative influence of Christianity, § 215.
Insane delusion the result of a *departure* from Christianity, § 216.
Illustrations of this, § 217.

Legal bearings of religious insanity, § 219.
(9.) Politico-mania, § 220.
How far an epidemic, § 221.
Causes likely to generate it, § 221.

VIII. MENTAL UNSOUNDNESS, AS CONNECTED WITH INTELLECTUAL PROSTRATION, § 222.
1st. Idiocy, § 222.
Nature of, § 222.
Physical incidents of, § 223–5–6.
Cretinism, § 228.
2d. Imbecility, § 229.
With concomitant insanity, § 230.
Original, § 230.
Supervening, § 230.
Specious, § 230.
With confusion of mind, § 230.
Without insanity, § 231.
Distinction between innocent and malignant imbecility, § 232.
2d. Dementia, § 234.

IX. MENTAL UNSOUNDNESS ACCOMPANIED WITH DELIRIUM, § 235
1st. General Delirium, § 235.
(*a*) Depressed delirium, § 236.
(*b*) Maniacal delirium, § 237.
(*c*) Delirium tremens, § 238.
(*d*) Puerperal mania, § 239.
2d. Partial Delirium, § 240.

X. MENTAL UNSOUNDNESS, AS CONNECTED WITH DELUSIONS AND HALLUCINATIONS, § 241.
1st. General, § 241.
Marked by general derangement of the perceptive faculties, § 241.
Various phases it assumes, § 242.
Tests of Ellinger, § 243.
Effect of general delusion, § 244.
2d. Partial, § 245.
Delusions and hallucinations, § 245.
When there is no other sign of mental unsoundness, § 246.
When mental unsoundness has made some progress, § 247
In cases of drunkenness, &c., § 248.
In cases of developed insanity, § 249.
Causes of delusions, § 250.
Abercrombie's classification, § 252.
Hallucination in regard to a change into, or a possession by, wild animals, § 253.

XI. MENTAL UNSOUNDNESS, AS CONNECTED WITH LUCID INTERVALS, § 254.

XII. TREATMENT OF INSANE CRIMINALS, § 259.
Necessity of separate places of confinement in which insane criminals can be placed, § 259.
(1.) For Retribution, § 260.
In most, if not all, cases of crime resulting from insane impulse, there is original responsibility, § 260.
Insanity, in most cases, the result of moral excess, § 261–9.
Qualified responsibility of lunatics, § 261–9.
(2.) For Prevention, § 270.
Mischief to society if monomaniacs are suffered to go at large, § 270.
Necessity of restraint, § 271.
(3.) For Example, § 272.
Contagiousness of unchecked crime, § 272.
(4.) For Reform, § 273.
Impossibility of patient recovering when permitted to run at large, § 273.

Injury to the community from the want of secondary punishments, the result being acquittals of dangerous parties, from an unwillingness to see the severer penalties inflicted, § 274.
Ordinary penitentiaries inadequate, § 275.
And so of ordinary lunatic asylums, § 276.

I. General theories of mental unsoundness.

§ 78. To those who have examined that portion of the preceding pages, which treats of the legal relations of mental unsoundness, it will be obvious that no hypothesis can be constructed which will meet with exactness every possible future case. No general definition has therefore been attempted, and it is sufficient at present briefly to notice the three prominent hypotheses by which the *cause*, rather than the *nature*, of mental unsoundness has endeavored to be explained.

§ 79. 1st. *The psychological theory.* This is based on the assumption that the primitive source of these diseases is in the soul itself, and that the soul is that which originally suffers, and imparts, when there is sympathetic insanity, its malady to the body.(*d*)

§ 80. 2d. The *somatic theory* takes for granted that the soul itself, as such, is incapable of originating a disease, but that the occasion of every affection of the mind is to be found in some abnormity of bodily development, and that aberrations of mind are nothing more than disturbances of some functions of the soul, produced by bodily abnormities. This theory resolves itself into various subdivisions. One party assumes, that while every mental disease is to be deduced from bodily causes, it is still to be treated as a self-existent disease; while others maintain that there can be no such thing as a diseased state of the mind, and that what we usually designate as such, is nothing more than a symptom of some bodily disorder.(*e*)

§ 81. 3d. The *intermediate theory* attributes to the body and the soul alike originative influence, in the growth of mental diseases.(*f*)

(*d*) See an exposition of this in Dr. Henry Monro's "Remarks on Insanity, its Nature and Treatment." London, 1850.

(*e*) A very ingenious though unsound defence of the Somatic Theory will be found in Mr. M. B. Sampson's "Criminal Jurisprudence considered in relation to Cerebral Organization." London, 1843. Hobbes' famous theory drifts in the same direction. The result of this would be to make all restraint an injustice.

(*f*) See a very capable sketch of these theories in Schürmayer, Gerichtliche Medicin, § 521, from which this analysis is taken, and see also particularly Dr. Rush's examination of the same points in his treatise on the Mind, pp. 12, 13, 14, and where that eminent authority (p. 16) localizes madness in the blood vessels of the brain.

Feuchtersleben, in his celebrated work, (Principles of Medical Psychology, translated by Evans Lloyd, printed by the Sydenham Society, London, 1847,) may be considered as adopting the intermediate theory. Insanity, he tells us, is not either a bodily or a mental disease, being a disturbed reciprocal relation of mind and body. Dr. Jamieson (Lectures on the Med. Jur. of Insanity, by Robert Jamieson, M. D.) takes this same view.

Sir Benjamin Brodie in a late very interesting essay, (Psychological Inquiries, &c. London, 1854,) gives the following conclusive objections to the phrenological phase of the somatic theory:—"Now there are two simple anatomical facts which the founders of this system have overlooked, or with which they were probably unacquainted, and which of themselves afford a sufficient contradiction of it.

"1st. They refer the mere animal propensities, chiefly to the posterior lobes, and the intellectual faculties to the anterior lobes of the cerebrum. But the truth is, that the posterior lobes exist only in the human brain, and in that of some of the tribes

§ 82. Independently of the pathological difficulties in the way of the somatic theory, psychological research testifies most strongly against it.(*g*) The mental and moral functions are the immediate products of an independent sphere of organism, and not to be explained by anything lying outside of that sphere. The brain and the nerves have only the physical part of perception and motion, and to some extent the regulation of the functions to perform; but the soul cannot otherwise be considered as entirely distinct from this activity of the nerves. The somatic theory, which confounds the two, will never be able to make a satisfactory distinction between palsy and imbecility, between convulsions and ravings, between sensuous hallucinations and insanity.(*h*) The somatic theory fails entirely in affording support to any practical system of therapeutics. The general experience of modern times confirms the fact, that medicines are of very little avail against mental derangements, and that the most essential results are attained by a strictly moral treatment, and corresponding regulation of diet and habits.(*i*)

of monkeys, and are absolutely wanting in quadrupeds. Of this there is no more doubt than there is of any other of the best established facts in anatomy; so that, if phrenology be true, the marked distinction between man on one hand, and a cat, or a horse, or a sheep on the other, ought to be, that the former has the animal propensities developed to their fullest extent, and that these are deficient in the latter.

"2ndly. Birds have various propensities and faculties in common with us, and in the writings of phrenologists many of their illustrations are derived from this class of vertebral animals. But the structure of the bird's brain is essentially different, not only from that of the human brain, but from that of the brain of all mammalia. In order that I may make this plain, you must excuse me if I repeat what I said on the subject formerly. In the mammalia the name of the *corpus striatum* has been given to each of two organs of a small size compared with that of the entire brain, distinguished by a peculiar disposition of the gray and the fibrous or medullary substance of which they are composed, and placed under the entire mass of the hemispheres of the cerebrum. In the bird's brain what appears to a superficial observer to correspond to these hemispheres is found on a more minute examination, to be apparently the *corpora striata* developed to an enormous size; that which really corresponds to the cerebral hemispheres being merely a thin layer expanded over their upper surface, and presenting no appearance of convolutions. It is plain then, that there can be no phrenological organs in the bird's brain, corresponding to those which are said to exist in the human brain, or in that of other mammalia. Yet birds are as pugnacious and destructive, as much attached to the localities in which they reside, as any individual among us."

In his interesting work on Criminal Jurisprudence, Mr. Sampson adopts the views of the author of the "Vestiges of the Natural History of Creation," and ascribes every criminal action to some abnormal or morbid condition of the cerebral organization. This fundamental proposition is, that "every manifestation of the mind depends upon the confirmation and health of its material instrument, the brain; and as it is not the function of a sound and healthy brain to give rise to any other than healthy manifestations, so no error of judgment can ever arise, but as the result of a defective condition of that organ."

Mr. Hurlbut, an eminent counsellor, and one of the Supreme Judges in the State of New York, in his "Essays on Human Rights and Political Guarantees," a work which is well worthy of perusal, promulgates the same doctrine, which on the other hand is very ably controverted by Dr. Hoods.—"Suggestions for the further provision of Criminal Lunatics, by Charles Hood, M. D. London, 1854. pp. 126, 127."

(*g*) Siebold. Lehrbuch der Gericht. Med. Berlin, 1847. § 194. L. Krahmer, Handbuch der Gericht. Med. Halle, C. A. Schwetschke, 1851. § 126. Heinroth, Syst. der psychisch gericht. Med. Leipsic, 1825. Kant, Anthropologie, Königsb., 1798. Metzger's Ger. Med. —Abhandl. Königsb. 1803.

(*h*) Leçons Cliniques, sur l'Aliénation Mentale—par Falret. Leçon 1, p. 8. Paris, 1854.

(*i*) The most thorough of the German advocates of the somatic theory is Friedreich, particularly in his "Historisch, Kritische Darstellung de Theorien neber das Wesen und den Sitz der psychischen Krankheiten. Leipsic, 1836.

§ 83. The psychological theory, at its first inception, split upon the rock of extremes, in denying the influence of the physical processes upon mental diseases in the face of experience. In opposition to the somatists it was thought necessary to exclude all natural causes from the explanation of the origin of mental affections, and to ascribe them to an act of voluntary self-enthralment, which, in all cases, was to be attributed to some prior moral excess or delinquency incurred, with a knowledge of the consequences. But a derangement of mind is not identical with sin. For though every vice, every sin, is an abnormity of the soul, yet every abnormity of the soul is not sin. A lunatic may be in a human sense innocent of positive guilt, and on the other hand the worst of criminals may retain his sanity. It is impossible to adhere to this doctrine in practice, without reducing the entire treatment of the disease to a system of rewards and punishments; and the vagueness of the idea of freedom and constraint, the impossibility of distinguishing between the moral thraldom of the criminal and that of the sick man, will throw into confusion the entire system of forensic psychology.(*j*) It is equally amiss to derive all diseases of the mind from the passions, although the latter may be important causes, and in the more advanced stages, symptoms of insanity.(*k*) At the same time, as will hereafter be very fully shown,(*kk*) there is in the mass of cases of insane convicts such an amount of responsibility as to require the infliction of a degree of punishment which, though different from that imposed on the sane, will yet be accompanied with a corrective as well as a preventive discipline.

§ 83. The truths contained in these opposing views and theories, could not fail to be appreciated and to lead to efforts at reconciliation. The unity of man's being was particularly looked to as a resolution of the discord. The theories constructed on such a basis must of course depend upon the light in which this unity of man is regarded. The most eminent European authorities now tend to the conclusion that mental unsoundness is a disease of the soul itself, but has its seat, not in the soul's intellectual but in its grosser spheres.(*l*) And inasmuch—according to this theory—as this lower sphere of the soul has the character of thraldom, of a want of self-control, mental affections are frequently termed "involuntary aberrations."(*m*)

"The degree in which the operations of the mind are dependent upon its material instruments," (says Dr. Carpenter,) "is a question which cannot be regarded as conclusively determined by scientific evidence alone, and it has little practical bearing on physiological research.

(*j*) Etudes Médico Psychologiques. M. Renaudin, p. 166. Art. 30. Sur la responsabilité Morale. Paris, 1854.

Leçons Cliniques, de M. Falret, p. 11, discours d'ouverture. Paris, 1854.

Manuel Complet de Médicine Legale per J. Briand. Section Troisiéme. Article III. p. 560. Paris, 1852.

(*k*) Heinroth is the leading representative of the psychological theory. See his "*Lehrbuch der Seelenkrankheiten.*" Leipsic, 1818, and his "System der psychisch, gerichtlichen Medicin," Leipsic, 1825. Dr. Mayo, in his "Medical Testimony on Lunacy," goes some distance in the same direction; and as has been seen, very justly argues in favor of a discrimination of punishment between the malicious and the unconscious insane criminal. Mayo, &c. 50, 51.

(*kk*) Post § 259–276.

(*l*) See Schürmayer, Gerichliche Medicin. § 521.

(*m*) "Unfreiwilliger Irrsein." Schürmayer.

The doctrine usually regarded as having the best Scriptural basis—that the mind has an existence altogether distinct from that of the body—is attended with several difficulties, of which those arising from the phenomena of insanity are perhaps the most important. On the other hand, the opinion held by some, that mental phenomena are the mere results of material changes, appears to involve difficulties at least equal: among which may be noticed, the consciousness of personal identity, preserved throughout the continual and rapid changes to which the nervous system is subject. The assertion, however, that psychical operations *cannot* be the result of material changes, is based on the assumption, that we know far more of the essential character of both than is admitted by the best metaphysicians to be the case regarding either; this is a question which scarcely comes within the boundaries of human knowledge. Neither hypothesis is inconsistent with the revealed doctrines of the immortality of the soul; though the second could not be made to conform to it, without the additional supposition that some refined form of matter, on which the psychical operations essentially depend, has also an external existence. All the upholders of this doctrine seek a confirmation of it in the expression 'spiritual body,' used by an authority which is all but supreme. The certainty of a future existence, in which all that is corruptible shall be done away, is the great practical fact for the Christian. On the mode of it the philosopher may speculate, and even though he may come to the conclusion that 'mind and matter are logically distinct existences,' yet he finds their operations so inextricably interwoven in the phenomena of man's terrestrial life, that he cannot pursue either class by itself alone."

To this may be added the very high authority of Isaac Taylor, who, in his "Physical Theory of another Life," after pointing out how completely the question whether the human soul is ever actually or entirely separated from matter, is passed over by St. Paul as an inquiry altogether irrelevant to religion, continues:—"Let it then be distinctly kept in view, that although the essential independence of mind and matter, or the abstract possibility of the former existing apart from corporeal life, may well be considered as tacitly implied in the Christian's scheme, yet that an actual incorporeal state of the human soul, at any period of its course, is not involved in the principles of our faith any more than is explicitly asserted. This doctrine, concerning what is called the immortality of the soul, should ever be treated simply as a philosophical speculation, and as *unimportant* to our Christian profession."(*n*)

§ 84. "Such," says President Edwards, the first metaphysician of his country, and perhaps the first of his age, "seems to be our nature, and such the laws of the union of soul and body, that there never is, in any case whatsoever, any lively and vigorous exercise of the will or inclination of the soul without some effect upon the body in some alteration of the motion of its fluids, and especially of the animal spirits. And, on the other hand, from the same laws of the union of the soul and body, the constitution of the body and the motion of its fluids may promote the exercise of the affections, but the mind only that is the proper seat of

(*n*) Carpenter. Mind and Matter, by J. G. Millingen, M. D., M. A. pp. 128, 129, 130.

affections. The body of man is no more capable of being really the subject of love or hatred, joy or sorrow, fear or hope, than the body of a tree,—or than the body of a man is capable of thinking and understanding. As it is the soul only that has ideas, so it is the soul only that is pleased or displeased with its ideas. As it is the soul only that thinks, so it is the soul only that loves or hates, rejoices or is grieved at what it thinks of. Nor are these motions of the animal spirits and fluids of the body anything properly belonging to the nature of the affections, though they always accompany them in the present state, but are only effects or concomitants of the affections that are entirely distinct from the affections themselves, and not essential to them; so that an unbodied spirit may be as capable of love and hatred, joy or sorrow, hope or fear, or other affections, as one is that is united to a body."(*o*)

§ 85. There can also be little doubt that the soul, in this sense, acts directly on the body, either with or without the usual muscular or nervous action. A curious case, recorded by the late Dr. J. Cheyne, seems to favor the opinion that there may be a set of fibres conveying to the brain a sense of general sensation, independent of the sense of touch. "We know an instance," says he, "of a remarkable delusion, arising from complete loss of feeling in the left side of the body, caused by an attack of palsy, which first originated, and then fatally terminated in apoplexy. In the morning the individual maintained he had two left arms; and when we tried to convince him that he was under a misconception, he promptly offered to produce the supplementary arm. 'There it is,' said he, patting his left shoulder with his right hand. 'Well, then,' it was asked, 'where is the other?' On which, turning round his head with great alacrity to show it, he seemed much disappointed when he could discover but one arm, vehemently declaring that 'there were two in the night.'(*p*) Here there must have been general sensation in the arm, or the patient would not have felt that he had an arm at all; but when in the night he felt but could not see that he had an arm, and, on touching the surface of the palsied limb with the other hand, was sensible of no impression, he naturally supposed the real arm to be existing behind or beside the dead substance which he touched. Between sleeping and waking, even in health, we do not always reason; and here, probably, the reasoning power was somewhat disturbed by the lesion of the brain. If there should be a sense of this kind, it would account for the fact that *pain* is felt in palsied limbs which are insensible to touch, as well as for those cases of insanity or idiocy where the sense of touch remains, but that of heat, or the pain ensuing from a burn is lost.(*q*)

II. How mental unsoundness is to be detected.

1st. *By whom.* § 86.
2d. *At what Time.* § 96.

(*o*) Edwards on Religious Affections, p. 15. (*p*) Cheyne's Essays, p. 60.
(*q*) Barlow on Man's Power over himself to prevent or control Insanity. London, W. Pickering, 1843; Phil. Lea & Blanchard, 1846.

(1) Time of act. § 95.
(2) At trial. § 97.
(3) At and after sentence. § 98.

3d. *By what Tests.* § 100.
(1) Physiognomy. § 100.
(2) Bodily health and temperament. § 102.
(3) Hereditary tendency. § 107.
(4) Conversation and deportment. § 110.
(5) Nature of act. § 112.
(*a*) Its insensibility. § 112.
(*b*) Its incongruity with antecedents. § 113.
(*c*) Its motivelessness. § 114.
(*d*) Its inconsequentiality. § 115.

1st. *By whom.*

§ 86. It has already been stated that the experience of medical experts, like that of experts in all other branches of science,(*r*) is part of the common law of the land. The illustrations of this principle are very numerous. Thus, if a question involving ship-building is the subject of judicial investigations, the testimony of a shipwright as to the meaning of terms of art, as well as to the general laws of the craft, enters into the basis upon which the case is tried. And if there has been any difficulty in the reception of the result of medical experience, when insanity is at issue, it has arisen from that occasional conflict of opinion among medical witnesses which the highest professional authority have lately so entirely united in deploring.(*s*)

§ 87. One or two illustrations will be sufficient to show the importance of a skillful medical examination. "Delusions are sometimes cunningly concealed for a length of time," says Dr. Winslow, "and, notwithstanding we are certain that they exist, no amount of ingenuity will induce the patient to disclose them, particularly if made aware of the object of our visit.(*t*) I had been, recently, to see a lady whose insanity was manifested in a remarkable degree in her every action; but after paying her several visits I found it impossible to induce her to exhibit any one delusive impression or insane idea; but no sooner had I left the room, than her conversation and conduct became outrageously insane. Many insane persons are able to talk with apparent rationality, but cannot write without exhibiting their insanity. I have

(*r*) "C'est aux lumieres et á la probité des médécins que doit etre *exclusivement* réservê le droit de juger chaque espèce de aliénation mentale, et de donner aux tribunaux les seuls élémens sur lesquels puissent être raisonnablement fondés des jugemens êquitables."—*Méd. Lég.*, M. Orfila, tome 1, p. 360. Paris, 1848.

(*s*) Lettsomian Lectures on Insanity. By Forbes Winslow, M. D., D. C. L., late President of Medical Society of London, &c. London. John Churchill, New Burlington Street. Medical Testimony and Evidence in cases of Lunacy. Being the Croonian Lectures delivered before the Royal College of Physicians in 1853. With an Essay on the conditions of mental soundness. By Thomas Mayo, M. D., F. R. S. London, John W. Parker & Son, West Strand. 1854. Marc, Die Geisteskrankeiten, in Beziehung auf die Rechts pflege I. p. 8; and see also particularly Mittermaier's late very interesting essay, "Die Stellung und Wirksamkeit der Sachverständigen in Strafverfahren," in "Archiv für Preussisches Strafrecht." Berlin, 1853.

(*t*) ——"Souvent même il faut toute l'expêrience des hommes qui out fait une étude particuliére des aberrations mentales pour constater *l'existence* de la folie."—*Manuel de Médecine Légale*, par J. Briand, p. 542. Paris, 1852.

examined, recently, one very remarkable case of this kind, in a clever, well-read, and intellectual woman, whom I had occasionally to visit.(*u*) I never could detect the slightest aberration of mind in her conversation, and yet almost invariably upon my leaving, she placed in my hands a letter (which had been written previous to my calling), full of the most absurd extravagances and fancies: accusing strangers, myself, and members of her family of being engaged in deeply concocted conspiracy against her property and life. Several of these peculiar and interesting cases are recorded, and the medical man has been advised, with the view of obtaining an insight into the true condition of the mind, to open a correspondence with the supposed lunatic, upon the principle that few persons positively insane can, for any length of time, write without exhibiting their delusions, whatever amount of self-control they are able to exercise over their thoughts and morbid ideas, during protracted conversations. It is essential for us to ascertain the degree of knowledge possessed of the ordinary and every-day occurrences of life. Upon one occasion I was conversing with a person whose state of mind was the subject of my investigation, and finding him rational and apparently sane upon all points, I questioned him as to who was the reigning sovereign, without knowing he had any delusion on the point. The person immediately started from his chair, exclaiming, in an excited tone of voice, "I am the sovereign!"(*v*)

§ 88. "I was requested," says the same high authority, "to see a gentleman who was said to be suicidally insane. Upon inquiry, I ascertained from good authority that under the influence of most distressing hallucinations he had attempted to hang himself. The patient firmly, earnestly, and apparently with great truthfulness, resolutely and repeatedly denied the fact. He declared it was an invention,—a pure creation of the imagination, originating with the family; that he was happy, subject to no depression, had a strong wish to live, and great fear of death. I examined him, in conjunction with another physician, and neither of us could seize hold of the salient point, or satisfy himself that the man was actually insane. But, we asked ourselves, what motive could his family have for thus misrepresenting the facts of the case? We felt quite assured, from the character of the evidence presented, that an attempt at suicide had been made; but the patient, with an ingenuity which would have reflected credit upon a *nisi prius* lawyer, parried with great skill all the questions, and gave such prompt and happy replies to our anxious interrogatories, that we were compelled to admit ourselves, for a time, perfectly defeated. By a course of conversation I drew the gentlemen's thoughts into a different channel; and whilst my attention was directed apparently elsewhere, I kept a close watch upon all his movements. I perceived, as I imagined, some kind of instrument projecting from his pocket. He perceived that my eyes were directed to this, and he immediately expressed a wish to leave the apartment. I at once said, "I cannot permit you to do so until I know what you have concealed in your trowsers pocket." He at once mani-

(*u*) "Dans la folie raisonnante sans grand agitation, le malade peut paraître devant celui qui l'interroge avec calme, repondre tres juste à toutes les questions et expliquer d'une manière plausible les actions extravagantes qui lui sont imputees."—*Orfila*, tome I. p. 396. Paris, 1848.

(*v*) Winslow on Medico Leg. Ev., 128.

fested signs of embarrassment and excitement, and rising rapidly from his seat, endeavored to rush out of the door. He was immediately prevented from doing so, and his pockets emptied, and a razor discovered. In his pocket-book a letter was found, addressed to the coroner, intimating to him that he was pursued by an evil spirit, and this impression had driven him to commit an act of self-destruction. Fortunately for our own reputation and the patient's life, this providential discovery was made.(*w*) It may be necessary to see and examine the patient on more than one occasion before the physician is satisfied as to the actual state of his mind. In cases of doubtful character, I would suggest that this course should invariably be adopted, taking the necessary precaution to recommend close vigilance during the interregnum. I I suggest this course, in consequence of my being acquainted with the case of a lady, whose removal from home was for a few days temporarily postponed, in compliance with the cautious and judicious advice of the medical man, who admitted that he could not detect, according to his apprehension, sufficient evidence of insanity to justify him in signing the certificate. During the interim she succeeded in destroying herself. In a few instances we are justified in partially acting upon the representations of the family and friends of the alleged lunatic. If a delusion be detected, it must be referred to: and if the patient has committed any overt acts of violence, or manifested a suicidal disposition, it is our duty to refer to these facts, guarding ourselves by stating that we derived such information from parties immediately around the patient. It is important in all cases to specify the character of the existing delusion. The expression of a belief in the fact of delusive ideas, and of the presence of abstract insanity without a specification of facts, renders a medical certificate invalid. I have often seen certificates worded to this effect: 'I have formed my opinions from the fact of the party being insane,'—'being under delusions,'—'being excited,'—'being violent.' These generalizations should be carefully avoided: the more concise the account of the patient's condition, the closer will it be in unison with the expressed wish of the Commissioners in Lunacy. The record of one clear and unmistakable delusion is quite sufficient for all legal purposes. But cases do occur where no delusion can be detected, and yet confinement may be absolutely necessary. Under such circumstances it is the duty of the medical man to enter more into detail as to the facts of the case. Perhaps I may be excused for suggesting, that in every instance of this kind, the parties should keep copies of their certificates."(*x*)

(*w*) It is only in having, says Orfila, an acquaintance with the whole life of an individual, in weighing and comparing every fact, that, in some cases, we can pronounce with certainty upon his actual moral state. It is in interrogating the past that we acquire a knowledge of the present. The same author also states, that when an opinion is asked from physicians upon the actual state of an accused person, they ought, in the examination of his previous conduct, to understand what act is imputed to him, if that should be necessary to influence their opinion. In a report, they should not confine themselves to a simple opinion upon the state of the person who is the subject of it, but, of necessity, should go into details upon the facts observed, in order that the same piece may be submitted to the examination of new experts. The employment of all the means indicated does not always lead to a positive result, and sometimes we are to remain in doubt.—*Méd. Lég.*, Orfila, tome I. p. 400. Paris, 1848.

(*x*) Winslow on Medico Legal Ev. 152; see *ante* § 43.

§ 89. "Certain recent actions at law in this country," says Dr. Hartshorne, "in which heavy damages have been incurred by parties charged with arresting and detaining an alleged lunatic against the will and interests of the latter, have led to greater circumspection, not only among the friends of lunatics, in the procurement of proper medical certificates and other forms required for the admission of insane patients into hospitals, but among the medical advisers in the preliminary examinations of the patients, and the filling up of their certificates. The principal hospitals for the insane of the United States, have printed forms and obligations, which are furnished to the friends of patients to be filled up and signed according to the law of the State and the rules of the hospital. The form of the medical certificate generally requires the patient to have been seen and examined by the physician signing, on the day on which the certificate is dated. In all cases the certificate is expected to apply only to the actual condition of the patient at the time of signing, and to be used without delay in order to be available. The medical certificate must always be accompanied by a formal application for admission of the patient, signed by a responsible guardian, near relative, or friend. These papers have also annexed to them a series of questions relating to the past history and existing condition of the patient, the peculiar symptoms of the case, and the probable cause of the attack; which questions are to be answered by the friends and relatives, and the attending physician. Some hospitals require the signature of two physicians to the medical certificate, neither of them, of course, being connected with the hospitals applied to. The State Lunatic Hospital of New Jersey requires the medical certificate to be formally deposed to by two physicians before a magistrate. Patients sometimes obtain their discharge on a writ of habeas corpus, by proving their apparent fitness to be at large, but are generally removed by friends or discharged when sufficiently recovered, at the discretion of the superintendent. We are not aware of any legal restriction in this country on the liberation of insane patients, except in cases of homicidal or otherwise dangerous lunatics, who have been confined by order of a magistrate, or by a court of law. Such patients can only be released by an authority similar to that which first committed them. There are patients of this class now in durance at the Eastern State Penitentiary of Pennsylvania, and in different State Asylums."(*y*)

§ 90. It is well to keep in mind the suggestions of Hoffbauer in regard to the importance of an adaptation, by the inspecting physicians, of his own method of examination to the character of the subject. The uneducated and the refined, the bashful, timid, and retiring, and the cunning, insolent, and hardened, the eccentric, the victim of fixed ideas, and the lunatic, each requires a different style of treatment. He must worm his way into the heart of the ignorant man by reference to objects palpable to the sense, and must address the man of education in the spirit which animates him. He must approach the bashful, the timid, and the morose with cordiality and affability, and exercise practical tact, circumspection, and adroitness, in conversing with the cunning, the hardened, and the insolent, impressing them with respect for his per-

(*y*) Taylor's Med. Jurisprudence by Hartshorne, Phil. 1853, 561, 562.

sonal and mental qualifications. On the whole, the tone of the subject must regulate the tone of the examiner. But where one style of treatment is found of no avail, recourse may be had to the opposite one. Where the patient sits immovable as a statue, without answering any question addressed him, which often occurs in cases of deeply-seated melancholy, further questions should not be asked, but observation alone resorted to.(*z*)

§ 91. That a man is of sound mind, will generally be sufficiently manifest to a prosecuting officer of discretion; but whether a man is really, or only apparently deranged, is a question which cannot be decided with the certainty belonging to science except by a physician; nor is it possible, without a thorough knowledge of psychological medicine, to pronounce upon the influence exercised by specific forms of disease upon given actions.(*a*)

§ 92. It should not be forgotten, however, that it is of much importance in the diagnosis of insanity, that the proper legal and medical functionaries should act *in common*. Written explanations are here of much less value than oral intercourse, where a few words will often suffice to remove a difficulty, to correct an error, or to supply an omission. In visiting a deranged culprit for this purpose, the prosecuting officer should always invite the physician to accompany him. They may then alternately converse with the accused, whereby both the morbid and the criminal peculiarities of the subject will be clearly unfolded to them both. It is well established that a man of unsound mind will act very differently, according as he views the persons before whom he stands with fear, respect, or confidence. It is sometimes advisable to invite the physician's attendance at an official hearing, where, under the semblance of a mere occasional and unofficial companion, he may make a diagnosis the more accurate because unsuspected.

§ 93. It is not to be denied that a lay observer, or an unassisted judge or jury, may be able to distinguish a case of fully developed and clearly manifested insanity; but, aside from the necessity of a knowledge of all the particular relations existing between a given state of disease and a given act, there can be no proper foundation for the infliction of punishment in any case, where the judgment of which it is the execution is not based on the greatest attainable amount of certainty. But this certainty can be no other than that which bears the seal of technical science. Nor will a juryman, if properly tender of his conscience and of public opinion, base his verdict upon other evidence than that of those best able from long training and close attention, to understand the features of the case. In some cases the difference between a scientific, or technical, opinion, and that of a layman, is not so much in the results attained, as in the guarantee afforded by the superior attainments and more minute expertness of the man of science. The decla-

(*z*) J. H. Hoffbauer, Die psychischen Kraukheiten in Bezug auf die Rechtspflege, Berlin, 31.

(*a*) Notwithstanding Regnault's elaborate disquisition, "Du degré de competence des Medécins dans les questions judicaires relatives aux alienation mentales," &c., Paris, 1828, and notwithstanding the occasional contemptuous remarks of Nisi Prius judges in the hurry and irritation of trial, this position is recognized, as has already been seen, by the uniform practice as well as the recognized theory of the law. See *ante* § 45, *n*. See also *Marc*, die Geisteskraukeiten in Beziehung auf die Rechtspflege, vol. I. 98.

ration of such a man is insured against the possibility of error to the full extent of the protection of science in its present stage of development. *Pro foro* this degree of certainty is sufficient, because it is the highest attainable; but the same cannot be said of any other.(*b*)

§ 94. The American authorities falling under this head may be considered as establishing the following points:

(*a.*) Professional men, experts in psychological medicine, who have personally examined the party, may be asked whether he was insane or not.(*c*) Such, in fact, has been the uniform and undisputed course in practice in all cases where medical testimony is taken on this point. The English rule is equally definite.(*d*)

(*b.*) Even though the witness has not had the opportunity of personal inspection, he may be asked for his opinion on an assumed state of facts, or upon the evidence given on trial.(*e*) In England this position has been disputed, and though in one or two earlier cases the Courts allowed a greater latitude, yet now it seems to be understood that the witness will be restricted to the results of his personal examination.(*f*) But notwithstanding this retrogression, it may be maintained without the hazard of dispute that the rule as now settled in America is not only more in accordance with a full investigation of the points in dispute, but with the analogies of the law. It has been already shown that the common law consists of the wisdom of this particular age applied to the exigencies of the particular case; and in this sense it includes not only the decisions of the courts, but the opinions of experts on the particular branches to which their attention has been devoted.(*g*) Thus the evidence of persons acquainted with navigation is admissible upon the facts as developed in evidence in cases of collision,(*h*) or loss from alleged unseaworthiness;(*i*) of persons conversant with handwriting as to whether a paper was forged;(*j*) of seal engravers as to the genuineness of an impression;(*k*) of artists, as to whether a picture is an original or a copy;(*l*) of postmasters, as to the genuineness of a post mark;(*m*) of scientific engineers, as to the effect of an embankment on a harbor;(*n*) of

(*b*) Schürmayer, § 512.

(*c*) Com. *v.* Rogers, 7 Metc. 500; M'Allister *v.* State, 17 Alab. 434; Clark *v.* State, 12 Ohio, 483.

(*d*) R. *v.* Searle, 1 Mood. & Rob. 75; R. *v.* Offord, 5 C. & P. 168. See a learned note on this point in 7 Bost. Law Rep. 692. M. Briand, (Med. Leg. 552, Paris, 1852,) says, "Appelés á faire un rapport sur l'état moral d'un prevenu ou d'un accusè, les medecins ne s'immiscent point alors dans les fonctions des juges ou des jureés, mais ils eclairent la conscience des uns et des autres." See also Manuel de Med. Leg. de M. Orfila, T. I. 399. Paris, 1848.

(*e*) Com. *v.* Rogers, 7 Metc. 500; M'Allister *v.* State, 17 Alab. 434; Clark *v.* State, 12 Ohio, 483; Com. *v.* Wood, MSS. Phil. 1836; Com. *v.* Mosler, MSS. Phil. 1845.

(*f*) R. *v.* Wright, R. & R. 451; R. *v.* Frances, 4 Cox, C. C. 57; Opinion of Judges, *post n.* (*r*); though see *contra* R. *v.* Searle, 1 Mood. & Rob. 75; R. *v.* Offord, 5 C. & P. 168.

(*g*) See on this point *ante*, § 45, *n.*

(*h*) Malton *v.* Nesbit, 1 C. & P. 70; Fenwick *v.* Bell, 1 C. & K. 312; Thornton *v.* Royal Exch. Co. Peak, 25.

(*i*) Beckwith *v.* Sydebotham, 1 Camp. 116.

(*j*) Revett *v.* Braham, 4 T. R. 497; Hammond's Case, 2 Greenl. 33; Moody *v.* Rowell, 17 Pick. 490; Com. *v.* Carey, 2 Pick. 47; Lyon *v.* Lyman, 9 Conn. 55; Hubley *v.* Vanhorne, 7 S. & R. 185; Lodge *v.* Phipher, 11 S. & R. 333.

(*k*) Folkes *v.* Chadd, 3 Dougl. 157.

(*l*) Ibid.

(*m*) Abbey *v.* Lill, 5 Bing. 299.

(*n*) Folkes *v.* Chadd, 3 Dougl. 157.

practical surveyors, as to whether certain marks were intended as boundaries or terriors;(*o*) and of naturalists, as to whether the habits of certain fish were such as to enable them to overcome certain obstructions in a river.;(*p*) And so nothing is more common than to examine a surgeon as to whether death resulted from natural causes, or from certain artificial agencies which may be the subject of inquiry.(*q*) On this principle the opinion of medical men as to whether particular symptoms, supposing them to exist, constitute insanity, is part of the law of the case. It should be observed, however, as the cases in the note show, that the witness is not to be asked whether on the whole evidence of the case his opinion is that the patient was insane—for that, indeed, would be taking the jury's place—but whether if a certain state of facts be true the inference of insanity would result therefrom.(*r*)

(*o*) Davis *v.* Mason, 4 Pick. 156. (*p*) Cottrill *v.* Mason, 3 Fairf. 222.

(*q*) See cases quoted in Wharton on Homicide, 241–4; and see also 1 Stark. Ev. 154; Phil. and Am. on Ev. 899; 1 Green. on Ev. § 440.

(*r*) See 3 Greenlf. on Ev. § 5. In answer to an inquiry by the House of Lords, whether "a medical man, conversant with the disease of insanity, who never saw the prisoner previously to the trial, but who was present during the whole trial and the examination of all the witnesses, can be asked his opinion as to the state of the prisoner's mind at the time of the commission of the alleged crime, or his opinion whether the prisoner was conscious at the time of doing the act that he was acting contrary to law, or whether he was laboring under any and what delusion at the time?" the English judges replied, "We think the medical man, under the circumstances supposed, cannot in strictness be asked his opinion in the terms above stated, because each of those questions involves the determination of the truth of the facts deposed to, which it is for the jury to decide, and the questions are not mere questions upon a matter of science, in which case such evidence is admissible. But when the facts are admitted, or not disputed, and the question becomes substantially one of science only, it may be convenient to allow the question to be put in that general form, though the same cannot be insisted on as a matter of right."

In this country the present practice, when medical men are examined as experts, is to ask their opinion as to a hypothetical state of facts. If they happen to have been present during the whole trial, they may be asked their opinion as to the particular facts, supposing them to be true; but the determination of the truth or falsity of the evidence itself should be reserved exclusively for the jury.

"The opinions of professional men on a question of this description," says Chief Justice Shaw, in a late case, "are competent evidence, and in many cases are entitled to great consideration and respect. The rule of law, on which this proof of the opinion of witnesses, who know nothing of the actual facts of the case, is founded, is not peculiar to medical testimony, but is a general rule, applicable to all cases, where the question is one depending on skill and science in any particular department. In general, it is the opinion of the jury which is to govern, and this is to be formed upon the proof of facts laid before them. But some questions lie beyond the scope of the observation and experience of men in general, but are quite within the observation and experience of those whose peculiar pursuits and profession have brought that class of facts frequently and habitually under their consideration. Shipmasters and seamen have peculiar means of acquiring knowledge and experience in whatever relates to seamanship and nautical skill. When, therefore, a question arises in a court of justice upon that subject, and certain facts are proved by other witnesses; a shipmaster may be asked his opinion as to the character of such facts. The same is true in regard to any question of science, because persons conversant with such science have peculiar means, from a larger and more exact observation, and long experience in such department of science, of drawing correct inferences from certain facts, either observed by themselves or testified to by other witnesses. A familiar instance of the application of this principle occurs very often in cases of homicide, when, upon certain facts being testified to by other witnesses, medical persons are asked, whether in their opinion a particular wound described would be an adequate cause, or whether such wound was, in their opinion, the actual cause of death, in the particular case. Such question is commonly asked without objection; and the judicial proof of the fact of killing often depends wholly or mainly upon such testing of opinion. It is upon this ground, that the opinion of witnesses, who have long been conversant with insanity in its various forms, and who have had the care and superintend-

(*c.*) The better opinion also is that witnesses, though not experts, who have for a given time had the opportunity of observing the patient, may be asked their opinion as to his sanity. (*s*) Such witnesses cannot, of course, be examined as to their opinions on a case stated, or on the facts developed in the case on trial, but only as to the results of their personal observation, just in the same way that a man ploughing on the shore can be examined as to the fact of a ship striking a shoal before him, when he could not be admitted to prove the cause of the disaster. And, on this principle, it has always been held admissible to ask subscribing witnesses as to their opinion of the testator's sanity at the time of the execution of the will. (*t*)

2d. *At what time examinations should be made.*

§ 95. There are three different times in which the conduct of the accused may become the subject of a forensico-psychological investigation: 1, at the commission of the deed; 2, during the trial, and 3, after sentence pronounced. At each of these periods, the judge has a separate point of view from which to regard the state of mind of the defendant, in each the purpose of the inquiry is different, and in each the interrogations to be directed to the physician must be modified accordingly. (*u*)

§ 96. In regard to the first point, the questions to be asked the physician should be, in general, whether a diseased mental state attended the commission of the act, wherein the disease consisted, and whether

ence of insane persons, are received as competent evidence, even though they have not had opportunity to examine the particular patient, and observe the symptoms and indications of disease, at the time of its supposed existence. It is designed to aid the judgment of the jury, in regard to the influence and effect of certain facts, which lie out of the observation and experience of persons in general. And such opinions, when they come from persons of great experience, and in whose correctness and sobriety of judgment just confidence can be had, are of great weight, and deserve the respectful consideration of a jury. But the opinion of a medical man of small experience, or of one who has crude and visionary notions, or who has some favorite theory to support, is entitled to very little consideration. The value of such testimony will depend mainly upon the experience, fidelity, and impartiality of the witness who gives it.

One caution, in regard to this point, it is proper to give. Even where the medical or other professional witnesses have attended the whole trial, and heard the testimony of the other witnesses, as to the facts and circumstances of the case, they are not to judge of the credit of the witnesses, or of the truth of the facts testified to by others. It is for the jury to decide whether such facts are satisfactorily proved. And the proper question to be put to the professional witnesses is this: If the symptoms and indications testified to by the other witnesses are proved, and if the jury are satisfied of the truth of them, whether in their opinion, the party was insane, and what was the nature and character of that insanity; what state of mind did they indicate; and what they would expect would be the conduct of such a person, in any supposed circumstances." See 1 M. & Rob. 75; Com. *v.* Rodgers, 7 Metc. 5.

(*s*) Clary *v.* Clary, 2 Iredell, 78; Clark *v.* State, 12 Ohio, 483; Grant *v.* Thompson, 4 Connect. 203; Rambler *v.* Tryon, 7 S. & R. 90; Wogan *v.* Small, 11 S. & R. 141; Morse *v.* Crawford, 17 Vt. 499; Lester *v.* Pittsford, 7 Vt. 158; Gibson *v.* Gibson, 9 Yerger, 329; Potts *v.* House, 6 Georg. 324; Colver *v.* Haslam, 7 Barbour, 374; Baldwin *v.* State, 12 Missouri, 223; De Whitt *v.* Barley, 13 Barbour, 550; Kinne *v.* Kinne, 9 Conn. 102; Norris *v.* State, 16 Alab. 776; Wheeler *v.* Wheeler, 3 Hagg. 574; and see 7 Bost. Law Rep. (N. S.) 696, where these cases are cited.

(*t*) Chase *v.* Lincoln, 3 Mass. 237; Poole *v.* Richardson, ib. 330; Rambler *v.* Tryon, 7 S. & R. 90; Buckminster *v.* Perry, 4 Mass. 593; Grant *v.* Thompson, 4 Conn. 203; Sheafe *v.* Rowe, 2 Lees R. 415; Wogan *v.* Small, 11 S. & R. 141.

(*u*) See Schürmayer, § 516, from whence this head is generally drawn.

the mental and moral functions exercised and implicated in the perpetration, were of such a nature that either *a*, there was no consciousness of criminality and no freedom of volition, or *b*, the possibility of such consciousness and spontaneity was excluded, or *c*, both the one and the other were incapable of ascertainment, and must be left in doubt. The practice which has lately grown up, of interrogating as to a conclusion of law, (*e. g.* was the defendant capable of distinguishing right from wrong, or was he a free agent,) instead of as to a state of facts, (*.e g.* was he laboring under mental disease, and if so, what,) is not only false in theory, but pernicious in result.

§ 97. The *second* period of time becomes of particular interest in our American Jurisprudence, from the fact that when a party alleged to be insane is put on his trial, if insanity be pleaded, the jury are specially sworn to determine the preliminary issue, whether the defendant be insane *at the time of trial.* If the fact be found in his favor, he is confined under special sanctions. If otherwise, the trial proceeds on the main issue.

§ 98. The third period of time, at which the state of a culprit's mind is open to medical investigation, is after the close of the trial, and before the execution of the sentence. A man of unsound mind is incapable of understanding the justice of his sentence, or of recognizing a punishment in the evil inflicted upon him. In many cases also the evil will aggravate his disease. For all these reasons it is necessary to be certain that a convict is so far in the possession of all his faculties, that the object of the law in subjecting him to punishment will be answered. The interrogations to be submitted to the physician are to be framed upon this simple principle; and it is self-evident that only such derangements will here come in question as are clearly manifest, and as clearly exclude the possibility of the prisoner's understanding the reason of his punishment.

§ 99. It would be a proper regulation to cause every convict, before undergoing his punishment, to be examined in body and mind by the physician, for the purpose of ascertaining his capacity for the ordeal. Even where the general fitness of the subject is undoubted, there are frequently personal defects which require attention in the treatment of the prisoner during confinement. In several of the German States this precaution is observed—where a convict is found to be insane, he must be subjected to the proper treatment. If a cure is effected, the question whether he is now able to sustain the punishment without danger of a relapse or other injury, is to be decided by the forensic physician, upon a careful investigation of all the symptoms and attendant circumstances.

3d. *By what Tests.*

(1.) *Physiognomy.* (*v*)

§ 100. "Close attention," says Schürmayer, (*w*) "should be first

(*v*) The features of the face, says Falret, change at each instant or constantly preserve the same expression; the lips, the cheeks, the nostrils, the eyebrows, the eyelids, frequently show convulsive movement; it is the same with regard to the muscles of the eye, and under the influence of these convulsions, the look is troubled, bewildered and unsteady. Leçons Cliniques sur l'Alienation Mentale, M. Falret, huitieme leçon, p. 219. Paris, 1854; see also Orfila, Med. Leg. I. p. 379. Paris, 1848.

(*w*) Gerichtliche Medicin, § 529.

directed to the entire exterior of the subject, his posture, his motions, his gestures, his eye, his words, his intonation, and above all the first impression produced upon his mind by the appearance of the physician. What most distinctly characterizes a mental disease, and is never misunderstood by a skillful physician, is the physiognomy of such a patient. The eye of a madman is the mirror of his soul. He lacks the calm unobstructed gaze peculiar to the sane,u ntouched by passion or excitement." "Look," says Heinroth, (*x*) "upon the cunning leer of a lunatic, the savage glare of a maniac, the lack-lustre eyes of a splenetic, or the meaningless stare of an imbecile; such things cannot be counterfeited." (*y*)

The *form of the skull* is often peculiar in every description of mental disease, but is particularly noticeable in the case of Cretins and natural fools.

§ 101. The expressions of the eye(*z*) and of the nose(*a*) have been very capably exhibited by two eminent physiognomists. The latter feature has been examined with peculiar ability by Hoefling.(*b*) "In the apparently joyous countenance of a laughing madman," he tells us, "the upward traction of the sides of the nose, nevertheless, indicate unmistakably the presence of pain, and this expresses much of the physiognomic peculiarity of such unfortunates.(*c*) In like manner the simple unmeaning smile of imbecility is marked by the form and shape of the nose, which, with its downward, circular openings, and the tension of the skin on the peak, expresses a torpor, while in the laugh of a sane man the nostrils contract, and become elongated, without a departure of the septum from its horizontal position." The mouth of the simpleton twitches with a constant unmeaning smile, accompanied with a low, inarticulate and thoughtless mumble, and the imbecile is almost always found, sitting or standing, with parted lips.(*d*) "With many," says Schürmayer, "the mouth is constantly in motion, as if they were talking to themselves. In the paroxysms of mania there is a convulsive distortion or contraction of the mouth. Receptivity for certain external impressions is generally low, particularly in the case

(*x*) System der gerichtlich psychischen Medizin. Leipsic, 1825, p. 343.

(*y*) Drawings, very well executed, are to be found in Morrison's Outlines of Mental Diseases. London, 1829, and in Esquirol, *Des Maladies Mentales*. Paris, 1838.

(*z*) Loebels, Grundriss der Semiologie des auges. Jena, 1817, p. 27.

(*a*) Hoefling, in Caspar's Wochenschrift, 1834. (*b*) Ibid.

(*c*) "To represent the prevailing character and physiognomy of a mad man, the body should be strong and the muscles rigid and distinct, the skin bound, the features sharp, the eye sunk; the color of a dark brownish yellow tinctured with sallowness, without one spot of enlivening carnation; the hair sooty black, stiff and bushy, or of a pale, sickly yellow with wiry hair."—*Anatomy of Expression*. Sir Charles Bell, London. 1844.

> "His burning eye whom bloody strokes did stain,
> Stared full wide and threw forth sparks of fire;
> And more for rank despight than for great pain,
> Shak'd his long locks, colored like copper wire,
> And bit his tawny beard to show his raging ire."
> [*Faery Queen, Book* ii. *canto* 4, *v.* 15.]

(*d*) Danz, *Allgemeine Medizinische Zeichenlehre*. Heinroth's edition. Leipsic, 1812, p. 353.

of impressions accompanied with pain,(*e*) of cold, heat, and certain medicines."

(2.) *Bodily Health and Temperament.*

§ 102. Hereditary tendency to insanity will in a moment be considered. Under this head, it is proper to notice the importance of the attention of the medical examiner being turned to temperament, disposition, and age; in the case of females, to the development of the functions of menstruation, pregnancy, delivery, suckling, to mental characteristics, powers, and habits; to the condition in life and profession; to the questions of rest and exercise, sleep, and watching; to excessive evacuations, particularly if connected with sexual gratifications; to sexual abstinence; to bodily injuries, particularly in the head, inflammatory affections of the brain or its membranes, diseases of the heart, hemorrhoids, obstructions of the abdomen,(*f*) and to cutaneous diseases.

§ 103. To what extent insanity is accompanied with physical disorganization, is illustrated by a case mentioned by Wigan in his remarkable work on the duality of the mind.(*g*) "The gentleman held a situation in which he had many younger persons under him. I purposely leave the designation obscure. He had risen to the head of the office by long and exemplary services. He was a widower, and had had a considerable family, all of whom, however, died in their youth. He exercised a parental control over his subordinates, and was extremely respected by every one who knew him. His salary was ample, his excessive benevolence had, however, always kept him poor, but as his style of living did not imply the expenditure of more than half his income, he had the reputation of wealth. Gradually, towards the age of sixty, this gentleman became garrulous and light in his conversation, and the others in the office suspected him to have been drinking. He had many rebuffs from the persons under his command, but this in no degree changed the indecorous levity of his conversation, which had formerly been remarkably dignified, and as reserved as was compatible with his excessive benevolence of disposition. Months and months passed on, his language became gradually worse, and at last was of the most depraved obscenity. This shocked and disgusted his juniors, and he was seriously threatened with exposure by them. The propensity was checked for a while, but after repeated offences and repeated forgiveness by the young men, they made a formal complaint to his superiors. The offender was taken to task very seriously, but, as the young men had given rather a lenient representation of his conduct, he was permitted one more trial, with the assurance that his next offence would be followed by dismissal. There was soon an opportunity of putting the threat in force, for his conduct and conversation became more and more gross and disgusting. He was dismissed. Having made no provision, he suddenly found himself utterly destitute,

(*e*) Compare Friedreich, *Handbuch der Allgemeine's Pathologie der psychischen Krankheiten*. Erlangen, 1839, p. 121.

(*f*) "Unterleibstockungen," Schürmayer,

(*g*) A new view of Insanity, &c., by A. L. Wigan. London, 1844, p. 81.

but did not make known his position. He packed a bundle of necessary clothes, put in his pocket whatever money and trinkets he possessed, and wandered about the country without aim or object. Every one lost sight of him for two or three months, when he was found in a remote part of the kingdom *literally dead on a dunghill*, where it is supposed he had laid himself down for warmth; his money was gone, and from the state of the stomach and intestines, it is probable that he had died of want of food as the immediate cause, but on examining the interior of the skull, there was found extensive softening and disorganization of the left cerebrum, and the other was not free from disease. He could not have lived long; though, under proper care, the disease would not have been immediately fatal."(*h*)

A diminution of sensibility, says M. Falret, in his late work,(*i*) is not of common occurrence in mental diseases, its exaltation being much more frequent. It is proper, however, to state that deranged persons are generally as sensible of temperature and impressions as persons ordinarily are. Lesions of the sensibility, however, are observable in all kinds of insanity, and especially in those cases in which mystical ideas are predominant, in demonomania and paralytic insanity. General insensibility has been known to take away from some madmen the sense of their own existence. M. de Foville cites the example of a man who thought he had died at the battle of Austerlitz, at which he received a severe wound. His insanity consisted in his inability to recognize and feel his own body. When any one inquired after his health, it was customary for him to reply, "You ask me how father Lambert is? but father Lambert is no more, he was killed by a bullet at Austerlitz. That which you see here, is not him, but a machine which they have made to resemble him, and which is very badly made, so try and make another." Never, in speaking of himself, did he say "me," (moi,) but "that," (cela.) This man fell several times into a complete state of immobility and insensibility, which lasted several days. Sinapisms and blisters applied to guard against these accidents, never produced the least symptom of pain. He often refused to eat, saying: "ça n'avait point de ventre."

Esquirol was unable to discover any sign of pain in passing a pin through the skin of the arm of a demonomaniac, who asserted that he no more felt anything, and who imagined that his body had been carried away by the devil.

In regard to anomalies of general sensibility associated with no illusion, there are madmen who appear insensible to the ordinary causes of pain. Esquirol speaks of an idiot girl who was in the habit of scratching a lump she had upon her cheek, and did not stop until she had perforated it, and after having performed this perforation, she enlarged the wound by continually pulling at it with her finger. We have often seen deranged persons cut themselves in different parts of

(*h*) Generally of all the causes of mental alienation, the most frequent, without doubt, are cerebral affections or some alteration of the encephalic organ, and perhaps we should agree with Haslam in saying, that the primitive cause of mental derangement is *always* to be found in these alterations.—*J. Briand, Méd. Lég.*, p. 544. Paris, 1852.

(*i*) Leçons Cliniques de l'Alienation Mentale, par M. Falret. Septieme leçon, p 185. Paris, 1854.

the body without appearing to suffer. But the greatest phenomenon of insensibility is the indifference with which persons afflicted with insanity support *cold*. They have been known to expose themselves in the open air, to sleep upon the ground, flagstones and the floor, when the ice and snow caused persons warmly clad, to shiver. And imprudences like these appear to have a less dangerous influence upon the insane than upon others. This fact, however, has been much exaggerated, and in many instances the ordinary effects produced by cold, are observable in the deranged. These unfortunates are so exposed to freezing, that in many establishments there is an express law to visit, morning and evening, and wrap in flannel the feet of those whose condition causes these dangerous consequences to be dreaded.(*j*)

§ 104. Hunger and thirst are usually quite vivid, digestion varies, while the bowels are almost invariably obstructed. The skin is usually dry, rough, and inactive. The presence of almost all persons of unsound mind is distinguished by a peculiar specific smell.(*k*) Others show themselves equally indifferent to *heat*. There are some who walk and sleep, entirely naked, in the sun upon the hottest days, and who can look fixedly, for a long time upon this planet, without being dazzled by it.

The genital functions are ordinarily preserved by the insane; sometimes, indeed, their activity is increased, although the mental disease may not be of erotic origin. This super-excitation of the genital organs, independent of physical or moral erotomania, is particularly observable in agitated delirium; whilst in despondent delirium they are inactive at least if it have not love for a cause or object. The cases, are rare, however, where the sexual organs are attacked with insensibility or impotence, except in general paralysis. The aptitude of man and woman for the venereal act and for fecundation is not lost; only in insanity as in sound mind, the rapid succession of ideas, the violence or tenacity of pre-occupations foreign to amorous desires are capable of bringing on an inactivity of the genital functions.

The *pulse* forms no test. M. Jacobi has instituted experiments in a large number of cases of the different forms of mental unsoundness, indicating at the same time the relative pulsations of the several arteries, auscultating the heart, and counting the number of inspirations and expirations. The attempt to deduce a fixed rule, however, was in vain. "I had the vexation," he tells us, "to see that my researches, so conscientiously made, did not fulfil the end I had proposed; and I saw that it was impossible to establish the necessary connection between the different pathological states of the intellect and feelings, and the observations I had collected on the state of the circulation, the respiration, and the temperature of the skin, in the insane.(*l*)

(*j*) "Dans le plus haut degré de la manie les malades oublient leurs besoins, et sentent à peine, ou pas du tout, *la douleur*, *le froid* et *le chaud*."—*Manuel de Méd. Lég.* M. Orfila. Tome I. p. 377. Dr. Rush makes insensibility to the weather, particularly cold, a marked test.

(*k*) Compare Hill's Essay on the Prevention and Cure of Insanity. London. 1814. p. 401. Erhard in Wagner's "*Beiträgen zur Philosophischen Anthropologie*." Vol. I. Vienna, 1794. p. 111. Milling's Mentis *Alienationum Semiologica Somatica*. Bonn. 1828. § 15. Burrow's Commentaries. p. 297.

(*l*) Jacobi Annales Medico-Psychologiques.

The secretions, and particularly the perspiration, are imperfectly performed in the majority of insane cases. In these cases there is a dry skin of an unhealthy color, and the exhalation of a disagreeable smell. They do not grow thin but even become fat, although eating little, because they perspire badly. They urinate a great deal, and the passage of urine is frequent as is common in all nervous disorders. *Constipation* is an almost habitual attendant of the disease.

Without being oppressed, the *Respiration* in the insane is very often unequal, hurried, diminished, interrupted, and sobbing. Their breath is often fetid, and this accidental fetidity, an ordinary symptom of all nervous diseases, frequently announces the approach of an attack of melancholy, mania, or hysteria.(*m*)

§ 105. The most interesting symptoms are found in the various abnormities of the sensorial system, as manifested in the excitement, depression, or delirium of one or the other of the senses. An excitement or depression of the sensorial system generally keeps even pace with the mental malady. Before the mental disease breaks out, and while its advent is indicated by mental and moral excitements, an enhanced excitability in the sensorial system becomes perceptible, which, however, where the psychical energies are gradually exhausted by the recurrence and violence of the paroxysms, frequently turns to an opposite condition, so that the failing, obtuseness, or loss of one of the senses attends the subsequent progress of the evil. According to Spurzheim,(*n*) the ear is the sense, which, of all others, suffers most among the insane, and there are more deaf than blind among them. The deliria of the senses, which are either illusions, or hallucinations, are found in every form of the disease; they sometimes attack one sense only, sometimes several, and sometimes, though rarely, all the senses at once.(*o*)

Esquirol gives it as the result of his experience(*p*) that when the alienation of the mind begins, and sometimes a little earlier, smell and taste have changed, but the deceptions of the ear and the eye generally characterize the fancies of most madmen. The deliria of smell are less frequent than those of the other senses, those of taste are of the most various kind, and those of touch impress the patients with the existence of attributes in bodies other than those which they possess. These deliria frequently give rise to fixed ideas; particular postures, various attitudes and motions, are observed in almost all madmen. Guislain(*q*) comprises them under the name.

§ 106. A change of moral disposition is one of the first symptoms,

(*m*) Leçons Cliniques de l'Alienation Mentale, par M. Falret. Septieme Leçon. p. 185. Paris. 1854.

(*n*) *Beobachtungen ueber den Wahnsinn. Nach dem Englischen und Franzoesischen bearbeitet von Embden.* p. 81. See Méd. Lég. M. Orfila. Tome I. p. 358. Paris, 1848. Or, Méd. Lég., Briand. p. 540. Paris, 1852.

(*o*) For a full account of the illusions and hallucinations of the senses we would refer the reader to the Leçons Cliniques sur l'Alienation Mentale de M. Falret. 3d, 4th, 5th, 16th lessons. Paris, 1854. Also to the Etudes Medico-Psychologiques sur l'Alienation Mentale, par F. E. Renaudin. Chap. 8th, p. 388. Paris, 1854.

(*p*) Compare Hagen Die Sinnetaunschungen in Bezugauf Psychologie Heilkunde, und Reihtspflege. Leipsic. 1837.

(*q*) Traite sur les Phrenopatpies. Bruxelles, 1833. p. 240.

other than physical, with which the disease usually makes its appearance. Extreme irritability, proneness to anger, suspicion, concealment, obstinacy and perverseness, are common. In regard to the affections, various abnormal impulses and inclinations are observed. Fondness or aversion to particular persons, without any special reason; disposition to exercise cruelty, murderous desires, a wish to commit arson, or to steal.(*r*) Memory is generally good in reference to things occurring during the disease, or to persons with whom the patient was then connected, but defective or mistaken as to things which occurred previously.(*s*) Of the intellectual faculties not all are uniformly in an abnormal state; on the contrary, some functions occasionally improve, thus producing a complex state of madness, on the one hand, and of wit, reflection, and shrewdness, on the other.(*t*) Monomania is also included under this head. There is often a disposition to soliloquize aloud; and to laugh, without a visible reason.

(3.) *Hereditary Tendency.*(*u*)

§ 107. The teaching of observation on this point is that not only does the existence of insanity in the offspring afford a violent presumption of

(*r*) See § 192. A deranged person, says Orfila, regards with indifference the dearest objects of his affections, he thinks no more of them or holds them in such aversion as to repel, injure, and maltreat them. Hatred, jealousy, anger, wickedness, fear, terror, a disgust for life, a desire to destroy and kill, replace the most equal, calm, and softest nature.—*Manuel de Méd. Lég.* M. Orfila. Tome I. p. 382. Paris, 1848.

(*s*) A great many remember things which occur; and after their recovery, they often astonish by remarks which they had made at a time when they seemed most completely deprived of their reason.—*Méd. Lég.* J. Briand. p. 540. Paris, 1852.

(*t*) See cases collected by Friedreich, *Handbuch der allgemeiner Pathologie.* p. 189. See *post*, § 113.

(*u*) "Although at the first glance," says Renaudin, "man appears to possess an independent existence, isolated from his birth from those who begot him, although there is but little apparent relation between his ripe age and first infancy; it is not the less true that behind the characters peculiar to his individuality, we can discover certain typical signs some of which betray his nationality and others relate to his family. These typical signs are to be encountered not only in his physical organization, but are also found in his moral idiosyncrasies, and if tradition is of any force as regards manners and customs, inheritance is certainly of great value as relates to the tastes and habits. It is, in fact, manifested in the transmission from generation to generation of the most inveterate maladies, before which art is obliged to confess its weakness; and it is with difficulty prophylactic measures ward off the sad result. In mental alienation also, experience furnishes us daily proofs of this transmission, of which it is essential to study the mode.

The question whether this transmission is direct, or results from a predisposition whose development is due to the influence of an occasional cause, or, in other words, whether by itself it is an essential condition of causality, is no longer doubtful, and we now possess numerous examples not only of hereditary transmission, but also of an hereditary accumulation of the morbid predispositions. This is particularly the case in families where wedlock is limited to a small circle of fortune and social fitness. The royal families of many countries have not escaped this law. We see generations of insane succeed each other with an unyielding regularity, and there are families which in this relation seem pursued by a desolating fatality.

Aside from idiocy and imbecility, which show themselves a short time after birth, the predisposition does not ordinarily show itself until the individual has reached a certain development—that is to say, when all the conditions of causality are reunited. This native predisposition does not suppose that those that preceded were insane, it depends, above all, upon the conditions in which they are placed and which re-act upon the phases of their existence. This predisposition is also progressive from one generation to another; and it is in this manner that great social commotions and certain epidemics

its existence in the parent, but that its existence in the parent affords the same presumption as to its existence in the offspring.

In regard to *idiocy*, the facts are very striking. "Suffice it to say," we are told by Mr. S. G. Howe, chairman of the Massachusetts State Idiocy Commission, in a very luminous report, submitted in 1848, "that out of 420 cases of congenital idiocy examined, some information was obtained respecting the condition of the progenitors of 359. Now in all these 359 cases, save only four, it was found that one or the other or both of the progenitors of the unfortunate sufferers had, in some way, widely departed from the normal condition of health, and violated the natural laws."

The hereditary transmission of moral insanity is equally well authenticated. "We have no doubt," says a very eminent physician, "that various immoral and vicious practices ought to be ascribed to insanity. When periodic insanity has shown itself in a large family, it is probable that some members of the family will evince a propensity to thieving or swindling.(*v*) And when more children than one of the same parents, bursting through all the restraints imposed by carefully-instilled principles and established habits, engage in swindling transactions, it will often appear, upon inquiry, that insanity has generally broken out in that family."(*w*) And the same high authority tells us that in families where insanity prevails with the progenitors, he has known two, three, or four children of the same parents become deranged. One instance in particular he dwells upon, in which, among a family of twenty persons, the children of a brother and of two sisters, *ten* were afflicted with insanity.

A late very interesting table, originally published in the London Quarterly Review,(*x*) and endorsed by Dr. Winslow,(*y*) shows at once the importance of this inquiry:

contribute to the production of insanity, in leaving after them deep distress or in producing a disordered exaltation.

All causes capable of altering the public health have a marked influence upon the immediate production of insanity or upon the hereditary transmission of its predispositions. The unhealthiness of dwellings, and insufficiency or bad quality of food are so many circumstances influencing its production, and to which municipal governments should pay serious attention. It is on account of these and other analogous causes that cretinism and idiocy are endemic in certain localities, and that this influence is exercised not only on natives, but also upon those establishing themselves there.

The mode of life of the parents, and the diseases thay have had are no less efficacious in producing a predisposition to mental unsoundness. If insanity has existed in those that preceded, the chances of a direct transmission are much more probable. This predisposition is sometimes so marked as to be in some measure the only cause. Among the circumstances most likely to produce an hereditary predisposition, we should mention, drunken habits in the parents. Many, indeed, are the cases of idiocy and imbecility which owe their situation to this cause. Many generations thus suffer the punishment inflicted for the faults of one alone.

The hereditary predisposition presents numerous varieties in its evolution. Many members of the same family are free from mental unsoundness; and one only becomes insane. In another the inheritance shows itself from mother to daughter as a consequence of parturition. This predisposition sometimes consists only in the peculiarity of character, which drags the man towards a precipice which conducts irresistibly to insanity."—Etudes Medico-Psychologiques, par L. F. E. Renaudin. Chap. II. p. 33. Paris, 1854.

(*v*) See *post*, § 192.

(*w*) Essays on Partial Derangement in Supposed Connection with Religion. By the late John Cheyne, M. D. Dublin, 1843.

(*x*) No. 163.

(*y*) Lectures, &c. 150. See Rush on the Mind, 46, where this point is fully examined.

Initials of Criminals.	Verbatim extracts from Letters of Reference.	Observations on degree of intellect, &c. by the Chaplain when first seen.	School-master's Report on Leaving Prison.	State of leaving the Prison, as noted by Chaplain.
J. C.	Mother touched with symptoms of Insanity.		Improved in reading and writing.	Improved generally.
R. L.	Grandmother insane.	Read imperfectly.	Read well, wrote imperfectly, four rules of arithmetic.	
J. H.	Sister rather weak in mind.	Only knew the alphabet.	Read and wrote well; Rule of Three.	Very cheerful; improved in general knowledge.
H. N.	He and most of the family evinced symptoms of insanity.	Of the lowest kind.	Read very imperfectly; write a little; learned a little arithmetic.	Sent away incorrigible.
J. C.	Two sisters insane.	Of the lowest intellect, did not know A, B, C.	Read well, wrote tolerably, 4 rules.	Somewhat improved in general.
D. M.	His mother subject to nervous fits.		Read and wrote well; Rule of Three.	Mentally, not morally improved.
J. D.	One of his family (his mother, I have every reason to believe) laboring with insanity.		Read and wrote well; four Rules.	Improved in religious knowledge; very cheerful.
R.	Of a simple turn of mind. Uncle in Asylum.		Improved considerably.	In Scriptural knowledge also.
W. J. *alias* W. C. B.	Skull fractured three years ago.		Improved in reading and writing. Rule of Three.	Improved in Scriptural knowledge.
W. G.	Sister considered rather silly.	Of the lowest intellect, did not know the alphabet.	Read and wrote imperfectly; four Rules.	Cheerful.
A. H. L.	Had become *dejected* and *absent* after failure in business, and showed symptoms of *insanity*.	Very low in spirits.	Read and wrote well. Rule of Three.	Much improved in spirits; found comfort in religion.
J. N.	Considered rather *as an idiot*.	Very low degree of intellect.	Read and wrote well. Rule of Three.	Improved in general knowledge.
W. N.	Almost irresponsible.	Of very weak intellect.	Well educated previously.	Rather improved mentally.
A. A.	Weakness of mind, made sport of by fellow-servants.	Low in spirits and intellect.	Read and wrote well. Rule of Three.	Mentally improved.

Initials of Criminals.	Verbatim extracts from Letters of Referee.	Observations on degree of intellect, &c. by the Chaplain when first seen.	School-master's Report on Leaving Prison.	State of leaving the Prison, as noted by Chaplain.
F. W. K. *alias* A. K.	Uncle died in an Asylum; another committed suicide. Father and sisters considered weak.	Low in spirits. Over-active mind; disliked his trade.	Very well educated.	Morally improved.
J. M. F.	Mother's brother reported to be imbecile; harmless if let alone.	Of a low degree of intellect.	Read and wrote well. Rule of Three.	Improved in general; was recommended to be master tailor on board ship.
R. B. *alias* F. F. S. *a Jew.*	Not considered quite correct in his mind. Aunt mad for a long time.	Peculiar turn of mind.		Greatly improved, especially in Scriptural knowledge.
D. M.	Considered a simpleton.	Low intellect.	Read well, wrote imperfectly, four Rules.	Improved generally.
J. M. *alias* J. T.	Uncle killed himself in a fit of insanity.	Low in spirits and intellect.	Read well, wrote tolerably. Rule of Three.	Much improved.
C. J. C.	Eldest brother exhibited symptoms of insanity.	Good intellect.	Well educated.	Improved generally.
T. N.	Whole family eccentric, and very weak in intellect.	Weak intellect.	Read and wrote well. Rule of Three.	Improved generally.
R. R.	Uncle's intellect affected at times.	Low intellect; only knew the alphabet.	Read well, wrote imperfectly, four Rules.	Improved generally.
J. T.	Father died a lunatic.	Ordinary intellect.	Read and wrote well. Rule of Three.	Very much improved in general.
J. S.	I have thought, and more I am sure, that at times he was not altogether right in his head.	More than ordinarily reserved and very dull.	Read tolerably; wrote imperfectly; improvement very little.	On the whole rather improved.
H. C. *alias* L.	The prisoner's conduct, more especially his wandering propensities, are irreconcilable with perfect sanity.	A good intellect; apparently much compunction for sin.	Could read and write well; considerably advanced in the higher rules of arithmetic; improvement tolerably fair.	Improved very much. Found peace and comfort in the Gospel.
G. R.	He was not quite sound in mind, and sometimes not conscious of what he was about. His own sister destroyed herself.	A very low-spirited man.	Could read and write very well; considerably advanced in the higher rules of arithmetic; intelligent; made fair improvement.	Improved in spirits. Found comfort in religion also, I think.

W. H.	His mother has evinced symptoms of insanity within the last three years.	Nothing at all peculiar.	Read well, wrote tolerably, higher rules of arithmetic. Improvement tolerable.	Improved very much, especially in the memory. Gave himself to learning hymns, chapters, &c.
H. L.	His father was subject to fits.	Very low-spirited.	Could read and write well; mensuration. Improvement tolerable.	Very down-hearted, would have sunk here, I think, but for some religious hope.
J. B.	One member of the family has exhibited symptoms of insanity.	Ordinary.	Read well; wrote tolerably; knew common rules of arithmetic. Improvement tolerable.	Improved.
H. B.	I have known the person to have fits when over-fatigued.	Ordinary.	Read well; wrote tolerably; common rules of arithmetic. Improvement tolerable.	Very cheerful.
J. K.	He received an injury in his head; from this time he became flighty and unsteady. His father was in some measure imbecile in both body and mind.	A very active mind, but most perverse.	Could read and write well; higher rules of arithmetic. Improvement tolerable.	Cultivated his mind assiduously, but was very perverse to the last.
W. S. *alias* R.	Have found him a little insane at times; he was kicked by a horse in the head.	Ordinary.	Could read well, write tolerably, knew the first four rules in arithmetic. Improvement little.	Rather improved.
W. F.	I knew him to labor under severe nervous fever for several months, which I always observed afterwards to cause a lowness of spirits. It was about eight years since.	Good, but his constitution apparently weakened by intemperance.	Read and wrote well; advanced in higher rules of arithmetic. Tolerably improved.	Very cheerful. Much improvement in every way. Gave great attention to religion.
J. A. *alias* E. W.	Has not his senses perfect.	Half-witted.	Could read well; made scarcely any improvement.	Rather worse.
W. D. *alias* J. B.	I fully believe him to be at times insane. His maternal grand-father died insane.	Clever, good, but perverted and abused.	Was well educated on admission; was excused from school. Improved himself tolerably by reading and private study.	Not improved.
W. B.	Very soft in many things.	Low intellect.	Could scarcely read any. Very little improved.	Rather worse.
J. D.	His grand-mother is in an Lunatic Asylum.	Ordinary, but very dull.	Read well; wrote tolerably; four rules of arithmetic. Improved a little.	Improved rather in spirits.

Dr. Steinau, in his Essay on Hereditary Disease, mentions a very interesting incident bearing on this point.(*x*) "When I was a boy, there lived in my native town an old man, named P——, who was such an inveterate thief, that he went in the whole place by that name; people speaking of him used no other appellation but that of The Thief, and everybody then knew who was meant. Children and common people were accustomed to call him by that name, even in his presence, as if they knew not his other name; and he bore it to a certain degree with much good-natured forbearance. It was even customary for the tradesmen and dealers, who frequented the annual fair in the place, to enter into formal treaty with him; that is, they gave him a trifling sum of money, for which he engaged not only, not to touch their property himself, but even to guard it against other thieves. A son of this P——, named Charles, afterwards lived in B—— during my residence there. He was respectably married, and carried on a profitable trade which supported him handsomely. Still he could not help committing many robberies quite without necessity, and merely from an irresistible inclination. He was several times arrested and punished; the consequence was, that he lost his credit and reputation, by which he was at last actually ruined. He died while still a young man, in the house of correction at Sp——, where he had been confined for his last robbery. A son of this Charles, and grandson of the above mentioned and notorious P——, in my native town, lived in the house where I resided. In his earliest youth, before he was able to distinguish between good and evil, the disposition to stealing, and the ingenuity of an expert thief, began already to develope themselves in him. When about three years old, he stole all kinds of eatables within his reach, although he always had plenty to eat, and only needed to ask for whatever he wanted. He therefore was unable to eat all that he had taken; nevertheless he took it, and distributed it among his playfellows. When playing with them, some of their playthings frequently disappeared in a moment, and he contrived to conceal them for days, and often for weeks, with a slyness and sagacity remarkable for his age. When about five years old, he began to steal copper coins; and at the age of six years, he began to know something of the value of money, and he looked out for silver pieces; and in his eighth year, he only contented himself with larger coins, and proved to be, on public promenades, an expert pickpocket. He was early apprenticed to learn a trade, but his master being continually robbed by him, soon dismissed him. This was the case with several other tradesmen, till at last, in his fourteenth year, he was committed to the house of correction."(*y*)

A late writer gives us the following additional illustration:—"A gentleman recently returned from New South Wales told me," says the author, "that he was present one day at a factory or barrack, where the convicts are kept until engaged by a master, when a gentleman came in, and seeing a youth whom he thought would suit him, he said to him, 'Well, my lad, how are you?' 'A London thief,' was the boy's reply, touching his hat. 'What can you do?' 'Thieve, sir.' 'No

(*x*) See Pathological and Philosophical Essay on Hereditary Disease, p. 19, No. 21.
(*y*) See *post*, § 190–194.

doubt of that,' said the interrogator; 'but how were you brought up?' 'To thieve, sir,' was the boy's answer. 'Nonsense! What was your father?' 'A thief, sir.' The gentleman, now, probably humoring the conversation, continued to inquire concerning his mother and family, when it appeared that he had five brothers and five sisters, all of whom in the same manner were thieves." (*z*)

§ 108. "Nothing," says Mr. Hill, in his recent work on crime, "has been more clearly proved than that crime is, to a considerable extent, hereditary—crime appearing, in this respect greatly to resemble pauperism, which, according to the evidence of the Poor-law Commissioners, often proceeds from father to son in a long line of succession." (*a*) He adduces numerous cases in confirmation of the fact. One of the most striking applies to the families of three brothers, containing together fifteen members. Of these, no fewer than fourteen were utterers of base coin, while the fifteenth, who appeared to be an exception to his kindred, was, at length, detected in setting fire to his own house, which he had insured for four times its value. Supposing each of those employed in uttering base coin to have passed only one piece a day and to have had a career of five years' duration, (which there is reason to believe is about the average,) no fewer than twenty thousand offences might have been prevented by removing the three brothers permanently from society, before they became fathers of families." The disposition to commit crime is often unquestionably an incurable form of insanity; hence, we read of persons who are all their lives criminals, and only terminate one period of imprisonment to recommence another. The case of a woman, is cited by Mr. Hill, who continued in a career of crime for twenty-five years; and that also of another woman, fifty years of age, who had already been in prison sixty-seven times. Furthermore, he refers to another example, of a woman who had been in the police cells, in Edinburgh, at least one thousand times, chiefly for acts of violence. (*b*)

In a *legal* as well as a *psychological* view, the relevancy of evidence of hereditary taint has been very ably shown by a late eminent judge,(*c*) whose capacity as a mental observer was not less than his ability as a judge. On the trial of the issue, the object of which was to determine the validity of the will of Captain Arrowsmith, the evidence was that the deceased was a retired mariner who had attained a competence; the plaintiff was his sister, his heir by descent, as the last of her father's issue; and the defendant, his housekeeper, was his devisee. The fact in contest was his sanity. There was no evidence of practice or imbecility; but the plaintiff's witnesses testified as to acts of sudden and unprovoked passion, violence, wildness, extravagance and eccentricity; and, in order to corroborate the inference from them, her counsel offered the deposition of Susan Arrowsmith, the widow of one of the testator's brothers, that the testator's father was insane towards the close of his life; that one of the testator's two uncles, on the father's side, was insane, and the other imbecile; that his two aunts, on the same side, and their children, were insane; that a son of one

(*z*) Old Bailey Experience, 34.

(*a*) Crime; its amount, causes and remedies. By Frederick Hill, Barrister-in-law, late Inspector of Prisons, 1853, p. 55. (*b*) Ibid. (*c*) Gibson, C. J.

of them is in a mad-house; and that her own husband was mentally disqualified before his death. The admission of the deposition was opposed, on the ground that the legitimate inquiry was into the state of the testator's mind, not that of another; and that it did not follow, that because the testator's father and his collateral relations were insane, that he must have been so too. The point was elaborately argued on principle and authority, but the Chief Justice said:—"I admit the deposition without hesitation, notwithstanding the dicta of Mr. Shelford, (*d*) and Mr. Chitty, (*e*) that it is an established rule of law not to admit proof of insanity in other members of the family in civil or criminal cases. Established! When, where and by whom? Certainly not by the House of Lords, in McAdam *v.* Walker, (*f*) the only case cited for it, for the question there was avowedly dodged. That high court would not shock common sense by affirming the order of the Scotch Court of Session; nor would it gratuitously reserve it, when the decision could be safely put on another ground. The authority of a judgment appealed from, and left in dubio, cannot be very great. Sir Samuel Romilly's argument against the evidence was rested on the fecundity and interminableness of collateral issues; and Mr. Chitty seems to have had a glimpse of the same idea, when he said the course is to confine the evidence to the mental state of the party. But every new fact, though it open a new field of inquiry, is not collateral. It may bear directly on the fact in contest; and where it does so, it is not in the power of the court to shut it out. A collateral issue is such as would be raised by allowing a party to put a question to a witness on cross-examination in regard to a fact palpably unconnected with the cause, in order to afford an opportunity to discredit him by contradicting him; but does not proof of hereditary madness bear directly on the condition of the mind, which is the subject of investigation? What if the point had been ruled by the chancellor and law judges in the House of Lords? Profoundly learned in the maxims of the law, they were profoundly ignorant of the lights of physiology; yet free from the presumptuousness of which ignorance is the foster-father, they refused to rush on the decision of a question to which they felt themselves incompetent. Mr. Chitty fancifully puts the solution of questions of insanity on the doctrine of legal presumptions. 'As the imputation,' he says, 'is contrary to the natural presumption of adequate intellect, the deficit should be established by *direct* and *positive* evidence, and not merely to be conjectural or probable proof.' If that be law, a question of insanity is the only one in which positive evidence is required, and circumstantial evidence to corroborate, is rejected. Why is evidence of an old grudge admitted against a prisoner, as a remote proof of malice, if the remote proof of hereditary insanity may not be given by him, to rebut it; and why should the presumption of sanity be allowed to overbear the presumption of innocence, the strongest of them all? I admit that hereditary insanity will not itself make out a case for or against a member of the family; but to say that it may not corroborate what Mr. Chitty calls direct and positive proof, without defining it, staggers all belief. In a

(*d*) Treat. on Lunacy, 59. (*e*) Med. Jurisp. 355. (*f*) 1 Dows. Par. Ca. 148.

measuring cast it ought to prevail. He says harsh conduct, bursts of passion, or displays of unnatural feeling will not, *of themselves*, establish insanity. Be it so. But because the springs of such actions are concealed, are they never to be laid bare, and shown to be seated in the blood. When it is admitted by Mr. Chitty and Mr. Shelford themselves, that insanity is a discendible quality, they give up the argument. There can be nothing unreasonable in referring wild, furious and unnatural actions, not otherwise accounted for, to the abberrations of a mind, the reflux of that of a crazy father. Mr. Taylor, a distinguished lecturer on Medical Jurisprudence, in Guy's Hospital, London, says that 'in making a diagnosis of a case of insanity, the first question put is commonly in reference to the present or past existence of the disorder in other members of the family. There can be no doubt, from the current testimony of many writers on insanity, that a disposition to the disease is frequently transmitted from parent to child through many generations. M. Esquirol has remarked, that this hereditary taint is most common of all cases to which insanity can be referred.' (*g*) M. Esquirol was, in 1838, and perhaps is still, the principal physician to the hospital for the insane at Charenton, in France, and a member of the Royal Academy of Medicine at Paris. His tables of insanity are held in high repute, by not only the physicians of France, but of Europe. Well might Mr. Taylor say that these things ought to be borne in mind by medical jurists. The knowledge attained by men, of a subject with which they have grappled all their lives, ought surely to prevail against knowledge gleaned from the hornbooks of a profession to which the gleaners did not belong. Strange that a source of information open to every one else, should be closed to those who are to pass on the fact. Every man has observed that there are families through which insanity has been handed down for generations; and why should the probability of hereditary madness be excluded, when probabilities in other cases are weighed, especially when it is known that a proclivity to theft, intemperance, lying, cheating, and almost all other moral vices, are as transmissible as gout, consumption, deafness, blindness, and almost all other constitutional diseases. It is supposed by the million, that insanity is a disease of the mind, not of the body. Ridiculous! If it were, it could never be cured; for the mind cannot take physic, or be separately treated; yet the statistics of the insane exhibit a great number of cures, and the time is fast coming, when insanity will be considered the most manageable disease that flesh is heir to. An objection to an inquisition which does not disclose the specific nature of the ancestor's infirmity, might stand in a different light; but testimony which brings the fact of madness home to him, ought to be received like evidence of family likeness, which, though less reliable, was allowed to be corroborative proof of fraternity in the Douglas Peerage case, in 1767, and again in the Townsend Peerage case, in 1843. Lord Mansfield said, in the former, that he had always considered likeness as an argument of a child being the son of a parent; that a man may survey ten thousand people before he sees two faces exactly alike, and that in an army of a hundred

(*g*) Taylor on Med. Juris. 502.

thousand men, every man may be known from another; that if there should be a likeness in feature, there may be a difference in the voice, gesture, or other characters: whereas family likenesses run generally through all of these; for that in every thing there is a resemblance, as of feature, voice, attitude and action. Might he have not added the diathesis of the brain? He doubtless might, if the point had been mooted. In prosecutions for bastardy, the practice in the Quarter Sessions was, in my day, not exactly to give the child in evidence, but to put it before the jury, sometimes by the prosecutor, and sometimes by the putative father. But ancestral irregularity in the action of the brain is more frequently transmitted than any resemblance in form or feature; and it is difficult to imagine an objection to 'evidence for it for purposes of corroboration.'"(*h*)

§ 109. Taylor thus sums up the recent English cases on this point:— "In the case of Reg. *v.* Ross Touchet, 1844, tried and acquitted on the ground of insanity, for shooting a man, Maule, J., held that evidence that the grandfather had been insane may be adduced, after it had been proved by medical testimony that such disease is often hereditary in a family. It was also admitted in *Oxford's* case, the prisoner having been here tried for shooting at the Queen.(*i*) This kind of evidence has, however, been frequently rejected, and it is not admitted in the law of Scotland.(*j*) There can be no doubt, from the concurrent testimony of all writers on insanity, that a predisposition to the disease is frequently transmitted from parent to child through many generations. The malady may not always show itself in such cases, because the offspring may pass through life without being exposed to any exciting cause; but in general it readily supervenes from very slight causes."(*k*)

(4.) *Conversation and Deportment.* (*kk*)

§ 110. One or two cases will be sufficient to show the importance of accurate observation in this respect:—

A short time ago, a parish officer, from the neighborhood of Middleton, took a lunatic to the asylum, pursuant to an order signed by two magistrates. As the man was respectably connected, a gig was hired for the purpose, and he was persuaded that it was merely an excursion of pleasure on which he was going. In the course of the journey, however, something occurred to arouse the suspicions of the lunatic with

(*h*) Smith *v.* Kramer, 1 Am. Law Reg. 353.
(*i*) Law Times, Oct. 26, 1844.
(*j*) Gibson's case, Edinburgh, Dec. 1844.
(*k*) Taylor's Med. Jur., p. 555.
(*kk*) On this point see *ante*, § 86–92.

"In a great majority of cases," says Dr. Wood, "insanity is produced by exciting causes acting upon a predisposition to the disease. *Inheritance* is the most frequent source of this predisposition,—perhaps more frequent than all others put together. Even a particular form of insanity is often inherited; and it has been noticed that the attack is apt to come on at the same period of life in the parent and his offspring. The tendency to suicide not unfrequently descends from parent to child. It is thought that children born before the occurrence of insanity in the parent are less liable to be affected than those born subsequently."—*Practice of Medicine*, by Prof. G. B. Wood, M. D., vol. II. p. 672. Phila., 1849.

According to the observations of Esquirol, more than a third (and perhaps the half) of the persons who become insane, count insane persons among their near relations, and thus at their birth bring on an hereditary predisposition to the disease.—*Méd. Lég.*, Briand, p. 543. Paris, 1852.

respect to his real destination; but he said nothing on the subject, made no resistance, and seemed to enjoy his jaunt. When they arrived at Lancaster, it was too late in the evening to proceed to the asylum, and they took up their quarters for the night at an inn. Very early in the morning the lunatic got up and searched the pockets of the officer, where he found the magistrate's order for his own detention, which, of course, let him completely into the secret. With that cunning which madmen not unfrequently display, he made the best of his way to the asylum, saw one of the keepers, and told him that he had got a sad mad fellow down at Lancaster, whom he should bring up in the course of the day, adding: "He's a very queer fellow, and he has got very odd ways. For instance, I should not wonder if he was to say I was the madman, and that he was bringing me; but you must take good care of him, and not believe a word that he says." The keeper, of course, promised compliance, and the lunatic walked back to the inn, where he found the officer still fast asleep. He awoke him, and they sat down to breakfast together. "You're a lazy fellow to be sleeping all day; I have had a long walk this morning," says the lunatic. "Indeed," says the officer, "I should like to have a walk myself after breakfast; perhaps you will go with me?" The lunatic assented, and after breakfast they sat out, the officer leading the way toward the lunatic asylum, intending to deliver his charge; but it never occurred to him to examine whether his order was safe. When they got within sight of the asylum the lunatic exclaimed,—"What a fine house that is!" "Yes," said the officer, "I should like to see the inside of it." "So should I," observed the lunatic. "Well, I dare say they will let us through,—I will ask," was the response. They went to the door; the officer rang the bell, and the keeper whom the lunatic had previously seen, made his appearance, with two or three assistants. The officer then began to fumble in his pockets for the order, when the lunatic produced it, and gave it to the keeper, saying: "This is the man of whom I spoke to you about. You will take care of him; shave his head, and put a straight waistcoat on him." The men immediately laid hands on the poor officer, who vociferated loudly that the other was the madman, and he the officer; but, as this only confirmed the story previously told by the lunatic, it did not at all tend to procure his liberation. He was taken away, and became so indignantly furious that the straight-waistcoat was speedily put upon him, and his head was shaved, *secundum artem*. Meanwhile, the lunatic walked deliberately back to the inn, paid the reckoning, and set out on his journey homeward. The good people in the country were, of course, surprised on seeing the wrong man return; they were afraid that the lunatic, in a fit of phrensy, had murdered the officer, and they asked him, with much trepidation, what he had done with Mr. Stevenson. "Done with him?" said the madman, "why, I left him at the Lancaster Asylum, as mad as a fury!" which, indeed, was not very far from the truth; for the wits of the officer were well nigh upset by his unexpected detention and subsequent treatment.

Further inquiry was forthwith made by his neighbors, and it was ascertained that the man was actually in the asylum. A magistrate's order was produced for his liberation; and he returned home with a

handkerchief tied round his head in lieu of the covering which nature had bestowed upon it. (*l*)

§ 111. A man mentioned by Pinel, who had been for some time confined in the Bicêtre, was, on the visitation of a commissary, ordered to be discharged as perfectly sane, after a long conversation in which he had conducted himself with the greatest propriety. The officer prepared the *procés verbal* for his discharge, and gave it to him to put his name to it, when he subscribed himself Jesus Christ, and then indulged in all the reveries connected with that delusion. Lord Erskine gives a very remarkable history of a man who indicted Dr Munro for confining him without a cause in a madhouse. He underwent the most rigid examination, by the counsel of the defendant, without discovering any appearance of insanity, until a gentleman came into court who desired a question to be put to him respecting a princess with whom he had corresponded in cherry-juice. He immediately talked about the princess in the most insane manner, and the cause was at an end. But this having taken place in Westminster, he commenced another action in the city of London, and on this occasion no effort could induce him to expose his insanity; so that the cause was dismissed only by bringing against him the evidence taken at Westminster. On another occasion, Lord Erskine examined a gentleman who had indicted his brother for confining him as a maniac, and the examination had gone on for great part of a day without discovering any traces of insanity. Dr. Sims then came into court, and informed the counsel that the gentleman considered himself as the Saviour of the world. A single observation, addressed to him in this character, showed his insanity, and put an end to the cause. Many similar cases, says Abercrombie, are on record. Several years ago, a gentleman in Edinburgh, who was brought before a jury to be cognosced, defeated every attempt of the opposite counsel to discover any traces of insanity, until a gentleman came in court, who ought to have been present at the beginning of the case, but had been accidentally detained. He immediately addressed the patient by asking him what were his latest accounts from the planet Saturn, and speedily elicited ample proofs of insanity.(*ll*)

M. Orfila states, that deranged persons who are conscious of their condition, and who yet preserve some control over themselves, will answer correctly all questions that are addressed them, and will not betray their condition if they have an interest in concealing it.(*m*)

(5.) *Nature of the Act.*

(a.) *Its Insensibility.*

§ 112. "In foro medico," as is well remarked by Schürmayer,(*n*) "a

(*l*) Manchester, (England,) Guardian.
(*ll*) Abercrombie on the Intellectual Powers, pp. 253, 254; see also § 86–92.
(*m*) Méd Lég., M. Orfila. Tome I. p. 396. Paris, 1848.
(*n*) Gerichtliche Medicin, § 522.

derangement of the mental faculties is generally to be presumed where the consciousness, imagination, or sensual apperception or impulse, when subjected to common and usual provocations, internal or external, respond in a manner different from what they would in a normal state. But whether a certain action, undergoing a criminal investigation, was the effect of a diseased mental activity of the subject, and committed when he was not master of himself, is a question to be answered primarily from the indicia presented by the action itself, and then from the results of an examination of the accused, in reference to his physical, moral, and mental condition before, at, and after the deed in question. Illustrations of acts whose *insensibility* can be received to show their irresponsibility or incompetency of the actor, may be found in the old law cases of a legacy to the King of Siam, and of an executory devise to all the children in a particular parish who should, in a specific year, be born with moles on their faces. The presumption of irresponsibility would, of course, attach with great force under similar circumstances, to criminal acts equally insensible, as in the case of the idiot who was found putting an infant brother into the pot to boil for dinner."

(b.) *Its Incongruity with Antecedents.*

§ 113. When a man of uniformly mild character boldly and openly commits a deed of blood,—when a woman of previous purity gives way to lasciviousness,—when a long course of irreproachable honesty and exactness is suddenly broken in by profligacy; or domestic peace, by unprovoked ebullitions of violence, or by expressions of distrust to those formerly most loved or most trusted,(*o*) it is proper to consider how far unsoundness of mind may not be considered as the cause. Illustrations of this species of change will hereafter be noticed in other connections. It should be observed that *omission to fly* is a very important ingredient to make up this species of presumption.(*p*) It should be observed, also, that a man of unsound mind generally chooses the most injudicious time and place for the perpetration of the act, although the cunning and address with which an offence was committed, do not exclude the supposition of derangement,(*q*) and repels with indignation every intimation of his insanity; in many cases asserting that he committed the crime with perfect consciousness, and when entirely in his senses, and disregarding all that is said to extenuate it.(*r*)

M. Falret thus speaks of the change of character, which is a prominent symptom of commencing insanity:—Sometimes instead of a simple exaggeration, it is a veritable transformation that the character undergoes. Avarice gives place to prodigality, piety to irreligion, modesty to obscenity, temperance to drunkenness, the love of truth to deceit, the most tender and tried affections to indifference and even hate.(*rr*)

(*o*) See also, Médicine Légale, par M. Orfila. Tome I. p. 389. Paris, 1848.

(*p*) 2 Mittermaier Deutsch St., § 12. Wills on Circumstantial Ev. 70. Best on Presump., 322. Wharton's Cr. Law, (3rd ed.,) 332, 333.

(*q*) See Méd. Lég. J. Briand. p. 553. Paris, 1852; and see *ante*, § 60, 61.

(*r*) Compare Friedreich, Handbuch der gerichtsaertztlichen Praxis. Vol. I. p. 370.

(*rr*) See *ante*, § 106.

A frequent result is the neglect of the duties due to family and society, disorder of conduct and derangement of affairs, and those ebullitions of irritation and violence which momentarily, and sometimes for ever destroy the harmony existing between relations and friends.(*s*) The changes of conduct observable, in the incubation of mental diseases, are infinite, the deranged show a neglect or an unaccustomed zeal for their customary occupations, and for the cares and attentions of family, and for social customs and duties. Patients who were before sedentary in their habits, indulge in long absences from their dwellings. Some show an indifference and neglect for the persons and things they loved the most, and seek after objects which they did not like. Others overwhelm you with demonstrations of obligingness and devotedness. Generally those thus affected are absent and forgetful, they do not remember what they have done or what they were about to do an instant before, and then seem much surprised when these frequent absences of mind are pointed out to them. Their conduct abounds in contrasts. Those who were orderly become dissipated; those who were careful in business, now enter upon the most dangerous speculations, and they addict themselves to play, drinking and sexual excesses, and in fact to all the vices which were before unknown to them.(*ss*)

(c.) *Its Motivelessness.*(*t*)

§ 114. "It is assumed or implied," says Dr. Taylor with great justice, "that sane men never commit a crime without an apparent motive, or one of delusive nature only in the perpetration of a criminal act. If these positions were true it would be very easy to distinguish a sane from an insane criminal, but the rule wholly fails in practice. In the first place, *non-discovery* is here taken as a proof of the *non-existence* of a motive; while it is undoubted that motives may exist for many atrocious criminal acts without our being able to discover them—a fact proved by the numerous recorded confessions of criminals before execution, in cases of which, until these confessions were made, no motive for the perpetration of the crime had appeared to the acutest minds. In the case of *Courvoisier*, who was convicted of the murder of Lord William Russell, in June, 1840, it was the reliance upon this alleged criterion before the secret proofs of guilt accidentally came out, and led many to believe he could not have committed the crime; and the absence 'of motive' was urged by his counsel as the strongest proof of the man's innocence. It was ingeniously contended, 'that the most trifling action of human life had its spring from some motive or other.' This is undoubtedly true, but it is not always in the power of man untainted with crime to detect and unravel the motives which influence criminals to the perpetration of murder. No reasonable motive was

(*s*) See *post*, § 204.

(*ss*) Leçons Cliniques sur l'alienation Mentale, M. Falret. 8th Leçon. p. 215. Paris, 1854. *Post*, § 204. See *ante*, § 106.

(*t*) Médicine Légale, J. Briand. p. 548–49. Paris, 1852. Pinel, Alienation Mentale, p. 157. Etudes Medico-Psychologiques sur l'alienation Mentale, par L. F. E. Renaudin. Paris, 1854. Chap. 18th, p. 779. See also Leçons Cliniques de Médicine Légale, M. Falret, Leçon 2d, p. 55–67. Paris, 1854. Also Médicine Légale, par Orfila. Tome I. p. 304. Paris, 1848.

ever discovered for the atrocious murders and mutilations perpetrated by *Greenack* and *Good;* yet these persons were very properly made responsible for their crimes. On the trial of Francis for shooting at the Queen, the main ground of the defence was, that the prisoner had no motive for the act and therefore he was irresponsible; but he was convicted. It is difficult to comprehend under what circumstances any motive for such an act as this could exist; and therefore the admission of such a defence would have been like laying down the rule, that the evidence of the perpetration of so heinous a crime should, in all cases, be taken as a proof of the existence of an irresponsible state of mind. Crimes have been sometimes committed without any apparent motive, by sane individuals who were at the time perfectly aware of the criminality of their conduct. No mark of insanity or delusion could be discovered about them, and they had nothing to say in their defence. They have, however, been very properly held responsible. On the other hand, lunatics confined in a lunatic asylum have been known to be influenced by motives in the perpetration of crimes. Thus they have often murdered their keepers in revenge for ill treatment which they have experienced at their hands.(*u*) Thus Farmer was acquitted as insane, while the clear motive for homicide was revenge and ill-feeling. In another case the act of murder was perpetrated from jealousy.(*v*) On the whole, the conclusion with respect to this assumed criterion is, that an absence of motive may, when there are other strong evidences of insanity, favor the view of irresponsibility for crime; but the non-discovery of a motive for a criminal act cannot of itself be taken as any proof of the existence of homicidal monomania in the perpetrator. It is right to state, however, that the law invariably acts on the humane principal, that the absence of a sufficient motive forms a strong presumption of innocence—the presence of one is no proof of guilt."(*w*)

(d). *Its Inconsequentiality.*

§ 115. Of this an illustration may be found in the case of the madman mentioned by Hitzig, who occupied himself with incessant and anxious labor in rowing an imaginary boat. He never, alas! reached the shore towards which he so toiled, until death released him from his labors; and the last pulse of life was given to a tremulous, and, then, scarcely perceptible movement of the spectral oars.

III. From what mental unsoundness is to be distinguished.

1st. *Emotions.*(*x*)

Briand says, that from the height of passion to madness is but one step, but it is precisely this step which impresses upon the act com-

(*u*) See the case of the Queen *v.* Farmer. York Spring Assizes, 1837.
(*v*) Reg. *v.* Goule. Durham Summer Assizes, 1845.
(*w*) Taylor's Med. Jurisprudence, p. 578, 579.
(*x*) See particularly Aristotle's delineation of the Passions in the Second Book of his "Rhetoric;" and see also L. Krahmer, Handbuch der gericht. Med. Halle, C. A. Schwetschke, 1851, § 126.

mitted a distinct character. It is important then to know exactly the precise characteristics of the passions and of insanity. But here science fails, for it must be admitted that we are unable to point out the place where passion ends or where madness commences.(*y*) M. Orfila draws the following distinction between a man acting under the impulse of the passions and one urged on by insanity. The mind is always greatly troubled when it is agitated by anger, tormented by an unfortunate love, bewildered by jealousy, overcome by despair, humbled by terror or corrupted by an unconquerable desire for vengeance, etc. Then, as it is commonly said, a man is no longer master of himself, his reason is affected, his ideas are in disorder, he is like a madman. But, in all these cases, a man does not lose his knowledge of the real relation of things, he may exaggerate his misfortune, but this misfortune is real, and if it carries him to commit a criminal act, this act is perfectly well motived. Insanity is more or less independent of the cause that produced it; it exists of itself; the passions cease with their cause, jealousy disappears with the object that provoked it, anger lasts but a few moments in the absence of the one who by a grievous injury gave it birth, etc. Violent passions cloud the judgment, but they do not produce those illusions which are observable in insanity. They excite for a moment sentiments of cruelty, but they do not produce that *deep moral* perversion which influences the madman to sacrifice, *without motive*, the being he most cherishes.(*z*)

(1.) *Remorse.*

§ 116. "When remorse," says Cogan, "is blended with the fear of punishment, and rises to despair, it constitutes the supreme wretchedness of the mind."(*a*) And of all stages of passion, remorse is the one most liable, when the conscience is acute, to be mistaken for insanity itself. Of this we have a very melancholy case in our own local experience. A young gentleman of peculiarly nice sense of honor and keen sensibility, killed an intimate and beloved friend in a duel, hastily forced on by his own undue susceptibility. For twenty years he has never ceased to stride to and fro the chamber in which he has been confined, firing an imaginary pistol at intervals, and then throwing himself back with the acutest expression of misery. In this instance remorse has run into madness. In others it has made but a slight progress in that direction; in others entire sanity and responsibility remain. And yet in all it presents symptoms which it is well for the forensic physician to examine in relation to their moral as well as their psychical origin.

Harpsfield, in his Ecclesiastical History, gives us the following graphic report of the dying words of *Cardinal Beaufort*, which is a powerful illustration of the effect of this passion: "And must I then die! Will not all my riches save me? I could purchase the kingdom, if that would save my life. What! is there no bribing of death? When my nephew, the Duke of Bedford died, I thought my happiness and my

(*y*) Méd. Lég. p. 551. Paris, 1852. (*z*) Méd. Lég. Tome I. p. 407. Paris, 1848.
(*a*) Cogan on the Passions, Vol. I. chap. 2. sec. 3.

authority greatly increased: but the Duke of Gloucester's death raised me in fancy to a level with kings, and I thought of nothing but accumulating still greater wealth, to purchase at last the triple crown. Alas! how are all my hopes disappointed! Wherefore, O my friends, let me earnestly beseech you to pray for me, and recommend my departing soul to God!" A few minutes before his death his mind appeared to be undergoing the tortures of the damned. He held up his two hands, and cried—"Away! Away! why thus do ye look at me?" This same scene in the Cardinal's life is thus still more vividly depicted by Shakspeare:

SCENE—*The Cardinal's bed-chamber.*

Enter King Henry, Salisbury and Warwick.

King Hen. How fares my lord? speak, Beaufort, to thy sovereign,

Cardinal. If thou be'st death, I'll give thee England's treasure,
Enough to purchase such another island,
So thou wilt let me live, and feel no pain.

King Hen. Ah, what a sign it is of evil life,
When death's approach is seen so terrible!

Warwick. Beaufort, it is thy sovereign speaks to thee.

Cardinal. Bring me unto my trial when you will,
Died he(*b*) not in his bed? where should he die?
Can I make men live, whe'r they will or no?—
O! torture me no more, I will confess.—
Alive again? then show me where he is;
I'll give a thousand pounds to look upon him.—
He hath no eyes, the dust hath blinded them.—
Comb down his hair; look! look! it stands upright,
Like lime-twigs set to catch my winged soul!—
Give me some drink; and bid the apothecary
Bring the strong poison I bought of him.

King Hen. O thou eternal Mover of the heavens,
Look with a gentle eye upon this wretch!
O, beat away the busy meddling fiend,
That lays strong siege unto this wretch's soul,
And from his bosom purge this black despair!

Warwick. See, how the pangs of death do make him grin.

Salisbury. Disturb him not, let him pass peaceably.

King Hen. Peace to his soul, if God's good pleasure be!
Lord cardinal, if thou think'st on heaven's bliss,
Hold up thy hand, make signal of thy hope.—
He dies and makes no sign; O God, forgive him!

Warwick. So bad a death, argues a monstrous life.

King Hen. Forbear to judge, for we are sinners all.
Close up his eyes, and draw the curtain close;
And let us all to meditation.(*c*)

M. Guillon relates the following remarkable case: "The Chevalier de S—— had been engaged in seventeen 'affairs of honor,' in each of which his adversary fell. But the images of his murdered rivals began to haunt him night and day: and at length he fancied he heard nothing but the wailings and upbraidings of seventeen families—one demanding a father, another a son, another a brother, another a husband, &c. Harassed by these imaginary followers, he incarcerated himself in the monastery of La Trappe; but the French revolution threw open this asylum, and turned the Chevalier once more into the world. He was

(*b*) Meaning the Duke of Gloucester. (*c*) King Hen. VI. part ii. Act 3.

now, no longer able to bear the remorse of his own conscience, or, as he imagined, the sight of seventeen murdered men, and therefore put himself to death. It is evident that insanity was the consequence of the remorse, and the cause of the suicide.(*d*)

§ 117. Schürmayer's(*e*) views on this point are of peculiar interest, as indicating the conservative jealousy with which the continental authorities guard against that involuntary dissimulation on the patient's part which makes *real*, and yet at the same time *responsible* emotions so difficult to distinguish from *irresponsible* disease. "Remorse," he says, "often affects the mind so powerfully, as to assume the appearance of insanity. The smothered self-reproach of the criminal sometimes expresses itself in the shape of deep *dejection*, and sometimes in that of *petulance* and irritability. Almost every defendant who is guilty, will be seen to lapse at least periodically into a deep reverie, with the eyes staring into vacancy. The most consummate villains alone are exempt from such feelings. Criminals generally endeavor to suppress the voice of conscience, because they fear to be betrayed by it. But this very reaction is perfectly legible in their faces, gestures, and general bodily condition. Under these circumstances the qualms of conscience frequently assume the appearance of disease. The accused, particularly if in confinement, does not sleep at night for weeks, and consequently looks pale and haggard, loses his appetite, and speaks with hesitation, and sometimes with trembling. When this condition reaches a point of great intensity, the guilty is visited by visions and hallucinations; avenging angels appear to him, or evil spirits, phantoms, or the shades of the dead and injured. Add to this a little superstition, and the victim is firmly convinced of the reality of these apparitions, and regards them as punishments sent from heaven. In the course of the trial itself, these symptoms are less perceptible; and generally the culprit hesitates to tell an official person what he suffers in seclusion, but the struggle within frequently breaks out in spite of his efforts, or at least interferes with the coherence of his speech. In such cases a man, perfectly hale in mind and body, will frequently talk at random, or at least express himself in so confused and stupid a manner as to induce doubts of his sanity. It is remarkable, that those who confess their guilt are subject to these attacks equally with those who deny it. It might be supposed that the criminals who have made a public confession, would experience a regenerating sense of relief in consequence of having removed a load from their minds; but the confession often precedes the first sensations of remorse, by directing the attention to the moral and religious aspects of the deed.

"This proves that even a confessed criminal should be treated with great circumspection. Instead of overwhelming him with reproaches, the victory gained by his integrity over his fears, should be held up to himself as a restorer of self respect.

"The more depraved order of culprits do not allow their consciences to drive them to despair, but only to *petulance;* but even this frame of mind sometimes goes so far as to lead the subject to do the most incom-

(*d*) Winslow's Anatomy of Suicide, pp. 53, 54. (*e*) See Gericht. Med. § 519.

prehensible things, such as asserting things against reason, refusing to answer, or causing constant trouble and vexation in the prison. Such persons are often greatly misunderstood, sometimes by ascribing their offensive conduct solely to malice and spite, and sometimes by regarding them as demented, when, driven by their chagrin, they lose all reflection, and say or do things to their own injury. The consciousness of crime, coupled with the despair of expiation consequent upon having denied it, produce an internal schism which may result in the most singular and distracting phenomena.

"A tolerably sure criterion of an awakened conscience is often to be found in the desire of the culprits for some consolatory assurance. Even those who deny their guilt are generally anxious to know how they would be able to bear the condition of a criminal, sentenced according to law. In many cases there is an exaggerated idea of the impending punishment, still further increased by the imaginings which haunt the prisoners solitude. When such erroneous notions come to the knowledge of the examining physician, it is perfectly right in him to correct them, and the information thus imparted will generally produce a change of feeling which must at once dispel every idea of mental derangement."(*f*)

(2.) *Anger.*

§ 118. "Anger," says Archbishop Tillotson,(*g*) an authority not distinguished for undue poignancy of description, "is a *short fit of madness*, and he that is passionate and furious deprives himself of his reason, spoils his understanding, and helps to make himself a fool." And Dr. Cogan, while more exact, is not much less emphatic: "Anger is the strong passion or emotion, impressed or excited by a sense of injury received or in contemplation; that is, by the idea of something of a pernicious nature and tendency, being done or intended, in violation of some supposed obligation to a contrary conduct."(*h*)

§ 119. "A morbid paroxysm of anger," Dr. Rush tells us, "appears in a preternatural determination of the blood to the brain, a turgescence of the blood-vessels of the face, a redness of the eyes, an increased secretion of saliva, which is discharged by foaming at the mouth, great volubility or a total suppression of speech, agitations of the fists, stamping of the feet, uncommon bodily strength, convulsions, hysteria, bleeding at the nose, apoplexy and death. Sometimes this disease appears with paleness, tremors, sickness at the stomach, quick respiration, puking, syncope and asphyxia. It is in this case generally combined with fear, and hence arises the abstraction of blood from the brain, and its determination to other parts of the body."(*i*)

"Anger," says Dr. Millingen, "will vary in its symptoms according to our temperament. Thus we may observe what is called *red anger* and *pale anger*. The first is of a violent and explosive nature; it generally affects the sanguineous; the circulation of the blood is accelerated—the breathing is difficult and panting—the features flushed—the

(*f*) Schürmayer, Gericht. Med. § 519.
(*g*) Works. Vol. I. ser. 4.
(*h*) Cogan on the Passions. Vol. I. p. 113.
(*i*) Rush on the Mind, p. 332.

swollen veins are visibly enlarged under the integuments—the eyes flash fire, and become injected with blood—the lips contracted expose the teeth—the voice becomes hoarse—the hearing difficult—foam will occasionally issue from the mouth; in short, the features assume the character of mania, arising evidently from a congestion of blood on the brain; and under the violence of the paroxysm the angry man will know no restraint, and is indeed, for the time being, a maniac, indiscriminate in his fury and perfectly uncontrollable. Such was the case of Charles VI. of France, who, being violently incensed against the Duke of Bretagne, and burning with a spirit of malice and revenge, could neither eat, drink, nor sleep, for many days and nights, and at length became furiously mad; as he was riding on horseback, drawing his sword and striking promiscuously every one who approached him. During this paroxysm of anger the violence of an infuriated man is such that he will break and destroy every thing about him. On this subject Dugald Stewart has entertained a singular notion, and fancied that in these outrageous acts, the angry man thinks that the inanimate objects that he attacks are alive. The following are his words:—'The disposition which we sometimes feel, when under the influence of instinctive resentment, to wreak our vengeance upon inanimate objects, has suggested to Dr. Reid a very curious query—whether, upon such an occasion, we may have a momentary belief that the object is alive? For my own part I confess my inclination to answer this question in the affirmative.' Now, with all due respect to the opinion of these psychologists, daily experience proves the fallacy of this doctrine; for, although such furious persons may break and demolish pots and pans, bottles and glasses, chairs and tables, they rarely expend their fury on bystanders, who would not remain as quiet as crockery or furniture, but have recourse to retaliation, with capital and interest. True, such men may beat their wives and their children, but they are more cautious with strangers; and their outrageous conduct I consider as an indication of a cowardly desire to seek revenge, rather than a resentful spirit to avenge wrongs or insults; and these outbreaks are nothing more than a manifestation of power that mankind is ever proud of possessing and displaying. And I truly must again differ in opinion with the philanthropic Dugald Stewart, when he maintains that a man wishes to punish an offender with his own hands, owing to 'a secret wish of convincing our enemy, by the magnanimity of our conduct, how much he had mistaken the object of his hatred.' I must confess that I should feel much hesitation in exposing myself to this chance of a benevolent display of magnanimity, on the part of an infuriated person."(*j*)

§ 120. And a still higher metaphysical authority, Dr. Reid, likens it to "a storm at sea, or a tempest in the air."(*k*) "It does not, therefore, signify anything in the mind that is constant and permanent, but some-

(*j*) Mind and Matter, by J. G. Millingen, M. D., M. A. pp. 326–7–8.

(*k*) "Sæpe, mihi hum amanæ meditanti incommoda vitæ,
Spesque leves, trepidosque, metus vanosque labores,
Gaudia que instabili semper fucata sereno,
Non secus ac navis lato jactata profundo,
Quam venti violensque æstus canusque magister
In diversa trahunt," &c.—*Buchananus.*

Montaigne (says Sir William Hamilton,) alludes to these verses in the tenth chapter

thing that is occasional and has a limited duration, like a storm or tempest. Passion commonly produces sensible effects, even upon the body. It changes the voice, the feature, and the gesture. The external signs of passion have in some cases a great resemblance to those of madness; in others to those of melancholy. It gives often a degree of muscular force and agility to the body, far beyond what it possesses in calm moments. The effects of passion on the mind are not less remarkable. It turns the thoughts involuntarily to the objects related to it, so that a man can hardly think of anything else. It gives often a strange bias to the judgment, making a man quick-sighted in everything that tends to inflame his passion and to justify it, but blind to everything that tends to moderate or allay it. Like a magic lantern, it raises up sceptres and apparitions that have no reality, and throws false colors upon every object. It can turn deformity into beauty, vice into virtue, and virtue into vice. The sentiments of a man under its influence will appear absurd and ridiculous, not only to other men but even to himself, when the storm is spent and succeeded by a calm. Passion often gives a violent impulse to the will, and makes a man do what he knows he shall repent as long as he lives. That such are the effects of passion I think all men will agree. They have been described in lively colors by poets, orators and moralists in all ages.(*l*) But men have given more attention to the effects of passion than to its nature; and while they have copiously and elegantly described the former, they have not precisely described the latter."

of his third book, but without naming his master. He has thus puzzled his commentators.

"Nubibus Atris
Condita Nullum
Fundere possunt
Sidera lumen
Si mere volvens
Turbidus Auster
Mesceat æstum,
Vitrea dudum,
Parque serenis
Unda diebus,
Mox resoluto
Sordida Cœno
Visibus Obstat.
Tu quoque, si vis
Lumine Claro
Cernere verum,
Tramite recto
Carpere callem:
Gaudia pelle,
Pelle timorem,
Spemque fugato,
Nec dolor adsit,
Nubila mens est,
Vinctaque frœnis
Hæc ubi regnant.—*Boetheus.*

(*l*) Milton thus describes what Dr. Millingen calls *pale* anger:

"Thus, while he spake, each passion dimm'd his face,
Thrice charg'd with *pale ire*, envy, and despair,
Which marr'd his borrow'd visage, and betray'd
Him counterfeit."

Thompson has also depicted the same state:

"Senseless and deformed,
Convulsive anger storms at large, or *pale*
And *silent* settles into fell revenge."

§ 121. Schürmayer very justly remarks that in practice, *anger* and *revenge* afford much less difficulty, because much more readily distinguishable from insanity than is *remorse*. With the more depraved, experience tells us that that malignant hatred which led to crime, is often increased after the crime is committed, and is further aggravated by displeasure at the unfavorable testimony of witnesses. The fury of such miscreants is often directed against the judge, the keepers, and all who contribute to the execution of their sentence. In the case of Carrigan, who was recently convicted in North Carolina for murder, so high did this temper run, that the defendant, immediately after the verdict of conviction was rendered, drew forth a pistol, with which he aimed a shot at the prosecuting attorney, and then shot himself.

In the fierce outburst of passion, it is quite possible to mistake a man under such circumstances for a madman, particularly where philanthropy predisposes the mind to doubt, and science and skill are not at hand to correct the first erroneous impressions. But these doubts will vanish if the examiner abstains from doing anything which may still further stimulate the passions, and preserves an imperturbable composure. If after this, a severe reprimand is found, either at once, or after one or two repetitions, to make a wholesome impression, and quell the excitement, there is certainly no derangement of the faculties; for a man with mania, or under the ravings of disease, will never be restored to self-control by the voice of reason. Where the man is very wild and debased, reproaches will not always answer the purpose, and it becomes necessary to menace him with coercion. The manner in which such announcements are received will also suffice to remove all doubts of his sanity.

(3.) *Shame.*

§ 122. The feeling of *shame* may also exert a very considerable influence on the demeanor of an accused man, not entirely lost to this sensation by a long course of vice. Shame rises and sinks with the feeling of honor; "shame is the disagreeable perception of the unfavorable opinions entained of us by others." Men of ordinary stamp, who value external honor far above the dignity of self-respect, can imagine no more dreadful fate than degradation in the eyes of the public. By injudicious treatment such individuals may be reduced to a state closely resembling insanity, particularly in the form of melancholy, which will disappear the moment a more judicious course is resorted to.

It is not necessary for us, in order to make out the similarity of symptoms between insanity and excessive shame, to find many parallels to the story told by Dr. Benton, and cited without protest by Dr. Rush, of a school-master who was accidentally discovered upon a close-stool by one of his scholars, and who in consequence became deranged.(*m*)

§ 123. Dr. Rush also tells us of an American Indian, who became deranged and destroyed himself, in consequence of seeing his face in a looking-glass soon after his recovery from a violent attack of small-pox. The loss of one eye by an affray in a country tavern, which ma-

(*m*) Rush on the Mind, p. 38.

terially affected the beauty of the face, produced derangement in a young man who was afterwards a patient in the Pennsylvania Hospital. There are other facts which show the depth of this attachment to beauty, in the human mind, and the poignancy of the distress occasioned by its loss or decay. The once beautiful Lady Wortley Montague tells a friend, in one of her letters, that she had never seen herself in a looking-glass for eleven years, solely from her inability to bear the mortifying contrast between her appearance in the two extremes of her life. A clergyman in Maryland became insane in consequence of having permitted some typographical errors to escape, in a sermon which he had published on the death of General Washington.(*n*)

A young gentleman of considerable promise, of high natural and acquired attainments, had been solicited to make a speech at a public meeting, which was to take place in the town in which he resided. As he had never attempted to address extemporaneously a public body, he expressed himself extremely nervous as to the result, and asked permission to withdraw his name from the published list of speakers. This wish was not, however, complied with, as it was thought that when the critical moment arrived he would not be found wanting even in the art of public speaking. He had prepared himself with considerable care for the attempt. His name was announced from the chair: when he rose for the purpose of delivering his sentiments. The exordium was spoken without any hesitation; and his friends felt assured that he would acquit himself with great credit. He had not, however, advanced much in his prefatory observations when he hesitated, and found himself incapable of proceeding. He then sat down, evidently excessively mortified. In this state he retired to a room where the members of the committee had previously met, and cut his throat with his penknife. He wounded the carotid artery, and died in a few minutes.(*o*)

(4.) *Grief.*

§ 124. Shakspeare very touchingly as well as naturally describes the symptoms of that species of morbid grief which becomes monomaniac by self-confinement and self-involution:

> "Grief fills up the room of my absent child;
> Lies in his bed, walks up and down with me;
> Puts on his pretty looks, repeats his words;
> Remembers me of all his gracious parts;
> Stuffs out his vacant garments with his form;
> *Then I have reason to be fond of grief.*"

"Physicians," says Dr. Rush, "in their unsuccessful efforts to save life, are often obliged to witness this passion. It is of consequence for them, therefore, to be well acquainted with its symptoms and cure. Its symptoms are acute and chronic. The former are, insensibility, syncope, asphyxia, and apoplexy; the latter are fever, wakefulness, sighing, with and without tears, dyspepsia, hypochondriasis, loss of memory, gray hairs, marks of premature old age in the countenance, catalepsy, and madness. It sometimes brings on sudden death, without any signs of

(*n*) Rush on the Mind, p. 40. (*o*) Winslow's Anatomy of Suicide, p. 64.

previous disease, either acute or chronic. Dissections of persons who have died of grief, show congestion in, and inflammation of the heart, with a rupture of its auricles and ventricles.(*oo*) But there are instances in which the sympathy of the heart with the whole system is so completely dissevered with grief, that the subject of it discovers not one mark of it in his countenance or behaviour. On the contrary, he sometimes exhibits signs of unbecoming levity in his intercourse with the world. This state of mind soon passes away, and is generally followed by all the obvious and natural signs of the most poignant and durable grief. There is another symptom of grief which is not often noticed, and that is profound sleep. I have often witnessed it, even in mothers, immediately after the death of a child. Criminals, we are told by Mr. Akerman, the keeper of the Newgate, in London, often sleep soundly the night before their execution. The son of General Custine slept nine hours the night before he was led to the guillotine, in Paris. These facts, and many similar ones that might be mentioned, will serve to vindicate the disciples of our Saviour for a want of sympathy with him in his suffering. They slept during his agony in the garden, because their "flesh was weak," and in consequence of "sorrow having filled their hearts."(*p*)

Tears, or the capacity to weep, form no test in this respect. "How often," very beautifully says Dr. Cheyne,(*pp*) "have we, in passing through this vale of tears, heard the following lament: 'Oh, that I could only cry! I feel as if it would so relieve me! There seems nothing natural in my grief. I, who wept so bitterly for my father, have not a single tear to shed for my child.' This tearless state sometimes remains to the very end of life; and we may hear individuals, who were originally possessed of the liveliest affections, declare: 'Ever since my husband, son, or daughter died, my affections have been frozen, and my eyes dried up.' It is very generally observed, when the first bitterness of grief is overpast—when the more violent, selfish, or ecstatic stage of the passion has had time to subside—that tears will again begin to flow."

One distinction, however, may be relied on with almost certainty. Grief may be, in most cases, relieved by the counter-irritation of some affection other than that wounded; but *insanity* never. Bishop Jebb, in his one hundred and thirty-ninth letter to Mr. Knox, very touchingly illustrates this: "Mr. Wilberforce one day proposed to take me out to pass next Tuesday with our valuable friend, Mrs. H. Thornton, at Clapham. I most gladly embraced the offer. She was much affected, and spoke freely to me about her feelings. At first she had been reduced to a state of inert grief, which would have made her willingly lie down in the same bed with him that was just gone, and die with him. A sense of affection and duty to her children soon roused her from this torpor, and she then felt, and continued many days to feel, as if she were in heaven. This high-wrought feeling, however, could not long remain, and nature since has had its griefs and tears." "On this passage," says Dr. Cheyne, "we would offer the following

(*oo*) Late researches, however, indicate such cases to be very exceptional.
(*p*) Rush on the Mind, p. 346, 347.
(*pp*) Cheyne on Derangement in Connection with Religion, p. 107.

short observation. By the 'inert' state of her grief, we understand that, though it was profound, so that she willingly would have died with her husband, yet that it was without its natural expression; there was no wailing. Then another affection was roused, and that assurance of Divine protection, which is the inheritance of the servants of God, filled her mind with gratitude and joy. Lastly, as the ecstasy subsided, and when her anguish was exhausted, nature had its 'griefs and tears.' It is always desirable that tears should come to the relief of the deeply afflicted; and it is easier to allow the first gush of grief to be over, before we attempt, by religious consideration, to moderate its poignancy."

(5.) *Home-sickness* (*Nostalgia*).(*q*)

§ 125. This often assumes a shape hardly distinguishable from *Hysteria*. Thus Goldsmith writes:—

> "The intrepid Swiss that guards a foreign shore,
> Condemn'd to climb his mountain-cliffs no more,
> If chance he hear the song, so sweetly wild,
> Which, on these cliffs, his infant hours beguil'd
> Melts at the long-lost scenes, that round him rise,
> And sinks a martyr to repentant sighs."

"It is remarkable," says Dr. Rush, "that this disease is most common among the natives of countries that are the least desirable for beauty, fertility, climate, or the luxuries of life. They resemble, in this respect, in their influence upon the human heart, the artificial objects of taste which are at first disagreeable, but which from habit take a stronger hold upon the appetite than such as are natural and agreeable."(*r*)

§ 126. Nostalgia, as Siebold(*s*) tells us, develops itself principally in that period of childhood approaching puberty. When the malady is of long continuance, it runs into voluntary starvation, sleeplessness, delirium, derangement of the senses, together with the usual melancholy consequences of unsatisfied desire. Sometimes symptoms of Pyremania are discoverable. Thus we are told of a girl of ten years who exposed two children, committed to her care, to the flames, under the stress of home-sickness.(*t*)

2d. *Simulated Insanity*.(*u*)

§ 127. In every case, the examining physician will be led at once to inquire, whether the apparent abnormal state of mind is real or feigned.

(*q*) Orfila gives the following symptoms by which Nostalgia may be recognized: Profound sadness to which succeeds a gloomy melancholy, silence and a great desire to be alone, a great indifference for every thing which does not recall the objects regretted. Spasmodic contraction of the stomach, prostration of mind and body, marasmus, &c.—*Méd. Lég.* Vol. I. p. 331. Paris, 1848.

(*r*) Rush on the Mind, p. 38, 39.

(*s*) Gericht. Med. § 213.

(*t*) See Jahrb. des Osterreich Staates, 15 Bd. 1834. § 597. See also the article under the head of *Heimweh*, by Jesse, in the Encyclop. Wörterb. der Med. Wissensch. Band 25. Berl. 1841. § 292.

(*u*) In relation to simulated insanity, M. Orfila says, that as there exists in the world a very false idea of madmen the one who simulates insanity, after this idea, will

One thing, however, must not be overlooked, and this is that impostors of this kind are but very rarely able to keep up the character of the disease assumed, with consistency, and without involving themselves in contradictions. It is important to adopt here the precautions prescribed by Schürmayer,(*v*) to watch the subject most closely when he supposes himself least observed, as at such times he generally drops his mask, which is irksome to him. In all such investigations the physician must never show the most trifling sign of doubt or hesitation; he must, on the contrary, appear to know everything, in order to discover everything, and must present a firm and imposing front in all his intercourse with the accused. Where the disease in question is of such a nature, as, if genuine, to interfere with or suspend sleep, it becomes necessary to watch the patient unobserved at night. To subject him purposely to mental irritation or excitement is improper, reprehensible, and liable to cause harm. Threats of painful medicines or operations are admissible where the processes threatened are really indicated by therapeutics, but the execution of such threats must depend upon the principles laid down in another part of this work, in reference to the tests applicable to feigned bodily diseases.

§ 128. Schürmayer gives us the following reasons for suspecting dissimulation or deception.

1. When the party has committed some act, the punishment of which he would escape by inducing a belief in his aberration of mind, in this case the comparison of the offence committed, with the form of mental disease assumed, will often suffice to confirm the suspicion.(*w*)

2. When the individual has frequently expressed an aversion to a particular occupation or profession it is expected to assume, as, for instance, that of a soldier.

3. When the general character of the party is open to imputations of malice and deceit.(*x*)

4. When it is impossible to discover any previous indications, physical or mental, of the pretended derangement of the mental faculties.(*y*)

§ 129. The species of mental unsoundness most frequently imitated by the vulgar as *delirium*—which, at the same time, is that which it is the most difficult to sustain. Sheridan, with his usual tact, hit upon

perform, at every instant, contradictory and false acts; thus, he will pretend not to remember his past actions, he will not recognize those whom he knows very well, he will not make a single correct reply to questions that are addressed to him. His features will not have the expression of such a violent condition, he cannot for so long a time prevent himself from sleeping, he will play the fool particularly whilst he thinks himself observed, finally, his pretended malady will not have developed itself until he feared the pursuit of justice; it will not have been preceded by that originality of character, by those marked symptoms of moral disorder which are observable in the majority of cases of insanity.—*Méd. Lég.*, Tome I. p. 400. Paris, 1848. See also Méd. Lég. J. Briand. p. 396. Paris, 1852. See on this point, Principles of Medical Psychology, being the outlines of a course of lectures by Baron Ernest von Feuchtersleben, M. D. Vienna, 1845. Translated from the German by the late H. Evans Lloyd, Esq. Revised and edited by B. G. Babington, M. D., F. R. S., &c. London, printed for the Sydenham Society, 1847. p. 376.

(*v*) Gericht. Med., § 392.

(*w*) Compare Heinroth, *System der psychisch gerichtlichen Medizin.* Leipsic, 1825. p. 453.

(*x*) Heinroth *Medizinische Zeichenlehre.* Ausgabe von Danz. Leipsic, 1812. p. 380.

(*y*) Friedreich, Handbuch der gerichtlichen Psychologie, p. 155.

this when he made the mock-author in the Critic throw his heroine into precisely this stage:—

Enter Tilburina and Confidant, mad, according to custom.

Sneer. But, what the deuce, is the confidant to be mad, too?

Puff. To be sure she is; the confidant is always to do what her mistress does; weep when she weeps, smile when she smiles, go mad when she goes mad. Now madam confidant—but keep your madness in the back-ground, if you please.

Tilb. . . . The wind whistles—the moon rises—see,
They have kill'd my squirrel in his cage!
Is this a grasshopper?—Ha! no; it is my
Whiskerandos; you shall not keep him—
I know you have him in your pocket.
An oyster may be cross'd in love!—who says
A whale 's a bird?—Ha! did you call, my love?—
He 's here! he 's there! He 's everywhere!
Ah me! he 's nowhere! [*Exit.*

Puff. There, do you ever desire to see any body madder than that?

Sneer. Never while I live!

Puff. You observed how she mangled the metre?

Dang. Yes—egad, it was the first thing made me suspect she was out of her senses!

Sneer. And pray, what becomes of her?

Puff. She is gone to throw herself in the sea, to be sure; and that brings us at once to the scene of action, and so to my catastrophe—my sea-fight, I mean.

It is much more easy to counterfeit imbecility in its lower stages, as *in*action rather than *action* is then required.

§ 130. The physiognomy of mature madness, does not admit of imitation—though the case is otherwise with imbecility. The demeanor of the individual under threats, or even under the application of painful remedies, is a criterion of inferior value, because skillful imposters withstand the test, and because many who are really affected, particularly before the disease has assumed a settled character, manifest fear and dread of such remedies, and retain, in a considerable degree, sensibility to pain. The torpor of the stomach and bowels under the use of emetics and purgatives is equally unreliable, because the same condition is found unconnected with unsoundness of mind; of greater value is sleeplessness, which a deceiver will not long sustain after the fashion of lunatics.(*z*)

§ 131. The shortest road to certainty(*a*) is by comparing the case in hand with those recorded or experienced, and by a strict application of the inductive tests. Experience teaches that the various abnormal conditions of the mind have certain symptoms in common, by means of which they admit of being arranged in greater and smaller subdivisions, and finally of being reduced to certain clearly defined forms and combinations of forms. Although every case, to a certain extent, furnishes its own rule, yet this logical process will be of great avail in detecting dissimulation, on the one hand, or groundless imputation of insanity, on the other. The more the phenomena of a case of alleged insanity subject to examination differ from recorded observations, or the more a person of dubious insanity presents an array of symptoms at variance with the form of the disease to which they ought to belong, the more reason is there to guard against deception.(*b*) At the same time, it must be admitted, that the science of psychical medicine has not attained such

(*z*) Schürmayer Gericht. Med. § 533. See also *ante*, § 100, 101.
(*a*) Ellinger *Ueber die anthropologischen Momente der Zurechnungsfaehigkeit*, p. 97.
(*b*) Mare, Die Geisteskrankheiten, &c. Vol. I. p. 104.

a degree of perfection, as to exclude entirely the possibility of cases arising, which would not admit of being classed with any of those already observed and noted. At times they incline to mere moral perversity, and are often treated as such for years; or the disease itself is not yet clearly developed; or, finally, it has apparently ceased, or arrived at a stage in which the patient is able to control and direct his condition, as a drunkard his intoxication.(*c*)

§ 132. For various reasons, simulation is not always to be inferred from the absence of a trace of insanity at the time of the investigation.(*d*)

1. Patients, whose minds are unsound on one subject only, have the power of burying their madness in their own hearts, to such an extent as to betray no sign of derangement in the course of the examination; because it is not necessary that the disturbance of one mental function should impair the action of the others. There are many cases, which have been in part noticed, and some of which will appear in the course of the following pages, in which the sufferer is insane on one subject alone, while all the other operations of his mind proceed in their normal manner, so that any one unacquainted with the fixed idea which controls him, would pronounce him perfectly rational.(*e*)

2. It is established by experience, that lunatics, even when their disease is not that of monomania, enjoy intervals in which their understanding has not only its normal vigor, but even displays uncommon powers.(*f*)

3. A genuine mental disease may be suspended or removed by the very circumstance which give rise to the investigation, by analogy to the cases of madmen restored to health by great mental and moral shocks, as well as of persons attempting suicide from melancholy or despair, who are cured of their folly by the impressions received while making the attempt.(*g*)

§ 133. Another consideration which must never be lost sight of in investigations of the kind is this, that a pretended mental disease may turn into a real one.(*h*) A man who makes every effort to appear deranged, may be so much affected by his efforts, that what he pretends may assume a reality in his mind, and he become in fact insane.(*i*) In conclusion, there is also a class of cases in which genuine paroxysms of madness alternate with pretended ones, which calls for especial caution in pronouncing upon them.(*j*)

§ 134. There are persons of unsound mind, who, in the incipient

(*c*) Schürmayer, Gericht. Med. § 533.

(*d*) Compare Friedreich, p. 165.

(*e*) Compare Wagner, Beitraege zur philosophischen Anthropologie. Vienna, 1794. Vol. I. p. 114. Perfect, Annalen einer Anstalt für Wahusinnige. Hanover, 1084. p. 341. Esquirol, Note sur la monomanie homicide. Paris, 1837. p. 3.

(*f*) Muratori, Ueber die Einbildungs Kraft. Leipsic, 1785. Vol. II. p. 8. Reil's Rapsodien, p. 76.

(*g*) Etudes Medico Psychologiques sur l'alienation Mentale, par L. F. E. Renaudin. Chap. IX. p. 522. Paris, 1854.

(*h*) For an interesting essay on Monomania induced by Imitation, see 1 Am. Journ. of Insan., 116. (*i*) Ibid. p. 172.

(*j*) Compare Neumann, Die Krankheiten des Vorstellungsvermoegens. Leipsic, 1822. p. 397. And Pye, Aufsaetze, &c. aus der gerichtlichen Arzneiwissenschaft, Third series, p. 219. And see particularly Schürmayer, § 535, whence the above observations are drawn.

stages of the disease retain sufficient consciousness to endeavor, for various reasons, to conceal their malady. A continued attentive observation of such individuals will, however, suffice, in general, to furnish the data for a correct view of the case. But even in cases of confirmed insanity, an *occult condition*, so-called, may occur, in which the madman tries and manages to conceal his ailment, or rather his impulses, fancies, and feelings. This is particularly frequent in lucid intervals and in partial insanity.(*k*) Under such circumstances, in addition to the maxims adduced under the head of dubious cases, the following suggestions will be found useful. To interrogate the patient directly to the point is of very little avail, for if he is anxious to conceal his madness, any questions will inspire him with a suspicion of the questioner which must frustrate all such efforts. More circuitous means are preferable.

1. By bringing the patient into a succession of different relations of life, and regarding closely the effect produced upon him, some indications of his fixed ideas may be made to escape him. If the subject of his lunacy is thus brought into question, by contradicting his views in connection with it, the perversion of his intellect will be doubly apparent.(*kk*)

§ 135. 2. Amelung's advice is to furnish the party with pen, ink, and paper, and induce him, under some pretext or other, to write; he will not be able to refrain from setting down something which will throw more or less light on the nature of his derangement.

§ 136. 3. Heindorf proposes that the physician should narrate the patient's own history, or so much of it as he had learned or could surmise, to the patient, as the history of the physician; this is to enlist the confidence of the patient and make him suppose a parallel between his own case and that of the examiner, so that the *dulce habere socium malorum* may elicit circumstances which he would otherwise have concealed.

§ 137. 4. A similar proposal is to associate the individual with another, of equal rank, degree of education, social position, &c., with himself, as a confidant, as persons of this description generally display more frankness towards people of their own order, than towards those whom they regard as above them. This idea, however, it will be easily seen, is very difficult of practical application.

§ 138. Though patients of this kind may *conceal*, they can never *deny* their fixed ideas. Many persons, says Heinroth, who, in a healthy state, had no scruples in telling a large series of falsehoods, whenever their interest required it, or a confession of the truth would subject them to a disagreeable exposure, forget all this the moment they have a fixed idea to maintain. Then they overlook every advantage, and stand at no absurdity and no disgrace. To hold fast the fancy which enchains them, is their only aim. If the physician can discover this fancy, he has but to ply the party with questions in reference to it, to make

(*k*) Friedreich, Diagnostik, p. 38; and his Handbuch der gerichtlichen Psychologie, p. 175.

(*kk*) See *ante*, § 89–92.

him betray himself, and, in many cases, disclose more than the inquirer had ever thought of investigating."(*l*)

§ 139. In this view it is peculiarly important not to lose sight of latent insanity, or *insania occulta*.(*m*) This term is used to designate an unsoundness of mind which becomes perceptible externally, and consequently to others, only by the commission of a crime, the motive of which is derived exclusively from the mental disorder. The forms it assumes may vary, as even *furor transitorius* may issue from *insania occulta*. Whatever difference of opinion exists as to the possibility and the explanation of occult insanity, the facts of experience compel us to consider such a condition as possible. But to detect and substantiate it in any given case will be attended with more or less difficulty, according to the circumstances, and must be undertaken with reference to the same criteria as were pointed out in regard to the *furor transitorius*.(*n*)

IV. Mental unsoundness as connected with derangement of the senses, and disease.

1st. *Deaf and Dumb*.(*o*)

§ 140. *The deaf and dumb*, where their infirmity is congenital, or contracted in early infancy, are always in an abnormal mental and moral condition, owing to the absence of hearing and speech, the two main faculties for the culture of the mental and moral man.(*p*) For the same reason, only this description of the deaf and dumb comes under consideration, and in every case the point of inquiry will be the degree of development of the mental and moral powers; that is to say, of the power of understanding the consequences and the wrongfulness of the act committed. What will always exert great influence, is the question whether the deaf and dumb person has received any, and what instruction; where no instruction has been efficient, there is always great reason to conclude that the psychological conditions are wanting upon which moral responsibility depends.(*q*) The most difficult part of the task is always the examination of the individual, which, to lead to a reliable result, requires the assistance of an adept,—that is to say, a teacher of the deaf and dumb. In pronouncing upon such cases, it must not be forgotten that the deaf and dumb have a peculiarly irascible disposition, and that many of them, especially those whose features are marked by a froward, morose, gloomy and sinister expression, and more or less resemble those of the Cretins, are born with a tendency to deceit, malice, cunning, duplicity, and cruelty.(*r*)

In regard to the form and manner in which the intellectual con-

(*l*) See particularly Schürmayer, Gericht. Med. § 536; and also L. Krahmer, Handbuch der Gericht. Med. Halle, C. A. Schwetschke, 1851, § 126.

(*m*) Friedreich, 580. (*n*) Schürmayer, Gericht. Med. § 553.

(*o*) See an interesting treatise on this point, 8 Am. Jour. of Ins., 17. L. Krahmer, Handbuch der Gericht. Med. Halle, C. A. Schwetschke, 1851, § 122.

(*p*) Friedreich *Handbuch der Geritchtlichen Psychologie*, p. 659.

(*q*) See J. Briand, Méd. Lég., article sur la surdi-mutité, p. 569. Paris, 1852. See also M. Orfila, Méd. Lég, sur la surdi-mutité. Tome I. p. 460. Paris, 1848. Also, Traite des maladies de l'oreille et de l'audition, par Itard, Vol. XI.

(*r*) Schürmayer, Gericht. Med., § 562.

dition of the deaf and dumb should be examined and probed, Hoffbauer and, after him, Friedreich have given a series of directions, substantially as follows: Where the deaf and dumb person is able to understand spoken words by following the motions of the lips, the inquirer must speak distinctly and with marked articulation, so as to enable the patient to see what he says. Where oral examinations are impracticable or unsatisfactory, the scrutiny, if possible, must be made in writing, when it becomes especially important to propound simple questions, intelligible to every one. But they must not be such merely as the patient is likely to expect beforehand, for these might be answered promptly and correctly; not, however, because he has properly examined into and understood their meaning, and properly concentrated in his own thoughts the answer he returns, but because he considers the question as written down, without thinking further about it, as a request to commit to paper that which perhaps would be his answer if he thought at all about it. So long as these answers are correct or, if not correct, at least congruous, there is room to believe that the questions were understood by the patient, and that he is able, to a certain extent, to make himself intelligible to others by means of writing. But the contrary does not appear if his answers are incongruous. But if several answers are incongruous, and particularly if it is found that a certain number of answers are constantly repeated, no doubt remains that the individual, however capable of tracing written characters, is not able, in the proper sense of the word, either to read or write. Where it is necessary to converse with the deaf and dumb person by means of signs, and for this purpose to call in the assistance of an expert, the capacity of the latter must be so far taken into account as to obtain the assurance that he will speak and interpret according to the intention of the judicial purpose had in view; for which reason, it will be important to instruct the interpreter fully on this subject. It may also be necessary, and is declared indispensable by some,(*s*) to employ two interpreters at the hearing. It may be said, in passing, that such examinations are almost always unsatisfactory in their results. Itard is of opinion that the intellectual capacity of a deaf and dumb person should be tested by a written colloquy, and that if incapable of taking part in such communications, he is to be looked upon as lacking the necessary instruction, and idiotic. The same high authority further remarks, that if a deaf and dumb man denies having received any instruction, in the hope of escaping punishment on the score of ignorance, the proper course is to accuse him of a graver crime, and one of another character from that imputed to him,(*t*) and that, on the whole, a deaf and dumb man who understands the questions asked of him in writing, is much the same as a man entirely *compos mentis*. Marc says that when the responsibility of a deaf and dumb person who has been taught to converse, is in question, a hearing should be had, without any judicial preparation, under the form of a conversation on general subjects entirely foreign to the offence committed, from which, by an association of ideas, a transition should be effected to general questions of morals and social order.

(*s*) Kleinschrod.

(*t*) If he knows how to write, he will have immediate recourse to this method, in orde r to justify himself, and will thus show the whole range of his intelligence.

"There is but little difference," says Orfila, "between the uninstructed deaf and dumb and the idiot, and such is the affinity existing between these two conditions of the intelligence, that more than the fortieth part of the deaf and dumb are afflicted with idiocy. It may be that this mental incapacity is the result of inaudition, or it may depend upon the same cause that paralyzed the auditive sense. It should be observed, however, that the idiot is incapable of learning, whilst the deaf and dumb, on the contrary, can receive an almost complete education. Even if the uninstructed deaf and dumb do not know all the consequences of certain criminal actions, still they are not slow in learning that these actions are censurable, and even that they are the subject of punishment."(*u*)

2d. *Blind.*

§ 141. *Blindness*(*v*) can only come in question here when it is congenital or has originated in early infancy, for then only can it exercise decisive influence on the mental and moral development. In general, however, blindness is no reason to suspend the personal responsibility of an agent; the defects of the mental and moral nature consequent upon it, are not diseases; and the bearing which they have upon the degree of culpability ascribable to an act committed in violation of law, must be referred to the discretion of the court, as guided by the circumstances of each case.(*w*)

3d. *Epileptics.*(*x*)

§ 142. Epileptics, from their nervous susceptibility, and their tendency to mental alienation, should be regarded with peculiar tenderness by those to whom is committed the administration of public justice. Nor should the idea of a recent recovery ever exclude one who has been so afflicted, from that protection which would secure at least a patient investigation of the question of moral responsibility. Recent investigations, conducted by men of eminent sagacity and great opportunities of observation, have led to the conclusion that epilepsy produces not only general mental prostration, but anomalies in the entire moral and intellectual system. And although the malady sometimes co-exists with great intelligence, yet the patient retains, not only during the attack, but for an indefinite period afterwards, but an imperfect use of his faculties.(*y*)

§ 143. *Epilepsy* consists in periodical attacks of insensibility, accompanied with involuntary, convulsive, and more or less violent motions

(*u*) Méd. Lég. Tome I. p. 460. Paris, 1848.

(*v*) Schürmayer, Gericht. Med. 563; and see L. Krahmer, Handbuch de Gericht. Med. Halle, C. A. Schwetschke, 1851, § 122.

(*w*) Compare Friedreich, 676, where the learning on this subject is collected.

(*x*) See L. Krahmer, Handbuch del Gericht. Med. Halle, C. A. Schwetschke, 1851, § 122; see J. Briand, Méd. Lég. p. 568. Paris, 1852; M. Orfila, Méd. Lég. Tome I. p. 332. Paris, 1848; M. Falret, Leçons Cliniques de Médécine Mentale, p. 521. Paris, 1854.

(*y*) Boileau de Castlenau: De l'épilepsie dans ses rapports avec l'aliénation mentale, considérés au point de vue médico-judiciare. Annales d' Hygiène publ. et de Médécine lég. Avril, 1852, No. 94. Erhardt-Ueber Zurechnungsfähigkeit der Epileptischen.

of the limbs. That persons committing a violation of law while in this condition, are entitled to the full benefit of all the considerations which affect the responsibility of the agent, needs no argument after what has been already said on the subject of unsoundness of mind. The case, however, admits of more difficulty when the question is, whether, in the interval between the attacks, a state of mind does or does not exist calculated to destroy or diminish responsibility.(*z*)

§ 144. It will be peculiarly necessary here, to make a division between the several classes of epileptic diseases. The infirmity is well known to appear in very different degrees of intensity, under different circumstances, and as it arises from different physical causes, it may be considered as exerting different retroactive influences on the mind and the body. It may affect the intellectual faculties in a very subordinate degree, as the cases of men like Cæsar, Napoleon and Mohammed sufficiently prove. The doctrine therefore results, that *in general epilepsy, the usual presumption of responsibility applies to acts committed in the intervals between one attack and another.* In epilepsy, according to Briand, moral liberty is entirely suspended during the attacks. An epilectic who commits a homicide during the height of his disease, has had no criminal intention, and therefore cannot incur responsibility. It is also unjust to throw upon persons, thus affected, all the responsibility of actions which they may commit immediately before or after an attack, for authors are agreed in thinking, that whether these attacks occur frequently or rarely, the mind never fully recovers all its power.

§ 145. In particular cases the responsibility of the agent may be destroyed, where real symptoms of derangement present themselves, and where it is possible or probable that the offence was brought on by such abnormal state of the faculties. The higher grades of the disease, where it is of long standing, and where the attacks recur at brief intervals, cast a doubt upon the psychical requirements of responsibility, even where nothing is observed which expressly characterizes an aberration of the mental faculties. The stage which immediately precedes an attack, the premonitory symptoms of heaviness in the head, dizziness, loss of consciousness, &c., as well as that which immediately succeeds an attack, and consists in a manifest disorder of the bodily and mental functions of the subject, is to be treated as connected with the immediate attack.(*a*)

§ 146. The moral requirements of responsibility are satisfied when the disease is not of great intensity, and where the intervals show no trace of an alteration of the intellectual functions produced by it, and the incitement to the act complained of is found not in the obtuseness or ebullition generally peculiar to such patients, but in a selfish motive, and where the execution of the act betrays forethought, reflection, and wilfulness.

§ 147. Persons truly epileptic are easily excited to anger and revenge on the slightest provocation, in the intervals between their attacks. Although these attacks do not always attain to such a degree as to deserve the name of mental derangement, yet it should never be forgotten

(*z*) Schürmayer, Gericht. Med. § 565. (*a*) Ibid. § 567.

that there is always a morbid predisposition to insane ebullitions, and in general a morbid irritability, which must impair, if not destroy, the moral responsibility of actions growing out of them. And even where a sentence of punishment is pronounced, it must not be overlooked that its execution may possibly exercise a most deleterious influence on the health of the individual, by aggravating the disease, and perhaps in forcing it into real insanity. *It is not advisable, therefore, to execute a sentence of punishment upon an epileptic, without having submitted the case to the examination of a duly authorized forensic physician.*(*b*)

§ 148. Different views, however, have existed on this point. Platner(*c*) denies the responsibility of *any* epileptic whatever. Clarus(*d*) takes a view more in harmony with those we have just advanced, maintaining the following propositions:

1. All actions and omissions which take place during the paroxysm of epilepsy, are neither valid nor the subjects of responsibility.

2. When the attack of habitual epilepsy is succeeded by, or alternates with, a state of mania or imbecility, *all* responsibility is at an end, even where this latter state is but transitory, because no human insight or experience can decide with certainty, whether the patient, at that particular instant, was in an entirely sane condition. On the other hand, there are no reasons against the validity of civil acts done under such circumstances.

3. Swooning, heaviness of the head, weakness of memory, restlessness, enhanced irritability, &c., which precede or follow the attack, destroy as well the responsibility as the validity of acts committed during their continuance.

4. Where it is capable of proof, that the epileptics, in the intervals of their attacks, betray symptoms of malice and obtuseness, justice demands that their faults should be regarded as effects of the disease and that they should be held irresponsible for acts committed in an ebullition of rage or other passion, while such condition should operate in mitigation where the crime presupposes forecast and reflection.

5. Where the signs of an altered state of mind are wanting both before and after the attacks, the possibility still remains that these signs continue undetected because of their minuteness, and that patients of this description are less able to resist sudden impulses than persons in good health; which would suggest a mitigation of punishment for actions of violent passion, but not for those involving reflection.

6. All these propositions only apply to idiopathic and habitual epilepsy; not to isolated attacks, which ensue upon other diseases, and where no trace remains, after their cessation.

7. The diseases connected with epileptic symptoms, particularly hysterical spasms, accompanied with insensibility, and diseases of the generic character of St Vitus's Dance, are subject to the rules above laid down, under the restrictions mentioned in the last head, because the

(*b*) Schürmayer, Gericht. Men. § 568.
(*c*) Quaest. Med. For. P. VI.
(*d*) Beitrage zur Erkenntniss and Beurtheilung zweifelhaften Seelenzustaende, Leipsic, 1828. P. 96.

presumption of a *latent* propensity to ebullitions of passion is not, in such cases, vouched by experience.(*e*)

V. Mental unsoundness as connected with sleep.(*f*)

§ 149. Under this general head may be grouped Somnolentia, or sleep drunkenness, (Schlaftrunkenheit,) *Somnambulism*, and *nightmare*, the two last of which may be joined.(*g*) In the forensic treatment of such maladies each case must depend upon its own circumstances, when it will also be important for the judge to consider whether the person subject to such a disorder was properly aware of it, and of its possible consequences, and able to take the precautions by which those consequences might have been averted.

§ 150. Sleep would seem to be only a peculiar form of cerebral life, and not a negation of the life of the brain, producing consequent fatigue, exhaustion, or weakness; it is not to be supposed that the state of sleep issues out of the intellect itself, but the intellect is diverted by the peculiar change of the action of the brain into that state of existence which we call sleep. But the intellect does not sleep; nor can it ever be said that its activity diminishes during sleep; we merely cease to perceive its activity. But that the activity which involves sleep may also be morbid—abnormal—and connected with cramps or convulsive symptoms, is not to be doubted. The centripetal action of the senses is extinct during sleep, in dreams it is half active, and produces isolated, dim, and hazy sensations, forming the usual substratum of dreams. Sleep is interrupted by whatever terminates the peculiar condition of the brain upon which sleep depends; by the natural expiration of the state of the brain, by vivid and sudden impressions on the senses, and by disagreeable sensations. Now, in a certain morbid condition of the brain this awaking is not complete, and does not restore the waking state with a full and correct perception of surrounding things—but an intermediate state between sleeping and waking is produced, which resembles intoxication, and is called the *intoxication of sleep*, (*schlaftrunkenheit.*) This state admits of action, which is directed by the phantoms of the dream; talking in sleep being very nearly allied to waking, and dreams themselves being midway between sleeping and waking, for in the depths of sleep we no longer become conscious of dreams.(*h*) The *nightmare* is grounded upon a morbid

(*e*) Compare, on the responsibility of epileptics, Friedreich, "*Handbuch der gerichtlichen Psychologie*," p. 637, and Henke, "*Abhandlungen aus dem Gebiete der gerichtlichen Medizin.*" Vol. IV. p. 1.

(*f*) See Méd. Lég. M. Orfila. Tome I. p. 456. Paris, 1848; Méd. Lég. M. Briand, p. 563. Paris, 1852; Renaudin sur L'Alienation Mentale, Chap. 6th, p. 255. Paris, 1854; Leçon's Cliniques de M. Falret. Leçon 4th, p. 117. Paris, 1854.

(*g*) Siebold—Lehrbuch der Gericht. Med. Berlin, 1847, § 196; L. Krahmer, Handbuch der Gericht. Med. Halle, C. A. Schwetschke, 1851, § 115.

(*h*) The following extract from the Médécine Légale, &c. J. Briand, is very pertinent to this point:

"De même que, lorsque nous nous endormons, nous conservons encore plus ou moins longtemps l'idée des objets dont nous venons de nous occuper, et que notre imagination nous les retrace souvent dons nos rêves; de méme aussi, lorsque des idées plus ou moins bizarres, plus ou moins extravagantes, se sont emparées de notre esprit pendant le sommeil, elles ne nous quittent pas tout d'un coup, quand nous nous réveillons. Pour peu que le réveil soit brusque, les premiers objets qui frappent nos sens sont mo-

aggravation of abnormal sensations in sleep as colored by dreams; under certain external circumstances, and certain forms of transition into the state of semi-consciousness, it may lead to acts of violence. In examining such cases it is important to inquire into the existence of abnormal physical conditions, such as plethora, predisposition to congestions in the head or breast, actual congestions, diseases of the heart, abnormal plethora, suppressed hæmorrhoids, eruptions of the skin, or other habitual secretions which have been driven in, nervous affections of various kinds, impure air in the bed-room, a hearty meal, or indulgence in ardent spirits immediately or shortly before going to sleep. *Somnambulism* is not a mere intensified dream, but *in foro medico*, must be treated as a morbid independent state, and in a legal point of view, every act shown to have been committed under its influence is to be disconnected with voluntary moral agency.(*i*)

1st. *Somnolentia, or Sleep-drunkenness.*

§ 151. Sleep-drunkenness may be defined to be the lapping over of a profound sleep on the domains of apparent wakefulness, producing an involuntary intoxication on the part of the patient, which destroys at the time his moral agency. Under the name of *Somnolentia*, which was given to it by Ploucquet and the consequent French writers, and of *Schlaftrunkenheit*, which it was styled by the German School, it became the subject of general discussion at the beginning of the present century. The first case in which the symptoms were unmistakably observable, was that of Buchner. (*j*) A sentry, who had fallen asleep during his watch, being suddenly aroused by the officer in command, fell upon the latter with his drawn sword, with an attack so furious that the most serious consequences were only averted by the interposition of bystanders. The result of the medical examination was, that the act was involuntary and irresponsible, being the result of a violent confusion of mind consequent upon the sudden involuntary waking from a profound sleep.

§ 152. Shortly afterwards, occurred the case of a day-laborer, who killed his wife with a waggon-tire, the blow being struck immediately upon his starting up from a deep sleep, from which he was forcibly awakened. In this case, there was evidence *aliunde* that the defendant was seized when waking with a delusion that a "woman in white" had snatched his wife from his side and was carrying her away, and that his agony of mind was so great that his whole body was wet with perspiration. There was no doubt of the defendant's irresponsibility. (*k*) In this country, the case properly would fall under the head of excusable homicide by misadventure. (*l*) In point of result, these

difiés por ces idées antécédentes, comme á la faible lumire èe de la nuit les objets qu nous voyons sont alterés par les fantômes de notre imagination. Nous sommes deja en état d'éxecuter des mouvements avec une certaine précision que nos sens ne sont pas encore completément éveillés: et souvent ces mouvements se rapportent, non pas à notre état réel, mais à celui dans lequel nous croyons être, en melant aux idées qui nous ont occupés les sensations obscures des objets qui nous environnent reellement." Méd. Lég. p. 563. Paris, 1852.

(*i*) Schürmayer, Gericht. Med. § 561.
(*j*) See Henke's Zeitschr. 10 B. p. 39.
(*k*) Wildberg's Jahrbuch, 2 Bd. p. 32.
(*l*) See Wharton on Hom. 210.

cases vary little from an early English case, in which, though there was no psychological question opened, there were the same delusions as to danger heightened by the same disturbance of mind as is produced by a sudden waking up from a deep sleep. The defendant, being in bed and asleep in his house, his maid-servant, who had hired the deceased to help her to do her work, as she was going to let her out about midnight, thought she heard thieves breaking open the door, upon which she ran up stairs to the defendant, her master, and informed him thereof. Suddenly aroused, he sprang from his bed, and running down stairs with his sword drawn, the deceased hid herself in the butlery, lest she should be discovered. The defendant's wife, observing some person there, and not knowing her, but conceiving she was a thief, cried out, "Here are they who would undo us;" and the defendant, in the paroxysm of the moment, dashing into the butlery, thrust his sword at the deceased and killed her.(*m*) The defendant was acquitted under the express instructions of the court, and the case has stood the test of the common law courts for over two hundred years, during which it has never been questioned. It is important to observe, however, that if it differs from the two cases already noticed under this head, in the increased *naturalness* of the delusion under which the defendant was laboring, it differs from them in the comparatively longer interval in which his perceptive faculties had the opportunity to arrange themselves. Let it be supposed that it was the *wife*, and not the *husband*, who had slain the deceased. Under the circumstances, the result would hardly have been different, and yet in this case the distinction between her responsibility and that of the laborer who killed his wife on the waking spasm, is simply in the *degree* of probability of delusions, which in both cases were unfounded. If in the one case, this improbability was more glaring, let it be recollected that there was much less time afforded to the patient to compose himself to a reasoning state of mind.

§ 153. Much more recently, a case has occurred which has led to the whole question being re-examined and discussed. A young man, named A. F., about twenty years of age, was living with his parents in great apparent harmony, his father and himself being alike distinguished for their extravagant devotion to hunting. In consequence of the danger of nocturnal attacks, they were in the habit of taking their arms with them into their chamber. On the afternoon of September 1st, 1839, the father and son having just returned from hunting, their danger became the subject of particular conversation. The next day the hunting was repeated, and on their return, after taking supper with the usual appearance of harmony, the family retired at about ten o'clock, the father and mother occupying one apartment, and the son the next, both father and son taking their loaded arms with them to bed. At one o'clock, the father got up to go into the entry, and on his return, jarred against the door opening into the entry, upon which the son instantly sprang up and discharging his gun at the father, gave the latter a fatal wound in the breast, crying at the same time, "Dog, what do you want here?" The father fell immediately to the ground,

(*m*) Levet's case, Cro. Car. 438; 1 Hale, 42, 474.

and the son, then first recognizing him, sank on the floor crying, "O! Jesus, it is my father." The evidence was, that the whole family were subject to great restlessness in their sleep, and that the defendant in particular was affected by a tendency to be easily distressed by dreams, which lasted for about five minutes on waking, before their effect was entirely dissipated. His own version of the affair was, "I must have fired the gun in my sleep; it was moonshine, and we were accustomed to talk and walk in our sleep. I recollect hearing something jar; I jumped up, seized my gun and shot where I heard the noise. I recollect seeing nothing, nor am I conscious of having spoken. The night was so bright that everything could have been seen. I must have been under the delusion that thieves had broken in." The concurrent opinions of the medical experts examined on the trial were, that the act was committed in a state of *Somnolentia* or *Sleep-drunkenness*, and that it was not that of a free and responsible agent. (*n*)

It is important to distinguish Somnolentia, or Sleep-drunkenness, which is a state which to a greater or less extent is incidental to every individual, from Somnambulism, which is an abnormal condition incident to a very few. The experience of every-day life demonstrates how much the former enters into almost every relation. Children, particularly, sometimes struggle convulsively in the effort to wake up, which often is continued for several minutes. The very exclamations, "Wake up,"—"Come to,"—which are so common in addressing persons in the waking condition, are scarcely necessary to bring to the mind many recollections of cases where the waking struggle has been peculiarly protracted. Of course there are constitutions where this struggle is peculiarly distressing, just as there are constitutions in which the tendency to sleeplessness is equally marked. Dr. Krügelstein tells us of a merchant of distinction who had an irrepressible tendency to sleep in the afternoons, and yet who, whenever he was wakened up, was for a few moments overcome with a paroxysm, over which he had no control. Dr. Meister himself, (*o*) relates the following phenomenon:—"I was obliged to take a journey of eight miles on a very hot summer's day, my seat being with my back to the horses, and the sun directly in my face. On reaching the place of destination, and being very weary and with a slight headache, I laid myself down, with my clothes on, on a couch. I fell at once asleep, my head having slipped under the back of the settee. My sleep was deep, and, as far as I can recollect, without dreams. When it became dark, the lady of the house came with a light into the room. I suddenly awoke, but for the first time in my life, without collecting myself. I was seized with a sudden agony of mind, and picturing the object which was entering the house as a spectre, I sprang up and seized a stool, which, in my terror, I would have thrown at the supposed shade. Fortunately, I was recalled to consciousness by the firmness and tact of the lady herself, who, with the greatest presence of mind, succeeded in composing my attention until I was entirely awakened."

(*n*) Henke's Zeitschrift, 1853, Vol. LXV. p. 190–1; and see also a case of much greater doubt in Klein's Annalen der Gesetzgebung, &c. viii. B. Berlin, 1798; and Möllers gerichtliche Arzneiwissen-schaft, Vol. I. 302.

(*o*) Henke's Zeitschrift, Vol. LXV. 456.

§ 154. The existence of this intermediate state between sleeping and waking, and of the "drunkenness" by which it is sometimes accompanied, is recognized by even the older elementary writers. Thus Wendler(*p*) says: "Discerni autem possit expergefactio naturalis a præternaturali. Etenim somno sensim reficitur sensibilitas animi, quæ, cum in eum evehitur gradum, ut solemnibus pistoque non fortioribus excitamentis ad cogitandum excitetur, naturalis expergefactio est; contra ubi facultate illa parum aucta, insolita incitamentorum vis animum cogit ad statum vigiliæ, præternaturalem hanc dicimus expergefactionem."

§ 155. The following tests it is important to apply in order to determine the question of responsibility:—

(*a.*) A general tendency to deep and heavy sleep must be shown, out of which the patient could only be awakened by violent and convulsive effort.

(*b.*) Before falling asleep, circumstances must be shown producing disquiet which sleep itself does not entirely compose.

(*c.*) The act under examination must have occurred at the time when the defendant was usually accustomed to have been asleep.

(*d.*) The cause of the sudden awakening must be shown. It is true that this cannot always happen, as sometimes the start may have come from a violent dream.

(*e.*) The act must bear throughout, the character of unconsciousness.

(*f.*) The actor himself, when he awakes, is generally amazed at his own deed, and it seems to him almost incredible. Generally speaking he does not seek to evade responsibility, though there are some unfortunate cases in which, the wretchedness of the sudden discovery, overcomes the party himself, who seeks to shelter himself from the consequences of a crime of which he was technically, though not morally, guilty.

§ 156. A late very intelligent observer, Dr. Krügelstein, has given us a critical and extended observation of those cases in which crimes have been committed in the supposed somnambulic state, in which he draws the inferences that this species of mania occurs chiefly, if not entirely, with persons who are sound sleepers and are suddenly startled by some violent exterior cause, from a sleep which, from indigestion or other causes, has been already disturbed and excited by dreams of peculiar vivacity. Such cases are universally marked with a want of consciousness in the actor, and followed, when he awakes, with entire astonishment and then violent remorse.(*q*)

§ 157. Dr. Taylor, in his admirable treatise,(*r*) gives us the following cases on the same point:—

A pedler, who was in the habit of walking about the county armed with a sword-stick, was awakened one evening, while lying asleep on the high road, by a man who was accidentally passing, seizing him and

(*p*) Dissertatio de Somno. Lipsiæ, 1805. p. 23.

(*q*) Krügelstein, Ueber die in Zustande der Schlaftrunkenheit verübten Gewaltthätigkeiten in gerichtsarztlicher Beziehung.

(*r*) Med. Jur., 599, 600.

shaking him by the shoulders. The pedler suddenly awoke, drew his sword and stabbed the man, who afterwards died. He was tried for manslaughter. His irresponsibility was strongly urged by his counsel on the ground that he could not have been conscious of an act perpetrated in a half-waking state. This was strengthened by the opinion of the medical witness. The prisoner was, however, found guilty. Under such circumstances it was not unlikely that an idea had arisen on the prisoner's mind that he had been attacked by robbers, and therefore stabbed the man in self-defence.(*s*)

Dr. Hartshorne, in a note, tells us that a somewhat similar case occurred in Philadelphia, a few years back, in which a man was shot with a pistol by an acquaintance, whom he had suddenly aroused from sleep, late at night, in an open market house. The plea was, that the deceased was mistaken for a robber when the pistol was fired; but the jury found a verdict of manslaughter.

§ 158. Two persons, in a case cited by Mr. Best, who had been hunting during the day, slept together at night. One of them was renewing the chase in a dream, and imagining himself present at the death of the stag, cried out, "I'll kill him! I'll kill him!" The other, awakened by the noise, got out of bed, and by the light of the moon beheld the sleeper give several deadly stabs with a knife, in that part of the bed which his companion had just quitted. Suppose a blow, given in this way, had proved fatal, and the two men had been shown to have quarreled previously to retiring to rest! But a defence of this kind, as is well remarked by Dr. Taylor, may be unduly strained. Thus, where there is an enmity, with a motive for the act of homicide, the murderer while sleeping in the same room may select the night for an assault, and perpetrate the act in darkness in order the more effectually to screen himself. In the case of *Reg.* v. *Jackson*,(*t*) it was urged in defence that the prisoner, who slept in the same room with the prosecutor, had stabbed him in the throat, owing to some sudden impulse during sleep; and the case of *Milligan*, above given, was quoted by the learned counsel, in support of the view that the prisoner was irresponsible for the act. It was proved, however, that the prisoner had shown malicious feeling against the prosecutor and that she wished him dead. The knife with which the wound had been inflicted bore the appearance of having been recently sharpened, and the prisoner must have reached over her daughter (the prosecutor's wife), who was sleeping in the same bed with him, in order to produce the wound. These facts are quite adverse to the supposition of the crime having been perpetrated under an impulse from sleep, and the prisoner was convicted. In another case, Reg. *v.* French,(*u*) it was proved that the prisoner while sleeping in the same room had killed the deceased, who was a stranger to him, under some delusion. There was, however, clear evidence that the prisoner was insane, and on this ground he was acquitted under the direction of the judge.(*v*)

(*s*) The Queen *v.* Milligan. Lincoln Aut. Assizes, 1836.
(*t*) Liverpool Autumn Ass., 1847.
(*u*) Dorset Autumn Ass., 1846. (*v*) Taylor's Med. Jurisprudence, pp. 599, 600.

2nd. *Somnambulism.*(*w*)

§ 159. "Dreaming," says Dr. Rush, "is a transient paroxysm of delirium. Somnambulism is nothing but a higher grade of the same disease. It is a transient paroxysm of madness. Like madness, it is accompanied with muscular action, with incoherent or coherent conduct, and with that complete oblivion of both which takes place in the worst grade of madness. Coherence of conduct discovers itself in persons who are affected with it undertaking, or resuming certain habitual exercises or employments. Thus we read of the scholar resuming his studies, the poet his pen, and the artisan his labors, while under its influence, with their usual industry, taste, and correctness. It extended still further in the late Dr. Blacklock, of Edinburgh, who rose from his bed, to which he had retired at an early hour, came into the room where his family were assembled, conversed with them, and afterwards entertained them with a pleasant song, without any of them suspecting he was asleep, and without his retaining after he awoke the least recollection of what he had done."(*x*)

§ 160. A late authoritative writer(*y*) gives us, in great minuteness, a narrative of a young woman, a somnambulist, who, when twenty-three years old, having been previously in good health and regular in her menstruation, was seized with epilepsy in consequence of a fright produced by an attack of robbers. She soon became the victim of somnambulism, which manifested itself in all its ordinary incidents, such as deep sleep, want of memory, and of firmness in her movements when under its influence. While in the somnambulic condition she had the habit of concealing articles of various kinds, the result of which was that she was charged with theft. Under the advice of Dr. Dornblüth she was finally acquitted, and under his care was gradually restored to health.

Dr. Upham gives us the following American illustration: "A farmer, in one of the counties of Massachusetts, according to the account of the matter which was published at the time, had employed himself for some weeks in the winter, thrashing his grain. One night, as he was about closing his labors, he ascended a ladder to the top of the great beams in the barn, where the rye which he was thrashing was deposited, to ascertain what number of bundles remained unthrashed, which he determined to finish the next day. The ensuing night, about two o'clock, he was heard by one of the family to arise and go out. He repaired to his barn, being sound asleep and unconscious of what he was doing, set open his barn doors, ascended the great beams of the barn where his rye was deposited, threw down a flooring, and commenced thrashing it. When he had completed it, he raked off the straw and shoved the rye to one side of the floor, and again ascended the ladder with the straw, and deposited it on some rails that lay across the great beams. He then threw down another flooring of rye, which

(*w*) E. L. Heim, vermischte med. Schriften, herausg. von A. Paetsch. Leipsic, 1836. § 336. L. Krahmer Handbuch der Gericht. Med. Halle, C. A. Schwetschke, 1851. § 115. Siebold Lehrbuch der Gericht. Med. Berlin, 1847. § 196.

(*x*) Rush on the Mind, pp. 302, 303.

(*y*) Dornblüth, Geschichte einer Nachtwandlerin, Henke's Zeitschrift, XXXII. 2.

he thrashed and finished as before. Thus he continued his labors until he thrashed five floorings, and on returning from throwing down the sixth and last, in passing over part of the haymow, he fell off, where the hay had been cut down about six feet, to the lower part of it, which awoke him. He at first imagined himself in his neighbor's barn; but after groping about in the dark for a long time, ascertained that he was in his own, and at length found the ladder, on which he descended to the floor, closed his barn doors, which he found open, and returned to his house. On coming to the light he found himself in such a profuse perspiration that his clothes were literally wet through. The next morning on going to his barn, he found that he had thrashed during the night, five bushels of rye, had raked the straw off in good order, and deposited it on the great beams, and carefully shoved the grain to one side of the floor, without the least consciousness of what he was doing, until he fell from the hay."(*z*)

"A man in this state," says Falret, "has no longer the same relations with the exterior world. He enters into movements which seem the result of the will, since he avoids blows and falls with the greatest nicety; and yet he does not seem to see, or at least his sight appears very confused. The mind is evidently in action, since somnambulists often write things which they were unable to do when awake; maintain conversation, and perform actions implying regular ideas. And yet after the attack they preserve no remembrance of their thoughts, feelings, or actions, as if consciousness had been entirely obliterated whilst it lasted."(*a*)

§ 162. The views of Abercrombie have been so long the standard on this point that we cannot refrain from giving them here in full: "Somnambulism," he says, "appears to differ from dreaming chiefly in the degree in which the bodily functions are affected. The mind is fixed in the same manner as in dreaming, upon its own impressions as possessing a real and present existence in external things; but the bodily organs are more under the control of the will, so that the individual acts under the influence of erroneous conceptions, and holds conversation in regard to them. He is also, to a certain degree, susceptible of impressions from without, through his organs of sense; not, however, so as to correct his erroneous impressions, but rather to be mixed up with them. A variety of remarkable phenomena arise out of these peculiarities, which will be illustrated by a slight outline of this singular affection. The first degree of somnambulism generally shows itself by a propensity to talk during sleep,—the person giving a full and connected account of what passes before him in dreams, and often revealing his own secrets or those of his friends. Walking during sleep is the next degree, and that from which the affection derives its name. The phenomena connected with this form are familiar to every one. The individual gets out of bed; dresses himself; if not prevented, goes out of doors; walks frequently over dangerous places in safety; sometimes escapes by a window and gets to the roof of a house; after a considerable interval, returns and goes to bed; and all that has passed conveys to his

(*z*) Upham on Mental Action, pp. 182, 183.
(*a*) Leçons Cliniques de l'alienation Mentale, par M. Falret. Leçon 4, p. 121. Paris, 1854.

mind merely the impression of a dream. A young nobleman mentioned by Hortensius, living in the citadel of Breslau, was observed by his brother, who occupied the same room, to rise in his sleep, wrap himself in a cloak, and escape by a window to the roof of the building. He there tore in pieces a magpie's nest, wrapped the young birds in his cloak, returned to his apartment, and went to bed. In the morning he mentioned the circumstance as having occurred in a dream, and could not be persuaded that there had been anything more than a dream, till he was shown the magpies in his cloak. Dr. Prichard mentions a man who rose in his sleep, dressed himself, saddled his horse, and rode to the place of a market which he was in the habit of attending once every week; and Martinet mentions a man who was accustomed to rise in his sleep and pursue his business as a saddler. There are many instances on record of persons composing, during the state of somnambulism: as of boys rising in their sleep and finishing their tasks which they had left incomplete. A gentlemen at one of the English universities had been very intent during the day in composition of some verses, which he had not been able to complete: during the following night he arose in his sleep and finished his composition, then expressed great exultation, and returned to bed. In these common cases, the affection occurs during ordinary sleep; but a condition very analogous is met with, coming on in the daytimé, in paroxysms, during which the person is affected in the same manner as in the state of somnambulism, particularly with an insensibility to external impressions: this presents some singular phenomena. These attacks in some cases come on without any warning; in others, they are preceded by a noise or sense of confusion in the head. The individuals then become more or less abstracted, and are either unconscious of any external impressions, or very confused in their notions of external things. They are frequently able to talk in an intelligible and consistent manner, but always in reference to the impression which is present in their own minds. They in some cases repeat long pieces of poetry, often more correctly than they can do in their waking state, and not unfrequently things which they could not repeat in their state of health, or of which they were supposed to be entirely ignorant. In other cases they hold conversations with imaginary beings, or relate circumstances or conversations which occurred at remote periods, and which they were supposed to have forgotten. Some have been known to sing in a style far superior to anything they could do in their waking state; and there are some well-authenticated instances of persons in this condition expressing themselves correctly in languages with which they were imperfectly acquainted. I had lately under my care a young lady who is liable to an affection of this kind, which comes on repeatedly during the day, and continues from ten minutes to an hour at a time. Without any warning, her body becamé motionless, her eyes open, fixed, and entirely insensible, and she became totally unconscious of any external impression. She has been frequently seized while playing on the piano, and has continued to play, over and over, part of a tune with perfect correctness, but without advancing beyond a certain point. On one occasion she was seized after she had begun to play from the book a piece of music which was new to her. During the

paroxysm she continued the part which she had played, and repeated it five or six times with perfect correctness; but on coming out of the attack, she could not play it without the book. During the paroxysms the individuals are, in some instances, totally insensible to anything that is said to them; but in others, they are capable of holding conversation with another person with a tolerable degree of consistency, though they are influenced to a certain degree by their mental visions, and are very confused in their notions of external things. In many cases, again, they are capable of going on with the manual occupations in which they had been engaged before the attack. This occurred remarkably in a watchmaker's apprentice mentioned by Martinet. The paroxysms on him appeared once in fourteen days, and commenced with a feeling of heat extending from the epigastrium to the head. This was followed by confusion of thought, and this by complete insensibility: his eyes were open, but fixed and vacant, and he was totally insensible to any thing that was said to him, or to any external impression. But he continued his usual employment, and was always much astonished, on his recovery, to find the change that had taken place in his work since the commencement of his paroxysm. This case afterwards passed into epilepsy. Some remarkable phenomena are presented by this singular affection, especially in regard to exercises of memory and the manner in which the old associations are recalled into the mind; also, in the distinct manner in which the individuals sometimes express themselves on subjects with which they had formerly shown but an imperfect acquaintance. In some of the French cases of epidemic "extase," this had been magnified into speaking unknown languages, predicting future events, and describing occurrences of which the persons could not have possessed any knowledge. These stories seem, in some cases, to resolve themselves merely into embellishment of what really occurred, but in others there can be no doubt of connivance and imposture. Some facts, however, appear to be authentic, and are sufficiently remarkable. Two females, mentioned by Bertrand, expressed themselves during the paroxysm very distinctly in Latin. They afterwards admitted that they had some acquaintance with the language, though it was imperfect. An ignorant servant-girl, mentioned by Dr. Dewar, during paroxysms of this kind showed an astonishing knowledge of geography and astronomy; and expressed herself in her own language in a manner which, though often ludicrous, showed an understanding of the subject. The alternations of the seasons, for example, she explained by saying that the world was set *a-gee*. It was afterwards discovered that her notions on this subject had been derived from hearing a tutor giving instructions to the young people of the family. A woman who was some time ago in the Infirmary of Edinburgh on account of an affection of this kind, during her paroxysms mimicked the manner of the physicians, and repeated correctly some of their prescriptions in the Latin language. Another very singular phenomenon presented by some instances of this affection is what has been called, rather incorrectly, a state of double consciousness. It consists in the individual recollecting, during a paroxysm, circumstances which occurred in a former attack, though there was no remembrance of them during the interval. This, as well

as various other phenomena connected with the affection, is strikingly illustrated in a case described by Dr. Dyce, of Aberdeen, in the Edinburgh Philosophic Transactions. The patient was a servant-girl, and the affection began with fits of somnolency, which came upon her suddenly during the day, and from which she could, at first, be aroused by shaking, or by being taken out in the open air. She soon began to talk a great deal during the attacks, regarding things which seemed to be passing before her, as a dream; and she was not, at this time, sensible of anything that was said to her. On one occasion she repeated distinctly the baptismal service of the Church of England, and concluded with an extemporary prayer. In her subsequent paroxysms she began to understand what was said to her, and to answer with a considerable degree of consistency, though the answers were generally, to a certain degree, influenced by her hallucinations. She also became capable of following her usual employments during the paroxysm; and at one time she laid out the table correctly for breakfast, and repeatedly dressed herself and the children of the family, her eyes remaining shut the whole time. The remarkable circumstance was now discovered, that during the paroxysm she had a distinct recollection of what took place in her former paroxysms, though she had no remembrance of it during the intervals. At one time she was taken to church while under the attack, and there behaved with propriety, evidently attending to the preacher; and she was at one time so much affected as to shed tears. In the interval she had no recollection of having been at church; but in the next paroxysm she gave a most distinct account of the sermon, and mentioned particularly the part of it by which she had been so affected. This woman described the paroxysm as coming on with a cloudiness before her eyes, and a noise in the head. During the attack her eyelids were generally half-shut: her eyes sometimes resembled those of a person afflicted with amaurosis,—that is, with a dilated and insensible state of the pupil, but sometimes they were quite natural. She had a dull, vacant look; but, when excited, knew what was said to her, though she often mistook the person who was speaking; and it was observed that she seemed to discern objects best which were faintly illuminated. The paroxysms generally continued about an hour, but she could often be roused out of them; she then yawned and stretched herself, like a person awaking out of a sleep, and instantly knew those about her. At one time, during the attack, she read distinctly a portion of a book which was presented to her; and she often sung, both sacred and common pieces, incomparably better, Dr. Dyce affirms, than she could do in a waking state. The affection continued to recur for about six months, and ceased when a particular change took place in her constitution.

We have another very remarkable modification of this affection, referred to by Mr. Combe, as described by Major Elliot, Professor of Mathematics in the United States Military Academy at West Point. The patient was a young lady of cultivated mind, and the affection began with an attack of somnolency, which was protracted several hours beyond the usual time. When she came out of it, she was found to have lost every kind of acquired knowledge. She imme-

diately began to apply herself to the first elements of education, and was making considerable progress, when, after several months, she was seized with a second fit of somnolency. She was now at once restored to all the knowledge which she had possessed before the first attack, but without the least recollection of anything that had taken place during the interval. After another interval she had a third attack of somnolency, which left her in the same state as after the first. In this manner she suffered these alternate conditions for a period of four years, with the very remarkable circumstance that during one state she retained all her original knowledge, but during the other, that only which she had acquired since the first attack. During the healthy interval, for example, she was remarkable for the beauty of her penmanship; but during the paroxysm, wrote a poor, awkward hand. Persons introduced to her during the paroxysm, she recognized only in a subsequent paroxysm, but not in the interval; and persons whom she had seen for the first time during the healthy interval, she did not recognize under the attack.(*b*)

§ 162. Carus tells us in his lectures (Leipsic, 1831,) of a clergyman who was a somnambulist, who would get up in his sleep, take paper, and write out a sermon. If a passage did not please him, he would strike it out, and correct it with great accuracy. We are told by Steltzer of a somnambulist who clambered out of a garret window, descended into the next house, and killed a young girl who was asleep there.(*c*) As a counterpoise to these, we have the case of a pre-assumed somnambulism for the purpose of cloaking an intended crime.(*d*)

A curious example of sonambulism, observed in a monk, is mentioned by M. de Savarin, as related to him by the Prior of the convent where it happened, who was an eye-witness of the occurrence. "Very late one evening the patient somnambulist entered the chamber of the Prior, his eyes were open but fixed, the light of two lamps made no impression upon him, his features were contracted, and he carried in his hand a large knife. Going straight to the bed, he had first the appearance of examining if the Prior was there. He then struck three blows, which pierced the coverings, and even a mat which served the purpose of a mattress. In returning, his countenance was unbent, and was marked by an air of satisfaction. The next day the Prior asked the somnambulist what he had dreamed of the preceding night, and the latter answered that he had dreamed that his mother had been killed by the Prior, and that her ghost had appeared to him demanding vengeance, that at this sight he was so transported by rage, that he had immediately run to stab the assassin of his mother; that a little while after, he awoke bathed in perspiration, and very content to find he had only dreamed." M. de Savarin adds, that if under these circumstances the Prior had been killed, the monk somnambulist could not have been punished, because it would have been upon his part an involuntary murder.(*e*)

(*b*) Abercrombie on the Intellectual Powers, p. 238, &c.
(*c*) Steltzer, uber den Willen, Leips., 1817-8, p. 273.
(*d*) Fahner, System der Ger. Arznei. 1 Bd. p. 43.
(*e*) Physiologie du gout. Tome II. p. 3. Paris, 1834.

VI. Mental unsoundness, as affecting the temperament.(*f*)

1st. *Depression.*(*g*)

§ 163. By this term may be designated a condition, which continues for a long time, even for years, without assuming the form of real aberration of mind, but which derives peculiar importance and significance in matters of penal jurisprudence, from the fact that a criminal act introduces the transition to a disordered mental state, inasmuch as it makes its appearance as the first decisive symptom, which is rapidly followed by others. It develops itself in a diminished estimation of self, in a want of self-reliance and peculiar morbid despondency.

Dr. Johnson thus describes this state in *Rasselas*. "To indulge the power of fiction, and send imagination out upon the wing, is often the sport of those who delight too much in silent speculation. He who has nothing external that can divert him, must find pleasure in his own thoughts, and must conceive himself what he is not: for who is pleased with what he is? He thus expatiates on boundless futurity, and culls from all imaginary conditions that which, for the present moment, he would most desire; amuses his desires with impossible enjoyments, and confers upon his pride unattainable dominion. The mind dances from scene to scene, unites all pleasures in all combinations, and riots in delights which nature and fortune, with all their bounty, cannot bestow. In time, some particular train of ideas fixes the attention; all other intellectual gratifications are rejected; the mind, in weariness or leisure, returns constantly to the favorite conception, and feasts on the luscious falsehood whenever she is offended with the bitterness of truth. By degrees the reign of fancy is confirmed; she grows first imperious, and in time despotic. Then fictions begin to operate as realities—false opinions fasten upon the mind—and life passes in dreams of rapture or of anguish."

The celebrated physician Boerhaave was once engaged in so profound a meditation that he did not close his eyes for six weeks. And, in general, "any fixety of thought may be considered a monomania."(*h*) Pascal being thrown down on a bridge, fancied ever after that he was standing on the brink of a terrific precipice, which appeared to him an abyss, ever ready to engulf him. So immutable was this dread, that when his friends conversed with him they were obliged to conceal the imaginary perils with chairs, on which they seated themselves, to tranquilize his perturbed mind. Archimedes, it is related, was heedless of the slaughter around him. Father Castel, the inventor of the ocular harpsichord, spent an entire night in one position, ruminating on a thought that struck him as he was retiring to rest.(*i*)

(*f*) See Etudes Médico-Psychologiques sur l'Aliénation Mentale, par L. F. E. Renaudin. Chap. 2, p. 36. Paris, 1854.

(*g*) Krahmer, Handbuch der Gericht. Med. Halle, C. A. Schwetschke, 1851, § 109; Siebold, Lehrbuch der Gericht. Med. Berlin, 1847, § 208.

(*h*) Curiosities of Medical Experience. Second edition. On Ecstatic Exaltation, p. 38. Mind and Matter, by J. G. Millingen, M. D., M. A., p. 80, 81, 82.

(*i*) Morel gives the following powerful sketch of primitive or simple depression. (Traité theorique et pratique des Maladies Mentales, par M. Morel. Tome I. p. 386.

§ 164. "Depression of mind," says Reid, "may be owing to melancholy, a distemper of the mind which proceeds from the state of the body,

Paris, 1852.) As there exists a mania which shows itself rather in insanity of action than of mind, (manie instinctive,) so likewise there exists a state of melancholy without delirium. Without our often being able to instance other causes than those phenomena which accompany the change from adolescence to puberty, from puberty to age, and from mature age to the critical period: at the happiest periods of life, we feel a vague weariness, a motiveless fear, an indefinable sadness, which sometimes is only transitory and at others is the starting point of the most serious disturbances. It is, says Guislain, a state of sadness, of dejection accompanied with or without the shedding of tears, without any notable aberration of imagination, intelligence or feeling. It is the heart which exclusively suffers, but soon this suffering of the heart shows itself in a prostration of all the intellectual powers, a state which absorbs all individual energy, and appears only to leave the capacity of suffering. Where is the man who has not experienced these painful feelings; and if by an effort of reasoning we are able to affix the form of continuity to these sensations, which are only sometimes fugitive, we will have a perfect idea of this intolerable state. Madame de Stael vividly touches on this in Corinne.

"She (Corinne) had taken such a horror for all the common pursuits of life, that to take the least resolution, to give the least order, caused her an increase of pain. She was unable to live except in perfect inactivity. She arose, laid down, arose again, opened a book without being able to understand a line; often she remained for hours at her window, and then would walk with rapidity in her garden. At another time she would take a bouquet of flowers and try to make herself dizzy with their perfume. Time, a never ceasing pain, the feeling of existence pursued her, and she sought relief in a thousand ways from that devouring faculty of thought which did not now yield, as formerly, a variety of reflections, but one single idea, one single image, armed with cruel points that tore her heart. Every word was found with difficulty, and often she traced words conveying no sense, words that even frightened her, when she attempted to re-read them, as if the pain of the fever was there written. Feeling herself then incapable of turning her thoughts from her own condition. She painted all that she had suffered, but it was no longer in those general ideas, those universal feelings that find a response in every heart; but it was the cry of anguish, a long monotonous cry, it was misfortune, but it was no longer genius."

When a like condition, says Guislain, is accompanied with anxieties, groanings, sobs, a desire to commit suicide, or any other determination, it is no longer in its simplest state. * * I on the contrary think that a like condition can continue in connection with the above mentioned tendencies. How else could we explain those suicides without name, those irregular actions of which we see so many examples in instinctive mania, the affection which, above all others, has the closest relation to melancholy? In the greater number of cases, these forms are distinguishable less perhaps by the diversity of the acts than by the nature of the depressive principles. We may readily admit that instinctive maniacs generally betray themselves by more froward deeds, and by more sudden and more cruelly energetic and destructive determinations than the simple hypomaniacs who rather turn against themselves their fatal homicidal impulses. In the first case also the depravity of the instincts is more often connected with the organic affections, a vicious education or a prior state of immorality, whilst in the latter class, the impulses which they themselves deplore are the harder to be understood, because (1), the individual is generally placed in the most favorable social condition; (2), his education has left nothing to be wished for, and (3), his delicate sensibility would never cause the actions to which he is irresistibly forced in this unfortunate unhealthy state, to be suspected.

This mental condition which I have often had opportunity of observing, was strikingly illustrated in the general state of a deranged female, who, in 1842, was placed under the care of M. Falret at la Salpétriére hospital. The patient showed no insanity in her language. Gifted with high intelligence and great tenderness of heart, belonging to a family that had suffered misfortune, but who, in the time of their prosperity had neglected nothing for her education, Virginia Mac—— A——e, who had courageously suffered the reverses of fortune, and created for herself a new position, was unable to explain the loss of her moral sensibility and the causes of an inexpressible sadness which left her no other resource but tears.

"The future," she writes, "which presents hope to every reasonable being, offers to my mind an abyss of evils which it is impossible for me to bear. I want nothing; the beings that I most cherish, I wish their death, because I have always seen that that which forms the happiness of others, is my affliction. I, the eldest, who should have been the consolation of the mother whom I so much loved, have caused her nothing but

which throws a dismal gloom upon every object of thought, cuts all the sinews of action, and often gives rise to strange and absurd opinions in

misery. When I experienced the incomprehensible disgust for life, then, lying beside her, I dared propose to her to set fire to the bed, in order that we might die together; she whom I have seen lose her consciousness at the idea only of seeing one of her children die, she who would still sacrifice herself if she could return to me the force and energy that are wanting, I have only the more discouraged, by constantly telling her that we were entirely without hope. The child also, who was formerly my delight, has become an object of indifference. The night is for me more sad than for a criminal whom the laws have condemned to die, because he knows that his life will soon end; whilst in spite of the despair of my soul, in spite of my disturbed sleep, I find myself every day in sound health, and yet without force and without courage. The beautiful sky that God created to delight his children, serves only to sadden still more my thoughts. I would wish to again become a child, to recover the innocence of childhood; why cannot I feel that calm which is sometimes felt in the spring immediately after the winter. I compare myself to a poor woman who has for a long time had nothing but the produce of her hands, whereby to raise up her children, and who, in spite of fatigue and watching, does not abandon them like I abandoned my Marie. I, who am only thirty-four, who am in full possession of strength and health, and who have not power of directing to any useful end the faculties imparted me by heaven."

Such was the position of a patient who now presents us the example of simple melancholy without delirium. In such cases we will observe that this state, so full of agony, is often nothing but a period of transition to systematic delirium; and we will also remark the differences existing between this primitive depression and the incubation of mania, which may, it is true, commence with depression and finish with exaltation, but which, in the greater number of cases, betrays itself in an abnormal activity, and in the development of intellectual aptitudes, which have not been before remarked in the patient. Here, on the contrary, all the faculties appear overwhelmed by the depressive principle. The occupations they most cherished are insupportable to them, and the intellectual labors in which they most excelled, they are unable to perform. The poet loses his art, and the author his skill, the mathematician notes down false numbers, and the artist and the workman no longer possess their aptness for the performance of the mechanical parts or manual of their profession. Nor can it be otherwise. Without doubt, to write and think well we must be under the influence of some emotion, but this emotion should be true and not morbid. Contentment is necessary to every thing, and the most gloomy poetry must be inspired by a kind of spirit, which presupposes both energy and intellectual possessions. True grief has no natural fecundity, that which it produces is nothing but a gloomy agitation which constantly brings back the same thoughts. (See Traité Theorique et Pratique des Maladies Ment. des M. Morel, tome i. p. 336. Paris, 1852.)

Melancholy, or "Aliénation partielle depressive," as it has been called by Falret, has, as its name indicates, for its principal characteristic, a depression, slowness and prostration of all the faculties united with general anxiety. This fundamental disposition of the sensibility and intelligence, produces in the greater number of those thus affected, a crowd of analogous consequences. Every thing is viewed by them in a distorted light; all their relations with the external world are changed; they look upon every thing with repulsion and antipathy; they bear with difficulty the kindest remarks of their relations and friends, and consolation itself irritates them. In entire contradiction to nature, the patient cannot retire within himself. He finds nothing within but anxiety, doubt and mistrust, both of himself and others. Every thing seems changed around him. He is often afflicted, and sometimes irritated by it, and thinks the alteration due to those that surround him, rather than to any personal change. Thence come irritation, anger and violence against himself and others. He then abandons the world that injures him, and sinks into complete inactivity.

Frequently it is not only against the world in general, but against his best friends that the patient directs his suspicions, his mistrusts and his hatred. To this general state of depression, anxiety and gloominess succeeds. After this comes both a physical and moral prostration, in which there is a more or less complete suspension of sensibility and intelligence.

Whilst the sensibility is thus oppressed and affected, the will is equally enfeebled, inactive and powerless. Indecision and slowness of resolution are frequently to be met with, to such a degree as to produce a total want of volition and incapacity of movement. We should note, however, under this head, two principal modes of reaction. In certain cases, the reaction is of no effect; the patient resembles a statue, being insensible and without will. At other times, on the contrary, he is shocked by every

religion, or in other interesting matters. Yet, where there is real worth at the bottom, some rays of it will break forth even in this depressed state of mind. A remarkable instance of this was exhibited in Mr. Simon Brown, a dissenting clergyman in England, who, by melancholy, was led into the belief that his rational soul had gradually decayed within him, and at last was totally extinct. From this belief he gave up his ministerial function and would not join with others in any act of worship, conceiving it to be a profanation to worship God without a soul. In this dismal state of mind he wrote an excellent defence of the Christian religion against Tindal's "Christianity as old as the Creation." To the book he prefixed an epistle, dedicatory to Queen Caroline, wherein he mentions "that he was once a man, but by the immediate hand of God for his sins, his very thinking substance has, for more than seven years, been continually wasting away, till it is wholly perished out of him, if it be not utterly come to nothing." And having heard of her Majesty's eminent piety, he begs the aid of her prayers. The book was published after his death without the dedication, which however, having been preserved in manuscript, was afterwards printed in the "Adventurer." Thus this good man, when he believed that he had no soul, showed a most generous and disinterested concern for those who had souls. As depression of mind may produce strange opinions, especially in the case of melancholy, so our opinions may have a very considerable influence either to elevate or depress the

thing that surrounds him, and react strongly, it may be directly, through the violence of a desire which betrays itself in action, or it may be indirectly, by an incessant instability. A constant desire to complain follows, with groans and laments, which, when it arrives at its maximum, constitutes a grade of exaltation, intermediate between melancholy and mania. Intelligence is enfeebled, and depressed like the sensibility and the will; the capacity for the generation of ideas is enfeebled, their course is diminished, their circle narrowed. The patient talks only of himself and his misfortune; he utters monotonous complaints, and sighs, or pronounces broken words. Sometimes the need of expressing ideas not being felt, he speaks only with difficulty, and sometimes even, instead of answering, he contents himself with a rude and silent movement. Sometimes, also, he speaks a great deal and to every body, but it is only to speak of himself, to give utterance to the same complaints and the same lamentations: he is *morally* what the hypochondriac is *physically*.

The physiognomy is concentrated and anxious, expressing dullness and stupidity, followed by habitual, and sometimes entire silence, and slowness of movement carried sometimes to immobility. These external signs correspond with the internal condition we have just described, and form an exact picture of this kind of mental disease.

Among the melancholics, in fact, some feeling a general anxiety, think they have done a bad action, have committed a crime, suppose themselves reserved for severe punishments, both in this world and the other, and overwhelmed with scruples, they criminate themselves for the most innocent actions of their lives, or imagine themselves possessed by the devil and abandoned of God. Others, in consequence of the sentiment of mistrust which controls them, imagine themselves to be surrounded by spies or invisible enemies, and according to their previous ideas, their education or the age in which they live, think themselves under the power of sorcery, magic, magnetism, the police, &c. Others, entirely wrapped in their sadness, think themselves ruined, accused, dishonored or even betrayed by their relations and friends. In a word, the delirious ideas which become the centre of the greater part of the pre-occupations of the intelligence and of the feelings, and which appear, at first sight, to constitute all the delirium, are in reality only the relief to the general condition which gives birth to them. In spite of their infinite variety, they all partake of the general character of the disease.

There is not, then, in Melancholy, as has often been asserted, a concentration of the attention, or even of all the moral and intellectual powers, upon one sad idea, but a general state of sadness and depression which shapes itself in one predominant idea, and manifests itself by a crowd of other morbid phenomena. (See Leçons Cliniques sur l'Aliénation Mentale, de M. Falret. Leçon 9. Paris, 1854.)

mind, even where there is no melancholy. Suppose, on one hand, a man who believes that he is destined to an eternal existence; that He who made and who governs the world, maketh an account of him, and hath furnished him with the means of attaining a high degree of perfection and glory. With this man compare, on the other hand, the man who believes nothing at all, or who believes that his existence is only the play of atoms, and that after he has been tossed about by blind fortune for a few years, he shall again return to nothing. Can it be doubted that the former opinion leads to elevation and greatness of mind, and the latter to meanness and depression?"(*j*)

§ 165. "A pleasant season," says Dr. Rush, "a fine day, or even the morning sun, often suspend the disease. Mr. Cowper, who knew all its symptoms by sad experience, bears witness to the truth of this remark, in one of his letters to Mr. Haly. 'I rise,' says he, 'cheerless and distressed, and brighten as the sun goes on.' Its paroxysms are sometimes denoted 'low spirits.' They continue from a day, a week, a month, a season, to a year, and sometimes longer. The intervals differ—1, in being accompanied with preternatural high spirits; 2, in being attended with remissions only; and 3, with intermissions, or, in other words, in correctness and equanimity of mind. The extremes of high and low spirits, which occur in the same person at different times, are happily illustrated by the following case: A physician in one of the cities of Italy, was once consulted by a gentleman who was much distressed with a paroxysm of this intermitting state of hypochondraism. He advised him to seek relief in a convivial manner, and recommended him in particular to find out a gentleman of the name of Cardini, who kept all the tables in the city, to which he was occasionally invited, in a roar of laughter. 'Alas! sir,' said the patient, with a heavy sigh, 'I am that Cardini.' Many such characters, alternately marked by high and low spirits, are to be found in all the cities in the world."(*k*)

In melancholy the patient on the one hand is fully convinced that his notions and wishes ought to be realized; but on the other he feels the impossibility of affecting their realization. He therefore makes no effort to render possible the impossible; yet he cannot resign the ideal, which he bears in his bosom; he loves his fictions, or the objects of his wishes so much, that he cannot part with them. Thus he consumes his existence in a monotonous grief; he cannot take interest in any thing except the object of his sadness.(*l*)

2nd: *Hypochondria.*(*m*)

§ 166. When the morbid despondency noticed under the last head extends to the general tone of bodily sensations, a condition is produced

(*j*) Reid on the Active Powers of Opinion, pp. 576.
(*k*) Rush on the Mind, pp. 82, 83. (*l*) Rauch's Psychology, 151.
(*m*) See Krahmer Handbuch der Gericht. Med. Halle, C. A. Schwetschke, 1851, § 109; Siebold, Lebrbuch der Gericht. Med. Berlin, 1747, § 208; See De L'Hypochondrie et du Suicide. Par J. P. Palfret. Paris, 1822; Renaudin sur L'Aliénation Mentale, p. 99. Paris, 1854. See also on this point the following works: Confessions of an Hypochondriac, or the Adventures of a Hypochondriac in search of Health. Saunders & Otley, London, 1849; Review of same, Journ. of Psychol. Med. vol. 3, p. 1.

which we commonly call *hypochondria*. In the inferior stages the patient retains sufficient self-control to conceal and forget his condition, and proceed unhindered in his occupations; but in the higher degrees he becomes so absorbed in his bodily sensations as to exhibit it in his appearance and conduct, disregarding every effort made to raise his spirits, and reducing all his reflections to the common machinery of personal questions and answers.(*n*) As this sort of selfishness increases, the mind is often filled with envy, hatred, bitterness, suspicion, and revenge towards others, and particularly towards those in whom the patient believes himself to detect a want of sympathy, or even of respect, or whom he regards as the authors of his distress. The result of this is too apt to be a series of unjust surmises and accusations, personal ill-treatment of others, and even murderous threats and assaults against their supposed wrong-doers, as well as the commission of suicide. In the judicial scrutiny and consideration of such a case, it is essential to inquire how far and for what length of time the attention of the patient can be directed from his bodily feelings to other objects; what is his personal opinion of his own condition; whether any, and if any, what insane ideas possess his mind, and what is his general demeanor. Where the perceptive faculty was not so far involved in the progress of the disease as to falsify the impressions of the senses, and deprive the consciousness of the power of correcting them, the reasons are wanting for deciding against the responsibility of the agent; but the judge, in passing sentence, will nevertheless take into account the morbid impulse, which was a subsidiary cause in the commission of the crime.(*o*)

§ 167. Sometimes, as we are told by Dr. Rush, the pain of a bodily disease suspends, for a short time, the mental distress. Mr. Boswell, in his life of Dr. Johnson, relates a story of a London tradesman who, after making a large fortune, retired into the country to enjoy it. Here he became deranged with hypochondriasis, from the want of employment. His existence became finally a burden to him. At length he was afflicted with the stone. In a severe paroxysm of this disease a

(*n*) Ellinger, p. 105.

(*o*) See the above views in Schürmayer, Gericht. Med. § 542.

The following description of the hypochondriacal character is to be found in the Médecine Légale de M. Orfila. Tome I. p. 416. Paris, 1848.

Hypochondriacs are above all remarkable for their exaggerated fears upon the state of their health—and the foolish ideas they give utterance to in expressing their sufferings. Their temper is very unequal, they pass almost without motive from hope to despair, from grief to gaiety—from bursts of passion to gentleness, from laughter to tears; many are timid, pusillanimous, fearful, morose, irascible, restless, hard to please, a torment and fatigue to every body. They are easily moved, a trifle vexes and agitates them, producing fears, torments, and attacks of despair. The greater number show a marked change in their affections, they are egotistical, the slightest motives cause them to pass from attachment to indifference or to hate. They are often susceptible of an exaltation or depression of spirits, of a rapid succession of the most opposite ideas and emotions, without the will being able to control the thought.

But those thus affected have a very good judgment in whatever relates to their own interests, and generally in every thing which is foreign to their health, unless the disease should finish in a total loss of reason, a thing which is of very rare occurrence. It is only the character above described which renders hypochondriacs more likely to yield to fear, and more easily moved to contract engagements; suggestive and inveigling measures exercise considerable influence upon their mind. Finally, the jealous, suspicious, irritable, headstrong character of hypochondriacs would be an extenuating circumstance, if, under a first impulse, they should commit a reprehensible act.

friend sympathized with him. "No, no," said he, "don't pity me, for what I now feel is ease, compared with the torture of mind from which it relieves me." A woman in this city bore a child, while she was afflicted with this disease. She declared immediately afterwards that she felt no more pain from parturition than from a trifling fit of the colic. Where counteracting pains of the body are not induced by nature or accident to relieve anguish of mind, patients often inflict them upon themselves. Walking barefooted over ground covered with frost and snow was resorted to by a clergyman of great worth in England for this purpose. Carden, an eminent physician of the 15th century, made it a practice to bite his lips and one of his arms, in order to ease the distress of his mind. Kempfer tells us that prisoners in Japan, who often became partially deranged from distress, used to divert their mental anguish by burning their bodies with moxa; the same degree of pain, and for the same purpose, is often inflicted upon the body, by cutting and mangling it in parts not intimately connected with life. But bodily pain, whether from an accidental disease, or inflicted by patients upon themselves, is sometimes insufficient to predominate over the distress of their minds. Dr. Herberden mentions an instance of a man who was naturally so afraid of pain, that he dreaded even being bled, who in a fit of low spirits cut off his penis and scrotum with a razor, and declared after he recovered the natural and healthy state of his mind, that he felt not the least pain from that severe operation. A similar instance of insensibility to bodily pain is related by Dr. Ruggieri, an Italian physician, of a hypochondriac madman, of the name of Louvel, who fixed himself on a cross and inflicted the same wounds upon himself, as far as he was able, that had been inflicted upon our Saviour. He was discovered in this situation and taken down alive. During the paroxysms of his madness he felt no pain from dressing his wounds, but complained as soon as they were touched, in the intervals of his disease.(*p*)

Dr. Haindorft, in his German translation of Dr. Reid's "Essay on Hypochondriasis," in alluding to the possibility of a patient laboring under hypochondriasis being able, by an exercise of the power of volition, to control his morbid sensations, justly observes, "We should have fewer disorders of the mind if we could acquire more power of volition, and endeavored by our own energy to disperse the clouds which occasionally arise within our own horizon: if we *resolutely tore the first threads of the net* which gloom and ill-humor may cast around us, and made an effort to drive away the melancholy images of a morbid imagination by incessant occupation. How beneficial would it be to mankind if this truth were universally acknowledged and acted upon, viz: that our state of health, mental as well as bodily, principally depends upon ourselves!"

"By *seeming gay* we grow to what we seem."

It was the remark of a man of great observation and knowledge of the world, "Only wear a mask for a fortnight, and you will not know it from your real face."(*q*)

(*p*) Rush on the Mind, pp. 90, 91, 92.
(*q*) Winslow's Anatomy of Suicide, pp. 169, 170.

§ 168. A late French writer mentions the case of a rich peasant who was possessed with the idea that he was bewitched, and who complained to his medical attendant that seven devils had taken up their abode in his body. "Seven, not more?" was the physician's inquiry. "Only seven," was the reply. The physician promised him to rid him of the visitors, one each day, upon condition that for the first six he was paid twenty francs, but for the seventh, who was the chief of the band, forty. The patient agreed, and was subjected by the physician, who set apart the fee for charity, to a series of daily shocks from the Leyden jars, the seventh and last of which was so powerful as to produce a fainting fit in the supposed demoniac, who, however, awoke from it entirely freed from his delusion. (*r*)

Burns suffered much from indigestion, producing hypochondria. Writing to his friend, Mr. Cunningham, he says: "Can'st thou not minister to a mind diseased? Can'st thou speak peace and rest to a soul tossed on a sea of troubles, without one friendly star to guide her course, and dreading that the next surge may overwhelm her? Can'st thou give to a frame, tremblingly alive to the tortures of suspense, the stability and hardihood of a rock that braves the blast? If thou can'st not do the least of these, why would'st thou disturb me in my miseries with thy inquiries after me?" From early life, the poet was subject to a disordered stomach, a disposition to headache, and an irregular action of the heart. He describes, in one of his letters, the horrors of his complaint:—"I have been for some time pining under secret wretchedness. The pang of disappointment, the sting of pride, and some wandering stabs of remorse, settle on my life like vultures, when my attention is not called away by the claims of society, or the vagaries of the muse. Even in the hour of social mirth, my gaiety is the madness of an intoxicated criminal under the hands of an executioner. My constitution was blasted, *ab origine*, with a deep incurable taint of melancholy that poisoned my existence." (*s*)

3. *Hysteria.* (*t*)

§ 169. *Hysteria*, which only attacks individuals of the female sex, or males having a feminine organization, resembles hypochondria in its mental and moral symptoms; but the nauseous and painful feelings manifest themselves in convulsions, and the alternation between the different states of feeling is far more abrupt. (*u*)

(*r*) Démonomanie, singulière guerison. Annales mèd. psychol. 1847.

(*s*) Winslow's Anatomy of Suicide, p. 147–48.

(*t*) Siebold, Lehrbuch der Gericht. Med. Berlin, 1847, § 208; Krahmer Handbuch der Gericht. Med. Halle, C. A. Schwetschke, 1851. § 110.

(*u*) Schürmayer, Gericht. Med., § 543; Krahmer. Handbuch der Gericht. Med. Halle, C. A. Schwetschke, 1851. § 109.

Burton, in his Anatomy of Melancholy, has described this state: "They are soon tired with all things; they will now tarry, now begone; now in bed they will rise, now up, then they go to bed; now pleased, and then again displeased; now they like, by-and-by they dislike all, weary of all. 'Sequitur nunc vivendi, nunc moriendi, cupido,' saith Aurelianus. Discontented, disquieted upon every light occasion or no occasion, often tempted to make away with themselves; they cannot die, they will not live; they complain, weep, lament, and think they live a most miserable life; never was any man so bad. Every poor man they see is most fortunate in respect of them. Every beggar that

4. *Melancholy.*(v)

§ 170. The state of depression undergoes a change, in consequence of which the complaints of bodily indisposition diminish, and the patient comes to regard his former sufferings as delusions, and his present condition as a healthy one. When such a person is found to have com-

comes to the door is happier than they are. Jealousy and suspicion are common symptoms of this misanthropic variety. They are testy, pettish, peevish, distrustful, apt to mistake, and ready to snarl, upon every occasion and without any cause, with their dearest friends. If they speak in jest, the hypochondriac takes it in good earnest; if the smallest ceremony be accidentally omitted, he is wounded to the quick. Every tale, discourse, whisper, or gesture, he applies to himself; or if the conversation be openly addressed to him, he is ready to misconstrue every word, and cannot endure that any man should look steadfastly at him, laugh, point the finger, cough, or sneeze. Every question or movement works upon him and is misrepresented, and makes him alternately turn pale or red, and even sweat with distrust, fear, or anger."

And thus says Charles Lamb:

"By myself walking,
To myself talking;
When, as I ruminate
On my untoward fate,
Scarcely seem I
Alone sufficiently:
Black thoughts continually
Crossing my privacy;
They come unbidden;
Like foes at a wedding,
Thrusting their faces
In better guests' places;
Peevish and malcontent,
Clownish, impertinent,
Dashing the merriment.
So, like the fashions,
Dim cognitions
Follow and haunt me,
Striving to daunt me;
In my heart festering,
In my ears whispering,
'Thy friends are treacherous,
Thy foes are dangerous,
Thy dreams are ominous.'

Fierce Anthropophagi,
Spectra Diaboli,
What scared St. Anthony;
Hobgoblins, Lemures,
Dreams of Antipodes,
Night-riding incubi,
Troubling the fantasy,
All dire illusions
Causing confusions;
Figments heretical,
Scruples fantastical,
Doubts diabolical.
Abaddon vexeth me,
Mahro perplexes me,
Lucifer teareth me,
Jesu! Maria! liberate nos ab his dires tentationibus inimici."—*Miscellaneous Poems*, p. 6. Ed. Moxon: 1841. *Mind and Matter.* By J. G. Millingen, M.D., M.A. pp. 76, 77, 78.

(v) Siebold. Lehrbuch der Gericht. Med. Berlin, 1847. § 208. Dr. Cheyne, rather jocularly than otherwise, applied the term, "The English Malady," to that species of melancholy which is most affected by the weather and by other depressing circumstances. This term has been seized upon by Siebold, Gericht. Med. § 212, *Melancholia Anglica*, sive Autochira. Fr. B. Osiander, in his interesting volume on Suicide, discusses the same topic. Hannov. 1813. 8. § 207.

mitted an act forbidden by the penal code, it may be assumed, without hesitation, that his liberty of action is gone. In the higher degrees of melancholy, the various gloomy and morbid feelings are accompanied by distinct imaginings, which take their character from the sort of agitation in which the disease commenced, the general opinions and character of the individual, the pursuits which last occupied him, and the dread and bitter experience which has produced them.(*w*) For all these feelings the patients seek explanations, and find them either *in themselves* (*melancholia concentrica*), or in *surrounding* things and circumstances (*melancholia peripherica*). In the *former* case they take themselves severely to task for small or inconsiderable errors, or declare, with an air of so much conviction, calmness, and firmness, as sometimes to mislead the judge himself, that they have committed great crimes, as murder, &c., and have incurred, by their own inexpiable fault, the displeasure of God and of the world, and eternal damnation. In *melancholia religiosa* they ask to be tried and punished; they complain of the loss of what is most dear to them, apprehend poverty for themselves and their families in the future, or even imagine themselves possessed by demons. In *mel daemonia*, they accuse other persons of malevolence and persecution, to which they ascribe their ailments. It is characteristic of the general phase that the patient never sees surrounding things as they are, but always in a light corresponding to his gloomy frame of mind; frequently, also, this false coloring turns into a real illusion of the senses, particularly in the peripheric form of the disease, which is the reason that it so frequently ends in lunacy. The external conduct of the patients, the manner in which they execute the dictates of their wills, is very various. In *melancholia attonita* they sit motionless and speechless; in other cases, they can hardly find words enough to depict their distraction; sometimes they are perpetually in motion—*melancholia activa et errabunda.* In peripheric melancholy they scold and swear about their grievances, become noisy and excited, and resort to violent means of resistance or revenge. In this manner, melancholy often becomes the occasion of murderous assaults, and sometimes murders of the most cruel kind, as well as of suicide.(*x*)

§ 171. In a mature case falling under this head, the motives are often not even present to the consciousness, and the act is committed in a state of intoxication, blind frenzy, fury, and confusion, preceded sometimes by the almost imperceptible symptoms of silent depression, sometimes by the traces broad and deep of havoc in the affective faculties, and accompanied often by a sudden loss of self-control, visible paroxysms of terror, and a fancied pursuit by fiends. (*y*) The transition from melancholy to mania is open to the simple explanation, that depression is the first stage of psychical disease in general, and contains within itself the germs of all other phases. (*z*)

§ 172. In other cases there is also an absence of conscious motives, but in their place an uncontrollable restlessness, an indistinct but over-

(*w*) Schürmayer, Gericht. Med. § 544; compare Ellinger, p. 108; Leçons Cliniques sur l'alienation Mentale; Falret, leçon 7th, p. 185. Paris: 1854. Etudes Medico Psychologiques sur l'alienation Mentale. L. F. E. Renaudin, chap. iv. p. 178. Paris: 1854.

(*x*) The above summary is taken from Schürmayer, Gericht. Med. § 544.

(*y*) Ellinger, p. 112.

(*z*) Schürmayer, Gericht. Med. § 545.

awing feeling of dread, and an incessant morbid approach of those abnormal moral propensities which will be considered under the next head. Ellinger correctly observes (*a*) that, "impulses of this kind often excite the most desperate struggles in the mind; evoke the most various external means to overcome them; place the murderous instrument into the hands of the individual, from which reason wrests it again; drive him into solitude and far from the subject of the mad desire, and induce him to give warning to the threatened victim; to meditate and to attempt suicide; and when at last the fatal deed is nevertheless accomplished, there is a calmness and a clearness in the manner in which he anticipates the impending punishment, which to an unpracticed observer must exclude every idea of an underlying mental derangement. Such subjects either betray the ordinary symptoms of depression, or only those incident to the specific propensity, which throws the conciousness into a state of distraction, and fills the mind with fear and dread. In either case, the impulse, whether preceded or not by a brief relaxation, comes suddenly, in which case it will be found in connection with disturbances of the bodily functions, among which may be enumerated cessation of the natural period or of other natural or ordinary evacuations, rush of blood to the head, exhaustion by loss of blood, protracted nursing, excesses, epilepsy, approach of severe attacks of sickness. The *immediate* occasion of the act may be the view of a naked figure, the sight of an execution, of blood, of a murderous instrument or other means of committing crimes, or the recital of such an occurrence; the *ultimate* cause is found, according to Ideler, in the associations of feelings and desires according to their contrast, and the struggle and contradiction thus arising."

§ 173. In still another order of cases, as we are told by Schürmayer, the consciousness is not only in full possession of the motives, but the act is conceived on the ground of a chain of reasoning and executed with a degree of arrangement and circumspection apparently inseparable from a clear state of the understanding. Here, as will be seen more fully hereafter, the motives are sometimes hallucinations, particularly of the ear, (voices heard) which give commands to the madman, sometimes a wish to die without the courage to commit suicide directly, but with the design of incurring capital punishment by the murder of others, (persons the subjects of an old grudge, or such as are entirely innocent, as children;) sometimes the notion that the destruction of the world is at hand, or that a terrible misfortune impends, against which it was necessary to protect the object of particular affection, which is best effected by death. In the latter case, as will presently be more fully seen, (*b*) suicide, or self-inculpation, is common, and sometimes a vindictive feeling against the supposed authors of the person's suffering, which the mind often debates with itself for a length of time, until all doubt is removed by some new hallucination. (*c*)

Attacks of hysteria, although in appearance bearing considerable analogy to those of epilepsy, rarely produce a state of complete insen-

(*a*) Ellinger, p. 114. (*b*) *Post* § 206–208, 247–253.

(*c*) Schürmayer, § 547; Ellinger, p. 116; Siebold, Lehrbuch der Gericht. Med. Berlin, 1847, § 208; Krahmer Handbuch der Gericht. Med. Halle. C. A. Schwetschke, 1851. § 110.

sibility, and although they may last longer, they never leave behind them that bewilderment of mind. However frequently they may occur, they hardly ever produce mania or dementia, and therefore they rarely exclude responsibility. (*d*)

VI. Mental unsoundness, as affecting the moral system.

1st. *General Moral Mania.*

§ 174. As depression is based upon an unduly subdued state of the feeling of self and a want of self-confidence, so the fundamental trait of mania, considered in its present relation, is an exaggeration of the feeling of self and of self-confidence.(*e*) Unsoundness of mind rarely takes this form at first; it is usually developed from depression, the mistaken idea usually reversing its purport, while the impulses of expression in some manner overstep their normal limits, compelling the will to act in a corresponding manner. Here the madman either makes constant motions with his head or his arms, or runs about until he is completely exhausted, which might be called the *madness of motion*;(*f*) or he vents his humor in gestures and declamations, or the motive impulse is confined to the tongue, and becomes morbid garrulity or *madness of the tongue*. This talkativeness is not the effect of a superabundance of ideas, but all the thoughts are uttered hastily as they occur, without being shaped or sifted, giving rise to contradiction, incoherence, and the semblance of a wandering imagination. If in the end the malady is imparted not only to the will but also to the sentiments, the undefined impulse of action and expression receives the form and color of chagrin and anger, which the sufferer supposes to be well founded and directed to real objects, and the disease becomes frenzy or fury, which may take some specific form, as that of general destructiveness, or of a thirst for blood. This also includes many unnatural cravings, such as a desire to bite, or to do something extravagant; a sort of mental or moral vertigo, which develops itself sometimes, though more rarely in the propensity to steal. In cases of this class it is impossible for the patient to resist the morbid impulse. He has lost his self-possession, that is, the power of contrasting the necessary consequences of the action with his present position and its requirements, and the calculations of prudence, as well as the impulses of conscience, are alike unheeded. The morbid sentiment thus controls his entire perceptive faculty, admitting of no other perception in connection with the subject, and cutting off all reflection, all doubt of the fitness of the action and its relation to the laws of the land.(*g*)

§ 175. In the lower stages of mania there is generally so much external self-control, and such a connection and logical consistency in the ideas, that the process of mental evolution becoming more compact and rapid, produces a vivacity of combination, of memory, and imagination,

(*d*) Briand, Méd. Lég. p. 569. Paris, 1852.
(*e*) See Schürmayer, Gericht. Med. § 548.
(*f*) Compare Hagen in R. Wagner's *Handwœrterbuch der Physiologie*. Vol. II. p. 819.
(*g*) Schürmayer, Gericht. Med. § 548.

that a layman is not easily induced to suspect to arise from a disorder of the reasoning faculties, particularly when external circumstances concur to furnish an explanation of the condition in which the person is found. This may throw difficulties around the medico-legal consideration of such a case, and under such circumstances the true view in those penal systems where the correct principle is observed of graduating the punishment of the insane to the degree of their freedom of agency and consequent responsibility, is to declare moral responsibility in its common-law sense to have ceased. It happens that the offences committed during and in consequence of mental aberrations of this description, are either petty misdemeanors, or of a nature to call for the interference of the police only, or resolve themselves into mere civil questions, or into objections to the competency of witnesses. The higher grades of mania involve far more serious considerations of responsibility for any action, which will presently be fully considered.(*h*)

§ 176. "In this form of insanity," says Dr. Ray, "the derangement is confined to one or a few of the affective faculties, the rest of the moral and intellectual constitution preserving its ordinary integrity. An exaltation of the vital force in any part of the cerebral organism, must necessarily be followed by increased activity and energy in the manifestations of the faculty connected with it, and which may even be carried to such a pitch as to be beyond the control of any other power, like the working of a blind instinctive impulse. Accordingly, we see the faculty thus affected, prompting the individual to action by a kind of instinctive irresistibility, and while he retains the most perfect consciousness, of the impropriety and even enormity of his conduct, he deliberately and perseveringly pursues it."(*i*)

The following cases are given us by Ray, in which this perversion of the moral faculties was accompanied in its latter stages by some delusions, furnishing a striking illustration of this form of disease, as well as its intimate connection with intellectual mania:—

Col. M. was a man of superior intellectual powers, and moved in the higher walks of society. He was a lawyer by profession, and was appointed district-attorney in one of the south-western states by President Jackson, whom he had previously served in a military capacity. Towards the meridian of life, his conduct became so disorderly and boisterous, that he was often confined in jails or hospitals for the insane. On one of these occasions he cut off his nose, and subsequently came to Boston in order to have it replaced by Dr. J. Mason Warren, by means of the rhinoplastic operation, which proved quite successful. While in Boston he made the acquaintance of Dr. Bell of the McLean Asylum, for the purpose, as he declared, of getting his aid in obtaining redress for the wrongs he had sustained in being placed under guardianship, and confined in jails and hospitals, his object being not to retaliate, but to protect his future reputation. The Dr. has kindly furnished such particulars of his case as came to his knowledge from various sources. "I inferred that he was naturally of a proud, arrogant, and

(*h*) Krahmer. Handbuch der Gericht. Med. Halle. G. A. Schwetschke, 1851. § 110. Siebold, Lehrbuch der Gericht. Med. Berlin, 1847. § 208.

(*i*) Ray on Insanity, 189.

extravagant spirit, which was kept in check, while she lived, by the discretion of his wife. He was sensual but not intemperate, until his nervous system had become excited. His peculiar theory was, that while he admitted that he had held—and, towards the last of my interview, avowed that he then held—certain fanciful notions which we might term delusions, if we pleased, still they were such as did not interfere with his right to entire liberty of action. 'For instance,' said he, 'I feel that I am cousin to the Duke of Wellington and to Napoleon. It seems ridiculous. I can't make it out by any kind of proof. I even laugh at it. But still, I dwell upon it as a reality. It concerns nobody else. It has in it no dangerous element. Why, then, should I be interfered with for harboring a delusion, if you choose to call it so, no more absurd than a thousand religious sects feel themselves happy in resting upon.' He would often argue thus: 'I protest against being called insane on account of my ideas. For my actions I am accountable. I never yet claimed—I never will claim—immunity as an irresponsible being. I will permit no one to set up such a defence for me. Try me by the laws of the land and the strict rules of evidence, and I will abide by the result, as a good citizen; but I must have opportunity to argue my own cause, and examine the witnesses brought before me.'

"He had often been arrested for assault and battery, but always continued to beat the complainants, by his familiarity with legal proceedings, and by his quick perception of whatever made for or against himself. If, in his best estate, he had been counsel for another party, he could not have managed the case better than he did his own. However wild, extravagant, and boisterous at hotels and such places, of which he was the terror, as soon as he was in the atmosphere of a court of justice, he became calm, dignified, and respectful, but tenacious to the last degree. For example, when carried before the police-judge of New York, on a warrant, the printed form of which had been in use for twenty years, setting forth that in consequence of insanity 'or otherwise,' he was dangerous to be at large, he, at once, advocated successfully his constitutional right to have the offence set forth specifically and precisely.

"He had most carefully considered the extent of his rights,—the precise amount of force justifiable in ejecting an unwelcome guest, or, what was a more common event, in resisting an ejectment; the obligation of innholders to receive applicants, and the value of proving the first blow in defence of assaults. On one occasion thinking the hackmen and cab-men of New York were insolent and exacting in regard to the right of way, he armed himself with a heavy whip, took a good witness by his side, and drove through Broadway in a strong carriage, running against every charioteer who failed to give him his exact half of the road. This, of course, produced a collision of tongues as well as wheels. His peculiarly sarcastic language tempted a touch of the whip from some of his opponents, and upon this, our hero turned to and thrashed them within an inch of their lives. They appealed to the courts, but his witness soon and truly proved the aggression on them.

"While in the Pennsylvania Hospital for the insane, and again, I

believe, while in the jail in Washington, he got discharged by means of a writ of *habeas corpus*, which he was allowed to sue out. When thus brought before the court, he argued his case upon the settled legal doctrine, that an ability to distinguish right from wrong is the sole test of sanity. Of course, no judge could, or did, hesitate in opinion, that a gentleman who was able to make an elegant and an astute argument on the nature, origin, and protection of the rights of the subject, could, by any means, be within the category of individuals intellectually incapable of discriminating between right and wrong. In fact, processes of detention as a lunatic, held, in his case, only until he could get before some tribunal. And yet when thus turned loose upon society, he was a passionate, dangerous lunatic. When hard pushed by evidence of extravagant and boisterous actions, he would attribute the fact to his having unfortunately taken a little too much wine, (which was probably true to some extent,) comprehending perfectly that an offence of that kind would be followed by a much lighter consequence—a mere fine, in fact,—than seclusion as a lunatic. When the self-mutilation was alluded to, he would most frankly attribute it to his ignorance of physiological laws, and allege that his lost organ, being covered with blotches and carbuncles, he cut it off, absurdly supposing that nature had a renewing power, as in the growth of the hair.

"After he became so wild in his conduct in Boston as to be a universal annoyance, I advised his friends in Missouri to place him under care as a lunatic. They replied that the thing was impracticable; that no institution had been found able to hold him, and they would not arouse his vindictive feelings by any farther trials of that sort. His intemperate habits increased, and his delusions became more palpable, yet without affecting his intellectual power. The idea returned that parts of his face, if removed, would grow again, and he cut out the cicatrix on his forehead whence the nasal flap had been taken. Fortunately death stepped in at this point, and removed a man whose fate was so melancholy; for, under all the ravages of mental disease, there were traces of noble sentiments and lofty aspirations." (*j*)

(2.) *Monomania.* (*k*)

§ 177. The observation that, in many cases of insanity, particular impulses, such as sexual appetite, acquisitiveness, &c., attain a predominance, has led to the adoption of the term *monomania*,(*l*) which is occasionally subdivided into heads, which will presently be noticed. This, however, is only admissible in so far as it designates certain fixed objects towards which the ravings of the maniac are directed, and which supply the apparent motives of his actions; *it is not to be supposed that a single impulse is diseased, while all the other functions of the mind retain their healthy action.* While the entire intellect enjoys sound health, there is nothing in which a morbid desire of theft, murder, &c., could originate, and such a phenomenon is a psychological impossibility, and the assumption of such requires a psychological contradiction. A

(*j*) Ray on Insanity, pp. 181, 2, 3, 4. (*k*) See 4 Am. Jour. of Ins. 16.
(*l*) Schürmayer, Gericht. Med. § 549.

mania sine delirio, a mania without a morbid participation or disturbance of the perceptive faculties, is therefore out of the question, as a desire to injure or destroy is impossible without an act of the mind by which this purpose is entertained, and as reason and understanding are alike disordered whether they insinuate a wrong motive for the morbidly conceived purpose of the act, or whether they entirely omit the suggestion of any reason whatever. (*m*)

§ 178. The dispute about the reality and possibility of a *mania sine delirio* continues, because the facts adduced in support of this form of unsoundness of mind are not denied as effective causes, but are subjected to different interpretations of their psychological significance; different conclusions being drawn as to the kind of hyper-physical function producing them. Inasmuch as a direct inspection of the condition of a mental or moral function is impossible, our knowledge of it being confined to the result of inferences from effects to causes, the first requisite, to avoid incorrect deductions, is a severe analysis of the fact from which the inference is to be drawn. This fact consists mainly in the statements and assurances of the persons concerned, that they are conscious of the wrongfulness or unreasonable nature of the act they are committing, but that the impulse to commit it is stronger than their will to resist. Is this really the case? May there not be a delusion in the statements themselves? As it is not the mental condition obtaining immediately before and after the commission of the offence which is in question, but that which obtains at the moment of the *raptus maniacus*, we may not be certain that the individual judges correctly, or is even competent to judge correctly, of himself. (*n*)

§ 179. The *mania sine delirio* appears to have been first mentioned by Ellinger, under the name of *melancholia sine delirio sive perturbatio mentis, melancholia sine delirio.* Pinel subsequently called it *manié sans delire*, after having made the assertion, based upon facts, "that there are madmen in whom there is no perceptible alteration of the intellectual process, of the perceptions, judging faculty, imagination, or memory, and yet a perversion of the manifestations of the will, in a blind impulse to the commission of violence, or even of bloodthirsty rage, without any assignable dominant idea, any delusion of the imagination, which could cause such a propensity." Where there is no will, but only a blind impulse, *a perversion of the manifestations of the will* is not to be supposed. The results hitherto arrived at in the discussion of this subject, may be compressed into the following three points:

§ 180. (1.) Shortly *before* the attack self-consciousness may be present, and connected with the impulse to the commission of violence; and immediately *after* the attack, self-consciousness may return; but it remains to be proved, that it was also undisturbed *during* the attack.

(*m*) Schürmayer, Gericht. Med. § 549.

(*n*) See, on this head, Principles of Medical Psychology, being the Outlines of a Course of Lectures by Baron Ernst von Feuchtersleben, M. D., Vienna, 1845. Translated from the German by the late H. Evans Lloyd, Esq. Revised and edited by B. G. Babington, M. D., F. R. S., etc. London: Printed for the Sydenham Society, 1847. pp. 224, 374, 292.

(2.) *In* the attack, at all events, the power of self-control is to be regarded as suspended.

(3.) Many of the cases classed under the head of *mania sine delirio* are to be eliminated, and referred to the categories of morbid irascibility, of remittent and irregularly returning and transitory mania, of depression and partial insanity, in which the hallucinations impelling to the act are kept secret.

§ 181. As we have already shown, the present tendency of judicial practice is, when the defence of monomania is set up, to tell the jury that if they believe that the act was committed under an involuntary and uncontrollable insane impulse, the defendant is entitled to an acquittal on this particular ground.(*o*) It is proper, however, that the jury in those States in which there is provision made for the treatment of insane offenders, should make a special finding, so that the statutory confinement may be imposed. The importance of a specific form of imprisonment for insane convicts, will be hereafter considered. (*p*) That of the responsibility of monomaniacs, has been noticed already. (*q*)

§ 182. It is proper to notice that the term "Monomania" is used by high authority in a wider sense than that given above. Thus Dr. Taylor declares it to be that form of insanity in which the mental alienation is partial. The delusion is said to be confined either to one subject or to one class of subjects. One fact is well ascertained, that monomania varies much in degree; for many persons affected with it are able to direct their minds with reason and propriety to the performance of their social duties, so long as these do not involve any of the subjects of their delusions.(*r*) "Monomania," we are told by the same high authority, "is very liable to be confounded with *eccentricity;* but there is a difference between them. In monomania there is obviously a change of character—the individual is different to what he was; in eccentricity such a difference is not remarked; he is and always has been singular in his ideas and actions. An eccentric man may be convinced that what he is doing is absurd and contrary to the general rules of society, but he professes to set these at defiance. A true monomaniac cannot be convinced of his error, and he thinks that his acts are consistent with reason and with the general conduct of mankind. In eccentricity there is the will to do, or not to do; in real monomania the controlling power of will is lost. Eccentric habits suddenly acquired are, however, presumptive of insanity."(*s*) Recently, however, the entire theory of moral insanity(*t*) has lately been combated by very able writers, among whom may be noticed Heinrich,(*u*) Leubuscher(*v*) and Mayo.(*w*)

§ 183. On the other hand, this theory has, though no longer receiving uniform approbation in the land where it was first recognized, met with an increased support in our own country. It has been expressly recognized by two of our most eminent jurists, Chief Justice Gibson and

(*o*) See *ante*, § 53. (*p*) See *post*, §§ 259–276. (*q*) See *ante*, §§ 53—61.
(*r*) Taylor's Medical Jurisprudence, p. 553. (*s*) Ibid. (*t*) Pinel's *Mania sine delirio.*
(*u*) Kritische Abhandlung über die von Prichard als Moral Insanity geschilderte Krankeitsform. Allgem. Zeitschr. für Psychiatrie, V. Bd. 4 Hft.
(*v*) Bernerkungen über Moral Insanity und ähnliche Krankheitszustände. Casper's Wochenschr. Nr. 59 u. 51.
(*w*) Medical Test. and Ev. in Cases of Lunacy. London, 1854.

Chief Justice Lewis, of Pennsylvania, who, at the same time, happen to be among all recent American legal authorities, the two who have been most addicted to the study of diseases of the mind.(*x*) And Dr. Ray, to whose skill, experience and capacity, too high a standard can scarcely be assigned, says: "In fact it has always been observed, that insanity as often affects the moral as it does the intellectual perceptions. In many cases there is evinced some moral obliquity quite unnatural to the individual, a loss of his ordinary interests in the relations of father, son, husband, or brother, long before a single word escapes from his lips, "sounding to folly." Through the course of the disease, the moral and intellectual impairments proceed *pari passu*, while the return of the affections to their natural channels is one of the strongest indications of approaching recovery. Such being the fact, it ought not to be a matter of surprise that in some cases the aberration should be confined to the moral impairment, the intellectual, if there be any, being too slight to be easily discerned."(*y*)

§ 184. "The reality and importance of this distinction," says the same author subsequently, "which thus establishes two classes of mania, is now generally acknowledged by practical observers, among whom it is sufficient to mention Esquirol, Georget, Gall, Marc, Rush, Reil, Hoffbauer, Andrew Combe, Conolly, and Prichard, though some of them are inclined to doubt whether the integrity of the understanding is as fully preserved in moral mania, as Pinel affirmed. Still, its apparent soundness, and the difficulty, at least, of establishing the existence of any intellectual derangement, while the moral powers are unequivocally and deeply deranged, render it no less important in its legal relations, than if the understanding were unequivocally affected. It is defined by Prichard, who has strongly insisted on the necessity of assigning it a more distinct and conspicuous place, than it has hitherto received, as 'consisting in a morbid perversion of the natural feelings, affections, inclinations, tempers, habits, and moral dispositions, without any notable lesion of the intellect or knowing and reasoning faculties, and particularly without any maniacal hallucination.' It will be convenient, even if not scientifically precise, to consider it under two divisions, according as it is general or partial."(*z*)

(*x*) See Note, § 53, 54, 55. (*y*) Ray on Insanity, p. 166.

(*z*) Ray on Insanity, p. 167. Instinctive mania, (manie raisonnante of Pinel,)—we quote generally from Morel—includes homicidal and incendiary monomaniacs, &c. Those thus affected seldom complain of being tormented with hallucinations of the senses, but are subject to indefinable pains which betray themselves exteriorly in headaches, roaring in the ears, dazzlings and indescribable sensations. If we sometimes see in them perfect digestive powers or an exaggerated appetite, the opposite phenomena of want of appetite, depraved tastes, &c., are much more frequent symptoms. They feel an incessant need of movement, an activity out of all proportion with their physical forces, alternating with an insurmountable apathy. If, under certain circumstances, the absence of sleep astonishes us, we, on the contrary, often observe them in a torpid and almost death-like state. Sometimes their sensibility is so exalted that the whole exterior world becomes for them nothing but a source of pain, anguish, and irritability. Sometimes the most unhappy sensations, and the most painful emotions do not seem to affect either their physical or moral nature.

When these patients are brought into a court of justice they are unanimous in attributing the same motives to their actions. They accuse themselves of irresistible impulses, they are ignorant why they so acted, and in this respect are very different from

§ 185. Monomania, as affecting the moral sense, will be considered under the following heads:—

(1) *Homicidal mania* (morbid propensity to kill).
(2) *Kleptomania* (morbid propensity to steal).
(3) *Pyromania* (morbid incendiary propensity).
(4) *Aidoiomania* (morbid sexual propensity).
(5) *Pseudonomania* (morbid lying propensity).
(6) *Oikeiomania* (morbid state of domestic affections).
(7) *Suicidal mania* (morbid propensity to self-destruction).
(8) *Fanatico-mania* (morbid state of the religious feelings).
(9) *Politico-mania* (morbid state of political feeling).

those suffering from hallucinations or systematic madness, who astonish and frighten us by the inexorable logic of their actions, who express only imperfectly shaped regrets, who are indifferent as to the condition of their victims, as much as to their own interests, and who are not able to say but that they will perform the same act again if the opportunity should occur. In scrutinizing the former life of such patients we must remain convinced that the lesions of their intelligence, the disorganization of their instincts and tendencies must be due to deep organic disturbances. Hereditary influences, malformation of the great organ of the intelligence, certain diseases which may have changed the general health, idiopathic affections, arrests of development; troubles at the period of puberty, or in the normal phenomena of gestation, are so many involuntary causes. These causes are the more striking and palpable as the patients cannot always be excused on account of a vicious education. The malady with which they are afflicted has sometimes attacked them in the midst of the best social conditions, and when a relatively feebler intelligence and the manifestation of depraved instincts have early been remarked in them; conditions of system which have not always found their corrective in an appropriate hygienic treatment and education. And this is why we have called this form of mania, *instinctive mania*, because we see in it something so *essentially* connected with the organic conditions, that it is impossible for us to consider such patients as other than what they really are, viz., things deprived of their free-will and reason. There do exist voluntary causes which produce identical consequences as regards the derangement of the tendencies. The subversive and selfish passions, debauchery, lewdness, drunkenness, and solitary habits, are of this class. This form of mania will be best shown in the following case, of an educated maniacal woman who was irresistibly urged on to attempt the lives of her companions and relations:—

The previous mode of living of Marie C., by no means explains the aberration of her sentiments and the disorganization of her feelings. Born of honest parents, who spared nothing for her education, she embraced, early in life, the profession of teacher in a small village. She quitted this position, which was too laborious for her, and entered as domestic into a family, where she was treated rather as one of the household than as a servant. She remained there eight years, as happy as it was possible for one so afflicted to be.

"I do not know," she says, "how to explain my mode of life. I never amused myself like the other children of the village; I possessed a ridiculous, fantastical, capricious temper, and I generally preferred seeing evil done than good. I was sometimes extravagantly gay but more generally I was sad."

Question.—"Had you any cause for being so?" *Answer.*—"None. My parents loved me, if possible, more than my other brothers and sisters; but I really took pleasure in nothing. I have been a teacher, but that became very wearisome to me. I have been for eight years in the household of M. P., but it was always the same thing; however I never said any thing, I kept every thing to myself." *Q.*—"Have you ever thought of marrying?" *A.*—"Never; and when any one made such proposals to me, I thought that they wished to insult me." *Q.*—"Have you suffered from violent grief?" *A.*—"I cannot truly say that I have suffered more pain than pleasure, it was only when my brother was accidentally drowned that I experienced a great blow; but, what is singular, I was not grieved at the idea of having lost him but at the thought of his dying unconfessed." *Q.*—"Have you ever been dangerously sick?" *A.*—"Six months after the death of my brother, I was attacked with a severe illness (typhoid fever). Since that time I have been very restless; I get up during the night; I cannot sleep. The blood rushes to my head, and the desire of doing evil then takes possession of me." *Q.*—"Explain clearly all that you have done up to this period?" *A.*—"I used to arise at night and go torment my sister; I used to awake her and draw her to the foot of her bed.

§ 186. (1.) *Homicidal monomania* (*a*) is not to be confounded, according to Marc, with the sudden murderous impulse with which madmen are occasionally seized under the influence of revenge, or of some other passion which controls them; and it is, in like manner, important to distinguish it from delirium. Esquirol understands the term to mean a partial insanity, distinguished by more or less violent cravings of a murderous nature; and subdivides it into—

(*a.*) Cases in which the murder is caused by a firm but insane conviction—the monomaniac being carried away by an avowed but irrational motive, and always manifesting conclusive signs of a partial insanity of the understanding or the feelings.

(*b.*) Cases in which the monomaniac displays no perceptible disturbance of the understanding or the feelings, but is carried away by a blind instinct, by an *inexplicable something*, which impels him to the commission of murder. As, however, is very pertinently remarked by Schürmayer: the distinctions and definitions of Marc and Esquirol do

Once I bit her very badly in the hand." *Q.*—"On these occasions were you conscious of any pain, had you no longer any appetite?" *A.*—"I suffered pain nowhere, except that my courses had stopped, and the physicians bled and put leeches on me to rectify that; but the more I was bled the more wicked I became, *I only thought of evil, and I only wished for evil;* so much so, that I once told my sister to bring me an axe, to cut some wood with, and when she brought it I tried to split her head. I ran after her, and if our parents had not interfered, I should certainly have killed her. As to appetite, I have always had too good a one; I eat like an animal. I was in the habit of taking pieces of bread and carrots from the troughs in our cow-stable. I am never able to satisfy myself." *Q.*—"If you had killed your sister, would you have been much grieved?" *A.*—"I think not; it would not have worried me at all. In the same manner, when I was at the hospital of Remiremont, I was always trying to kill somebody. Once I grasped a woman so hard by the throat, that I should have strangled her if she had not cried out, and put out her tongue so far as to frighten me. I did nothing but dream of shedding blood; I could have drank it. Once I enticed six old women into the dormitory, wishing to strangle them; I commenced with one, but the others crying out obtained assistance. I was confined alone, and as I could injure no one, I commenced biting my own hands (the signs of the cicatrices are still visible)." *Q.*—"Do you hear voices commanding you to do these frightful acts. Explain how it is possible for a girl well brought up to behave in such a manner?" *A.*—"I hear no voices, but I am pushed on to such a degree as to be unable to stop myself from performing them. When I am at church, instead of saying prayers, I blaspheme. They tried to place rosaries and images of the Holy Virgin in my hands, but I destroyed them. I always am desirous of overturning whatever is on the altar, and when I see any girl by my side saying her prayers, I worry and pinch her."

With regard to the two months that Marie C. has been at the Asylum, she did not exaggerate the bad instincts that control her. She has become the terror of her ward. We have been obliged to isolate her because she arises during the night, drags the other patients out of bed, and tries to strangle them. She however works and occupies herself; but suffer her to escape out of sight for a moment, and she leaves her work in order to tear up that of her companions. Approaching them with a sympathizing manner, and under pretence of seeing what they are doing, she twists their hands in her attempts to break their fingers.

If the strait-waistcoat is put upon her, she finds means of placing herself in the way of every body, and tries to trip up her companions and to bite, all the while deploring her situation and wishing to be delivered from it. But even in expressing her regrets, her face betrays no emotion, she remains impassible and it is difficult to read upon her features any expression of the perverted sentiments which force this unfortunate to the performance of such deplorable acts, &c.—See *Traité Theorique des Maladié Mentales*, par M. Morel. Tome I. p. 310. Paris, 1852.

(*a*) Siebold's Gericht. Med. § 219; Hoffbauer's Psychologie, § 122; Conradi's Commentatio der mania sine delirio, Gott. 1827, 4; Conradi's Beitrag zur Geschichte der Manie sine delirio, Gott. 1835; Artikel Mania sine delirio, in Jesse's Encyclop. Wörterb. der Med. Wissench. Bd. 22. Berlin, 1840, p. 410.

not advance us in the field of forensic psychology a single step beyond what we had already reached by means of the physiology of insanity in general; while their assumed homicidal monomania falls, on the one hand, into the well known rank of mania, and is easily recognized and considered as one of its accidental manifestations, or, on the other hand, draws into the circle of its definition *every* murder of which the author is in a condition to assert, that he was compelled to commit it by an impulse which he found to actuate him.

§ 187. But whether we assign to homicidal mania a distinct place as a peculiar morbid impulse, or whether it is to be treated as a mere occasional and eccentric development of ordinary mania, the result is the same in practice.(*b*) It must be recognized—under the severest checks, it is true—as an adequate defence; and no where is this more satisfactorily stated than by the late Chief Justice GIBSON, and by the present Chief Justice LEWIS.(*c*)

§ 188. The inquiry arises, if juries are to acquit for homicidal mania, what provision is to be made to protect society? Is not, after all, capital punishment, or imprisonment for life, the best remedy for a class of men whose very essence it is, as declared by judicial sentence, to destroy their fellow creatures? To this, as will be more fully seen hereafter, the answer is, that as the law stands now, with homicidal mania recognized by verdicts of juries rather than the public policy of the land, the consequences are certainly very mischievous. But this arises from the very reluctance of legislatures, and of those recently engaged in codifying the criminal code, to provide against a doctrine which, after all, whenever the case arrives, will be sustained on trial. Two eminent French authorities, Brierre de Boismont and Aubanel, have proposed the proper remedy, which, in fact, has been partially adopted by several of our legislatures, *e.g.*, Massachusetts and Pennsylvania. When the defendant is to be acquitted on this ground, let the jury certify this fact, and the defendant be remanded into confinement. But let that confinement be neither with the insane nor the criminal, but in distinct apartments adapted for the purpose of confining this entire class of monomaniacs or insane convicts.(*cc*)

§ 189. Dr. Ray, among all Anglo-American authorities, gives this species of mania the widest sweep. "It was first distinctly described by Pinel," he says, "and though its existence as a distinct form of monomania was for a long time after doubted, it has subsequently been admitted by the principal writers on insanity—by Gall and Spurzheim, Esquirol, Georget, Marc, Andral, Orfila, and Broussais, in France; by Connelly, Combe, and Prichard, in England; by Hoffbauer, Platner,

(*b*) See the remarks, on this point, of Dr. Forbes Winslow (Journ. Psch. Med. vol. iii. p. 290).

(*c*) See *ante*, § 53, 54, 55. See an interesting treatise by Dr. Woodward, 1 Am. Jour. of Ins. 322. See also People *v.* Kleim, reported 2 Am. Journ. of Insan. 245; Abner Baker's case Reviewed, 3 Ibid. 26; Trial of Rabello, reported, Ibid. 41; an Essay, by Dr. Aubanel, on the same point, Ibid. 107; Report of Trial of People *v.* Griffin, Ibid. 227; People *v.* Sprague, 6 Ibid. 254; Com. *v.* Furbush, 9 Ibid. 151. For an interesting though desultory sketch of the law, see Mr. Warren's Remarks on Oxford's and M'Naughten's cases, 7 Am. Journ. of Ins. 318; Black. Mag. for Nov. 50.

(*cc*) See *post*, § 259, 276.

Ettmuller, Henke, and Friedreich, in Germany; by Otto, of Copenhagen; and by Rush, in this country. It has received the various appellations of *monomanie homicide*, *monomanie meurtriére*, *melancholie homicide*, *homicidal insanity*, *instinctive monomania*. Esquirol, in his valuable memoir, first published in the shape of a note in the French translation of Hoffbauer's work, observes, that homicidal insanity, or *monomanie homicide*, as he terms it, presents two distinct forms, in one of which the monomaniac is always influenced by avowed motives more or less irrational, and is generally regarded as mad; in the other, there are no motives acknowledged, nor to be discerned, the individual being impelled by a blind, irresistible impulse. It is with the latter only we are concerned, for the other is clearly a form of partial intellectual mania; but as this division has not been strictly made by nature, cases often occurring that do not clearly come under either category, the subject will be better elucidated by noticing all the forms of this affection, and seeing how intimately they are connected together."(*d*)

§ 190. The same distinguished authority suggests the following tests:—

I. In nearly all, the criminal act has been preceded, either by some well-marked disturbance of the health, originating in the head, digestive system, or uterus, or by an irritable, gloomy, dejected, or melancholy state; in short, by many of the symptoms of the incubation of mania. The absence of particulars in some of the cases we find recorded, leaves us in doubt how general this change really is; but a careful examination would, no doubt, often, if not always, show its existence where, *apparently*, it has never taken place.

II. The impulse to destroy is powerfully excited by the sight of murderous weapons, by favorable opportunities of accomplishing the act, by contradiction, disgust, or some other equally trivial and even imaginary circumstance.

III. The victims of the homicidal monomaniac are mostly either entirely unknown or indifferent to him, or they are among his most loved and cherished objects; and it is remarkable how often they are children, and, especially so, his own offspring.

IV. While the greater number deplore the terrible propensity by which they are controlled, and beg to be subjected to restraint, a few diligently conceal it, or if they avow it, declare their murderous designs, and form divers schemes for putting them in execution, testifying no sentiment of remorse or grief.

V. The most of them having gratified their propensity to kill, voluntarily confess the act, and quietly give themselves up to the proper authorities, a very few, only—and these, to an intelligent observer, show the strongest indications of insanity—fly, and persist in denying the act.

VI. While the criminal act itself is, in some instances, the only indication of insanity,—the individual appearing rational, as far as can be learned, both before and after the act,—in others, it is followed or preceded, or both, by strange behaviour, if not open and decided insanity.

(*d*) Ray on Insanity, pp. 204, 205.

VII. Some plead insanity in defence of their conduct, or an entire ignorance of what they did; others deny that they labor under any such condition, and, at most, acknowledge only a perturbation of mind.(*e*)

More simple, though scarcely less efficacious, are the indicia given by Taylor :—

1. The acts of homicide have generally been preceded by other striking *peculiarities of conduct* in the individual, often by a total change of character.

2. They have in many instances, previously or subsequently, attempted *suicide*,—they have expressed a wish to die or to be executed as criminals.

These supposed criteria have been repeatedly and very properly rejected when tendered as medical proofs of insanity in courts of law. They are of too vague a nature, and apply as much to cases of moral depravity as of actual insanity; in short, if these were admitted as *proofs*, they would serve as convenient shelter from punishment of many criminals.

3. These acts are without *motive*: they are in opposition to all human motives. A man known to have been tenderly attached to his wife and children, murders them: a fond mother destroys her infant.(*f*)

§ 191. It would be improper, however, to pass from this head without giving place to the very decided protest, by Dr. Mayo, against the independent recognition of the propensity at all. "I may observe," he says, "that the theory of either moral or impulsive insanity is too liable, for anything that Dr. Pritchard has suggested, to occasion the sudden outbreaks of the brutal character—a character under rapid development, at present, in the lower orders of the country, to find refuge under this plea. Such was the application of it which, some years ago, protected the Honorable Mr. Touchet from the penal consequences of a great crime. That gentleman put to death, by a pistol-shot, the marker of a shooting-gallery. The act was sudden, and there was no apparent motive; but it was not performed under any semblance of delirium. Mr. Touchet was eccentric, and he was *blasé*. He fancied that he desired to be hanged,—at the gallows he would probably have thought differently —and he was reckless and brutal enough to give himself a chance of this fate, at the expense of the life of a fellow creature. I have noticed him since, in the criminal department of Bedlam, *insouciant* and indifferent enough, but certainly not insane in any sense of the word that would not entirely disintegrate its meaning; neither when we proceed to consider the sense which the law intends to give to the expression of the certificate—'unsoundness'—shall we find this epithet at all more appropriate to Mr. Touchet's case, which was simply one of brutal recklessness. With respect to the misapplication of the plea of insanity to hysteria, we have the case of a nursery-maid, placed in Bethlehem Hospital in 1846. A trifling disappointment, relative to an article of dress, had produced in her a wayward state of mind. She labored, at the time, under diminished catamenia. An object to which she was generally much attached came in her way, namely, the infant whom she had nursed, and she destroyed it, as a fanciful child breaks, in its

(*e*) Ray on Insanity, pp. 229, 230.

(*f*) Taylor's Med. Jur., p. 578.

moodiness, a favorite doll. No fact more nearly approaching to delirium than the above, was stated in exculpation or excuse at the trial. But Dr. Pritchard's work on the different forms of Insanity, in relation to Jurisprudence, was published in 1842; and, by 1846, juries had learned to convert the uncontrolled influences of temper into what he terms Instinctive Insanity."

"As an instance of this class of cases in which the judicial authorities came rightly to a very different conclusion, I will quote to you the following one, from Sir Woodbine Parrish's last work on Buenos Ayres. Having spoken of a certain wind occasional in that climate, which in some persons produces peculiar irritability and ill-humor almost amounting to a disorder of their moral faculties, he proceeds as follows:— "Some years ago, Juan Antonio Garcia aged between thirty-five and forty, was executed for murder at Buenos Ayres. He was a person of some education, and rather remarkable for the civility and amenity of his manners; his countenance open, his disposition generous. When this *vento-norte*—this peculiar north wind set in, he appeared to loose all command over himself; and such became his irritability, that during its continuance he was engaged in continual quarrels and acts of violence. Before his execution, he admitted that it was the third man he had killed, besides being engaged in various fights with knives. When he arose from his bed in the morning, he told Sir Woodbine's informant, he was always aware at once of its accursed influence upon him; a dull headache first, and then a feeling of impatience at everything about him. If he went abroad his headache generally became worse; a heavy weight seemed to hang over his temples. He saw objects as it were, through a cloud, and was hardly conscious where he went. He was fond of play, and if, in such a mood, a gambling house was in his way, he seldom resisted the temptation. Once there, a turn of ill luck would so irritate him, that he would probably iusult some one of the bystanders; if he met with any one disposed to resent his abuse they seldom parted without bloodshed. The relations of Garcia corroborated this account, and added that no sooner had the cause of excitement passed away, than he would deplore and endeavor to repair the effects of his infirmity. 'The medical man,' says Sir Woodbine, 'who gave me this account, attended him in his last moments and expressed great anxiety to save his life, under the impression that he was hardly to be accounted a reasonable being.' 'But,' he adds, 'to have admitted that plea, would have led to the necessity of confining half the population of the city when the wind sets in.' I quite agree with the conclusion which this remark implies, as to the fate of Garcia. He was himself aware of the murderous instinct to which he was liable, and of its exciting causes. Surely when such knowledge is in the possession of the delinquent, he must be made responsible for the non-avoidance of exciting causes." (*g*)

The subject of homicidal mania as developed in the puerperal state will be considered in a subsequent section.(*gg*)

(*g*) Mayo on Medical Testimony in Lunacy, 58, 59, 60, 61, 62.
(*gg*) See *post*, § 239, *ante*, § 53, 57.

(2.) *Kleptomania.*(*h*)—(Morbid propensity to steal.)

§ 192. *Kleptomania*, occurs not unfrequently as a symptom in mania, and the mental confusion incidental to it, and in depression and delirium, in which its consideration will involve less difficulty. But where it occurs in cases of concealed insanity, its discovery is not easy. Ellinger (*i*) gives the following practical directions:

1. In the earlier developments of mania, kleptomania is an important symptom; it will however be found accompanied, more or less, by other symptoms of incipient derangement, such as a general alteration in the accustomed mode of feeling, thinking, occupation and life of the individual, a disposition to scold, dispute and quarrel, to drink and to wander about busily doing nothing, and the bodily signs of excitement (restlessness, want of sleep, rapid pulse, &c.)

2. Kleptomania continues after the disease, to all external appearance has ceased. Here the disease also has not yet terminated, which can only be indicated by a return of the original state of thought and feeling. (This calls for a continued course of observation by the examining physician.)

3. There are distinct but occult hallucinations at work. These are to be assumed the more readily, the more bizarre and exclusive is the desire to steal, and the more the objects to which it is confined, are out of proportion to the property of the thief; and particular attention should be paid to the existence, present or past, of other symptoms of insanity.

4. Antomatic impulses, such as the cravings of pregnant women, actuate the perpetrators, which become the more probable, the more strongly reason revolts at and abhors the deed, the more inconsiderable and grotesque the peculations, the more promptly the stolen articles are returned, and the more other morbid symptoms are apparent in the body and the mind when the deed is committed.

"There are persons," says Dr. Rush, "who are moral to the highest degree as to certain duties, but who, nevertheless, live under the influence of some one vice. In one instance, a woman was exemplary in her obedience to every command of the moral law, except one,—she could not refrain from stealing. What made this vice more remarkable was, that she was in easy circumstances, and not addicted to extravagance in anything. Such was the propensity to this vice, that when she could lay her hands on nothing more valuable, she would often at the table of a friend, fill her pockets secretly with bread. She both confessed and lamented her crime." "Cases like this," says Dr. Ray, "are so common, that they must have come within the personal knowledge of every reader who has seen much of the world, so that it will be unnecessary to mention them more particularly. It would be difficult to prove directly, that this propensity, continuing as it does throughout a whole life, and in a state of apparently perfect health, is, notwithstanding, a consequence of diseased or abnormal action in

(*h*) See Méd. Lég. M. Orfila. Tome I. p. 364. Paris, 1848.—Etudes Cliniques des Maladies Mentales. M. Morel. Tome I. p. 319. Paris, 1854.—See *ante*, § 106, as to hereditary tendency to steal.

(*i*) I. a. W. P. 159.

the brain, but the presumptive evidence in favor of this explanation is certainly strong. First, it is very often observed in abnormal conformations of the head, and accompanied by an imbecile condition of the understanding. Gall and Spurzheim saw in the prison of Berne, a boy twelve years old, who could never refrain from stealing. He is described as 'ill-organized and rickety.' At Hainau they were shown an obstinate robber, whom no corporeal punishment could correct. He appeared about sixteen years of age, though he was in fact twenty-six; his head was round, and about the size of a child's one year old. He was also deaf and dumb, a common accompaniment of mental imbecility. An instructive case has been lately recorded, in which this propensity seemed to be the result of a rickety and scrofulous constitution. Secondly, this propensity to steal is not unfrequently observed in undoubted mania. Pinel says it is a matter of common observation, that some maniacs, who, in their lucid intervals, are justly considered models of probity, cannot refrain from stealing and cheating during the paroxysm. Gall mentions the case of two citizens of Vienna, who, on becoming insane, were distinguished in the hospital for an extraordinary propensity to steal, though previously they had lived irreproachable lives. They wandered over the house from morning to night, picking up whatever they could lay their hands upon,—straw, rags, clothes, wood, etc., which they carefully concealed in their room."(*j*)

§ 193. The individuality of Kleptomania, (Stehltrieb,) is demonstrated by the remarkable degree to which it prevails among epileptics of all classes and conditions. Dr. Erhardt(*k*) enumerates many cases where these unhappy sufferers have been possessed with irrepressible desires to appropriate to themselves whatever they could secretly lay their hands on, valuable or not. And generally with regard to the moral responsibility of epileptics, it is important to observe, says the same judicious author, that even after attacks have been for months suspended, the mind is in a condition of disorganization which should properly divert from it the application of those severe rules which apply to minds perfectly sound.(*l*)

§ 194. Gall, says Dr. Ray, met with four examples of women who, when pregnant, were violently impelled to steal, though perfectly upright at other times. Friedreich gives the case of a pregnant woman who, otherwise perfectly honest and respectable, suddenly conceived a violent longing for some apples from a particular orchard, two or three miles distant. Notwithstanding the entreaties of her parents and husband not to risk her character and health, and their promises to procure the apples for her in the morning, she started off in company with her husband, at nine o'clock of a cold September night, and was detected by the owner in the act of stealing apples. She was tried and convicted of theft, but subsequently a medical commission was appointed by the Supreme Court to examine and report upon her case. Their

(*j*) Ray on insanity, 189, 190, 191; see *ante*, § 106.

(*k*) Ueber Zurechungsfähigkeit der Epileptischen.

(*l*) See also Boileau de Castlenau De l'epilepsie dans ses rapports avec l'aliénation mentale, considérés au point de vue médico-judiciare. Annales d' Hygiène publ. et de Médecine Lég. Avril, 1852, No. 94.

inquiries resulted in the opinion that she was not morally free, and consequently not legally responsible while under the influence of those desires peculiar to pregnancy; adding, that if Eve had been in the condition of the accused when she plucked the forbidden fruit from the tree, the curse of original sin would never have fallen on the race."(*m*)

Fodéré tells us that he has often witnessed an irresistible propensity to steal, even in persons well educated, and who, during infancy, have often been chastised for this vice. They had conceived, in consequence, the greatest horror for it, yet, in riper age, could not prevent themselves, when opportunity occurred, of indulging it.(*n*) "I had a female servant," he adds, "who was a very good Christian, very wise and very modest, but who could not prevent herself from stealing in secret from myself and others, even the most trifling things, though aware of the turpitude of the action. I sent her to the hospital as mad; after a long time, appearing to be reclaimed, she was restored to her place among the other servants; by little and little, in spite of herself, the instinct returned; and being distracted on the one hand by the evil propensity, and on the other by the horror which she felt of it, she fell into an access of mania, and suddenly died in the violence of a paroxysm."

"The propensity to steal in magpies, and other domesticated birds," says Dr. Millingen,(*o*) "is daily observed, and we have numerous examples to prove that acquired instincts become hereditary in many animals. This fact is illustrated in various races of dogs. Roulin relates that the dogs employed for hunting deer in some parts of Mexico, seize the animal by the belly, and overturn it by a sudden effort, taking advantage of the moment when the body of the deer rests only upon the fore legs: the weight of the animal thus thrown over being often six times that of its antagonist. The dog of pure breed inherits this disposition, and never attacks the deer from before while running; even should the deer, not perceiving him, come directly upon him, the dog slips aside and makes his assault on the flank; when as other hunting dogs, though of superior strength and general sagacity, which are brought from Europe, are destitute of this instinct."(*p*)

Very recently, (April 1855,) a trial, involving the defence of Kleptomania, has been the cause of much discussion by the London press. Mrs. R., the wife of a physician of rank and affluence, was detected in secreting some French cambric handkerchiefs in the shop of a respectable haberdasher. The jury were unable to agree, and the *Times*, in discussing the case, made the following statement:

"It is an instance of that not very uncommon monomania, which leads persons, otherwise estimable and well conducted, to pilfer articles of a trifling value, in obedience to the impulses of a diseased imagination. The fact is notorious, that many persons of high rank and ample means have been affected with this strange disorder. Every one

(*m*) Ray on Insanity, pp. 192–3.

(*n*) For other cases, vide Münchmeyer in Henke's Zeitschrift, Vol. XLIX. p. 350; Dict. des Sciences Medicales, Tome XIV. Art. Femme, p. 624, and Art. *Grossesse*; Prager, Vierteljahrschrift, V. 30. Bd. 2, p. 121.

(*o*) Mind and Matter, p. 22, 23.

(*p*) Roulin, Annales des Sciences Naturelles, Tome XVI. p. 16, 1829; see as to hereditary Kleptomania, § 106.

who is acquainted with London society could at once furnish a dozen names of ladies who have been notorious for abstracting articles of trifling value from the shops where they habitually dealt. Their *modus operandi* was so well known, that on their return from their drives, their relatives took care to ascertain the nature of their paltry peculations, inquired from the coachman the houses at which he had been ordered to stop; and, as a matter of course, reimbursed the tradesmen to the full value of the pilfered goods. In other cases, a hint was given to the various shopkeepers at whose houses those monomaniacs made their purchases, and they were simply forewarned to notice what was taken away, and to furnish the bill, which was paid as soon as furnished—and, as a matter of course, by the pilferer herself, without any feeling of shame or emotion of any kind."

(3.) *Pyromania*, (Morbid incendiary propensity.)

§ 195. An independent symptom of this kind may have as little substantive existence as homicidal monomania, but it will remain, nevertheless, observable as a symptom of the disease in cases of insanity. In investigating such cases, the following points should be kept in view:

(*a.*) In persons *who have passed the age of puberty*, whether there is not depression or partial insanity at bottom, whether the individual was not overcome and impelled to the deed by a nameless dread which he could not dispel, or by some crazy notion before concealed.

(*b.*) In persons *just arrived at the age of puberty*. Here the state of development in general, and in particular that of the mind, of the whole body, and of the sexual organs, must be accurately weighed and estimated, with special reference to age and sex, education and mode of life, as experience teaches that the irregularities of every kind which here occur, (such as accelerated and impeded growth, unusual prostration and fatigue of the limbs, with painful sensations not produced by adequate visible causes, swellings of the glands, anomalies in menstruation, cramps and other nervous attacks, and particularly irritations of mind,) exert the most important influence on the growth and increase of certain desires and inclinations, and easily impair the power of self-control. These transition states acquire a particular significance when accompanied by home-sickness, which, without necessarily attaining the height of complete melancholy, and when only beyond the ordinary degree of development, is sufficient to mislead the poor tortured, half-grown child to the last extremes of action,—not to arson alone, but to murder,—particularly the poisoning of children.

(*c.*) *Where the individual is yet in infancy.* Here, in the absence of reason, reflection, and religious and moral culture, a childish curiosity generally furnishes the motive, more rarely, a grudge, anger, or revenge; but physical and mental or moral causes may also be at work independently or as auxiliaries.(*q*) Tender years are sufficient, in such cases, to exclude the idea of criminal responsibility.(*r*)

(*q*) Ellinger, Ib. 158.

(*r*) Compare on the subject of Pyromania, Casper, *Denkwuerdigkeiten der medizinschen Statistik und Staatsarzneikunde.* Berlin, 1846, p. 251.

§ 196. "A morbid propensity to incendiarism, or *pyromania*, as it has been termed, where the person, though otherwise rational," says Ray, "is borne on by an irresistible power to the commission of this crime, has received the attention of medical jurists in Europe, by most of whom it has been regarded as a distinct form of insanity, annulling responsibility for the acts to which it leads. Numerous cases have been related, and their medico-legal relations amply discussed by Platner, Vogel, Masius, Henke, Gall, Marc, Friedreich, and others. In a few of these cases the morbid propensity is excited by the ordinary causes of insanity; in a larger class it is excited by that constitutional disturbance which often accompanies the menstrual periods; but in the larger class of all, it occurs at the age of puberty, and seems to be connected with retarded evolution of the sexual organs. The case of Maria Franc, quoted by Gall from a German journal, who was executed for house-burning, may be referred to the first class. She was a peasant of little education, and in consequence of an unhappy marriage, had abandoned herself to habits of intemperate drinking. In this state a fire occurred in which she had no share. From the moment she witnessed this fearful sight, she felt a desire to fire houses, which, whenever she had drunk a few copper's worth of spirits, was converted into an irresistible impulse. She could give no other reason nor show any other motive for firing so many houses, than this impulse which drove her to it. Notwithstanding the fear, the terror, and the repentance she felt in every instance, she went and did it afresh. In other respects her mind was sound. Within five years she fired twelve houses, and was arrested on the thirteenth attempt."(*s*)

The extent to which this mischievous propensity exists can only be determined by a very careful examination of local statistics.

"There is another class of incendiary fires," says a late number of the London Quarterly Review, "which arise from a species of monomania in boys and girls. Not many years ago the men of the Fire Brigade were occupied for hours in putting out no less than half a dozen fires which broke out, one after another, in a house in West Smithfield: and it was at last discovered that they were occasioned by a youth who went about with lucifer matches, and slily ignited every thing that would burn. He was caught in the act of firing a curtain in the very room in which a fireman was occupied in putting out a blaze. A still more extraordinary case took place in the year 1848, at Torluck House, in the Isle of Mull. On Sunday, the 11th of November, the curtains of a bed were ignited, as it was supposed, by lightning; a window-blind followed; and immediately afterwards the curtains of five rooms broke out, one after another, into a flame; even the towels hanging up in the kitchen were burnt. The next day a bed took fire, and it being thought advisable to carry the bed-linen into the coach-house for safety, it caught fire three or four times during the process of removal. In a few days the phenomenon was renewed. The furniture, books, and every thing else of an inflammable nature were, with much labor, taken from the mansion, and again some body-linen burst into a flame on the way. Even after these precautions had been taken, and persons had

(*s*) Ray on Insanity, pp. 197, 198.

been set to watch in every part of the house, the mysterious fires continued to haunt it until the 22d of February, 1849. It was suspected from the first that they were the act of an incendiary, and upon a rigid examination of the household before the Fiscal General and the Sheriff, the mischief was traced to the daughter of the housekeeper, a young girl on a visit to her mother. She had effected her purpose, which was perfectly motiveless, by concealing combustibles in different parts of the house."(*t*)

§ 197. "This plea," we are told by Taylor, "has been already admitted in English Law,(*u*) but chiefly in those instances in which there was strong reason to suspect intellectual aberration. In one recent case,(*v*) the prisoner was convicted on the principle that although of weak intellect, she knew right from wrong.(*w*) Among several important trials in which this plea has been urged in defence, the one most interesting to the medical jurist is that of *James Gibson*, tried before the High Court of Justiciary, Edinburgh,(*x*) of which a very full report will be found in Cormack's Edinburgh Journal, February, 1845, p. 141. The prisoner was charged with setting fire to certain premises, and the defence chiefly rested upon the allegation that he was in a state of mind which rendered him irresponsible for the act. The medical evidence was generally in favor of the insanity. The Lord Justice Clerk, (Hope,) in a very elaborate charge to the jury, laid down for their guidance most of the legal propositions which have been already discussed under homicidal mania. He remarked that they were "not to consider insanity according to the definitions of medical men, especially such fantastic and showy definitions as are found in Ray, whose work was quoted by the counsel for the panel, and in many other medical works on the subject. He adopted Mr. Alison's view that the consciousness of right and wrong must be applied to the *particular act*, and not to crime in the abstract. The duty of deciding on this question is with the jury; it is not to be delegated to medical men, and by relying upon their own judgment, their decisions would be nearer the truth than that of any body of medical witnesses." The jury negatived the plea, and the prisoner was sentenced to transportation for fourteen years."(*y*)

An extraordinary instance of pyromania may be found in the case of *Jonathan Martin*, who fancied himself to be deputed from God to burn down the Cathedral of York, in order to do away with the heresies which he supposed to exist in the church.(*z*)

§ 198. The following considerations, laid down by Hencke, and adopted by Marc, are recommended to us by the additional authority of Dr. Ray:

1. To prove the existence of pyromania, produced by the sexual evolution, the age should correspond with that of puberty, which is between twelve and fifteen. Sometimes, however, it may occur, especially in females, as early as the seventh or tenth year, and, therefore, if the

(*t*) London Quarterly Review, January, 1855, p. 11.
(*u*) See cases Med. Gaz. XII. p. 80.
(*v*) Reg. *v.* White, Wilts Summer Ass. 1846.
(*w*) See Ann d'Hyg. 1833, II. 357; 1834, II. 94.
(*x*) Dec. 23, 1844.
(*y*) Taylor,'s Med. Jur. 595.
(*z*) Ibid. p. 595.

symptoms are well marked, we have a right to attribute them to this cause.

2. There should be present symptoms of irregular development; of marked critical movements, by means of which nature seeks to complete the evolution. These general signs are, either a rapid increase of stature, or a less growth and sexual development than is common for the age of the individual; an unusual lassitude and sense of weight and pain in the limbs, glandular swellings, cutaneous eruptions, &c.

3. If, within a short time of the incendiary act, there are symptoms of development in the sexual organs, such as efforts of menstruation in girls, they deserve the greatest attention. They will strongly confirm the conclusions that might be drawn from the other symptoms, that the work of evolution disturbed the functions of the brain. Any irregularity whatever of the menstrual discharge, is a fact of the greatest importance in determining the mental condition of incendiary girls.

4. Symptoms of disturbance in the circulating system, such as irregularity of the pulse, determination of blood to the head, pains in the head, vertigo, stupor, a sense of oppression and distress in the chest, are indicative in young subjects of an arrest or disturbance of the development of the sexual functions, and therefore require attention.

5. For the same reason symptoms of disturbance in the nervous system, such as trembling, involuntary motion of the muscles, spasms and convulsions of every kind, even to epilepsy, are no less worthy of attention.

6. Even in the absence of all other symptoms, derangement of the intellectual or moral powers, would be strong proof, in these cases, of the existence of pyromania. Of the two, the latter is far the more common, and is indicated by a change in the moral character. The patient is sometimes irascible, quarrelsome, at others, sad, silent, and weeping, without the slightest motive. He seems to be buried in a profound revery, and suddenly starts up in a fright, cries out in his sleep, &c. These symptoms may have disappeared and reappeared, or degenerated at last into intellectual mania.

7. The absence of positive symptoms of mental disorder, as well as the presence of those which appear to show that the reason is sound, is not incompatible with the loss of moral liberty. The remarks of Marc on this point deserve to be quoted in full: "Even when, previously to the incendiary act, they have shown no evident trace of mental alienation, and been capable of attending to their customary duties; when, on their examinations, they have answered pertinently to questions addressed to them; when they have avowed that they were influenced by a desire of revenge; we cannot conclude with certainty, that they were in possession of all their moral liberty, and that, consequently, they should incur the full penalty of the crime. These unfortunates may be governed by a single fixed idea, not discovered till after the execution of the criminal act. Pyromania, resulting from a pathological cause, may increase in severity, as this cause itself is aggravated, and suddenly be converted into an irresistible propensity, immediately followed by its gratification."(*a*)

(*a*) Ray on Insanity, pp. 201–203.

The theory that pyromania (Brandstiftungstrieb) is often a concomitant of the first development of puberty, has led to a series of very interesting disquisitions by Landsberg.(*b*)

(4.) *Aidoiomania*(*c*) (Morbid Sexual Propensity.)

§ 199. Marc gives the name of aidoiomania to the excess of the sexual impulse, which is called *satyriasis* when it occurs in the male, and *nymphomania*, or *uteromania*, in the female. This abnormal propensity occurs as a symptom of mania, lunacy, and depression, as well as of imbecility with maniacal excitements, but is also found coupled with freedom of reason and of self-control; in which case, of course, the responsibility of the agent is not suspended. How far the court, in admeasuring the punishment, is to allow for the circumstance that the individual was carried away in an extraordinary manner by the physical impulse and the external incitement, is a matter which will be considered in future sections.(*d*)

§ 200. "Morbid activity of the sexual propensity," says Dr. Ray, "is unfortunately of such common occurrence, that it has been generally noticed by medical writers, though its medico-legal importance has never been so strongly felt as it deserves. This affection, in a state of the most unbridled excitement, filling the mind with a crowd of voluptuous images, and ever hurrying its victims to acts of the grossest licentiousness, though without any lesion of the intellectual powers, is now known and described by the name of *aidoiomania*. We cannot convey a better notion of the phenomena of this disorder, than by quoting a few examples from Gall, by whom it was first extensively observed and its true nature discovered. Its milder forms and early stages, when not beyond the control of medical and moral treatment, are illustrated in the following cases:—

"A robust and plethoric young man came to reside in Vienna. Having no *liaisons*, he was unusually continent, and was soon attacked with erotic mania. Gall, pursuing the treatment indicated by his peculiar views of the origin of the disease, succeeded in restoring him in a few days to perfect health.

"A well educated, clever young man, who, from his infancy almost, had felt strong erotic impulses, succeeded in controlling them to a certain extent by means of equally strong devotional feelings. After his situation permitted him to indulge without constraint in the pleasures of love, he soon made the fearful discovery, that it was often difficult for him to withdraw his mind from the voluptuous images that haunted

(*b*) Ueber die Feuerschausucht, Hermann Vezin, (Aerztliches Obergutachten über den Gemüthszustand der sich wegen Brandstiftung in Untersuchung befindenen,); Höfling, (Die Lehre vom krankhaften Brandstiftungstriebe,); and Meding, (Ein Nachtrag zu dem Gespenst des Brandstiftungstriebes). See an interesting case of pyromania in State *v.* Greenwood, reported in 5 Am. Journ. of Insan. 237.

(*c*) Siebold's Gericht. Med. § 210. An interesting case of Uterine Furor will be found in El. v. Siebold's Journ. Vol. VI. p. 943. See also a case in Henke's Zeitschr. 41, p. 393. A very able essay on Nymphomania will be found in Dict. des Sciences. Méd. von Louyer. Villermay. Tome XXXVI. p. 561.

(*d*) *Post*, § 259—276. On the subject of monomania and its species, compare Friedreich, "*Handbuch der gerichtlichen Psychologie*," where the literature bearing on the subject is to be found at large.

it, and fix it on the important and even urgent concerns of his business. His whole being was absorbed in sensuality. He obtained relief by an assiduous pursuit of scientific objects, and by finding out new occupations."(*e*)

Pinel has related a very similar case: "A man had creditably filled his place in society till his fiftieth year. He was then smitten with an immoderate passion for venereal pleasures; he frequented places of debauchery, where he gave himself up to the utmost excesses, and then returned to the society of his friends, to paint the charms of pure and spotless love. His disorder gradually increased; his seclusion became necessary; and he soon became a victim of furious mania."

§ 201. "Many more cases like these might be quoted," continues Dr. Ray, in commenting on the above, "particularly from the writings of Esquirol, Georget, and Marc, but the above are sufficient to illustrate a truth, as generally recognized as any other in pathology, and to convince the most sceptical mind, that if insanity,—or, in more explicit terms, morbid action in the brain inducing a deprivation of moral liberty,—ever exists, it does in what is called aidoiomania."(*f*)

Under this head may be considered those cases of morbid erotic impulses which spend themselves on unnatural objects. The more common of these are those which the domestic history of classic antiquity makes familiar to us, and which St. Paul adverts to so forcibly in the first chapter of the Epistle to the Romans. To what extent these unnatural passions were carried is illustrated by the paintings in at least one of the exhumed chambers of Pompeii. And recent trials have shown, that if the same morbid developments are less numerous at the present day, they are at least equally eccentric.

Some years since the town of Leipsic was startled by the fact that a number of young girls had been assaulted in the streets, by a man wrapped in a cloak, who struck a lancet in their arms, just above the elbow, and then vanished. It was a long time before the perpetrator was discovered. When he was at last detected and put on trial, it turned out that he had been impelled to these outrages by a morbid sexual impulse,—that the incision of the lancet had been accompanied with seminal emission,—and that his whole existence had become absorbed in the alternate excitement and depression which preceded and succeeded the act.(*g*)

The same state of facts was developed in the trial in London of a man named Williams, for a similar species of assault.(*h*)

Still more startling were the exposures attending the trial of a sergeant in the French army, in 1848. For some time previous, dead bodies had been exhumed and had been torn to pieces at or near the graves. On closer inspection the horrible fact was disclosed that sexual connection had been attempted with the female corpses. The guilty party turned out to have been a young man scarcely twenty-five, of prepossessing manner and appearance, and otherwise respectable character. The psychological features were the same as in the

(*e*) Ray on Insanity, p. 195. (*f*) Ray on Insanity, pp. 196, 197.
(*g*) Wharton's Cr. Law, (3d ed.) 383.
(*h*) Lawyer's Magazine. London, 1792. Vol. II. p. 351.

preceding cases. The act was preceded by uncontrollable excitement, and followed by great exhaustion.(*i*)

Foderé tells us, that a young monk, who, in travelling, happened to lodge in a house where a young girl, who was thought dead, had just been laid out, and offered to pass the night in the chamber where the coffin was and to watch the dead. During the night having uncovered it for the purpose of examination, and still finding in her countenance some traces of beauty, he determined to satisfy his lust, although the object was not in a condition for exciting desire. Nevertheless he satisfied himself, and departed early in the morning. The dead person came to life, however, the next day, and nine months afterwards had a child, to the great astonishment of herself and parents. The monk about this time arrived in the same place, and avowed himself the parent of the child, and married the mother after throwing off the vows, which he proved he had been forced to pronounce.

The following fact, taken from Briérre de Boismont, shows a more permanent perversion and reveals a settled pathologic condition: A man was arrested in a small town for a crime which no one believed, but which, however, was proved at the trial. A young girl, 16 years old, belonging to one of the first families of the town, had just died. A part of the night had passed, when the noise of a piece of furniture falling, in the room where the dead person lay, was heard. The mother, whose chamber was next to it, immediately ran there, and in entering saw a man escaping in his shirt from the bed of her daughter. Her fright caused her to utter loud cries which brought around her all the persons of the household. They seized the intruder, who appeared almost insensible to every thing passing around him, and who answered but confusedly to the questions addressed him. The first idea was that it was a robber; but his dress and certain signs directed suspicion in another direction, and it was soon perceived that the young girl had been deflowered and polluted several times. It was proved that the guard had been bribed, and soon other revelations showed that this was not the first time the patient, who had received a good education, was in easy circumstances, and belonged to a good family, had performed the act. The trial proved, that he had frequently before gained access to the bed of young dead women, and there given himself up to his detestable passion.(*j*)

(5.) *Pseudonomania* (Morbid Lying Propensity.)

§ 202. "There are many instances of persons of sound understandings, and some of uncommon talents," says Dr. Rush, "who are affected with this lying disease in the will. It differs from exculpative, fraudulent, and malicious lying, in being influenced by none of the motives of any of them. Persons thus diseased cannot speak the truth upon any subject, nor tell the same story twice in the same way, nor describe any thing as it has happened to other people. Their falsehoods

(*i*) Journal of Psychological Med. Vol. II. p. 577.
(*j*) See Renaudin sur les Maladiés Mentales, p. 764. Paris, 1854.

are seldom calculated to injure any body but themselves, being for the most part of a hyperbolical or boasting nature; but now and then they are of a mischievous nature, and injurious to the characters and property of others. That it is a corporal disease I infer from its sometimes appearing in mad people who are remarkable for veracity in the healthy states of their minds, several instances of which I have known in the Pennsylvania Hospital. Persons affected with this disease are often amiable in their tempers and manners, and sometimes benevolent and charitable in their dispositions. Lying as a vice is said to be incurable. The same thing may be said of it as a disease, when it appears in adult life. It is generally the result of defective education. It is voluntary in childhood, and becomes involuntary, like certain muscular actions, from habit. Its only remedy is bodily pain, inflicted by the rod, or confinement, or abstinence from food; for children are incapable of being permanently influenced by appeals to reason, natural affection, gratitude, or even a sense of shame."(*k*)

§ 203. "An inordinate propensity to lying," Dr. Ray tells us, "is also of no common occurrence in society; and most of the readers of this work have probably met with instances of it in people whose morals in other respects were irreproachable, and whose education had not been neglected. The maxim of Jeremy Bentham, that it is easier for men to speak the truth, and therefore they are more inclined to do so than to utter falsehood, seems, in them, to be completely reversed, for they find nothing more difficult than to tell the truth. In repeating a story which they have heard from others, they are sure to embellish it with exaggerations and additions, till it can scarcely be recognized, and are never known to tell the same story twice alike. Not even is the slightest groundwork of truth necessary, in order to call forth the inventions of perverted minds; for they as often flow spontaneously, in the greatest profusion, as when based on some little foundation in fact. This propensity seems to result from an inability to tell the truth, rather than from any other cause; as it can be traced to no adequate motive, and is often indulged when truth would serve the interests of the individual better. Like that last mentioned, it is liable to degenerate into unequivocal mania, of which it is sometimes a preliminary symptom, and is also quite a common feature in this disease—a circumstance which Rush considers as proof of its physical origin."(*l*)

(6.) *Oikeiomania* (morbid state of domestic affections.)

§ 204. Of this, in its general shape, Prichard thus speaks:—"There are many individuals living at large, and not entirely separated from society, who are affected in a certain degree by this modification of insanity. They are reputed persons of singular, wayward, and eccentric character. An attentive observer may often recognize something which leads him to entertain doubts of their entire sanity; and circumstances are sometimes discovered, on inquiry, which assist in determining his opinion. In many instances it is found that there is an hereditary tendency to madness in the family, or that several rela-

(*k*) Rush on the Mind, pp. 262–264. (*l*) Ray on Insanity, p. 193.

tives of the person affected have labored under disease of the brain. The individual himself is discovered, in a former period of life, to have sustained an attack of madness of a decided character. His temper and disposition are found, on inquiry, to have undergone a change,—to be not what they were previously to a certain time: he has become an altered man; and this difference has perhaps been noted from the period when he sustained some reverse of fortune, which deeply affected him, or since the loss of some beloved relative. In other instances, the alteration in his character has ensued immediately on some severe shock which his bodily constitution has undergone. This has either been a disorder affecting the head, a slight attack of paralysis, a fit of epilepsy, or some fever or inflammatory disorder, which has produced a perceptible change in the habitual state of the constitution. In some cases the alteration in temper and habits has been gradual and imperceptible, and it seems only to have consisted in an exaltation or increase of peculiarities which were always more or less natural and habitual."(*m*)

Very often this domestic perversity is associated with the most complacent benignity out of doors. Zimmerman, whilst he was inculcating and professing the most serene benevolence, was, by his tyranny, driving his son into madness, and making his daughter an outcast from home. Goethe—no inapt observer of human nature—says, "Zimmerman's harshness towards his children was the effect of hypochondria,—a sort of madness or moral assassination, to which he himself fell a victim after sacrificing his offspring."(*n*)

(*m*) Cited, Ray on Insanity, pp. 168–9.

See Feuchtersleben's Views on this point. Principles of Medical Psychology, being the outlines of a Course of Lectures by Baron von Feuchtersleben, M. D. Vienna, 1845. Translated from the German by the late H. Evans Lloyd, Esq. Revised and edited by G. B. Babington, M. D., F. R. S., &c. London: printed for the Sydenham Society, 1847, p. 204.

(*n*) Dean Swift's life furnishes a striking illustration of this species of derangement of the domestic affections. By the indulgence of this very morbid tendency to torture the object of his most cherished love, he first succeeded in crushing under the weight of despair a woman whom he really loved, and then, by the recoil, in subjecting himself to that most miserable of all fates, that of an insane old age. Take, as a scene in the first awful drama, the following narrative by Mr. Sheridan: "A short time before Stella died," says he, "a scene passed between the Dean and her, an account of which I had from my father, and which I shall relate with reluctance, as it seems to bear more hard on Swift's humanity than any other point of his conduct in life. As she found her final dissolution approaching, a few days before it happened, in the presence of Dr. Sheridan, she addressed Swift in the most earnest and pathetic terms to grant her dying request, 'that, as the ceremony of marriage had passed between them, in order to put it out of the power of slander to be busy with her fame after death, she adjured him, by their friendship, to let her have the satisfaction of dying, at least,—though she had not lived—his acknowledged wife.' Swift made no reply, but, turning on his heel, walked silently out of the room, nor ever saw her afterwards during the few days she lived. This behaviour threw her into unspeakable agonies, and for a time she sunk under the weight of so cruel a disappointment."

No wonder was it that, when under the influence of the remorse which was too late awakened, his powerful sensibilities were aroused to the full consciousness of his guilt, he would beat his forehead for night after night, and stride to and fro in his deserted apartment, until at last the only change became that from delirium to melancholy, and from melancholy to delirium. Dr. Winslow gives us the following glimpses of the closing scenes:—

"The most minute account of this melancholy period, founded upon the evidence given by Mrs. Whiteaway, as well as upon the testimony of Mr. Dean Swift and others who witnessed his bad condition, is given by Dr. Delany:—

"'In the beginning of the year 1741 his understanding was so much impaired, and his passions so greatly increased, that he was utterly incapable of conversation. Strangers

§ 205. Illustrations of this phase will be found in the following sections. At present it is sufficient to call attention to one feature, which

were not permitted to approach him, and his friends found it necessary to have guardians appointed of his person and estate. Early in the year 1742 his reason was wholly subverted, and his rage became absolute madness. The last person whom he knew was Mrs. Whiteaway, and the sight of her, when he knew her no longer, threw him into fits of rage so violent and dreadful, that she was forced to leave him; and the only act of kindness that remained in her power was to call once or twice at the Deanery to inquire after his health, and see that proper care was taken of him. Sometimes she would steal a look at him when his back was towards her, but did not venture into his sight. He would neither eat nor drink when the servants were in the room. His meat, which was served up ready cut, he would sometimes suffer to stand an hour upon the table before he would touch it; and at last he would eat it walking: for during this miserable state of mind it was his constant custom to walk ten hours a day.

"'In October, 1742, after his frenzy had continued several months, his left eye swelled to the size of an egg, and the lid appeared to be so much inflamed and discolored, that the surgeon expected it would mortify; several large boils also broke out on his arms and body. The extreme pain of this tumor kept him waking near a month; and during one week it was with difficulty that five persons could prevent him from tearing out his eyes. Just before the tumor perfectly subsided and the pain left him, he knew Mrs. Whiteaway, took her by the hand, and spoke to her with his former kindness: that day and the following he knew his physician and surgeon, and all his family, and appeared to have so far recovered his understanding and temper, and the surgeon was not without hopes that he might once more enjoy society and be amused with the company of his old friends. This hope, however, was but of short duration; for a few days afterwards he sank into a state of total insensibility, slept much, and could not, without great difficulty, be prevailed on to walk across the room. In this state of hopeless imbecility he is said to have remained silent a whole year. In 1774 he spoke once or twice to his servant, after which he remained perfectly silent until the latter end of October, 1775, when he expired, in the 78th year of his age.'"

Lessons enough, indeed, are taught by scenes such as these. The madman howling in anguish at one moment, and at another sinking into the lethargy of unrelievable despair,—the mute but surpassing wretchedness of those broken hearts who were to receive soon such terrible retribution in the fate of him to whom their own misery was due,—have a very solemn moral. It is precisely such a moral that in these days we need. We are accustomed to look only at the grosser results with a frown, and to tolerate, with something like complacency, that dalliance with the affections merely which may by any construction be included within the limits of mere intellectual association. *Sentimentalism* has a great deal to answer for in this respect; for it utterly reverses the teachings of nature,—treating real affections as if they were shams, and shams as if they were real. On the one hand, as Bulwer admirably illustrates it in Pelham, a China monster is treated as if it were a child; on the other, a child as if it were a China monster. Lady Pelham, in eloping from her husband and child, turns back a moment to pick up from the mantel a favorite and very ugly Chinese figure which she had forgotten; and on her way back is arrested. But, in point of fact, this power of destroying the natural affections is as impossible in many cases as it is unnatural in all. The affections will, after all, often return as tyrants, to lay havoc that domain from which they were driven as exiles. There is a mysterious influence which spirit exerts upon spirit, which, in its moral aspects, is as infinite as in its merely sentimental relations it is ephemeral and unsubstantial. What Dr. Mayo tells us in the passage quoted in the beginning of this article is, alas! a fact but now too well established. There is no insanity so permanent, so wretched, and so incurable, as that which arises from a perversion of the home affections. It is not the victim alone whose mind is destroyed. The perpetrator of the act himself, though it may be he was led into it by mere want of self-control, feels its recoil. When he sees what he has done, he sinks under the revulsion, if not into insanity, which, after all, is the mark of more conscience than the mere trifler can be supposed to possess,—if not into remorse, which darkens the rest of his days, at least into a state of chronic frivolity which leads him through a contemptible old age, in which there is not enough of the man left to make the Christian, to a certain and awful judgment.

It is true that these sombre results do not always follow. All temperaments are not equally suceptible. With many, impressions of any kind are so light that they are almost immediately effaced. Alas! however, for those the soil of whose heart is either thus superficial or thus stony; and alas! for the system that makes it so! Little prospect, indeed, is there that when the earth has thus been desolated by fire and storm—when its face has been baked and hardened—it will bring forth the fruits of the coming harvest. And

is thus admirably sketched by Dr. Mayo: "Marital unkindness is subversive of soundness of mind in the person on whom it is exercised; and exercised it is in a thousand ways in this country, without violence being had recourse to. The state of the law, as Mr. Dickens well observes, and terrifically proves, is unprotective of wives. But the mischief is not unavenged: and here the case of the husband retributively commences. Many men are living in a state of continuous and exhausting remorse, under the consciousness that this system of torture is being carried on by them. For when once the habit is formed, they can neither shake it off, nor bear their self-consciousness under it.

'Culpam pœna premit comes.'

I need not speak of their retrospects, if they should outlive the object of their tyranny."(*o*)

"A very common feature of moral mania," says Dr. Winslow, "is a deep perversion of the social affections, whereby the feelings of kindness and attachment that flow from the relations of father, husband, and child, are replaced by a perpetual inclination to tease, worry and embitter the existence of others. The ordinary scene of its manifestations is the patient's own domestic circle, the peace and happiness of which are effectually destroyed by the outbreakings of his ungovernable temper, and even by acts of brutal ferocity. Frederick William of Prussia, father of Frederick the Great, undoubtedly labored under this form of moral mania; and it furnishes a satisfactory explanation of his brutal treatment of his son, and his utter disregard for the feelings or comfort of any other member of his family. About a dozen years before his death, his health gave way under his constant debauches in drunkenness; he became hypochondriacal, and redoubled his usual religious austerities. He forbade his family to talk of any subject but religion, read them daily sermons, and compelled them to

little chance is there that in the heart that has been made thin and superficial, by this very system of treating the affections as things that do *not* exist, there will be mould enough to produce either the delicate foliage or the true fruit of refined home affections. Burns' lines, whatever he may have meant, certainly reach to this:

"I speak not of the guilt of sin,
The danger of concealing,
But oh! it hardens all within,
And petrifies the feeling."

But, in point of fact, the world sometimes fails in its own work. The heart cannot in every case be sublimated into inanition or ossified into insensibility. It is to be recollected that agents which God, in his all-wise purposes, has created for the object of sustaining and keeping in healthy activity the entire social system—which he has made robust enough to supply all the relations of society, and energetic enough to supply its impulses—cannot always be volatilized in the crucible of conventionality in such a way as entirely to evaporate. *Sometimes* the elements so much misunderstood will assert their power. They may in many cases, it is true, be destroyed,—alas! for the heart when such is the case,—but there will remain instances when they will rise and gather a storm which human art cannot dispel. The perturbed spirit, if not sinking to the grave in very weariness of life—broken-hearted, as the world calls it,—will be driven to its account under the Avenger's whip, amid the battle-shouts of passions which might once have been made ANGELS, but have now become FIENDS. Such, indeed, are the sanctions by which JEHOVAH THE JUST vindicates the honor and protects the integrity of His own great purposes for the moral and social government of His people.

(*o*) Mayo on Medical Testimony in Lunacy, pp. 137, 138.

sing, punishing with the utmost severity any inattention to these exercises. The prince and his elder sister soon began to attract a proportionate share of his hostility. He obliged them to eat and drink unwholesome or nauseous articles, and even spit in their dishes, addressing them only in the language of invective, and at times endeavoring to strike them with his crutch. About this time he attempted to strangle himself, and would have accomplished his design had not the queen come to his rescue. His brutality towards the prince arrived to such a pitch, that he one morning seized him by the collar as he entered his bed-chamber, and began to beat him with a cane in the most cruel manner, till obliged to desist from pure exhaustion. On another occasion shortly after, he seized his son by the hair, and threw him on the ground, beating him till he was tired, when he dragged him to a window, apparently for the purpose of throwing him out. A servant hearing the cries of the prince, came to his assistance, and delivered him from his hands. Not satisfied with treating him in the most barbarous manner, he connived at the prince's attempts to escape from his tyranny, in order that he might procure from a court-martial a sentence of death; and this even he was anxious to anticipate by endeavoring to run him through the body with a sword. Not succeeding in procuring his death by judicial proceedings, he kept him in confinement, and turned all his thoughts towards converting him to Christianity. At this time, we first find mention of any delusion connected with his son, though it probably existed before. In his correspondence with the chaplain to whom he had entrusted the charge of converting the prince, he speaks of him as one who had committed the most heinous sins against God and the king, as having a hardened heart, and being in the fangs of Satan. Even after he became satisfied with the repentance of the prince, he showed no disposition to relax the severities of his confinement. He was kept in a miserable room, deprived of all the comforts and many of the necessaries of life, denied the use of pens, ink and paper, and allowed scarcely food enough to prevent starvation. His treatment of the princess was no less barbarous. She was also confined, and every effort used to make her situation thoroughly wretched; and though, after a few years, he relaxed his persecution of his children, the general tenor of his conduct towards his family and others, evinced little improvement in his disorder, till the day of his death."(*p*)

(7.) *Suicidal Mania*, (Morbid propensity to self-destruction.)

§ 206. "The most striking peculiarity of melancholia," says Abercrombie, "is the prevailing propensity to suicide; and there are facts connected with this subject which remarkably illustrate what may be called the philosophy of insanity. When the melancholic hallucination has fully taken possession of the mind, it becomes the sole object of attention, without the power of varying the impression, or of directing the thoughts to any facts or considerations calculated to remove or pal-

(*p*) Vide Lord Dover's Life of Frederick; Winslow's Anatomy of Suicide, pp. 233, 234, 235.

liate it. The evil seems overwhelming and irremediable; admitting neither of palliation, consolation or hope. For the process of mind calculated to diminish such an impression, or even to produce the hope of a palliation of the evil, is precisely that exercise of mind which, in this singular condition, is lost or suspended, namely, a power of changing the subject of thought, of transferring the attention to other facts and considerations, and of comparing the mental impression with these, and with the actual state of external things. Under such a conviction of overwhelming and hopeless misery, the feeling naturally rises, of life being a burden, and this is succeeded by a determination to quit it. When such an association has once been formed, it also fixes itself upon the mind, and fails to be corrected by those considerations which ought to remove it. That it is in this manner the impression arises, and not from any process analogous to the determination of a sound mind, appears, among other circumstances, from the singular manner in which it is often dissipated; namely, by the accidental production of some new impression, not calculated, in any degree, to influence the subject of thought, but simply to give a momentary direction of the mind to some other feeling. Thus a man, mentioned by Pinel, had left his house in the night, with the determined resolution of drowning himself, when he was attacked by robbers. He did his best to escape from them, and having done so, returned home, the resolution of suicide being entirely dissipated. A woman, mentioned, I believe, by Dr. Burrows, had her resolution changed in the same manner, by something falling on her head after she had gone out for a similar purpose."

§ 207. "A very singular modification occurs in some of these cases. With the earnest desire of death, there is combined an impression of the criminality of suicide; but this, instead of correcting the hallucination, only leads to another and most extraordinary mode of effecting the purpose; namely, by committing murder, and so dying by the hand of justice. Several instances are on record in which this remarkable mental process was distinctly traced and avowed; and in which there was no mixture of malice against the individuals who were murdered. On the contrary, they were generally children; and in one of the cases, the maniac distinctly avowed his resolution to commit murder, with the view of dying by a sentence of law, and at the same time, his determination that his victim should be a child, as he should thus avoid the additional guilt of sending a person out of the world in a state of unrepented sin. The mental process in such a case presents a most interesting subject of reflection. It appears to be purely a process of association, without the power of reasoning. I should suppose that there had been at a former period, during a comparatively healthy state of the mental faculties, a repeated contemplation of suicide, which had always been checked by an immediate conviction of its dreadful criminality. In this manner, a strong connection had been formed, which, when the idea of suicide afterward came into the mind during a state of insanity, led to the impression of its heinousness, not by a process of reasoning, but by simple association. The subsequent steps are the distorted reasonings of insanity, mixed with some previous impression of the safe condition of children dying in infancy. This

explanation, I think, is strongly countenanced by the consideration, that had the idea of the criminality of suicide been in any degree a process of reasoning, a corresponding conviction of the guilt of murder must have followed it. I find, however, one case which is at variance with this hypothesis. The reasoning of that unfortunate individual was, that if he committed murder and died by the hand of justice, there would be time for making his peace with the Almighty, between the crime and his execution, which would not be the case if he should die by suicide. This was a species of reasoning,—but it was purely the reasoning of insanity."(*q*)

(*q*) Dr. Winslow, in his interesting work on Suicide gives us the following remarkable cases: "The case now about to be recorded, presents some peculiarly interesting features. An English lady, moving in the first circles of society, went in company with her friends to the opera at Paris. In the next box sat a gentleman, who appeared, from the notice he took of the lady, to be enamoured of her. The lady expressed herself annoyed at the observation which she had attracted, and moved to another part of the box. The gentleman followed the carriage home, and insisted upon addressing the lady, declaring that he had had the pleasure of meeting her elsewhere, and that one minute's conversation would convince her of the fact, and do away with the unfavorable impression which his apparent rudeness might have made upon her mind. As his request did not appear at the moment unreasonable, she consented to see him a minute by himself. In that short space of time he made a fervent declaration of his affection; acknowledged that desperation had compelled him to have recourse to a *ruse* to obtain an interview, and that, unless she looked favorably on his pretensions, he would kill her, and then himself. The lady expressed her indignation at the deceit he had practiced, and said, with considerable firmness, that he must quit the house. He did so, retired to his home, and with a lancet opened a vein in his arm. He collected a portion of blood in a cup, and with it wrote a note to the lady, telling her that his blood was flowing fast from his body, and it should continue to flow until she consented to listen to his proposals. The lady, on receipt of the note, sent her servant to see the gentleman, and found him, as he represented, actually bleeding to death. On the entreaty of the lady, the arm was bound up and his life saved. On writing to the lady, under the impression that she would now accept his addresses, he was amazed on receiving a cool refusal, and a request that he would not trouble her with any more letters. Again driven to desperation, he resolved effectually to kill himself. He accordingly loaded a pistol, and directed his steps towards the residence of his fair amorosa, when, knocking at the door, he gained admission, and immediately blew out his brains. The intelligence was communicated to the lady, she became dreadfully excited, and a severe attack of nervous fever followed. When the acute symptoms subsided, her mind was completely deranged. Her insanity took a peculiar turn. She fancied she heard a voice commanding her to commit suicide, and yet she appeared to be possessed of sufficient reason to know that she was desirous of doing what she ought to be restrained from accomplishing. Every now and then she would exclaim, 'Take away the pistol! I won't hang myself! I won't take poison!' Under the impression that she would kill herself, she was carefully watched; but notwithstanding the vigilance which was exercised, she had sufficient cunning to conceal a knife, with which, during the temporary absence of the attendant, she stabbed herself in the abdomen, and died in a few hours. It appears that the idea that she had caused the death of another, and that she had it in her power to save his life by complying with his wishes, produced the derangement of mind under which she was laboring at the time of her death; and yet she did not manifest, and it was evident to every body that she had not, the slightest affection for the gentleman who professed so much to admire her. Possessing, naturally, a sensitive mind, it was easily excited. The peculiar circumstances connected with her mental derangement, were sufficient to account for the delusions under which she labored." (Winslow's Anatomy of Suicide, pp. 59, 60, 61.)

"A young lady of considerable beauty was accosted in the street by a strange gentleman. She took no notice at first of the unwarrantable liberty; but on finding that he persisted in following her, she attempted, by quickening her pace, to escape. Being extremely timid, and having naturally a nervous temperament, she was much excited. The person in the garb of a gentleman followed her for nearly a mile, and when he saw that she was home, he suddenly turned down a street, and disappeared. The young lady expressed herself extremely ill soon after she entered the house. A physician was sent for, who declared his astonishment at her severe illness, from a cause so trifling.

§ 208. As to whether the representatives of a suicide can recover against life insurers, on policies containing the usual provisoes against *felo de se*, there has been great vacillation of judicial authority. The first English case in which the question was mooted, was one decided in 1843, in the C. B., and was an action brought by the Executor of the insured, upon a policy containing a proviso, that in case the assured should die by his own hands, the policy should be void. The jury found that the deceased "*voluntarily* threw himself into the water, *knowing* at the time that he should thereby destroy his life, and intending to do so; but at the time of committing the act, he was not capable of judging between right and wrong." A majority of the court (Tindal, C. J., dissenting) held that under the finding, there could be no recovery.(*q*)

Shortly after this, came an action on a policy which contained a proviso avoiding it if the assured should "commit suicide." The evidence was, that the deceased died from the effects of sulphuric acid, taken when he was of unsound mind. Creswell, J., at Nisi Prius, told the jury that to bring the case within the exception, it must appear that the deceased, at the time he "committed suicide," was a "responsible being," capable of doing any act voluntarily. The jury found for the plaintiff.(*r*) Subsequently, however, the Court of Exchequer, by a vote of four to two, ordered a new trial, on the ground that the plaintiff was not, in law, entitled to recover.(*rr*)

In 1853, however, on an action on a policy which was to be void if the assured should "die by his own hand." the New York Court of Appeals, held that where the pleadings exhibited the mere facts, that the deceased died from "suicide by drowning himself, and so died by his own hand," but that at the time "he was of unsound mind, and wholly unconscious of the act," the insurers were responsible.(*s*) It was very justly said by Willard, J., that "it must occur to every prudent man, seeking to make provision for his family by an insurance on his life, that insanity is one of the diseases which may terminate his being. It is said the defendant did not insure the continuance of the intestate's reason. Nor did they, in terms, insure him against small-pox or scarlet fever; but had he died of either disease, no doubt

During the following night, she manifested indications of mental derangement, with a disposition to commit suicide. A strait-waistcoat was procured, and all apprehensions of her succeeding in gratifying the propensity of self-destruction was removed. Some weeks elapsed before she recovered. To all appearance she was perfectly well. She had no recollection of what had transpired, and expressed herself amazed when she was told that she wished to kill herself. Two months after she left her bed, she was missed. Search was made in every direction, but in vain. After a lapse of two days, she was discovered floating in a pond of water several miles from her home. In her pocket was discovered a piece of paper, on which were written the following lines: 'Oh, the misery and wretchedness I have experienced for the last month, no one but myself can tell. A demon haunts me—life is insupportable. A voice tells me that I am destined to fall by my own hands. I leave this world for another, where I hope to enjoy more happiness. Adieu.'" (Winslow's Anatomy of Suicide, pp. 75, 76. See a very interesting essay on the last sentiments of suicides, by Dr. A. Brierre de Boismont, translated in the Journal of Psychological Medicine, Vol. IV. p. 243.)

(*q*) Borradale *v.* Hunter, 5 Man. & Gr. 639.

(*r*) Schwabt *v.* Clift, 2 Car. & Kir. 134.

(*rr*) Clift *v.* Schwabt, 3 Man. & Gr. 437.

(*s*) Breasted *v.* Farmers' Loan Co. 2 Am. Law Reg. 358.

that the defendants would have been liable. They insured the continuance of his life. What difference can it make to them, or to him, whether it is terminated by the ordinary course of the disease in his bed, or whether, in a fit of delirium, he ends it himself? In each case, the death is occasioned by a means within the meaning of the policy, if the exception contemplates, as I think it does, the destruction of life by the intestate, while a rational agent, responsible for his act. It is competent, no doubt, for the insurer so to frame his policy, as to exclude him from liability for a death occasioned in a fit of insanity. The parties have not done so in the present case." It is worthy of observation, however, that the force of this authority, like that of its predecessor, is broken by its having been decided by a divided court.(*s*)

(8.) *Fanatico-Mania.*

§ 209. Using this term in its most liberal sense, it may be considered as including two things:

(*a.*) Supernatural or pseudo-supernatural demoniacal possession.

(*b.*) Mental alienation on religious subjects.

§ 210. (*a.*) *Supernatural or pseudo-supernatural demoniacal possession.* Whether or no the gospel narratives inculcate directly the fact of demoniacal possession is the subject of much discussion among commentators; but, as will presently be seen, there is no doubt that profane history unites in supposing such possession to exist. The first point for us now to consider is the *a priori* probability of such interpositions. And it should be here observed that in respect to the general policy of Divine government, it has been very ably shown by Edwards, representing the orthodox Christian school, and by Hume, representing the deistical, that when the existence of the extraneous and objective power of *sin* as a demoniac influence is once admitted, it is as consistent with the Divine perfection that such influence should exhibit itself in one way as in another. The only question that remains to be considered, therefore, is that which Hume reserved, viz: whether or no there is such *universal experience* against supernatural interpositions as to lead to the conclusion that they never existed. And the affirmative of this proposition, as Dr. Campbell shows us, is beset with unsurmountable difficulties. To prove "experience to have been universal" it must be shown that no man ever witnessed a phenomenon contradicting it. This, however, is a *petitio principii*, for whether or no such phenomena have been observed is the very point in controversy.

§ 211. The fact is, to resolve this question, we must resort to the Divine policy of government as well as to human experience as a guide. And here we have little difficulty in arriving at a conclusion which harmonizes as fully with an enlightened theology as it does with present psychical observation. To the carrying on of the Divine government of the world established and uniform principles are necessary, which,

(*s*) See Law Times, July 18, 1846, p. 342; Taylor's Med. Jurisprudence, pp. 592, 593. On the subject of verdicts of *Felo de se*, see a very interesting article in the Journ. of Psychol. Med. Vol. III. p. 19.

whether relating to the physical or the moral world, are called the *laws of nature*. These laws, to adopt the definition in which both philosophical and theological criticism unite, may be treated as the uniform plan according to which God exercises his power throughout the created universe. But then, if in conducting the affairs of vast governments, God, in his infinite wisdom—which finite minds cannot measure—finds in a special case as good a reason for a *deviation* from this method as there usually is for adherence to it, then unquestionably the same power that applied this law to the general line of cases would withdraw it from the exception. If, however, we reason from the nature of the thing, we should conclude such deviations to be very rare, and, in fact, to be confined to those great epochs when it is intended that an extraordinary message is to be communicated which it is designed that these deviations shall vouch. For if they were made frequent, it is plain that they would cease to be vouchers.

We come, then, to the question whether we have evidence from history that there has ever been such a systematic deviation from the Divine policy as is implied by the entrance of specific evil spirits into specific human bodies, followed by a supernatural subjection of the will if not by a merging of the individuality of the latter in the former. There is little doubt that this was taught by the ancient philosophers. Plato begins by expressly asserting the existence of demons, who, on his theory, are the sole supernatural agencies by which the Divine will operates on the human heart. Πᾶν τὸ δαιμόνιον μεταξύ ἐστι θεοῦ τε καὶ θνητοῦ. And again Ἑρμηνεῦον καὶ διαπορθμεῦον θεοῖς τὰ παρ' ἀνθρώπων, καὶ ἀνθρώποις τὰ παρὰ θεῶν, τῶν μὲν τὰς δεήσεις καὶ θυσίας, τῶν δὲ τὰς ἐπιτάξεις τε καὶ ἀμοιβὰς τῶν θυσιῶν.(*t*) He tells us that demoniacs do not use their own dialect or tongue, but that of the demons who have entered into them.(*u*) Lucian declares "the *patient* is silent: the demon returns the answer to the question asked." And yet at the same time it would seem that the possibility of the cure of the demoniacs by medicine was recognized, which would scarcely be the case if the malady was regarded as exclusively supernatural. Thus we are told, "Helleboro quoque purgatur *lymphaticus* error."(*v*) And Josephus and the Jewish physicians speak of medicines composed of stones, roots, and herbs, being useful to demoniacs.(*w*)

§ 212. With regard to the New Testament history, two views have been taken, each of which has the sanction of great authority both for learning and for loyalty to the Christian cause. On the one hand, it is urged that the language of the Gospel writers is express to the very point; on the other, it is maintained that the accounts given by them may all be understood as exhibiting no more than the phenomena of certain diseases, particularly hypochondria, mania, and epilepsy; that the *popular* terms were used to describe these diseases, just in the same way that "Possession," (Besessenheit) is now used by some of the most technical German psychologists to describe the same thing; and that the sacred penmen meant to convey no more than that the patients

(*t*) Plato, Sympos. p. 202, 203. Lipsiae, 1829, p. 252. See also Plutarch, De Defect. Orac. Farmer's Essay on the Demoniacs.

(*u*) Plato, *apud* Clem. Alex. Strom. I. 405, Oxon.

(*v*) Seren. Sammon, c. 27, v. 507.

(*w*) Gittei, f. 67.

were affected with the complaints which those phrases described. (x) It may not be considered out of place, however, to observe that the excessive theological liberality which, in order to accommodate the sacred text to the supposed requirements of science, resolves statements of facts into metaphors and narratives into parables, is in this, as in most other respects, insufficient to reconcile the captious, and is unnecessary for the purpose of relieving the sincere inquirer. Those who have gone such great lengths in thus adopting the statements of our Lord's treatment of the demoniacs to the supposed standard of modern medical experience, would do well to observe how unnecessary their labors appear to one of the most eminent and experienced of modern physicians. "We have heard these, and similar cases," says Dr. Cheyne, "accounted for on the assumption of demonism, but we never have seen a case of disordered mind, even when attended with the most subtle malignity, which could not more easily be explained upon natural principles. We acknowledge the power of Satan, and it may be as great as ever in the dark places of the earth, which have received no benefit from Christianity; but as there are no rules for distinguishing between the workings of the human mind, when influenced by bodily disease—when yielding to its unrestrained propensity to evil, and when acted upon by Satan, the extent of Satanic agency cannot be known, nor ought the mode of its operation be assumed upon conjecture. It is one of the devices of man's great enemy, to have his power, nay, his existence, denied by those who are his subjects; and we can only play his game, and confirm Sadducean principles, when we allege of Satan what we cannot prove. Probably nothing so much weakened the influence of Luther as his account of his conflicts with the devil. The mind of the reformer yielded to delusions practiced upon it by his senses; and consequently many who are unwilling to admit the power of his judgment and the rectitude of his principles, especially the minions of superstition, and the abettors of infidelity, have persuaded themselves that the master-spirit of his age—with whom the Charleses, the Henrys, and the Francises, were no more to be compared than Ahab was with Elijah—was a dreaming and credulous enthusiast. Those who admit the authority of Scripture are not permitted to doubt that when our Lord cured the demoniacs, he actually dispossessed them. It could not have been, as some have alleged, that he merely removed epilepsy or insanity. Without entering into all the particulars of the discussion, any Christian who will read with attention the fourth and eighth chapters of St. Matthew's gospel, must reject the hypothesis of Mede, that the demoniacs mentioned in the gospels labored under natural diseases. In the fourth chapter it is expressly specified that our Lord 'healed all sick people that were

(x) The student is referred to a very comprehensive article on this point, by the Rev. J. F. Denham, of St. John's College, Cambridge, in Kitto's Bib. Cyc. tit. Demoniacs, in which the arguments on both sides are very fairly exhibited; to Farmer's Essay on the Demoniacs; to Jahn's Biblisches Archäologie; to Winer's Biblisches Real Wörtenbuch, art "Besessene;" to Moses Stuart's sketches of Angelogy, in Bibliotheca Sacra, 1843; to Bishop Burgess' sermon on Demonology, in the Phil. course of Lectures on Evidences, Phil. 1854; to President Appleton's discourse on the same; and to a very brilliant though eccentric treatise, recently published, under the title of "The Apocatastasis Progress Backwards." Burlington, 1854.

taken with divers diseases and torments,' including epilepsy, we may fairly infer, 'and those which were possessed with devils,' a separate class, 'and those which were lunatic,' or of unsound mind. In the eighth chapter, the same distinction is observable between casting out devils and curing diseases: sixteenth verse, 'and he cast out the spirits with his word, and healed all that were sick.' But the relation which decides the question is that of the miracle performed in the country of the Gergesenes. (*y*) Before we can believe that the two men who came out of the tombs were maniacs or epileptics, it must be proved that disease is not merely a mode of animal life, but something substantive and transferable from one class of beings to another—from man to the lower animals." (*z*)

§ 213. Without, therefore, any further attempt to determine the question whether demoniac possession is taught as a fact by history, either sacred or profane, we come to the inquiry as to whether it exists at the present day. And we feel ourselves warranted in saying, without any hesitation, that in a lego-psychological view, we have no evidence of any such possession. All modern phenomena can be satisfied by the recognition of the independent existence of that species of mania which causes an insane belief in the patient that he is possessed with a demon.(*a*)

§ 214. (*b.*) *Mental alienation on religious subjects.*

As is well remarked by Dr. Rush,(*b*) in *Christian* countries, departures from the *Christian* faith, (*e. g.* infidelity and atheism,) are "frequent causes" of insanity. (*c*) And the same is equally true of

(*y*) Matt. viii. 28.

(*z*) Essays on Derangement in connection with Religion, by John Cheyne, M. D., F. R. S. E., M. R. I. A., Physician General to His Majesty's Forces in Ireland. Dublin, 1843, p. 68, &c.

(*a*) Schürmayer, Gericht. Med. § 550. For a case of supposed Demoniacal Possession, see Journal of Psychological Medicine, vol. iii. p. 262; Metzger's verm. Schrift. Bd. 3, s. 217; Ces. Ruggieri's history of the self-crucifixion of M. Lovati at Venice, translated by Schlegel, Rudolst, 1807. (In the latter case, the patient first cut off his own private members, and then crucified himself.) Henke's Zeitsch. E–H., 11 s. 291—(Two Swiss girls, who immolated themselves.) Henke's Zeitschr. Bd. 47, p. 447. Pyl's essay, 6 Samml. p. 214. (Infanticide by a demoniac.) Henke's Zeitschr. 27 Bd. p. 330—(Periodical Demonio-mania.) Demoniacal possession, as Siebold (Gericht. Med. § 210) very justly remarks, was much more common in former days than the present, and of this, to say nothing of the New Testament period, illustrations may be found in the many cases of witches, seers and soothsayers, of the middle ages.—The Convulsions, &c., of St. Medard fall under this head. See Hecker on the Dancing Mania, Berl. 1832; Published also by the Sydenham Society. See also case, *ante*, § 584, note (*z*). And also a series of very curious and valuable articles on Pythonic and Demoniac Possession in Dublin Univ. Mag. for Sept. and Oct., 1848, for March and Dec., 1849, and for January, 1850.

(*b*) Rush on the Mind, 64.

(*c*) Mr. Winslow, in his late interesting work on suicide, gives us the following instances of this: "It may be mentioned, as a fact corroborating the opinion, that productions of an infidel character have a tendency to originate a disposition to suicide, by weakening the moral principles; that when the celebrated and notorious Tom Paine's "Age of Reason" was first published, the papers of the day recorded many cases of self-murder, committed by persons who avowed that the idea never entered their heads until they had become familiar with the above-mentioned writer. An individual, zealous in the diffusion of Paine's principles, purchased several hundred copies of his work, which he most industriously circulated, gratuitously, in quarters where he knew the doctrines of Christianity had already obtained a footing. A copy of the "Age of Reason," elegantly bound, was received by a young lady who was acting in the capacity of gover-

departures in the direction of ignorant and fanatical superstition. The *former* position is readily explained. The soul, as well as the body, to enable it to stand steadily, requires that the eye shall be fixed upon some distant and external point. No man, for instance, can succeed in standing on one foot if he fixes his eye on his own person; and he succeeds in maintaining his upright position precisely to the extent he is able to fix his eye firmly on a point in the distance. And in a psychological view this is readily explicable. It is only by the recognition of a *future* state that the soul can be effectually steadied in *this*. And it is precisely such a system as the Christian religion describes,—one which affords a positive assurance of immortal peace to those who seize upon it for their portion,—which, while it recognizes that innate depravity, which the heart is but too ready to testify to from its own experience, promises divine aid in the struggle—which announces the pardon of past sin by a vicarious atonement, while it affords to the creature the aid and succour in all his troubles, of a divine friend and yet of a human example.

"I envy no qualities of the mind or intellect in others, nor genius, nor power, wit or fancy," says Sir H. Davy: "but if I could choose what would be most delightful, and, I believe, most useful to me, I

ness in the family of a gentleman of great respectability. The lady had no conception from whom the present came, and having heard of the book she felt a curiosity to become acquainted with the doctrines which it inculcated. The circumstance of her having received the book was not mentioned to any member of the family with whom she resided, and in the evening when she retired to her own room, she read it with great attention. The family noticed, in a few weeks, a perceptible alteration in the appearance of the young lady. She became exceedingly thoughtful and contemplative. Her health also appeared sensibly affected. The mother of the children whom she was instructing took advantage of the first opportunity of speaking to her on the subject. She expressed herself very unhappy in her mind, but refused to disclose the cause of her mental uneasiness. It was thought she had formed an attachment, and was suffering from the effects of disappointed affection. She was questioned on these points, but persisted in concealing the circumstances which had been operating so injuriously on her mind. The mental dejection increased, and the result was an alarming attack of nervous fever, of which she was cured by an able physician with much difficulty. When convalescent she was noticed one day busily employed in writing, and when interrupted showed great anxiety to secrete the piece of paper on which she had been transcribing her thoughts. In the course of the evening of the same day, a deep groan was heard to issue from her room. The servant immediately entered, when, to her great horror, she saw the governess on the floor with a terrible gash in her throat. Assistance was directly obtained; but, alas! not in time to save the life of the poor unfortunate girl. On searching her desk, a sheet of paper was discovered, on which she had disclosed her reasons for the rash act. She said, that from the moment she read the "Age of Reason," her mind became unsettled. Her previous religious impressions were undermined; in proportion as she was induced to imbibe the doctrines of Tom Paine, so she became miserable and wretched. From one error she fell into another, until she actually believed that death was annihilation; and although she appeared firmly rooted in this belief, she expressed herself horrified beyond all expression at the bare idea of dissolution. For some time prior to her illness, she had felt an impulse to sacrifice her life, but had not the courage to perform the act. After her recovery, she felt the impulse renewed with increased strength, until, with a hope of escaping from an accumulation of misery which was weighing her to the earth, she determined to commit suicide. She also, in the document referred to, asked her friends to forgive her, and to take warning from her fate."—*Winslow's Anatomy of Suicide*, pp. 87–89. It has been asserted, and remains uncontradicted, that Mr. Hume, lent his "Essay on Suicide," to a friend, who, on returning it, told him it was a most excellent performance, and pleased him better than any thing he had read for a long time. In order to give Hume a practical exhibition of the effect of his defence of suicide, his friend shot himself the day after returning him the essay.—*Winslow's Anatomy of Suicide*, pp. 31, 32.

should prefer a *firm religious belief to every other blessing:* for it makes life a discipline of goodness; creates new hopes when all earthly hopes vanish; and throws over the decay, the destruction of existence, the most gorgeous of all lights; awakens life in death, and calls out from corruption and decay, beauty and everlasting glory."

§ 215. The habitual practical recognition and adoption of such a system as this must necessarily generate a sobriety of temper, which will of all others be the most distant from derangement. That the reception of Christianity, whether real or nominal, should *cure* insanity, is no more to be expected than that it should cure the small-pox. If it did—if a special miracle was wrought for the purpose of destroying the original characteristics of each individual, it would not only destroy moral agency and hence break up probation, but would produce an almost entire derangement of human affairs by obliterating the marks of individuality, to say nothing of identity.

To the same effect are the following just observations of Dr. Copland: "It must not be supposed, from what I have advanced, that the Christian religion is truly chargeable with causing insanity; it actually has an opposite tendency. Mistaken views, excessive fervour, unfounded fears, and various feelings arising from these sources, are the only causes of insanity in connection with religion. Among those who entertain just and sober opinions on religious topics—who make Christian doctrines the basis of their morals, the governors of their passions, the soothers of their cares and their hopes of futurity—insanity rarely occurs. The moral causes of derangement which would not fail of producing injurious effects on others, prove innocuous in them, for these causes would be met by controlling and calming considerations and sentiments, such as would deprive them of intensity or neutralize their effects. Truly religious sentiments and obligations soothe the more turbulent emotions, furnish consolations in affliction, heal the wounded feelings, administer hopes to the desponding, and arrest the hands of violence and despair."(*d*)

And the testimony of Dr. Cheyne, who stood for many years at the head of the medical profession in Ireland, occupying the responsible post in that kingdom of physician-general to the forces, is equally emphatic: "Our experience of, and inquiries into the nature of insanity, during a period of forty years," he says, "enable us to say, that such cases as that which we have just related," (those of insanity from morbidity of the religious affections,) "are not in the proportion of one in a thousand to the instances of insanity which arise from wounded pride or disappointed ambition."(*e*) "True religion," he tells us in another place,"(*f*) is a preservative, although not a complete preservative against derangement of the mind. We have no intention of concealing that we have known many instances of insanity among believers, but it was not caused by their creed. We have also known instances in which all sense of religion has been permanently destroyed by insanity. Of such cases we would remark, that the believer has no right to expect

(*d*) Copland Med. Dict., Art. "Insanity."
(*e*) Cheyne on Derangement in connection with Religion, pp. 178, 179.
(*f*) Ibid. p. 146.

for his believing friend exemption from evils arising from the state of the body, on which insanity always depends. Let him moreover recollect, that as total insanity puts an end to moral accountability, nothing which may take place during a paroxysm of the disorder, can affect the future happiness of his friend."

"When fairly examined," says Dr. Combe, "the danger is seen to arise solely from an *abuse* of religion, and the best safeguard is found to consist in a right understanding of its principles and submission to its precepts. For if the best Christian be he, who in meekness, humility, and sincerity, places his trust in God, and seeks to fulfill all his commandments, then he who exhausts his soul in devotion, and at the same time finds no leisure or no inclination for attending to the common duties of his station, and who so far from arriving at happiness or peace of mind, becomes every day the more estranged from them, and finds himself at last involved in disease and despair, cannot be held as a follower of Christ, but must rather be held as a follower of a phantom assuming the aspect of religion. When insanity attacks the latter, it is obviously not religion that is its cause; it is only the absence of certain feelings, the regulated activity of which is necessary to the right exercise of religion; and against such abuse a sense of religion would, in fact, have been the most powerful protection. And the great benefit of knowing this is, that whenever we shall meet with such a blind and misdirected excess of our best feelings in a constitutionally —nervous or hereditarily—predisposed subject, instead of encouraging its exuberance, we should use every effort to temper the excess, to inculcate sounder views, and to point out the inseparable connection which the Creator has established between the true dictates of religion and the practical duties of life, which it is a part of his purpose in sending us here to fulfill."

§ 216. These views are not uncorroborated by practical observation. It is not necessary to record the cases where mania, particularly that of the suicidal cast, has been generated by an undue estimate of the importance of this life's incidents as compared with those of the next.(*g*) On the other hand we may find a pregnant illustration of the converse process by the fact mentioned in the thirteenth report of the Hartford Retreat, that two hundred and eight farmers, fifty-eight merchants, and thirty-four day-laborers have been admitted into that institution to four clergymen.(*h*) And in a very capable pamphlet, published in Phila-

(*g*) Dr. Rush, after noticing the fact that 150 suicides having taken place in Paris in the year 1782, and but 32 in London, says, "It is probable the greater portion of infidels in the former than in the latter city, at that time, may have occasioned a difference in the number of deaths in the two places, for suicide will naturally follow small degrees of insanity, where there are no habits of moral order from religion, and no belief in a future state." Rush on the Mind, p. 69.

(*h*) The chaplain in the same report states: "The usual week-day services in the chapel of the institution, singing, reading the Scriptures, and prayer, have been performed during the year. On the afternoon of the Sabbath, there have been religious exercises similar to those in other Christian congregations. The singing is still conducted by a choir composed of the attendants and patients, and adds much to the interest and value of the services. In these various exercises the patients have engaged with gratifying decorum and solemnity. Strangers who for the first time are present at our worship in the chapel, often express surprise at their apparent devotion, and the stillness and steady

delphia in 1850, on this very point—a pamphlet which, though anonymous, is understood to have been written by a gentleman of great experience in the discipline of insane convicts, and to have been revised and approved by the two very eminent principals of the two chief Philadelphia lunatic asylums(*i*)—the history of what is called religious insanity is thus traced: "The unsubdued temper of a child exhibits itself in paroxysms of passion. Every little disappointment occasions violent irritation. This morbid impatience ripens into sullen discontent with all the allotments of life. The unhappy creature persuades himself that an evil spirit haunts all his footsteps and rules his destiny. This conception is easily made to assume a religious phase or association, and is succeeded by settled gloom, which the hospital register or the news-

attention with which they listen to divine truth. Indeed, it is believed that few congregations of the sane, in an ordinary state of feeling, exceed them in these respects.

"A sense of need opens a way for the gospel to the hearts of these sufferers. The service checks, for a few moments at least, the dark current of sorrow, calls the wandering mind away from its delusions, and aids in forming a healthful self-control. A sense of propriety, the strong associations connected with such scenes in happier days, and the quiet of fellow worshippers, combine to restrain outbursts of feeling which they are often unable to resist in their own rooms. And aside from these influences of religious worship, who shall set limits to the great Physician of both soul and body, in making the gospel a means of moral renovation to the deranged mind?

"Increasing experience strengthens my conviction that the distinguishing principles of the gospel are no less adapted to the mind when disordered, than when in its normal state. In the former case, indeed, more care and a different mode of exhibition are demanded; but these principles unfolded calmly and clearly, in the sober manner of the Bible, will find as ready and intelligent and cordial a response in a congregation of the insane as in most others.

"The full value of the gospel in relation to mental derangement, both as a preventive and a remedy, is not, it is believed, fully appreciated. Official reports show that cases of insanity, in great numbers, result from causes against which the controlling daily influence of religious principle would guard the mind. By checking vices which prey on the body and mental feelings, such as envy, jealousy, inordinate grief, which waste its energies, the gospel prevents diseases that result in insanity."

The fact that sound religious discipline exercises a salutary influence in assuaging the malady, does not, of course, go to refute the position that *unsound* religious excitement may not have produced it; but it *does* show that a judicious presentation of the sanctions of religion—even involving their most solemn features—is a conservative and not a distracting influence. The reports of Dr. Kirkbride and Dr. Woodward are strong to this point; and we cannot refrain from adding to them the following testimony from Miss Dix:

"That among the hundreds of crazy people with whom her sacred missions have brought her into companionship, she has not found one individual, however fierce and turbulent, that could not be calmed by Scripture and prayer, uttered in low and gentle tones. The power of religious sentiments over those shattered souls seems miraculous. The worship of a quiet, loving heart, affects them like a voice from heaven. Tearing and rending, yelling and stamping, singing and groaning, gradually subside into silence, and they fall on their knees, or gaze upwards with clasped hands, as if they saw through the opening darkness a golden gleam from their Father's throne of love."

Armed with this gentle influence, we are told by an observer, she does not fear the violence of the madman. Well do we remember an instance that we heard from her own lips, in which she entered the cell of a maniac, against the remonstrances of the terrified keeper. As she persisted in entering, the door was instantly closed behind her to prevent escape. Alone she stood face to face with that wild man. He raised himself in a threatening attitude, and glared upon her with his fierce eye. She opened the Bible, and read the words of a Psalm. After a few lines, he bent his head to listen. The look of rage and terror passed from his countenance. His eye grew less wild, and sent forth sweet, blessed tears, until the madman sank down at that helpless woman's feet. And as she finished, he said, Will you read those words again?

(*i*) The relations of Religion to what are called "Diseases of the Mind," Phila. J. W. Moore, 1850.

papers record as a case of religious melancholy, whereas it is really a case of ripe stubbornness.

"We might readily illustrate our position by actual cases of disappointed ambition or affection. As where one has aspired to high distinction, and has suffered a defeat so unexpected and mortifying as to unhinge the mind, it is natural that he should assume some exalted character, and insanely supposes himself to be a king, or even the King of Kings. Or when the young affections have been so sadly blighted as to veil all the joys and hopes of life, and excite a disgust for life itself, we might expect that reason, overpowered by such a shock, would lead the sufferer into some morbid conception of herself, that would be most congenial to seclusion and a renunciation of the world; and hence she is very likely to assume the character of the Virgin Mary, or to hold herself in readiness for an extraordinary holy service as a companion of some angelic potentate. These are not fictitious cases. They have had their parallel if not their counterpart in many lunatic hospitals, and in neither of them, we apprehend, could there be found a single feature to justify us in classing them among cases of "religious insanity," or in ascribing to religion the remotest connection with their unhappy state.

"If in the instances just cited, and others of like character, faith in God had been a controlling principle, the mind would probably have stayed itself on Him, and its integrity would have been preserved. Have our readers never known a lone woman, in humble life, buffeting courageously with the rising tide of disappointment and sorrow;—a kind and faithful husband removed by death: the means of daily sustenance straitened, perhaps almost to penury; a promising son proving reprobate; a helpful and cheerful daughter deprived of sight, and another prostrate under the power of chronic disease—have they never known such an one in these or like circumstances reposing her trust in her covenant God, and saying with the afflicted but not despairing patriarch, 'Shall we receive good at the hand of God, and shall we not receive evil?' Or in the words of one who knew the bitterness of grief,

'My lifted eye without a tear,
The gathering storm shall see;
My steadfast heart shall know no fear;
That heart shall trust in thee.'

"It is not a superior mind, nor high moral gifts that makes this obvious difference. It is that in the one case religion is inculcated, and the mind entertains it as an infinitely pure and welcome system of divine truth, embraces its sublime and often mysterious doctrines as a little child receives the lessons of paternal wisdom, and esteems its precepts as just and good, and worthy of prompt and cheerful obedience. God's providence is regarded as directing and overruling all; and the spontaneous language of the soul is, 'Though he slay me, yet will I trust in him. Though the fig-tree shall not blossom, neither shall fruit be in the vines, the labor of the olive shall fail, and the field shall yield no meat, the flocks shall be cut off from the fold, and there shall be no herd in the stall, yet will I rejoice in the Lord, I will joy in the God of my salvation.'

"In the other case a perverse, fretful, impatient spirit, indulged in childhood, falls, and is utterly cast down in the first conflict with the stern realities of life, and becomes the prey of fitful melancholy, if not of settled *mania*."

§ 217. The *history* of religious insanity in this country goes a great way to fortify the position that it is to a *departure* from the gospel system that most cases of what may be called Dæmonio-mania may be traced. This is shown with peculiar ability as well as weight of experience in the following passages from the pamphlet which has been just noticed:

"Passing over the many instances of such erratic and fanatical extravagances which history records, and to some of which the review before us alludes, we will glance at two recent and notable ones, occurring among ourselves, that we may the better judge whether religion makes men insane, or whether it merely fails, in many cases, to bring them to their right mind; so that it may be said that they continue insane in spite of all that religion can do for them.

"A clergyman, in infirm health, sought to amuse his listless hours by framing a puerile romance, after the manner of eastern fabulists, with names, dates and localities, bearing no relation to sober history. These writings, in some way, without the author's privity, came into the hands of strangers. In 1826, one Joseph Smith professed to have found, in the town of Palmyra, N. Y., some brass plates enclosed in a box, such as is used for packing window-glass. Of these plates he pretended to be the interpreter. With a stone in his hat, and his hat over his eyes, he dictated what a man, named Harris, wrote. In consequence of some dispute, Harris departed before the interpretation was ended, and one Cowdrey took his place and completed the 'Book of Mormon.' Smith then avowed himself a prophet, and the founder of a new dispensation, and gathered many disciples, who accompanied him to the state of Missouri, where they established a city and built a temple. We need not pursue their adventures.

"The contents of the Book of Mormon, or the Mormon Bible, were neither more nor less than the self-same tales of romance which the invalid clergyman amused himself with writing. A large number of persons, however, embraced the delusion; many abandoned a profitable business; some sacrificed large property, and not a few were ruined in soul, body and estate, by putting their trust in this barefaced imposture.

"It is perfectly obvious, we think, that a mind well informed and established in the received doctrines of the Christian faith, and endued with but very ordinary discernment, would be proof against so bold an imposture. If any intelligent and respectable persons joined the Mormon ranks, that, of itself, shows either a predisposition to insanity, which this fanciful revelation was fitted to develop, but with which religion has no connection whatever; or that there is a deficiency of discernment, or a neglect or abuse of the reasoning powers, or a morbid love of distinction and notoriety, to gratify which they are willing to sacrifice all other interests. If a judicious, faithful parent or Sunday-school teacher had given direction to their inquiries and furnished their minds with just and systematic, though exceedingly

simple, views of the doctrines of revelation, they would have had balances wherewith to weigh the pretensions of the new prophet, and by means of these vanity and falsehood would have been made manifest.

"At a somewhat later period, a man named Miller, (a Baptist minister, as it is said,) professed to have had a revelation of the precise day on which the second advent of Christ would occur, and when his people would be called to rise and meet him in the air! He and his deluded apostles, or agents, went from town to town and from house to house, 'leading captive silly women,' and imposing upon the credulity of the ignorant. So settled was the conviction of many minds of the truth of his predictions, that they arranged their worldly affairs in reference to it, as an ascertained event, and made no contracts extending beyond the designated day. Prosperous citizens sold their estates, and declined the ordinary avocations of life, that they might give themselves wholly to the business of preparation; and, as the eventful period drew nigh, many evinced the sincerity of their convictions by providing what they regarded as suitable apparel for an aerial flight; and some actually assembled in groups upon summits which might be supposed most favorable to an early and easy ascension! The dupes of the false prophet were counted by thousands. Scores were committed to insane asylums who were crazed with excitement, or with disappointment; and many within and without the charmed circle were doubtless left to believe that all revelations are as idle and delusive as Millerism.(*k*)

"We need not say how the plainest scriptures must have been wrested from their true intent and meaning, nor how deaf an ear must have been turned to the voice of reason and common sense, before the mind could have surrendered itself to such a fancy. There is not a trace of insanity, however, in any stage of the process. It is a simple, voluntary subjection of reason to the influence of imagination or superstition, instead of a childlike submission of all the powers and faculties of body and mind to the revealed will of God. And, although we may admit that such delusions have, in many instances, been the ostensible cause of insanity, as our hospital returns allege,—"revealed religion" is no more responsible for them than for paroxysms of *mania-a-potu*. It is because the plain truths of revealed religion were misapprehended, perverted or rejected, that the imposture succeeded, and the mind was led captive by Satan at his will. It is not strange that a vessel left to itself, on a stormy sea should, sooner or later, go to the bottom, or fall into the hands of wreckers."(*l*)

By the same able writer the following propositions are laid down:—

§ 218. "I. It is as unjust to ascribe cases of what is commonly called 'religious insanity' to religion, as their cause, as it would be to charge our insane hospitals with originating or confirming the cases which they do not cure.(*m*)

(*k*) See an Essay on this point, in 1 Am. Jour. of Insan. 249.

(*l*) Relations of Religion to what are called Diseases of the mind. Phil. J. W. Moore, 1850.

(*m*) The third annual report of the Ohio Lunatic Asylum very justly remarks in this connection:—"There is no country where the subject of religion is more immediately and forcibly brought home to the heart and conscience than in the United States. It is

"II. There is no such thing as religious insanity: i. e. it cannot be said of religion, as it can be of grief, or disappointment, or chagrin, that it causes insanity.

one, too, upon which every variety of opinion exists. Unlimited discussion is in constant practice among all classes; and the feelings and apprehensions of our nature are much aroused, and frequently excited. And it cannot be doubted that in many cases where persons are predisposed to this fearful disease by natural constitution, incorrect education, feeble health, and other circumstances, anxieties connected with the awful realities of eternity and the immortality of the soul, have been the exciting causes of mental derangement. But pure and undefiled religion, whose genial influences shed peace and joy over the path of our existence, and light us with elevated hopes to the prospects of a happy eternity, can, in its unperverted results, have no such injurious effects upon the mind. 'The caviler may accuse religion of producing insanity, but he does not see how many causes of insanity it averts; how much comfort it affords to the weary and heavy laden, how effectually it buoys up the desponding, and how directly it points out to the transgressor the way of pardon and peace.'* As the result of some attention to this matter, we feel satisfied that the true remote cause of insanity, *very frequently lies behind the religious influences* which appear so conspicuous, that, at most, religion can only be accused as the *occasional or exciting cause of a disease whose foundation is completely established in the system;* that, in a great many of these cases, the mental derangement will be found mainly to depend upon ill health, or that peculiar debility and irritation of the nervous system which so frequently follow various acute disorders that severally try the organic structure, and, in not a few instances, so far is the disease of the mind from a religious origin, that it is clearly and properly chargeable to the indulgences of vicious habits. It is certainly a fact, that a maniac may imbibe a religious, as well as any other extravagant delusion, and yet his derangement may be occasioned by the reverse of any thing like a religious cause. Some, indeed, never appear to speak seriously upon the subject of religion, only when they are crazy, and then it would seem as if the anguish of remorse had commenced a drill upon the disturbed and distracted conscience. 'But the religious only *appear* to constitute the largest number of exciting causes in our annual reports; for if we carefully analyze the tables, and faithfully consider those of intemperance, ill treatment, domestic trouble, jealousy, masturbation, and perhaps several others, with a fair proportion of the unknown, it will be found that vice predominates, and its victims far exceed all others."—Journal of Psychological Medicine, Vol. III. pp. 474, 475.

On this subject Morel says: "All the depressive forms are far from presenting such symptoms. There are certain melancholic patients who, with the external symptoms of sadness, feel a certain pleasure in remaining concentrated upon their delirious conceptions. They finish by believing themselves exceptional men; the hallucinations of sight and hearing, frequent in them, tend to keep up these new ideas. It is not unfrequent to see individuals who were first presented to our observation with a delirium of humility, become, in consequence of the systematization of their ideas, impressed with the belief that they are prophets, New Messiahs, &c. The depressive form is then replaced by the form accompanied with excitement, and we have regular maniacs to treat. An old gendarme, pursued for a long time by the blackest ideas, and thinking himself damned, is to day a maniac of this description, (and these are often the most dangerous.) He thinks himself the husband of the Virgin, he sees and hears her, he receives her inspirations, and as these cannot separate themselves completely from the prejudices he formerly imbibed in his terrors, he pursues us with his anathemas, and daily predicts for us the most horrible end.

"Another lypomaniac who has spent all his fortune in travelling to the most celebrated spots of Christendom, in hope of finding a relief for his exaggerated fears of Hell, is to day in a veritable state of exaltation, because the Holy Ghost has revealed itself to him. The heavens are open to his looks; the Apocalypse has no longer any mysteries for his mind; if we attempt to combat his follies, he overwhelms us with scorn and contempt and will not answer men, who only live in the lust of their passions and in the corruption of the flesh. Insane of this class have been called demonomaniacs, but they do not always present themselves in such a high state of exaltation. The following is a case of lypomania, which would formerly have been considered as a perfect example of demonomania: S——, is twenty-three years old, and the exaggeration of his religious feelings has been the starting point of his insanity. Two years ago S. still worked and talked; since then he will no longer do any thing, or answer any question. The hesitation that he showed in performing the most ordinary acts of life, alone indicated his

* Dr. Woodward.

"III. To inculcate the doctrines, as well as the precepts, of revealed religion upon the human mind, at the earliest period of its capacity to receive them, is the clear scriptural duty of all persons who have the care of children and youth.

superstitious terror, and the excessive fear of offending God that possessed him. He was constantly reproaching himself for imaginary faults, and spent his time in fastings that destroyed his health. It often happened that he no longer wished to eat, and when by the use of the douche we compelled him to take nourishment, he murmured in a low voice, "That Thy will, Lord, may be done; pardon them, they know not what they do: what happiness it is to die for Thy holy name." A moment out of sight, and he would place himself upon his knees, and remain in that position entire days, wrapped up in his fixed idea, and beating his head against the wall. A year ago, I tried to make him go to chapel, and was astonished at his opposition; he clung to the door and made an extraordinary resistance, notwithstanding his state of extreme emaciation. When, to-day, they threaten to conduct him to chapel, when any one brings a crucifix near him, or attempts to make the sign of the cross upon him, his sensations are shown in a striking manner in the expression of his face, and in his gestures. His face becomes flushed, he sighs profoundly, stops his ears, and his resistance betrays itself in a struggle, in which he displays a violence and an energy of which one would not think him capable." See Études Cliniques des Maladies Mentales, par M. Morel. Tome I. p. 391. Paris, 1852.—Also, Études Psychologiques sur l'Aliénation Mentales, per L. F. E. Renaudin. Chap. X. p. 674. Paris, 1854.

"Religious monomania," says M. Renaudin, "which for a long time was thought to be more common in women than in men, appears to divide itself equally between the two sexes. But it exhibits in its manifestations the influence peculiar to the physical and moral idiosyncrasy of each. The hysterical element in women plays an important part, and the ecstatical state in them is more convulsive than in man; and this explains to us the reason why the devil figures more in delirium in that sex. The immunity of the Romish clergy, socially speaking, from this form of mental unsoundness may be attributed to the principle of authority that governs them, which they can sometimes evade, but from which they can never escape. Besides the clerical life is an active one, and if it does present something exceptional which separates it from men, the obligations of the ministry temper whatever danger this isolation may possess. Communities of women, on the contrary, present more numerous openings to this disease, especially when they are submitted to the danger of a contemplative life. This temper is not unlikely to terminate in exhaustion and lypomania, or hysterical mania.

In religious monomania we meet with all the characters of active over excitement of the general sensibility, and of the most energetic concentration of psychical intuition. It may or may not be complicated with the errors of the individual, and generally borrows some traits from the affective sentiments. If it reconciles itself sometimes with marked intellectual ability, it ordinarily has for a starting point some special predisposition, which is less properly called a religious character than a vague and uncertain religiousness.

The same acute though not always reliable thinker proceeds to recognize a special cause of Fanatico-Mania, arising from the distress of mind provoked by the reading of mystical works, or of the wilder class of forced prophetical interpretations, forming in this way the first step towards the incubation of the disease. Sometimes also as a consequence of the impression of depressing causes, the individual draws the resistance, which he makes to the circumstances in which he may be placed, from misplaced fanatical assumption; (*e. g.* that of spirit-rapping,) he reacts strongly against his own grief or disappointment on this false basis, and active over-excitement is the result. Fear and remorse, when acted against by the same loose motives, lead to the same consequence. Fanatico-mania is frequently connected with either organic or dynamic affections of the chest or abdominal viscera. If there are among such patients any examples of longevity, it is when the anæsthetic ecstasy is reproduced only at long intervals. The system with difficulty accommodates itself to this convulsive spasm, and above all to the fastings and mortifications which are its habitual consequence; and a proper maintenance of the vital forces rarely resulting. The anomalies of sensation are greatly multiplied, and the impressions received, apart from the period of ecstasy, are much more durable. It is especially amongst these monomaniacs that perversions of the affective feelings are observable. The *real* and the *morbid* religious feeling may be in fact distinguished from each other by the test of selfishness. The man who yields to the false impulse has neither family nor country; provided that he gains his salvation, the rest is of but little importance. If he wishes to control others, it is more through intolerance than charity. Under

"IV. To neglect or delay such an encouragement of the religious sentiment, from any apprehension of developing a tendency to "cerebral disease," is as unphilosophical and fatal, as it would be to withhold all food from a child through fear of strangling it, or destroying its digestive organs.

"V. The due apprehension and influence of religious truth, as revealed in the scriptures, constitutes the best preservative against mental aberrations—especially such as are supposed to originate in moral causes.

"VI. The earlier the mind is brought under the supreme influence of religious truth, the more likely it is to retain its integrity, when the exciting occasions of derangement occur."(*n*)

An additional illustration of the truth of these positions is to be found in the late development of Spirit-Rapping. Precisely to the degree in which the alleged Spiritual developments depart from the dogmas of Christian Revelation, are they associated with mental derangement. As long as the "media" profess to be orthodox, so long do they keep within the bounds of right reason. With them, however, as with the Mormons, deviations from the *moral* law keep pace with deviations from the divine. Thus the cases of "spiritual marriages," of which we have lately heard, have been preceded by alleged supernatural communications, vacating the Scriptural precepts. And a careful examination of the cases of insanity produced by Spiritualism shows that in each instance, *infidelity* became a concomitant.(*o*)

§ 219. Crimes committed under the influences of fanatical impulses, such as those which have been just mentioned, may be considered in the same light as crimes committed in a state of drunkenness. In the latter case, an individual who knowingly takes intoxicating liquor, cannot defend himself on the fact of guilt by proof of his intoxication. It is otherwise, however, when the guilty act is the immediate result of *mania-a-potu*, in which case the malady has assumed the shape of a substantive and permanent desire, and like any other delirium, is to be treated as destroying responsibility.(*oo*) In like manner, the voluntary adoption of a religious belief which includes among its incidents a known violation of law, does not relieve the party who commits such violation of law under such influences, from responsibility. If, however, he sink into consequential delirium, and then commit the crime, he is irresponsible.(*p*)

the influence of this excitement, the voice of nature is not heard, and history bears witness to the crimes which fanaticism has been led to commit. Every affection, every duty is sacrificed to this exclusive sentiment; and whilst a well understood religion enjoins love to God and our neighbor, blind fanaticism produces selfishness." See Renaudin sur l'Alienation Mentale. Paris, 1854, chap. x. p. 744.

(*n*) Ibid.

(*o*) See on this topic a most able but, in some respects, eccentric Volume, under the title, "The Apocatastasis, or progress backwards, a 'new tract for the times.' Burlington, Chauncey Goodrich, 1854," to which the reader is referred for a very effective exhibition of the absurdity of the whole Spirit-rapping system.

(*oo*) See *ante*, § 62–70.

(*p*) See an essay on this point, 3 Am. Jour. of Insan. 166.—See also for a report of Thom's case, Ibid. 170.

(9.) *Politico-Mania.*(q)

§ 220. "Psychical infection," to use the expressive term of Ellinger, is peculiarly operative in political relations. Attempts at insurrections, acts of lawlessness against government, murderous assaults upon public officers, become at times epidemic. Marc illustrates this by the cases in which public conspicuous crimes have become contagious; *e. g.*, arson and murder. The tendency to seditious violence is generated by an oppressive government bearing on temperaments tainted with just such an infection.

§ 221. "Certain forms of government," says Dr. Rush, "predispose to madness. They are those in which the people possess a just and exquisite sense of liberty, and of the evils of arbitrary power against which complaints are stifled by a military force. The conflicting tides of the public passions, by their operations upon the understanding, become in these cases a cause of derangement. The assassination of tyrants and their instruments of oppression is generally the effect of this disease. That madness is thus induced, I infer from its occurring so rarely from a political cause in the United States. I have known but one instance of it, and that was of a gentleman who had been deranged some years before, from debt contracted by extravagant living. In a government where all the power of a country is representative and elective, a day of general suffrage, and free presses, serve, like chimneys in a house, to conduct from the individual and public mind all the discontent, vexation, and resentment which have been generated in the passions by real or supposed evils, and thus to prevent the understanding being injured by them. In despotic countries, where the public passions are torpid, and where life and property are secured only by the extinction of the domestic affections, madness is a rare disease. Of the truth of this remark, I have been satisfied by Mr. Stewart, the pedestrian traveller, who spent some time in Turkey, also by Dr. Scott, who accompanied Lord M'Cartney in his embassy to China, and by Mr. Joseph Rexas, a native of Mexico, who passed nearly forty years of his life among the civilized but depressed natives of that country. Dr. Scott informed me that he heard of but a single instance of madness in China, and that was in a merchant who had suddenly lost £100,000 sterling by an unsuccessful speculation in gold dust."(r) With regard to Mexico and China, however, recent observations show that these remarks should be greatly qualified.

VIII. Mental unsoundness as accompanied with intellectual prostration.

1st. *Idiocy.*(s)

§ 222. "Idiocy," says Dr. Ray, "is that condition of mind in which

(q) See on this point "Influence des Evénemens et des Commotion Politiques sur le Développement de la Folie. Par le Docteur Belhomme. Paris, 1849;" and a review of the same in Jour. Psych. Med., Vol. III. p. 31.

(r) Rush on the Mind, pp. 66, 67.

(s) Krahmer, Handbuch der Gericht. Med. Halle, C. A. Schwetschke, 1851, § 110, 125. Siebold, Lehrbuch der Gericht. Med. Berlin, 1847, § 200.

See on this point the following works: The Principles of Medical Psychology, being

the reflective, and all or a part of the affective powers, are either entirely wanting, or are manifested to the slightest possible extent."(*t*) The intellectual and moral faculties, in cases properly falling under this head, are almost null, the effect being in most instances congenital, and arising in all cases from want of development, not from perversion of the functions. And the development of the senses is almost equally defective.(*u*) The power of speech does not exist, or exists only so far as to enable the patient to articulate a few unintelligible monosyllables. This incapacity depends sometimes on the imperfect conformation of the organs of speaking, sometimes upon those of hearing, but more frequently on a deficiency in or want of the powers of imitation; so that even when the hearing and the speech are both entirely mature, the patient remains unable to do more than in the one case to show his knowledge of the existence of sound, and in the other, to give utterance to noises not above, if equal to, those of the brute creation. Taste and smell are equally imperfect. In many cases there is an inability to perceive odors, and in most, nothing but the coarsest discrimination in the selection of articles of food. Wallowing in personal filth, devouring even excrement with apparent avidity, indisposition to eat at all unless food be placed directly before the eye, drinking urine with as little appearance of distaste as water, are incidents one or more of which are to be found in almost every case of idiocy. And the same low grade of sensibility and of flexibility is found in the purely physical system. The nerves are almost torpid. Limbs sometimes have been amputated without apparent pain, and Esquirol even tells us of labor having been undergone without the patient being conscious of the fact or of its meaning. The arms are frequently of unequal length, and misshapen; and the limbs generally are crooked and feeble. A careless and broken gait distinguishes them in most cases. Even the eyes are defectively hung, and seem incapable of poising themselves at a right level. And in the lower class of cases there is sometimes so great a defectiveness of vision as to prevent the patient from perceiving the most obvious objects. And even when the powers of vision and of motion exist, the intellectual powers are sometimes so attenuated as to make attempts to reach a desired point, entirely abortive, though there be entire muscular power for such a purpose.

§ 223. While, however, the reasoning powers are almost entirely defective, there is sometimes a perceptible, though unequal, development of the moral sentiments. Self-esteem,(*v*) love of approbation, religious awe, sometimes assume a supremacy over the system, which is the more marked because it is checked by no countervailing qualities. Dr. Rush tells us of an idiot who spent his life in little acts of benevolence to others, though in the dispensation of them, as well as in all other points in his life, he showed no reasoning powers whatever. Re-

the outlines of a course of lectures by Baron von Feuchtersleben, M. D. Vienne, 1845. Translated from the German by the late H. Evans Lloyd, Esq. Revised and edited by G. B. Babington, M. D., F. R. S., &c. London. Printed for the Sydenham Society, 1847: p. 354. Morel, sur les Maladies Mentales, Vol. I. p. 52. Paris, 1822.

And see a very remarkable report by Samuel Kneeland, Jun., M. D., read before the Boston Soc. for Med. Improvement, Jan. 13, 1851; Am. Jour. of Med. Science, 1851; and a review of the same Journal of Psychological Med., Vol. IV. p. 366.

(*t*) Ray, § 51. (*u*) Esquirol, 466. (*v*) Ray, § 53.

ligious veneration and awe is sometimes developed to an exaggerated degree, expended upon the most unnatural objects. Vanity,—such as that which distinguishes some branches of the brute creation,—finds with them a pregnant place. And Esquirol gives us numerous instances in which the talent for thieving, and that to a very remarkable extent, was found associated with entire vacuity of mind in all other relations. The same observation applies, though in a much less marked extent, to the sexual propensities.

§ 224. The following useful classification of these beings is made by Mr. S. G. Howe:

"IDIOTS of the lowest class are mere organisms, masses of flesh and bone in human shape, in which the brain and nervous system have no command over the system of voluntary muscles; and which consequently are without power of locomotion, without speech, without any manifestation of intellectual or affective faculties.

"FOOLS are a higher class of idiots, in whom the brain and nervous system are so far developed as to give partial command of the voluntary muscles; who have consequently considerable power of locomotion and animal action; partial development of the intellectual and affective faculties, but only the faintest glimmer of reason, and very imperfect speech.

"SIMPLETONS are the highest class of idiots, in whom the harmony between the nervous and muscular systems is nearly perfect; who, consequently, have normal powers of locomotion and animal action; considerable activity of the perceptive and affective faculties, and reason enough for their simple individual guidance, but not enough for their social relations."(*w*)

§ 225. It does not take the case out of the definition of Idiocy, that some particular faculty has been saved from the general wreck. This is often the case, particularly with music. Thus there is at present in the Saltpetriere a girl idiotic to an extreme degree, who does not speak, and cannot even dress herself. However, her keeper has recently discovered in her a decided taste for music. She often can repeat faithfully a whole passage of music played or sung to her only once; even if the passage is left incomplete, in repeating it she will terminate it in the right key and tone. A first rate performer on the piano was brought to play to her, and her transports amounted almost to frenzy. At certain passages of rapid transitions from flats to sharps, she uttered cries of transport, and commenced biting her fingers to calm her emotions. She is an immense eater, and greedily snatches at fruit; but the moment she hears the instrument, she stops until the music has ceased.

Mr. Howe mentions an idiot, who had an astonishing power of reckoning. "Tell him your age, and he will, in a very short time, give you the number of minutes."

§ 226. The following statement by Esquirol will throw much light on this phase of mental unsoundness: "With each case of idiocy which I have published in this Chapter, I have also given the admeasurements

(*w*) Second Report of the Legislature of Massachusetts, by the Commissioners appointed to inquire into the condition of Idiots within the Commonwealth. By S. G. Howe, pp. 147. Boston, 1848. Senate Doc.

of the head taken during life. By bringing them together we may compare the means with the results obtained by my young confreres; time will not permit me to do it. For those who are fond of those kind of investigations, I subjoin a table of the mean results of admeasurement of the head taken from a woman in the enjoyment of good health, and from plaster casts taken after their death, in the case of thirty-six insane women, seventeen imbeciles and seventeen idiots. In the case of three idiots, whose heads were very small, the admeasurements were taken from the crania.

TABLE OF CRANIAL ADMEASUREMENTS.

	Circumference.	Antero posterior curvature.	Antero posterior diameter.	Traverse diameter.	Totals.
Women in a state of health,	21.87 in.	13.30 in.	6.98 in.	5.29 in.	47.44 in.
Insane,	20.82	11.50	6.96	5.67	44.95
Imbeciles,	20.19	11.49	6.69	5.63	44.
Idiots,	19.92	11.26	6.85	5.39	43.42
Idiots. Microcephalous,	15.07	7.51	4.88	4.17	31.63

From this table we learn: 1st. That the circumference of the head, according to admeasurements taken among women, enjoying the use of their reason; from insane women, imbeciles and idiots; diminishes in an almost equal proportion from the women in the enjoyment of usual health, to the idiot, deprived even of instinct. 2d. That the fronto-occipital curvature diminishes in a remarkable degree from the women in sound mind, to the insane female: whilst no variation is noticed in the insane person to the imbecile, and a difference of but six millemetres between the latter and idiocy. 3d. That the fronto-occipital diameter is the same in the case of the women enjoying the use of their reason and the insane women; and that there is a diminution of but six millemetres between the insane person and the idiot; while the difference is enormous on passing to the lowest degree of idiocy. 4th. That the bi-temporal diameter is more considerable in the case of the insane women and even the imbecile and idiot, than in that of a woman possessing the ordinary degree of intelligence. 5th. That if we suppose that the sum of those four admeasurements, express the volume of the brain; it follows that the volume of this organ, diminishing in the same proportion with the intellectual capacity; that of the cranium would be the expression of this capacity."(*x*)

§ 227. "In that remarkable obliteration of the mental faculties," says Abercrombie, "which we call idiocy, fatuity or dementia, there is none of the distortion of insanity. It is a simple torpor of the faculties in the higher degrees, amounting to total insensibility to every impression; and some remarkable facts are connected with the manner in which it arises without bodily disease. A man mentioned by Dr. Rush was so violently affected by some losses in trade, that he was

(*x*) Esquirol on Insan. Lea & Blanch. Phila., 1845. p. 473.

deprived almost instantly of all his mental faculties. He did not take notice of any thing, not even expressing a desire for food, but merely taking it when it was put into his mouth. A servant dressed him in the morning, and conducted him to a seat in the parlor, where he remained the whole day, with his body bent forward and his eyes fixed on the floor. In this state he continued nearly five years, and then recovered completely and rather suddenly. The account which he afterwards gave of his condition during that period was, that his mind was entirely lost; and that it was only about two months before his final recovery that he began to have sensations and thoughts of any kind. These at first served only to convey fears and apprehensions, especially in the night-time. Of perfect idiocy produced in the same manner by a moral cause, an affecting example as given by Pinel: Two young men, brothers, were carried off by the conscription, and in the first action in which they were engaged, one of them was shot dead by the side of the other. The survivor was instantly struck with perfect idiocy. He was taken home, where another brother was so affected by the sight of him, that he was seized in the same manner; and in this state of perfect idiocy they were both received into the Bicêtre. I have formerly referred to various examples of this condition supervening on bodily disease. In some of them the affection was permanent; in others it was entirely recovered from."(x)

(x) Abercrombie on the Intellectual powers, pp. 273, 274. As the different races of men, says M. Renaudin, have a characteristic physiognomy, and as individuals reflect in their features the most salient points of their moral idiosyncrasy, so the idiot in this respect presents a peculiar stamp, which the least discerning can recognize. It is a type which can be distinguished in all its varieties, even when the external conformation of the head does not differ much from the normal proportions. But that which strikes us most in this class, is the want of symmetry, not only in the encephalic organ, but also in the other parts of the body, and if sometimes the physiognomy is deceitful in this respect, the other parts of the organism soon reveal to us the want of co-operation indispensable to the complete development of man. It is rather by an observation of the whole constitution than of its separate parts, that the essential characters of this infirmity are to be detected. Idiots, generally, deceive in their age, which always offers at the different periods of their existence a ridiculous admixture of decrepitude and puerility. The hypertrophy of certain glands, the flaccidity of the tissues, malformation of external essential organs, absence of all proportion in the length of their limbs, difficulty and uncertainty in their movements which are almost convulsive, the retraction of certain tendons, an arrest of development in the figure and in muscular contractility;—such are the general appearance that characterize the idiot in his external conformation. His mode of living is in keeping with this degradation of forms, and furnishes us with the means of perceiving some of the relations existing between the physical and the moral. His language is scarcely rudimentary. He does not think, has nothing to say, and nothing in him calls for the vocal motion. When, however, this *mutism* is not idiopathic, he can be made to articulate certain words, and his movements can be placed under some moral control; but in undergoing this external influence, he still rests faithful to that automatism which is his principal characteristic. It is always a material and instinctive impulse that controls. The idiot shows, in the satisfying of his wants, a brutality in close connection with the irregularity of all his actions, and the want of balance of his functions which all coincide with personal instinct. He yields himself to onanism with a revolting cynicism; he eats with a voracity that defies everything, and which proves how obtuse his sensibility is, although he in fact suffers more than any other the unhappy effects of climacteric changes. Finally, in spite of the violence of certain appetites, the functions are so incompletely performed, that we must not be surprised to see these unfortunates very short-lived. If on the one hand nothing has wasted life, nothing on the other hand has vivified it, and one can easily conceive that it is extinguished, since it is without essential nourishment and without object.

The psychical element plays no part in such an organization. External influence is

§ 228. Cretinism finds no place in the United States, and cannot, therefore, claim here extended consideration.(*y*)

2d. *Imbecility.*(*z*)

§ 229. *Imbecility* has perhaps as many degrees as it has victims, and yet it becomes the task of psycho-forensic medicine to assign a line of demarcation within which the judge is to declare the responsibility of the agent to cease to exist. But this problem is only so far capable of solution as we are enabled to detect and recognize the existence of imbecility in general, and to estimate its relation to a given action; the personal discretion of the tribunal must always have considerable scope in all cases near the boundary line. In order to obtain as firm a common ground as possible, it becomes advisable to subdivide and classify imbecility, particularly where it depends upon particular diseased con-

unable to develop it, since the somatic element is not in a condition to receive it; and as to spontaneousness, one can but with difficulty perceive the germ. So, when these degraded beings, impelled by a brutal instinct, or obeying another's will whose instrument they are, commit a culpable act, all the world agree in not imputing to them any moral responsibility. (See Études psychologiques sur l'Alienation Mentale, per L. F. É. Renaudin, p. 170. Paris, 1854.

Idiocy, says M. Falret, cannot, strictly speaking, figure amongst the forms of insanity. In this degraded state, man is fallen below the brute; he does not even possess the instinct of self-preservation. It is necessary for charity not only to bring him the food required for his nourishment, but to place it in his mouth, and to protect him against the mischievous influences which surround him, and against all destructive causes. Instead of language, the exclusive appendage of man, since it is the expression of thought in all its development, the complete idiot only utters certain harsh, savage inarticulate sounds. Instead of that firm, assured step which executes the exact command of the will, the rough, disorderly movements of idiots seem only phenomena of irritability. Besides, they are often immovable, bent down towards the ground, and only execute a kind of rocking movement, balancing forward and backward, to the right and to the left. Without doubt this is the extreme degree of idiocy, for there are idiots less degraded in their organization, and consequently in their manifestations; but unfortunately to this feeble development of the intelligence is too often joined either an absolute want of character, or low tastes, incitations to a brutal lasciviousness, to robbery, pyromania and ferocity, which they turn against themselves and against inanimate objects. (See Leçons Cliniques, de M. Falret, p. 243. Paris, 1854.)

(*y*) The student, however, who seeks for particular information as to its character, is referred to the following treatises: Etudes des Maladiés Mentales, de M. Morel. Tome I. p. 64. Paris, 1854. Gedanken über Kropf und Cretinismus als Beitrag zur Homatologie und Homonymie. Von Joh. Mich. Huber, Geritchswundarzt zu Ried in Tyrol. Mit einer Abbildung. (Medicin. Jahr. des k. k. österr. Staats, Mai.) Ueber den Cretinismus in Canton Waadt in der Schweiz. von Dr. H. Lebert, prakt. Arzt zu Paris. (Archiv für physiologische Heilkunde VII. B. 6 Heft.) Notice of a remarkable disease analogous to Cretinism. By Hugh Norris; Med. Times, Jan. 1848. Les goiteux et les cretins de la Savoie; Annales de Therapeutique, 1848. Mais, Ueber den Cretinismus in grossen Städten und dessen Aenlichkeit mit dem in den Alpen. Von Dr. Behrend. (Gaz. des hôpitaux, 1848. Nos. 6 and 7.) Cretinismus als genetisch—contagiöse Endemie in Neudenau, &c. Bad. Annalem d. Staats-Arzneikunde, 1846. Esquirol, Mental Maladies, &c., 481–2. Sonsburg, ueber den Cretinismus. Wurzb., 1825. Haüflser, ueber die Beziehung des Sexualsystems zur Psyche ueberhaupt und zum Cretinismus ins besondere. Würzb., 1826. See also a very valuable report on this point, by Samuel Kneeland, jun., M. D., read before the Boston Soc. for Med. Improvement. Jan., 13, 1851. Am. Jour. of Science, 1851; and a review of the same in Journal of Psychological Med. Vol. IV. p. 366. See also "A Physician's Holiday, or a month in Switzerland in the summer of 1848. By John Forbes, M. D., F. R. S." London, 1848; in which the management of the Cretins is fully described.

(*z*) Siebold, Lehrbuch der Gericht. Med. Berlin, 1847. § 200. L. Krahmer, Handbuch der Gericht. Med. Halle; C. A. Schwetschke, 1851. § 125. Études Cliniques des Maladies Mentale, par M. Morel. Tome I. p. 39. Paris, 1854.

ditions capable of ascertainment and distinction. In this respect we distinguish, in the first place, *imbecility with*, and *imbecility without concomitant insanity*.

§ 230. *Imbecility with concomitant insanity* presents the following subdivisions:

1. The original imbecility which has lapsed into unsoundness of mind. The nature of the latter will determine in the first instance, in how far the patient is amenable to the penal laws in a given case; but the fact of imbecility will always favor the psychological arguments in favor of irresponsibility.

2. Imbecility supervenes upon the course of a mental disorder, and manifests itself particularly in the form of a failure of memory. The question of responsibility will depend in this case, upon the same principles as stated in the last preceding head.

3. *Specious imbecility*, as in the case of *melancholia attonita*, and as such will receive but little attention at the hands of the forensic physician.

4. *Imbecility with confusion of mind.* This is found side by side with a failure of memory, and a more or less conspicuous incoherence and inconsistency of the perceptions, and a certain agility and activity of the super-physical life. It is either a primary or secondary form, and in the *former* case it may be consequent upon severe diseases of the brain, epilepsy, intemperance, sexual excesses, and senility; in the *latter* case it may arise from the various forms of mental unsoundness, and may be considered as always excluding the idea of moral responsibility.

5. Imbecility remaining after the patient has recovered from an attack of insanity. It will never contain a sufficient reason for suspending the responsibility of the agent, but may often deserve the attentive consideration of the judge in the moulding of the sentence.(*a*)

(*a*) In some circumstances, says M. Renaudin, the idiotic germ is less prominent, nothing tends to reveal it in infancy, and the early years lead us to expect a normal ulterior development. But it may happen that a severe disease, deeply affecting the organism, supervenes, or the subject may have been submitted to an intellectual labor above his powers, and at a given moment an arrest of development, as much in the physical as in the moral system, shows itself. This condition sometimes supervenes even without the action of any apparent cause and then we can only attribute it to the influence of this idiotic principle. Instead of pursuing the course marked out by the laws of nature, it is arrested at a point of development, rarely transitory but most generally permanent, which is known every where under the name of imbecility. The physical organization in imbeciles offers less abnormities than that of idiots; the body is straighter and if the physiognomy is less repulsive and shows a little more regularity in its features, it exhibits but little animation. The feelings are seen in their rudimentary state in this class of beings; they are susceptible of a more advanced education and when they belong to a family of easy circumstances, they can be made to submit themselves to the habits of a regular life. The impressions they receive are sufficiently durable, providing they do not overstep a sufficiently restricted limit. They are susceptible of a certain amount of memory, which in some cases reaches a very remarkable height. Sometimes the ideas they acquire are very limited and their intellectual spontaneousness is on a footing with the small development of their physical spontaneousness. Although less stupid than the idiot, automatism is the characteristic trait of the imbecile. He never gives the impulse, he receives it; and it is amongst the imbeciles that an asylum especially finds valuable aids in its internal service. If the affective sentiments are but feeble, the instinct of the feeling of personality shows itself perhaps in an absurd vanity, or in a savage egotism in the satisfaction of wants whose stimulus is ordinarily very energetic. Hence an excessive irritability that readily degenerates into mania, or a malicious cun-

§ 231. *Imbecility without insanity* has several gradations, all being separate denominations; the highest degree is called *idiocy*. Next to this is *imbecility* proper; *dullness*, *feebleness*, *stupidity*, are inferior grades of a stunted growth of mind. The reasons which, in the higher stages, exclude understanding and self-control are the more potent, as no education has been imparted here, or, if imparted, has produced no effect. The lower stages do not justify the physician in casting a doubt upon the existence of legal responsibility. They are for the consideration of the judge alone, and are interesting in this point of view, because simpletons and fools often have a touch of malice, brutality, ill-will, and mischief in their dispositions, and may be led, by teasing and ill-treatment, to vindictive hatred, revenge, and violent outbursts of anger.

§ 232. The Emperor Napoleon hits upon a very happy illustration of the distinction between two of the above mentioned phases. In one of his conversations with Las Casas, he said that there was such a thing as "*folie innocente*," and "*folie terrible*,"—a fatuous state which is safe, and one which is dangerous. A fatuous person "*un fou*," of the first kind, the Emperor describes as reasoning with the proprietor of a vineyard in which he was trespassing, thus: "Why, here are we two: the sun sees us both; therefore, I have a right to eat grapes." The "*fou terrible*," he proceeds, "is he who cuts off the head of a man whom he found sleeping under a hedge; then hid himself behind it, in order to witness the surprise—*embarras*—of the body when waking."

"Of these half-witted persons," remarks Dr. Mayo, "the former indulges a love of grapes, the latter a love of bloodshed: the process of thought in each case is that of a *deficient* understanding, which could neither prevent the one from stealing grapes, nor the other from committing violence under the influence of opportunity, but rather forwarded the crime by suggesting excuses." "An idiot," says Dr. Hainsdorff, "in the Hospital of Salzburg, appearing to be singularly insusceptible of fear, an experiment of an appalling character, and of appalling consequences, was made upon him, as a means of putting his susceptibility to the test. It was proposed to make the impression upon him that he saw a dead man come to life. A person accordingly laid himself out as a corpse, enveloped in a shroud; and the idiot was ordered to watch over the dead body. The idiot perceiving some motion in the corpse, desired it to lie still; but the pretended corpse raising itself, in spite of this admonition, the idiot seized a hatchet, which unluckily was within his reach, and cut off first one of the feet of the unfortunate counterfeit, and then, unmoved by his cries, cut off his head. He then calmly resumed his station by the real corpse;—a

ning, in order to obtain the thing coveted. The imbecile has but few ideas; and as he knows but little abandons himself to his impulses when fear does not control him. But little capable of distinguishing between good and evil, he may be a dangerous instrument in criminal hands. The imbecile commits a murder with coolness, shows often a great depravity of tastes, and it is only an exception, if you can perceive in him any rudimentary traces of the moral sense. It is at this point that his intellectual aptitude ceases, and we can easily understand how a like condition necessarily excludes all responsibility.—*Renaudin sur l'alienation Mentale.* p. 173. Paris, 1854.

strong illustration of the dangerous hypothesis of harmlessness as connected with this state of mind."(*b*)

§ 233. "Dr. Rush says," we quote from Dr. Ray, "that in the course of his life he has been consulted in three cases of moral imbecility; and nothing can better express the true character of their physiology, than his remark respecting them. 'In all these cases,' he observes, 'there is probably an original defective organization in those parts of the body which are occupied by the moral faculties of the mind,'—an explanation which will receive but little countenance in any age that derives its ideas of the mental phenomena from the exclusive observation of mind in a state of acknowledged health and vigor. To understand these cases properly, requires a knowledge of our moral and intellectual constitution, to be obtained only by a practical acquaintance with the innumerable phases of the mind, as presented in its various degrees of strength and weakness, of health and disease, amid all its transitions from brutish idiocy to the most commanding intellect.'"(*c*)

(*b*) Mayo on Medical Testimony in Lunacy, pp. 93, 94.

(*c*) Ray on Insanity, p. 90.

In a course of clinical lessons delivered at Bicêtre, M. Ferrus gives an account of the different intellectual debilities in a way that throws a strong light upon these difficult questions:

Between idiocy and dementia, he says, there is a most striking analogy. In both cases, human intelligence is abolished; it no longer possesses the means of perfectibility. But the analogy ceases in examining the producing causes. With the idiot, deprivation of reason is congenital; the demented, on the contrary, arrives progressively at the total loss of his faculties. Dementia is the abolition of the intellectual faculties, both moral and instinctive, supervening after the period of puberty: it is a kind of debility which appears either in an insensible manner or with the rapidity of lightning,—breaking, more or less, all the connections which unite the man with the rest of the world.

The characters of dementia are sufficiently decided, so as not to be confounded with those of other mental affections. In idiocy, the faculties of the mind have never existed, or have been destroyed before their complete development. In dementia, you may still possibly see some traces of an intelligent past; but it betrays in vain its past perfection: it is stamped forever with the seal of feebleness and nullity, and destined to be extinguished by a kind of exhaustion of nervous influence.

Stupidity consists in an accidental, sudden, complete abolition of the intellectual, moral and instinctive faculties, as well as of the movements. It has for its cause a sudden and violent physical or moral shock: it is distinguished from dementia by the rapidity of its appearance, the intensity of its symptoms, their frequent remission and exacerbation, and especially by the possibility of a complete cure.—Ferrus, leçons cliniques faites à Bicêtre.

Dementia, says Esquirol, is characterized by the enfeeblement of the sensibility, intelligence, and will. Incoherence of ideas; want of intellectual and moral spontaneousness, are the signs of this affection. The man suffering from dementia has not the faculty of properly receiving objects, of noticing their relations and comparing them, of preserving a complete remembrance of them; whence results an impossibility of reasoning correctly. In dementia, he adds, the impressions are too feeble; it may be because the sensibility of the organs, or of the sensations, is weakened; or it may be because the brain itself has not sufficient power to perceive and retain the impression that is transmitted to it. From this it necessarily results that the sensations are languid, obscure, and incomplete. Individuals in dementia are not susceptible of a sufficiently strong attention,—objects only strike them in an obscure and false manner: they can neither compare nor associate ideas, nor abstract them; the organ of thought has not sufficient energy,—it is deprived of the tonic force necessary to the integrity of its functions. Then the most incongruous ideas succeed each other, following each other without connection and without motive: the matter is incoherent; the patient repeats words and entire phrases without attaching to them distinct sense; he speaks, as he reasons, without any consciousness of what he is saying.—(Esquirol de la demence, p. 221.) The demented, in spite of the general decrepitude of his organic functions, is not freed from the laws of

3d. *Dementia.*(*d*)

§ 234. "This form of Insanity," says Dr. Ray, "is attended by a general enfeeblement of the moral and intellectual faculties, which were originally sound and well developed, in consequence of age or disease, and is characterized by forgetfulness of the past, indifference to the present or future, and a certain childishness of disposition. The apparent similarity of this state to that of imbecility or idiocy, renders it necessary that they should be accurately distinguished; for nothing could be more improper or unjust than to view them merely as different shades of the same mental condition. Idiocy and the higher degrees of imbecility are congenital, or nearly so, and consist in a destitution of powers that were never possessed."(*e*)

"Dementia," continues the same high authority, "is distinguished from general mania, the only other affection with which it is liable to be confounded, by characters that cannot mislead the least practiced ob-

action and reaction. There are periods in his existence when the old phenomena of possession appear to be renewed. When he is agitated, he cries and tears his clothes, and may, perhaps, perform some dangerous actions. The hallucinations are often sufficiently intense to provoke veritable attacks of fury; but this rage lasts but a little while; it is appeased like the anger of a child.

The demented from this excited state falls back into his ordinary automatonism. He has no more any wishes, hate, or tenderness; he holds the objects formerly so dear to him, in the greatest indifference; he sees his relations and friends without pleasure, and leaves them without regret. He is not disquieted by any privations imposed on him; and pleasures obtained for him gratify him but little. What goes on around him does not affect him. The events of life are as nothing to him, since he is unable to attach any remembrance, any hope to them: indifferent to every thing, nothing gratifies him. He laughs and plays whilst other men are afflicted, and weeps when all the world is satisfied. If his position discontents him, he does nothing to change it. His determinations are vague and uncertain: he is a perfect automaton, that has not sufficient energy to be ungovernable: his isolation is the more necessary, as he yields himself to acts which are the result of the abolition of conscience, and as he becomes but too often the sport and the victim of those who wish to take advantage of his condition.—See Morel sur les Maladies Mentales, Tome I. p. 402. Paris, 1852.

Dementia, according to Falret, is a period, and not a true form of mental unsoundness. Amongst the demented, who are only the chronic insane arrived at an advanced stage of the disease, there are some who are agitated like maniacs, and some who remain motionless, like hypomaniacs. There are others in whom are seen some predominant ideas,—resembling, in this respect, monomaniacs; but it is difficult to classify them. If they speak, their unconnected words have no relation, and convey no sense; often even this is not due to incoherence alone, but to the absence of ideas: it is a flow of words without thoughts.

If they remain quiet and silent, their countenances express neither concentration or passion, but dullness and stupidity; they seem, at least in extreme cases, to be ciphers both in understanding and character. The observer, in fact, sees in them only ruins: he sees before him all the moral and intellectual elements in an almost complete state of isolation from one another. This separation is a kind of dissolution which betrays the radical blow that has been inflicted upon the psychical forces, and destroys all hope of ever seeing these elements united and coördinate. If sometimes a gleam of intelligence sparkles in this chaos, and in the midst of these ruins,—far from consoling, it adds to the gloom, so manifest is it that the patient himself is neither its author nor its witness. Every thing, in fact, in dementia, betrays an inability to form ideas, to experience sentiments, to possess a will. It is the tomb of reason, with the exception of some flashes that mark it, and which are, as it were, the reflections of the ancient brilliancy of the mind.—See Études cliniques sur l'Alienation Mentale, par M. Falret, p. 242. Paris, 1854.

(*d*) L. Krahmer, Handbuch der Gericht. Med. Halle, C. A. Schwetschke, 1851 § 125; Siebold—Lehrbuch der Gericht. Med. Berlin, 1847, § 200; and also see *post*, § 233, *n* (*c*.)

(*e*) Ray on Insanity, p. 291.

server. The latter arises from an exaltation of vital power, from a morbid excess of activity, by which the cerebral functions are not only changed from their healthy condition, but are performed with unusual force and rapidity. The maniac is irrational from an inability to discern the ordinary characters and relations of things, amid the mass of ideas that crowd upon his mind in mingled confusion; while in dementia, the reasoning faculty is impaired by a loss of its ordinary strength, whereby it not only mistakes the nature of things, but is unable, from want of power, to rise to the contemplation of general truths. The reasoning of the maniac does not so much fail in the force and logic of its arguments, as in the incorrectness of its assumptions; but in dementia the attempt to reason is prevented by the paucity of ideas, and that feebleness of the perceptive powers, in consequence of which they do not faithfully represent the impressions received from without.

"In mania, when the memory fails, it is because new ideas have crowded into the mind, and are mingled up and confounded with the past; in dementia the same effect is produced by an obliteration of past impressions as soon as they are made, from a want of sufficient power to retain them. In the former the mental operations are characterized by hurry and confusion; in the latter by extreme slowness and frequent apparent suspension of the thinking process. In the former, the habits and affections undergo a great change, becoming strange and inconsistent from the beginning, and the persons and things that once pleased and interested, viewed with indifference or aversion. In the latter, the moral habits and natural feelings, so far as they are manifested at all, lose none of their ordinary character. The temper may be more irritable, but the moral disposition evinces none of that perversity which characterizes mania.

"In dementia, the mind is susceptible of only feeble and transitory impressions, and manifests little reflection even upon these. They come and go without leaving any trace of their presence behind them. The intention is incapable of more than a momentary effort, one idea succeeding another with but little connection or coherence."(*f*)

IX. Mental unsoundness accompanied with delirium.

1st. *General Delirium.*

§ 235. What distinguishes delirium from the delusions of the senses is, that in the latter the sensational faculties are really acted upon, subjectively, though in an eccentric manner, while in the former the interior reproductive activity of the brain predominates in the generation of phantoms.(*g*) Consciousness is disturbed at the same time, and there is incoherent speaking and action, as if it were a waking dream. External objects are perceived indistinctly, or not at all, and on the whole there is the less delirium, the more activity there is in the peripheric nerves, for which reason hydrocephalic children generally relapse into delirium when they cease vomiting. The external senses may, however,

(*f*) Ray on Insanity, pp. 292, 293.
(*g*) Haygen. Vol. II. p. 707; Schürmayer, &c. § 555.

be at the same time open to perceptions, and may convey them; but the patient is so controlled by his internal dreams as to act as if they did not exist. Here there is, accordingly, a predominance of dreams, which deprives the individual of the possibility of the power of maintaining a corresponding relation with the external world. Delirium may, therefore, be defined as a state of dreams brought on, not by sleep, but by disease. Like a dream, a delirium may become active, the beginning of which is the speaking delirium. Where a crime or misdemeanor proceeds from a delirium, there is no freedom of agency, *i. e.*, the action is to be regarded as the product of a morbid state of mind.

It is judicious for forensico-medical purposes, to distinguish particularly the following forms of delirium:

§ 236. (a.) *Depressed Delirium*, which is both passive and active.

§ 237. (b.) *Maniacal delirium*, which comprises several varieties, depending upon the frame of mind by which it is accompanied.(*h*)

(*h*) The most remarkable phenomenon of mental unsoundness (we translate from Morel) is unquestionably delirium, whether it shows itself in words or deeds. Delirium, considered as an essential symptom of insanity, should possess a type of continuity, should connect itself with lesions of a special nature, and should present altogether the elements of a certain systemization of the frenzied conceptions. This systemization alone gives to the delirium which produced it, a particular stamp. It shows off what has been called the fixing of ideas, and that logic peculiar to the insane that leads them to the justification of the falsest conceptions, and the most deplorable acts. If it was otherwise, who could have flattered himself that he had escaped insanity; for we have all suffered in a more or less degree the phenomena of delirium. We are delirious during fever, under the influence of spirituous liquors, as also of some narcotics. Febrile delirium is a generic term comprising the universality of abnormal phenomena that can in a more or less permanent manner, in a given disease, hinder the association of our ideas, or that directs this association in the way of producing illusions and hallucinations of all kinds.

The word insanity is likewise a generic expression for pointing out the universality of the abnormal phenomena which, under the united influence of physical and psychical causes, can, in a more or less permanent manner, pervert our manner of feeling and seeing, or in other words, bewilder our understanding.

In this point of view, febrile delirium and the delirium of madness are the same, inasmuch as deliriums are identical; but it is excessively important not to confound the symptoms with the diseases that produced them.

An individual suffering from an acute disease approaches the period of convalescence. At the approach of night, or whenever he shuts his eyes, fantastical apparitions besiege him. He himself recognizes that these painful impressions are the results of his fever; or if he does not recognize it at the first glance, he receives the explanations of those surrounding him. He raves before sleeping, and it is not strange if he still raved under the influence of the depression as well as of exaltations of the organs of the senses. Upon awaking, he makes known to his relations and friends the fatiguing sensations that his dreams have produced, and seems to search with eagerness for explanations to reassure him. As he returns to consciousness, the motives of his judgment become more certain, the tumult of his bewildered senses is appeased, the nights are quieter, and when convalescence follows an ascending course, there only remains a vague and confused remembrance of the stormy scene through which he has passed

Things, unfortunately, do not pass so when the delirium has a tendency to the permanent or chronic form; and it is this which makes the essential difference between properly called febrile delirium, and maniacal delirium. There may be a period when these two deliriums possess the same external characteristics on account of the similitude of the perverted sensorial phenomena; but when the phenomenon of delirium is produced by a maniacal state, it is then a situation which often passes unnoticed in the beginning, but which, as a diagnostic element, it is of the highest importance to describe.

This situation, so painful for the friends, first betrays itself in a perversion of the feelings, and in a complete change in the character and habits of the patient. He becomes impatient and fretful; speaks passionately, and in an unaccustomed tone. He often loses the feeling of modesty, whatever may be his age or education. His friends and relations attribute these disgusting phenomena to the effect of the primitive disease which shows itself with all the characteristics of an ordinary febrile delirium. But soon another

§ 238. (c) *Delirium tremens.*(*i*)

§ 239. (d) *Mania puerperarum*, which attacks women in child-bed, and is sometimes distinguished, in addition to a high degree of violence, by lewdness and shamelessness, and more rarely by the homicidal mania.(*j*)

more disgusting phenomenon shows itself, and often without enlightening them. The care bestowed upon the sick person, the marks of the liveliest affection which are shown to him are repulsed, sometimes with irony and disdain, and sometimes with passion and fury. In ordinary diseases the sick person attaches himself with happiness to every thing that tends to recall him to existence. He hears with emotion of the different stages of his disease and of the delirium which was its consequence; he speaks often of its causes, deplores its effects, and makes innumerable excuses for any malignant or obscene words which may have escaped him during the delirium. The patient, on the contrary, in whom the insanity is confirmed, will not admit that he was delirious. He sustains the errors of his imagination, and takes them for realities. The hallucinations and delusions of all sorts which he has felt, and which still beset him, fortify him in his madness. Still more, in this he systematizes his delirium, and whatever intellectual energy is left, is employed by him in establishing upon the basis of a desperate logic, motives for the new existence which he is just commencing. Several authors, basing themselves on the fact that the delirium of insanity is often found unaccompanied by fever, (delirium sine febre,) have thought that the train of physiological phenomena that accompanies the delirium of acute diseases, is sufficient to mark out the difference between these primitive conditions. This appreciation, though very true on one side, may nevertheless lead us into error. We willingly admit that the delirium of acute diseases is accompanied with redness of the cheeks and turgidity of the face. The expression is troubled, and there are marked changes in the circulation. The eyes are brilliant, respiration often painful, and the excretions involuntary; the language takes an unaccustomed accentuation. The sick person expresses himself sometimes with vivacity; sometimes with great slowness; his sentences and his words are badly articulated; he speaks sometimes to himself, and at other times deep drawn sighs are the only manifestations of his soul. But these phenomena are also to be met with in the delirium of insanity, and especially in the first stages of this disease. See Etudes Cliniques des Maladies Mentale, &c. M. Morel. Tome I. p. 124. Paris, 1852.

(*i*) L. Krahmer Handbuch der Gericht. Med. Halle, C. A. Schwetschke, 1851. § 116. See also 7 Am. Jour. of Ins. 364. See as to responsibility of persons so affected, *ante*, § 36-38.

Privation of stimulants, says Morel, and the employment of opiates, generally suffice to restore reason to those persons who are generally not considered as insane unless afflicted with a special affection known by the name of *dypsomania;* even when the fatal consequences resulting from the abuse of spirits impress upon the delirium, which is its consequence, a form of continuity which has by some authors been pointed out under the name of *drunken madness.* Errors made in this respect may be productive of grave consequences for those who are the victims of them. The following is an example:

In the month of May, 1850, there was brought to the asylum of Moreville, a sick person, whom a physician's certificate represented as a dangerous madman. We observed at first in him a very great disorder of ideas, and a peculiar difficulty of expressing himself. The face was pale, and the lips agitated with convulsive movements, and there was a general trembling of the limbs. The employment of opiates and a bath soon removed these appearances, and the next day we had a man in the perfect possession of his faculties before us. The error in this case had arisen from the fact, that the physician's certificate had been given without a proper examination of all the causes necessary to a correct judgment. If he had, indeed, gone back to the appreciation of the causes, he would have found out that very grave dissensions existed between two brothers, of whom one was this pretended madman, who, endowed with a violent but feeble character, after having yielded in the strife of discussion, ordinarily sought to console himself in alcoholic libations. It was after having swallowed a too abundant ration that a family quarrel brought its contingent of trouble to the natural excitement that controlled him, and resulted in *delirium tremens*, which, if it had been better appreciated in its origin and effects, would not have brought this person to an insane asylum, and compromised in a certain degree his social position. Morel sur les Maladies Mentale. Tome I. p. 146. Paris, 1852.

(*j*) "A homicidal propensity," as we are told by Dr. Taylor, "towards their offspring, sometimes manifests itself in women soon after parturition. It seldom appears before the third day, often not for a fortnight, and in some instances not until several weeks after delivery. The most frequent period is at or about the commencement of lactation, and between that and the cessation of the lochia. According to Esquirol, it is generally

2d. *Partial.*

§ 240. This head may be considered as including *Furor transitorius, mania transitoria, transitory ravings.*(*k*) By this, says Schürmayer,(*l*) is understood an attack of frenzy, fury and raving madness, accompanied with more or less confusion of the senses, and of the thinking faculties, and peripheric consciousness, which arises without any perceptible, or from a very slight external provocation, generally lasts but a short time, hardly a few hours, and after sometimes leading to the most serious consequences, leaves but an indistinct trace in the memory. It is either the opening symptom of a disturbance of the super-physical faculties which has hitherto remained occult, and now first manifests itself, or it appears in persons hitherto entirely sane, or in individuals who have already suffered from pronounced insanity, particularly from melancholy, depressed delirium, lunacy and imbecility. In the latter class of cases, the question of responsibility presents no difficulties; far more in the former, in view of the possibility that the guilty act may have been the result of the outbreak of violent passion.(*ll*) It will then be often impossible to do more than to set forth the possibility or probability of a *furor transitorius*, which is effected by establishing the existence of facts which may have caused it. Such are epilepsy, irregular development, gastric irritations, disturbances of the menstrual or hæmorrhoidal courses, or the secretion of milk, the sudden dispersion of eruptions of the skin, sun-stroke, drunkenness, poison, violent agi-

attended by a suppression of the lochia and milk. The symptoms do not differ from those of mania generally, but it may assume any of the other forms of insanity; and in one half the cases it may be traced to hereditary tendency. According to Dr. Burroughs there is delirium, with a childish disposition for harmless mischief. The woman is gay and joyous, laughing, singing, loquacious, inclined to talk obscenely, and careless of every thing around. She imagines that her food is poisoned. She may conceal the suspicion, and merely avoid taking what is offered to her. She can recognize persons and things, and can, though perhaps will not, answer direct questions. Occasionally there is great depression of spirits, with melancholy. These facts are of some importance in cases of alleged child-murder. This state may last a few hours, or for some days or weeks, and we are told by Dr. Hartshorne, the accomplished American editor, sometimes for months and years; but it generally goes off within a few months, if not earlier. The murder of the child is generally either the result of a sudden fit of delirium, or of an uncontrollable impulse, with a full knowledge of the wickedness and illegality of the act—so that the legal test of responsibility from a knowledge of right and wrong cannot be applied to such cases. Mothers have been known, before the perpetration of the murder, to request their attendants to remove the child. Such cases are commonly distinguished from deliberate infanticide by there being no attempt at concealment, nor any denial of the crime on detection. Several trials, involving a question of puerperal mania have been decided generally in favor of the plea within the last few years. Dr. Ashevell has remarked, that undue lactation may give rise to an attack of mania, under which the murder of the offspring may also be perpetrated. (Diseases of Women, 732.) Females in the *pregnant* state have been known to perpetrate the crime apparently from some sudden perversion of their moral feelings. I am not aware that a plea of exculpation on the ground of insanity has been admitted in this country under these circumstances. (See case Ann d'Hyg, 1831, I. 374.) For an able analysis of the present state of our knowledge on the subject of Puerperal Insanity, by Dr. Reid, see Jour. Psychol. Med. 1884, pp. 128, 284. Taylor's Med. Jurisprudence, pp. 594, 595. See as to the legal responsibility in such cases, *ante*, § 53–61.

(*k*) Friedreich, *Handbuch der gerichtlichen Psychologie*, p. 591.

(*l*) Gericht. Med. § 552.

(*ll*) *Ante*, § 53–60.

tation, anger, dread, fright, deep shame, over-exertion of the mind. But where no such probable causes are to be discovered, the examination is necessarily confined to the statements of the party, and the immediate investigation of his intellectual and moral condition, the principal point of attention being the search and scrutiny of the motives of the acts, and the inquiry whether or not they were mingled with hallucinations or illusions, and whether the act was not preceded immediately or for some length of time by bodily disturbances, sleeplessness, restlessness, sadness, &c. Very great difficulties are involved in those cases in which an additional doubt arises whether the ravings were not occasioned by the criminal act itself, the probability of which, with a certain class of temperaments, has been already noticed.(*m*)

X. Mental unsoundness, as connected with delusions and hallucinations.(*mm*)

1st. *General.*

§ 241. Under this head will be treated that species of mental unsoundness which is marked by the continued and controlling existence of insane ideas, without being either accompanied with delirium or with moral-maniacal propensities to specific crimes. It may be considered as covering the same phase as the partial lunacy (partielle verrücktheit) of Schürmayer, who declares it to consist in crazy notions, with only a secondary participation of the affective faculties, without damage to the peripheric consciousness, and without a decided weakness of the intellectual powers. The subjects of it have completely resolved their individuality into their madness, it is in their eyes an absolute truth, and all demonstration and argument in opposition to it, are idle. Persons of this kind often suffer no mark of their inward disorder to mark their external demeanor, frequently speak and act quite rationally about, and in matters outside of the circle of their hallucinations, and only suffer the point of derangement to transpire when it is adverted to in conversation or when they have occasion to write. The malady may easily lead to the gravest violations of law, for which reason it is of the greatest judicial interest. Where the act is clearly the result of this morbid condition of the mind, no legal responsibility can attach to it.(*n*)

This species of mental unsoundness appears less frequently as a primary disease, than as a *secondary* result, developed out of prior disease, in the form of melancholy or otherwise. When the general expansive and depressive affection of the sentiments recedes, the confusion of the peripheric consciousness is dispelled, the bodily health regains its equilibrium, the patient finds himself endowed with a system of affections and perceptions to which he was before a stranger, but which revolve round one or more manifestly insane stand points.

§ 242. These various fancies are reducible to certain groups, which

(*m*) See *ante*, § 116–118.

(*mm*) For full account of Hallucinations and Illusions, we would refer the reader to Les Leçons Cliniques de M. Falret, Leçons 3, 4, 5, 6., pp. 95, 185. Paris, 1854; also Etudes Psychologiques par L. F. G. Renaudin, Chap. viii. p. 388. Paris, 1854.

(*n*) Schürmayer, Gericht. Med. § 556, *ante*, § 47–49.

take their point of departure, (1.) in the relations of the individual to the external world, to the supernatural, and to his own personality, or (2.) in perceptive anomalies of depression and mania.

The *former* view admits the following classification: *crack-brained-ness*,(*o*) where the erroneous notions relate to the objects and relations of the external world, and of the body of the individual; *frenzy*, where they concern things beyond the reach of the senses, religious mysteries and divine inspirations; *folly*, (*Narrheit*,) where the identity of the person has undergone a change, and advanced to a higher stage of worldly honors. In the *latter* view, the subject matter of the delusion generally depends upon the kind of erroneous notion which accompanied the preceding stages of depression and mania. The delusion itself is of a *depressing* or *elevating* description. The depressive form subdivides as follows:

(a.) *Hypochondriacal delusions*, where anomalous bodily sensations, —delusions of the sense of touch,—suggest the idea, that particular parts of the body have been transformed, that there are parasitic animals in them, or injurious substances, which must be removed, &c.

(b.) *Demoniacal delusions*. The patients declare and maintain, with perfect self-possession and entire calmness, that demoniac beings or other persons, living or dead, have their seat in their bodies.(*oo*)

(c.) Such delusions,(*p*) called by Ellinger "Concentric," as consist in the delusion that the personal reputation of the sufferer has been injured by a real or imaginary misfortune, that the infamy incurred has reached the ears of the highest circles,—impressions still further confirmed by delusions of the sense of hearing,—and that no resource is left but either seclusion from all intercourse with mankind, or restitution of good fame by some brilliant exploit.

(d.) *Peripheric delusions*, in which the patients regard themselves as the objects of a plot on the part of the authorities or of their relatives, or of some secret society, surrounded by spies and functionaries of the secret police, watched and dogged at every step, injured bodily and mentally in action and repose; persecuted and endangered in life and property, or that they are beleaguered by thieves, robbers, and murderers, or that spirits hover in the air to torment and disquiet them, &c.

The elevating phase of this species of mental unsoundness, subdivides itself, according to Schürmayer(*pp*):—

(a.) *Religious delusions*, which may be considered in connection with dæmonia-mania, already noticed,(*q*) in which the patient pretends to stand in a particular position, as regards degree and distinction, in the eye of God, to have been appointed censor, prophet, reformer, and Messiah, &c.; it is generally accompanied with hallucinations of sight and sound, and often leads to the most dreadful crimes.

(b.) *Delusions of pride*. The patients suppose themselves called, by their qualifications of person and mind, to the most important missions.

(c.) *Delusions of vanity*. The delusion here is a supposed descent

(*o*) "A little cracked," to use Dr. Rush's popular synonyme, for what he at the same time tells us is expressed by the Scotch by the phrase "having a bee in his bonnet."

(*oo*) See *ante*, § 210–219.

(*p*) Ellinger, p. 132.

(*pp*) Med. Jour. § 556.

(*q*) *Ante*, § 210–221.

from a princely lineage, elevation to a higher social position, &c., the enjoyment of which, however, is destroyed by the machinations of the envious and malevolent.

(d.) *Sexual delusion*, which is sometimes of a more intellectual, sometimes of a more carnal nature, is a state of mind in which the patients suppose that, in consequence of their personal charms or other advantages, either all people of the opposite sex, or even persons occupying a higher rank, such as princes, are in love with, or betrothed to them in spirit. This is attended with many hallucinations, particularly of the sexual kind.(*qq*)

§ 243. It is not to be denied that the proper consideration of this species of mental unsoundness presents great difficulties, and the practical suggestions of Ellinger(*r*) are indeed worthy of peculiar attention. He notices the following phases:

"1. An impression of having sustained wrongs at the hands of certain persons, against whom revenge is meditated and executed. Here the diseased individual often acts on mature reflection, and in the full knowledge that he has no right to take revenge, and of the consequences which ordinarily ensue, and then it may occur either that he prefers undergoing the extremity of the law, and perishing together with the supposed wrong-doer, to remaining longer exposed to his assaults, or that he proceeds on the ground of his known and established insanity, calculating to escape responsibility and punishment on the strength of the indulgence accorded to his case. Here there appears in general some ground to assume a moral responsibility.(*rr*)

"2. An impression that the patient is acting at the instigation, or under the constraint of demons. In this case it might become necessary to inquire whether, and in how far, the patient understood that the demands of the demons were wrongful, and that he was at liberty to withstand them, and whether, and in how far, it was actually in his power to withstand them.

"3. The patient imagines himself beset by thieves, &c., and neither sure of his property nor of his life. This may perhaps be treated as a case of self-defence, and all responsibility excluded.

"4. The self-consciousness of the patient is perverted, and he acts with that plentitude of power with which he is invested in view of his position and his destiny, in religion, politics, &c. In this case, as under the third position, responsibility is out of the question.

"But as a fixed idea never occurs in such isolation as is erroneously supposed, there being always a series of phantoms connected into a system, the outlines of which it may be, perhaps, impossible to define with accuracy; as the entire affective life has become altered and irregular, the general views of men and things having become distorted, and illusions of the senses being often brought to light by a rigid scrutiny, which entirely escaped the eye of the superficial observer; as the action, re-action, and intro-action of the psychical faculties is no longer measurable by the ordinary standard: *opinions must be given with the greatest circumspection and every possible reservation, whenever the connection or want of connection between the illusion and the deed is not perfectly evident.*"(*s*)

(*qq*) *Ante*, § 199. (*r*) p. 137. (*rr*) See *ante*, § 47–49. (*s*) Ibid.

It is not easy to mistake between the *error of a lunatic* and the *error of a sane man*. The decisive point of difference between them is, that in the latter case, the action of the thinking faculties, from whatever cause it be, only terminates too soon, and before the entire subject has been thoroughly sifted, and that such an error, after having been properly refuted, can only be maintained by dint of obstinacy or indolence. In insanity, on the contrary, the error of the understanding is occasioned by the abnormal function of the perceptive faculty. One or two prevailing schemes of perception(*ss*) are applied to almost all other perceptions to which they can be adjusted in any way, and thus one and the same *tout ensemble* of perceptions is continually reproducing itself on the slightest provocation. Here the chain of associations loses, in the eye of the individual, its accidental, personal, and contingent character, and, by its constant recurrence, deludes the understanding with the idea that the same connection subsists between the objects in reality as in the imagination of the individual, until at last reason herself is misled into seeing a necessary relation of cause and effect in the perceptions which it finds itself invariably associated. The individual is therefore compelled to think accordingly, and even if it is sometimes brought, by instruction, to acknowledge its error, it is only to relapse into it, not so much from obstinacy, as because of this compulsory synthesis of the perceptive faculties. *A sane man in error retains the power of doubting, not the madman.* This condition of the perceptive faculties is also the cause of the great indifference manifested towards surrounding things, of the dreamy manner and the illusions growing out of it. It is also a matter of course that the perceptions, by their constant recurrence, cease to be mere perceptions, but subsequently take rank as thoughts and ideas, in consequence of their constant action upon the understanding, and their assumption of the form of propositions.(*t*)

§ 244. Delusion may spread in such a way as to cover the whole surface of the mind, leaving no sound perception untouched. It is then distinguished by the general want of connection and consistency between the perceptions, and by the absence of any symptom of positive feebleness of the understanding, in spite of the disruption of the thread of ideas and the incongruous juxtaposition of the fragments. Dr. Rush, in the following report given by him of the conversation of a patient laboring under this phase, very happily illustrates this incoherence, and at the same time the occasional point by which its intellectual operations are distinguished: — "No man can serve two masters. I am Philip, King of Macedonia, lawful son of Mary, Queen of Scots, born in Philadelphia. I have been happy enough ever since I have seen General Washington with a silk handkerchief, in High street. Money commands sublunary things, and makes the mare go; it will buy salt mackerel made of ten-penny nails. Enjoyment is the happiness of virtue. Yesterday cannot be recalled. I can only walk in the nighttime, when I can eat pudding enough. I shall be eight years old to-morrow. They say R. W. is in partnership with J. W. I believe

(*ss*) Compare Hagen, Vol. II. p. 707.
(*t*) Ibid. p. 818.

they are about as good as people in common—not better, only on certain occasions, when, for instance, a man wants to buy chincopins, and to import salt to feed pigs. Tanned leather was imported first by lawyers. Morality with virtue, is like vice not corrected. L. B. came to your house and stole a coffee-pot, in the twenty-fourth year of his majesty's reign. Plum-pudding and Irish potatoes make a very good dinner. Nothing in man is comprehensible in it. Born in Philadelphia. Our fore-fathers were better to us than our children, because they were chosen for their honesty, truth, virtue and innocence. The Queen's broad R originated from a British forty-two pounder, which makes too loud a report for me. I have no more to say. I am thankful—I am no worse this season; and that I am sound in mind and memory, and could steer a ship at sea, but am afraid of the tiller. * * * Son of Mary, Queen of Scots. Born in Philadelphia. Born in Philadelphia. King of Macedonia."(*u*)

And Shakspeare gives, with equal truth, the following soliloquy of a madman, in whom the *depressing* rather than the *elating* phase is exhibited:

> "Who gives any thing to poor Tom,
> Whom the foul fiend has led through fire,
> And through flame, through ford and whirlpool,
> Over bog and quagmire, that hath laid
> Knives under his pillow, and halters in his pew,
> Set rats-bane by his porridge, and made him to
> Ride upon a bay trotting horse over four-inch
> Bridges, and to course his own shadow for a traitor."

And Lear, in language still more expressive of misery, thus complains:

> ——————— "I am bound
> Upon a wheel of fire that mine own tears
> Do scald like molten lead."

2d. *Partial Delusion.*(*v*)

§ 245. Under this head may be enumerated, *Delusions of the Senses, Illusions and Hallucinations.* A distinction is very properly drawn by Schürmayer, following in this respect the general current of modern opinion, between illusions and hallucinations, the former comprising mistakes in the conception and interpretation of the perception of objects *actually present*, while in the latter, the perception which originates in a diseased action of the senses, appears to the patient as if the sensation were produced by a real external object acting upon the senses.(*w*)

The same distinction is thus stated by Dr. Taylor: "*Hallucinations* are those sensations which are supposed by the patient to be produced

(*u*) Rush on the Mind, pp. 242–243.

(*v*) See the very interesting discussion of this point by Feuchtersleben,—Principles of Medical Psychology, being the outlines of a course of Lectures by Baron Von Feuchtersleben, M. D. Vienne, 1845. Translated from the German by the late H. Evans Lloyd, Esq. Revised and edited by G. B. Babington, M. D., F. R. S., &c. London, printed for the Sydenham Society, 1847, pp. 279–343.

(*w*) Schürmayer, Gericht. Med. § 554.

by external impressions, although no material objects may act upon the senses at the time.(*x*) *Illusions* are the sensations produced by the false perception of objects."(*y*) "When a hallucination," he proceeds to say, "or an illusion is believed to have a real and positive existence, and this belief is not removed either by reflection or an appeal to the other senses, the individual is said to labor under a *delusion;* but when the false sensation is immediately detected and is not acted upon as if it were real, then the person is sane."

"As a morbid condition of the brain," says Sir Benjamin Brodie, "may produce the impression of visible objects, or of voices, which have no real existence, so it may also produce notions of a more complex and abstract character, and these may be constantly obtruded on the mind, so that the individual is unable to withdraw his attention from them, being, as it would seem, as much beyond the influence of volition as the muscles of a paralytic limb. Thus, one person believes himself to be ruined as to his worldly affairs, and that he and his family, though really in affluence, are reduced to extreme poverty; while another is persuaded that he is in possession of unbounded wealth, the consequence being that he is in danger of being ruined by extravagance; and a third, is under the apprehension of his being accused of some dreadful crime, and perhaps seeks refuge from his fears in self-destruction. It is more difficult to escape from the latter than from the former class of illusions, as the appeal lies not from one sense to another, but to a more refined process of thought and reflection, and the examination of evidence."(*z*)

We may step for a moment from the strict line of discussion to notice the striking remarks on this point of the great Scotch metaphysician. "Several phenomena in human nature," says Dr. Reid, "lead us to conjecture that, in the earliest period of life, we are apt to think every object about us to be animated. Judging of them by ourselves, we ascribe to them the feelings we are conscious of in ourselves. So we see a little girl judges of her doll, and of her playthings. And so we see rude nations judge of the heavenly bodies, of the elements, and of the sea, rivers and fountains. If this be so, it ought not to be said that by reason and experience we learn that certain things are inanimate, to which at first we ascribed life and intelligence. If this be true, it is less surprising that, before reflection, we should for a moment relapse into this prejudice of our early years, and treat things as if they had life which we once believed to have it. It does not much affect our present argument, whether this be or be not the cause why a dog pursues and gnashes at the stone that hurt him; and why a man in a passion, for losing at a play, sometimes wreaks his vengeance on the cards or dice. It is not strange that a blind animal impulse should sometimes lose its proper direction. In brutes, this has no bad consequence; in men, the least ray of reflection corrects it and shows its absurdity."(*a*)

(*x*) See on this subject, remarks by Dr. Sigmond, Jour. of Psychol. Med. 1848. p. 585.
(*y*) Taylor's Medical Jurisprudence, p. 552.
(*z*) Psychological Inquiries, &c. London, 1854. p. 79.
(*a*) Reid on the active powers of Malevolent Affection, p. 569. See also Schürmayer, Gericht. Med. § 554.

"Hallucinations," says Ellinger, "generally occur in every form of mental derangement, but chiefly in the higher stages of depression and mania, in deliriums, in lunacy and in confusion of mind, and lead to the commission of crimes, particularly when the patient was originally not without the taint of culpable passions."(*b*) For judicial purposes it will be found advantageous to arrange hallucinations under the four following heads:

§ 246. 1. In individuals who show no signs of disorder in their affective or intellectual systems, they will not operate to suspend the responsibility of the agent; but they may become the motives of violations of the law.(*c*)

§ 247. 2. In individuals in whom the disease of the mind has made some progress, but has not yet acquired a permanent form; the victims often make no secret of them, and recognize them as intruders into the working of their thoughts; while in other cases, they keep them to themselves.

§ 248. 3. In persons who are in a state of total drunkenness, under the influence of poison, or overpowered by sleep, where external consciousness is entirely gone, and utter confusion of the senses obtains in such cases the free power of self-control may be entirely dislodged.

§ 249. 4. In individuals whose insanity is equally mature and manifest, the absence of freedom of agency is not to be doubted; the responsibility of such persons *in foro* is, therefore, out of the question.

§ 250. According to Hagen,(*d*) the cause of the delusions of the senses is either a mere physical stimulus which, acting upon the fountain heads of the sensational nerves in the brain, produces eccentric sensations, and induces the individual to incorporate his sensations into an image, in which case it will depend upon the particular circumstances of the case, especially on the mental and moral condition of the individual, whether or not such apparitions are believed to be genuine. And upon another hypothesis, suggested by the same author, the disease is only a strong morbid susceptibility of the brain to eccentric sensations, with which some fancy or other comes into such a collision as to act as the stimulating cause of a paroxysm, bringing, at the same time, a complete phantom before the external sense, just as in cases of convulsive diseases, St. Vitus's dance, &c., an intended slight motion may bring a convulsion into that particular system of muscles. Great care must be taken, however, not to include under this head what is not really a delusion of the senses. If, for instance, a madman takes a person or a black cat for the devil, there is no delusion of the senses. On the con-

(*b*) Ellinger. p. 167.

(*c*) Boswell says, "Dr. Johnson mentioned a thing as not unfrequent, of which he (Boswell) had never heard before—being called, that is, hearing one's name pronounced by the voice of a known person at a great distance, far beyond the possibility of being reached by any sound, uttered by human organs. An acquaintance, on whose veracity, Boswell says, he could place every dependence, told him that, walking home one evening to Kilmarnock, he heard himself called from a wood, by the voice of a brother who had gone to America, and the next packet brought the account of that brother's death. Macbean asserted that this inexplicable *calling* was a thing very well known. Dr. Johnson said, that one day, at Oxford, as he was turning the key of his chamber, he heard distinctly his mother call *Sam!* She was then at Litchfield; but nothing ensued." Winslow's Anatomy of Suicide, pp. 127–128.

(*d*) Compare Wagner's *Handwoerterbuch der Physiologie.* Vol. II. p. 811.

trary, in supposing the devil to have assumed such a shape, the maniac only directs his madness to an object of which in itself he has a correct perception. Delusions also, we are admonished by Schürmayer, must not be mistaken for *confusion of the senses*, which consists in an entire obstruction of the conceptions, an incapacity to obtain adequate apperceptions, and sometimes in an entire want of objective consciousness and recollection.

§ 251. The following interesting illustration of partial delusion is given to us in Dr. Mayo's late work: "In a case to which I was called in by Dr. Monro, a few years ago, it was our painful duty to resist the liberation of a patient, an old lady, whose confinement under certificates had continued for sixteen years. For six years she was described as having been in a state, first of acute, and then of chronic mania. For many years, we learned, that she had regained the power of conversing consecutively and sensibly, indeed without the smallest evidence of incoherent or irrational remark, and such appeared to us, her present state. The objections which existed to her being then considered sane, if she had been insane up to the time we saw her, on the ground of her advanced age, weighed on our minds, but seemed insufficient. The evidence of her attendants, who considered her still insane, on the ground of occasional outbreaks of temper, was that of interested witnesses. She was a patient in chancery, and the visiting physicians had become favorably disposed to her enlargement, as a sound-minded person. Now the question was, in this instance, determined in our minds, by a discovery of a very remarkable notional delusion which held its ground in her mind. In a set of drawers in this lady's bedroom, and in certain trunks, there, to which we were conducted without her knowledge, we witnessed a large and very heterogeneous and dirty collection (dirtiness had been a symptom of her insane state) consisting of old bottles, broken cups and saucers, brass knobs, bits of old string, shreds of linen and cloth, small bundles of wood such as light fires, pieces having been apparently picked up and tied together; a cup containing dirty food of the most disgusting appearance, which had evidently been long there; bits of valueless stones, coals, nails, &c. This accumulation which could not have been extemporized by the attendants to make out a case, and of which accordingly the patient must have been long aware, would have occasioned strong doubts as to her sanity, even if no prior grounds of suspicion had existed; but, carefully preserved by one, who, up to a recent date, had been so far suspected of insanity that she had not been set free by the visiting commissioners; who was in her seventy-first year, and therefore the less likely to have obtained a cure, it became the opinion of Dr. Monro and myself, a conclusive ground for resisting this lady's immediate enlargement."(*e*)

§ 252. Particular hallucinations are classified by Abercrombie under the following heads:—

1. Propensities of character, which had been kept under restraint by reason or by external circumstances, or old habits which had been subdued or restrained, developing themselves without control and leading

(*e*) Mayo on Medical Testimony in Lunacy, pp. 33, 34.

the mind into trains of fancies arising out of them. Thus, a man of an aspiring, ambitious character may imagine himself a king or great personage; while in a man of a timid, suspicious disposition, the mind may fix upon some supposed injury, or loss either of property or reputation.

2. Old associations recalled into the mind, and mixed up perhaps with more recent occurrences, in the same manner as we often see in dreaming. A lady, mentioned by Dr. Gooch, who became insane in consequence of an alarm from a house on fire in her neighborhood, imagined that she was the Virgin Mary, and had a luminous halo around her head.

3. Visions of the imagination which have formerly been indulged in, of that kind which we call waking dreams, or castle-building, recurring to the mind in this condition, and now believed to have a real existence, I have been able to trace to this source of the hallucination. In one case, for example, it turned upon an office to which the individual imagined he had been appointed; and it was impossible to persuade him to the contrary, or even that the office was not vacant. He afterwards acknowledged that his fancy had, at various times, been fixed upon that appointment, though there were no circumstances that warranted him in entertaining any expectation of it. In a man, mentioned by Dr. Morison, the hallucination turned upon circumstances which had been mentioned when his fortune was told by a gipsy.

4. Bodily feelings giving rise to trains of associations, in the same extravagant manner as in dreaming. A man, mentioned by Dr. Rush, imagined that he had a Caffre in his stomach, who had got in at the Cape of Good Hope, and had occasioned him a constant uneasiness ever since. In such a case, it is probable, that there had been some fixed or frequent uneasy feeling at the stomach, and that about the commencement of his complaint, he had been strongly impressed by some transaction in which a Caffre was concerned.

5. There seems reason to believe that the hallucinations of the insane are often influenced by a certain sense of the new and singular state in which their mental powers really are, and a certain feeling, though confused and ill-defined, of the loss of that power over their mental processes which they possessed when in health."(*f*)

§ 253. Hallucinations involving a belief that the patient has been transformed into various species of animals have been at times almost epidemic. Analogous to these is the belief that worms, frogs, or snakes have taken up their abode in the head or stomach, which consume the brain or entrails. Men have fancied themselves pregnant, and imagined themselves shadows or corpses, or to be constructed of glass, butter, or wax. At one time the belief in a transformation into wolves or other wild animals became so prevalent as to acquire a title to itself (Lycanthropia). In cases of this last phase the disease became so uncontrollable as to impel its victim to a close imitation of the wild animal itself, falling upon other men and animals, and snapping at and biting them. Andral relates a case of a child of fourteen years, who tore wildly

(*f*) Abercrombie on the Intellectual powers, pp. 255, 256.

about the fields, biting other children that came in its way, and producing the greatest consternation in the neighborhood.(*g*)

XI. Mental unsoundness as connected with lucid intervals.(*h*)

§ 254. Mental diseases are not always continuous, but they improve, and alter their form in such a manner as to exhibit abatement or cessation of the disease. When, therefore, an illegal act has been committed by a man at such a time, *i. e.* after the occurrence of a manifest disorder of his mental faculties, the question at once arises, whether the mental alienation has really ceased, or whether it is not still present in a slumbering state, and possibly influential in determining the act.(*i*)

(*g*) Cours de patholog. Interne. Tome III. Paris, 1836. 8 p. 186. The curious will find a very interesting disquisition on this point in Wierus's work De præstigiis dæmonum, Lib. IV. c. 23.

(*h*) L. Krahmer, Handbuch der Gericht. Med. Halle, C. A. Schwetschke, 1851, § 124.

(*i*) The subject of lucid intervals has lately been investigated in a very learned treatise by Dr. Lehr (Die Lehr von den lichten Zwischenzeiten in Geritchtlich. Medicinisher Beziehung. Henke Zeitschrift, 3). Two views of lucid intervals present themselves, which vary widely in their judicial relations, one of which (that espoused by Dr. L.) regards them as a suspension of the *disease*, while the other treats them merely as a temporary suppression of its *manifestation*.

We condense from M. Renaudin the following very interesting remarks on this point:—

Lucid intervals is the name ordinarily given to the condition in which the insane person is placed at the end of a strong delirious excitement, or when he awakes from a profound stupor.

We are generally led to believe the existence of a lucid interval when delirious ideas no longer manifest themselves, and when the insane person shows himself accessible to other pre-occupations, and thus appears to enjoy the full amount of moral liberty allowed to him.

It has been already said that the approach of insanity is rarely sudden; and that being based, in some respect, upon a natural or acquired predisposition, it is preceded by a period of incubation, that paves the way for a manifestation of the disorder often long before its actual appearance. When a retrospective examination of the antecedents of the disease is made, a proof is found of the latent advances which insanity makes.

But under this apparent reason is concealed a disorder, which makes a sensible progression every day. Irritability is developed; the regimen is irregular; the affective sentiments are changed or perverted; everything has become an object of contrariety: delirious convictions are organized upon the perceptive errors every day more numerous; and finally insanity shows itself in a critical excitement, the more decided as the lesion of sensibility has become more complete, and as the incubation is marked by a more or less concentrated struggle. The patient is then isolated; irritating causes are removed, and immediately the over-excitement diminishes; a calmness succeeds. This transient remission, however, ceases as soon as the unhealthy influence regains its empire, and we then see that which was called a lucid interval, was, in fact, but a transient remission.

Continuity is essentially the characteristic of monomania and lypomania. Either the insane person, by convalescence, advances to a complete cure, or he still remains affected with the original type. Every intermediate situation is inadmissible, except when an incidental affection, causing a kind of metastasis, for the moment suspends or masks the madness. Whenever it is not a true crisis, it only causes a fleeting remission of the symptoms rather than of the pathological condition; and the physician assumes a serious responsibility when, simply on the face of this apparent calm, he conceives the possibility of the patient's return to his family, where but too soon the causes will be found reunited that restore to insanity all its intensity. It is in not sufficiently resisting the desires of friends, that the physician paves the way for these returns, which are less relapses than the recrudescence of an uncured pathological state.

But though, in an absolute diagnostic point of view, we reject the lucid interval;

As indicated above, there is, strictly speaking, but one species of unsoundness of mind, and what we term forms, are more properly stages

though, when the existence of mental unsoundness has been once shown, we do not admit that the remissions diminish irresponsibility; we still think that the deranged can perform certain acts with a perfect knowledge of cause, and can even exercise his intelligence, provided that he is placed under the influence of certain protecting conditions. The regulating discipline of an asylum tends greatly to this result, and therefore it is not astonishing if our insane can perform certain civil acts of a simple character, and may consent to a division of property, or even authorize a marriage. The legality of the act is essentially subordinate to a previous appreciation of the extent of the delirium at the time, and the relations existing between the action and the delirious conceptions. So, though not admitting the existence of a lucid interval, we still believe that the madman may be placed in a situation that permits him to appreciate the action demanded of him. In a criminal point of view, this distinction cannot be established, since the action is a logical consequence of the madness; and daily observation teaches us that it is during these moments of apparent sanity that the maniac meditates and prepares the most dangerous projects, as much against himself as against others. The ingenious combination of means that the lypomaniac uses in order to obtain his object, is urged in vain as proof of lucidity; since the delirious conceptions, whilst rendering the premises false, are far from always deranging the logical chain of the other intellectual operations. We should then consider the lypomaniac as an oppressed person who conspires against his enemies, and as he is the most feeble, he calls cunning to the aid of his legitimate means of defence.

In the maniac, especially in the paroxysm, we observe a disordered agitation, accompanied with such an amount of incoherence that the affected person appears to be rather the sport of some strange motive power than the originator of this extreme mobility. There are times when even this storm is dissipated as if by enchantment. Dissimulation becomes possible for a certain time; the delirium is in some degree suspended, and we may be led to suppose a spontaneous return to reason. How often have we seen maniacs cease to rave during the questioning of the judge, and immediately afterwards recommence their course of wanderings.

The more vivid the excitement is, the more considerable is the expenditure of the vital forces; so that when it has lasted a certain time, a period of prostration arrives; but, allowing a remission of some somatic symptoms, still the incoherence of ideas is persistent with other symptoms. Sometimes the transition is rapid; and then, above all, is it necessary to attribute the situation to its true causes, in order not to expose the examiner to an error of diagnosis.

Periodicity is generally observed in mania; and it is then that insanity of actions must be distinguished from insanity of ideas. Though often united, still they are sometimes isolated from each other, or follow one another. It is on this account that the most extravagant acts sometimes correspond with a certain intellectual lucidity, which at the first glance may impose upon us; and it is then that we observe persons thus insane justify their actions by the most specious reasonings. We must not, however, take this intellectual waking for a lucid interval; for, although masked, the delirium still continues.

In other cases, the madness is less intense. All excitement has disappeared, and the insane person answers all our questions so reasonably as to lead us to infer the existence of a lucid interval; but the illusion is soon destroyed when, in pushing our examination, we weary him with questions: he becomes agitated; loses the thread of his ideas; becomes more and more incoherent, and so proves to us that he has had what scarcely might be called a transitory remission.

There are cases where the periodicity appears more determined, and where the conduct of the patient betrays no sign of the insanity which he formerly manifested. The lucid interval can perhaps be sometimes admitted under these circumstances; but it is still necessary to exercise some caution in regard to the value of these appearances. If the patient denies his situation; if he refuses to acknowledge the principal acts which have characterized his paroxysm; if he seeks to attribute them to some foreign cause, it is a proof that the reason is not sound, and that a paroxysm is always imminent; and lucidity cannot be admitted, since errors of perception and judgment still exist. This observation especially applies to that kind of mania in which excessive irritability plays the principal part; where the remissions are irregular, and the paroxysms are shown under the influence of the slightest cause. We cannot, then, consider this momentary repose of a permanent effect which is always ready to break out, as a lucid interval. We might say as much of the period of prostration following a period of strong excitement.

When periodicity is complete, it is recognized at first by the appearance of the pa-

of one and the same disease. This disease, however, may become fixed for life at one or the other stage, or may travel slowly or rapidly, and so to speak, imperceptibly from one stage to the other, if recovery does not intervene. We must therefore look for *criteria* to prove that the symptoms observed are not those of a progress of the disease, but of *recovery*, for without such criteria we should be induced to presume the continuance of the disorder. The following suggestions, given by Ellinger, and repeated by Schürmayer, are important in the consideration and decision of such cases. As a general thing, there is no recovery from mental unsoundness which has been attended with permanent and general delusion: in the other forms it sometimes, though very rarely, takes place suddenly, the consequence of strong excitement, as a sudden outburst of rage, or even in sleep, without any preceding physical or moral change. Its general development, however, is slow, being marked with a gradual lessening of the affective irritations, with an increased coherency and consequentiality of thought, with a return of the natural inclinations and appetites, of sleep and nourishment, and with a disappearance of the physical anomalies. Sometimes, however, it advances with a more fluctuating step, agitated as it were with men-

roxysm, which has, in some measure, a critical termination. The lucid interval can then be admitted, if there is a complete contrast between the two situations, if the patient appreciates them, and if the manifestation of each fit is shown by an approach which is always regular, and which is always produced under the influence of the same causes. It is, if we can thus express ourselves, a momentary cure, which is prolonged for a longer or shorter period of time, and which often finishes by becoming a complete one.

Finally, when the affection passes to the chronic state, the patient raves less, because excitement fails him, and also because his will is in want of a regulating force. We cannot consider this as a lucid interval where the patient is unable to act except when directed by another's mind. When mania passes into dementia, the transition is sometimes shown by an apparent re-awakening of reason, which is, as it were, its last glimmer. Generally, it is the mobility of maniacs which is most favorable to the action of the derivations whose results sufficiently impose upon the superficial observer so as to cause him to admit the existence of a lucid interval.

The stimulated attention of these patients fixes, for a moment, this mobility, directs cunning towards the accomplishment of a project, where a personality is in play, and we are often surprised with the address shown in organizing a plan of escape. But, in spite of this incidental derivation, the maniacal temperament still remains the same, unless, indeed, this transitory action of the mind should become a crisis.

Dementia, where the psychico-somatic existence is gradually extinguished, is a ruin in which a trace of a better time is sometimes found. If, occasionally, remembrances of the past show themselves, this apparent lucid interval is no more than a retrospective reasoning without actual application. When, instead of being the termination of the other forms, dementia is primitive or idiopathic, the lucid intervals can be sufficiently clearly drawn, and the diagnosis does not present as many difficulties as in the other forms. In fact, the demented cannot dissimulate; since, to do this, a reactive power would be necessary, which in him is entirely wanting. He cannot conceal his incapacity under the mask of an energy whose absence is the principal feature of his disease. More submissive than the others to somatic influences, he is sometimes a prey to an almost maniacal excitement; but if this is not critical, it forms an expenditure of power resulting in pure loss, and making one more step in this period of prostration. In a word, if the man lives for a moment in the past, he is as nothing in the present; and it is under privilege of this restriction that a lucid interval, provoked by some foreign stimulant, but without root in an exhausted moral system, can be admitted.

Hence we see that the lucid interval is of much rarer occurrence in mental unsoundness than is generally thought. It is in mania that the periodicity of regular paroxysms permits us to admit it; but then, also, it is still necessary to guard against being imposed upon by a remission of excitement, which is not that of the frenzied condition.—See Études Physio-Somatiques sur l'Alienation Mentale, par L. E. F. Renaudin, chap. ix. p. 522. Paris, 1854.

tal tides, the flood of each of which, however, falls below the high water-mark of its predecessor, while each ebb more and more nearly approaches the line of sanity. To constitute a recovery, the patient, if he has not acquired a more rational constitution of his moral character, must at least have regained that which he enjoyed before the appearance of the disease: he must have re-acquired a taste for his former occupation, must again display his former inclinations and points of interest, must understand what he remembers of his disease when assisted by explanations, must speak of it as of something to which he is now superior, must clearly see the erroneous nature of the delusions under which he labored, and must be really contented and internally at peace. But if, on the other hand, the former character of the disease has only disappeared in part; if the old insane grudge against one person or another is manifested; if there is a smothered rage, or aversion to persons or things formerly cherished; if the alleged convalescent refuses to acknowledge his disease in general or in regard to particular points; if he dislikes to speak of it; if his conduct is marked by unnatural irritability, suspicion or boisterous and immoderate joy, or by other anomalous features, a perfect recovery has *not* taken place, although in point of intelligence, formal and substantial, not the slightest anomaly is perceptible.(*j*)

§ 255. Where the patient's recovery from a mental disorder is not clearly established, it may still be doubted whether an alleged criminal act was committed under circumstances involving the full responsibility of the agent. Whether the malady was of long or short duration, whether it was more or less intense, is here of no decisive import, and of equally little moment is the apparent reflection and preparation with which the act may have been committed.

The different kinds of improvement or interruption in cases of unsoundness of mind, present various features, which vary in accordance with the duration and degree of abatement.

1. *Intervallum lucidum*, with a restoration of consciousness in general and of insight into the past and present, but without entire clearness, and with the continuance of a more, though not entirely subdued temperament. The patient is not yet the same as he was before the disease overtook him. If he was, he would have to be regarded as restored to health, and there would, in its strict meaning, be no question as to a lucid interval.

2. *Remission* differs from a lucid interval only in degree, being generally attended with a subsidence of the external manifestations of the disease, not sufficient, however, to be mistaken for recovery.

3. *Alternation* is the term given to the change from one form of mental unsoundness to another, particularly from depression to mania and the converse, not however from psychical to bodily, or from bodily to psychical manifestations. Where for instance the individual has long suffered from morbid depression or elation of spirits, this may gradually decrease and give place to an apparent return of health, which however does not last long, but sooner or later lapses into the opposite condition, so that depression turns into mania, and mania into depression.

(*j*) Compare Ellinger, p. 169. Schürmayer, § 573.

4. *Intermission*, when the disease recurs at more or less regular periods, and the disease presents no anomalous symptoms.

§ 256. The restoration of moral responsibility progresses in correspondence with the progress of recovery. In passing, therefore, upon a given case, regard should be had, not only to the individual circumstances, but also to the time intervening between the cessation of patent insanity and the commission of the offence.(*k*)

§ 257. On this point Dr. Rush thus speaks: "The longer the intervals between the paroxysms of madness, the more complete is the restoration to reason. Remissions rather than intermissions take place when the intervals are of short duration, and these distinguish it from febrile delirium in which intermissions more generally occur. In many cases every thing is remembered that passes under the notice of the patient during a paroxysm of general madness, but in those cases where the memory is diseased as well as the understanding, nothing is recollected. I attended a lady in the month of October, 1802, who had crossed the Atlantic ocean during a paroxysm of derangement, without recollecting a single circumstance of her voyage any more than if she had passed the whole time in sleep. Sometimes everything is forgotten in the interval of a paroxysm, but recollected in a succeeding paroxysm. I once attended the daughter of a British officer, who had been educated in the habits of gay life, who was married to a Methodist minister. In her paroxysms of madness, she resumed her gay habits, spoke French and ridiculed the tenets and practices of the sect to which she belonged. In the intervals of her fits, she renounced her gay habits, became zealously devoted to the religious principles and ceremonies of the Methodists, and forgot everything she did and said during her fits of insanity. A deranged sailor, some years ago, in the Pennsylvania Hospital, fancied himself to be an admiral, and walked and commanded with all the dignity and authority that are connected with that high rank in the navy. He was cured and discharged: his disease sometime afterwards returned, and with it all the actions of an admiral which he assumed and imitated in his former paroxysm. It is remarkable that some persons when deranged *talk* rationally, but *act* irrationally, while others act *rationally* and talk *irrationally*. We had a sailor some years ago in our hospital, who spent a whole year in building and rigging a small ship in his cell. Every part of it was formed by a mind apparently in a sound state. During the whole of the year in which he was employed in this work, he spoke not a word. In bringing his ship out of his cell, a part of it was broken. He immediately spoke and became violently deranged soon afterwards. Again, some madmen *talk* rationally and *write* irrationally; but it is more common for them to utter a few connected sentences in conversation, but not be able to connect two correct sentences together in a letter. Of this, I have known many instances in our hospital."(*l*)

§ 258. Mania frequently assumes a type in which the periods of return and of cessation are marked with the greatest exactness and regularity.(*m*) Medicus, in his history of periodical diseases,(*n*) tells us

(*k*) Schürmayer, Gericht. Med. § 574.
(*l*) Rush on the Mind, pp. 162, 163, 164.
(*m*) Siebold, Gericht. Med. § 217.
(*n*) Kailsr. 1764.

of a girl who was subject to a delirium which came on every evening at exactly the same hour, and lasted three hours and a half. Of two women attacked with periodical madness, one was deranged nine days in each month, and the other two days.(*o*)

XII. Treatment of insane criminals.

§ 259. The enlargement of the range of insane irresponsibility which the preceding sections recognize, and particularly its extension to cases of monomania, (*mania sine delirio,*) makes the subject of the subsequent treatment of the insane offender of very momentous importance. Even if we adopt the severest legal tests, yet when a case occurs of an acquittal, as it sometimes must on the most stringent principles, the offender, who in this case, on the law's own assumption, is a mere "animal," should be no more permitted to range the streets than should a mad dog or a mad bull. But in point of fact, there are a myriad of phases of mental unsoundness, none of which are consistent with entire responsibility, and yet each of which has its distinct degree of moral culpability attached to it. Rare, indeed, are the instances, where there is not a consciousness of guilt, which, though distorted or faint, is, nevertheless, appreciable. Still rarer are the cases of acquittal where the insanity of the perpetrator is so abhorrent as to exclude it from the range of imitation by those who may desire to commit crime with impunity. And if these considerations be thrown aside, there still remains the fact that insane crime becomes epidemic when it becomes heroic; and that the only way to divest it of this quality, is to subject it to that wholesome but homely discipline which strips it of its sentimentality, and at the same time, destroys its capacity for mischief. In this view it is recommended that wherever such provision do not already exist, there should be a separate penitentiary establishment for insane offenders, where they may continue to be confined, under the severest discipline consistent with health, until it appear on evidence taken upon due notice to the prosecuting authorities, that the patient is entirely sane. The propriety of such a course will appear by an examination of the subject under the following heads:

(1.) Retribution.
(2.) Prevention.
(3.) Example.
(4.) Reform.

§ 260. (1). *Retribution.* The question here depends on that of guilt. Was the offender in any sense a moral agent in the act complained of? The answer presupposed by the present inquiry, viz., that of the relations of a person judged irresponsible on account of insanity, is, that he was not. And in a strict technical sense, this is undoubtedly true. The inquiry, however, may be pushed farther back, and here the case of *delirium tremens* may be taken as an illustration.(*p*) *Delirium tremens*, even on the most stringent principles,

(*o*) See also Henke's Zeitschr. 13 Bd. sec. 159.

(*p*) This question has already been touched upon, and the authorities bearing upon it have been noticed. See *ante*, § 62–70. In opposition to the views expressed in the text

exonerates its subject from the penal consequences of a crime committed under its direct influence. And yet it is clear, *first*, that *delirium tremens* is the result of a prior vicious indulgence; *second*, that if the patient be permitted to wander about when the delirium continues, he will do further mischief, and, *third*, that if the offender escape in entire immunity, the example will be likely to be followed as a pretext, if not caught as a contagion. And under these circumstances what is to be done? It is plain that some species of confinement must be resorted to; and that if such a method of discipline be applied, it will be, in a moral point of view, thoroughly justified by the delinquency which was the voluntary cause of the diseased mental condition under which the crime was committed.

§ 261. What has just been said of *delirium tremens* applies with greater or less exactness to all other cases of mental unsoundness. Insanity, which is not congenital, or the result of accident or old age, is, in most cases, the result of causes which the patient himself might have averted if he had chosen.(*pp*) And particularly is this the case with that very species of mental unsoundness,—that of monomania, or moral insanity,—which is the cause of the greatest difficulty in the present connection. This is very admirably stated by Dr. Barlow in his powerful essay on this very point:

§ 262. "I have said that mental derangement and madness are different things; thus, a person may fancy he sees others around him who have no existence, as in the well known cases of Nicholai of Berlin and Dr. Bostock. This is a certain degree of mental derangement while it lasts; but as both soon satisfied themselves that these personages were merely the creation of a morbid physical state, they were not mad. A man of less resolution would have shrunk from the labor of convincing himself that he was fooled by his senses, and would have insisted that the figures were real, and then he would have been mad. On these cases Dr. Connelly very justly remarks, 'Let any one reflect how Nicholai preserved his reason under such visionary and auditory delusions for so many months; and why the English physiologist, though visited with the images which are so well known to be familiar with mad people, never lost the use of his excellent understanding. The ready answer will be, they never believed in their real existence. But why did they not? And why does the madman believe in their real existence? The evidence of both is the same, the plain evidence of sense. The explanation must be this. The printer of Berlin and the physician in London retained the power of comparison: they compared the visual objects of delusion, with the impressions of other senses,' and the perceptions of other persons, and became convinced of their unreality. 'This is exactly what madmen cannot do. One form of madness consists in this very illusion of sense, but it is conjoined with the loss or defect of the comparing power, and the madman concludes that what is only an illusion, is a reality. But the illusion is not the madness.' Thus, according to the opinion of this very able judge, the affection of the brain which causes these delusions, *is not* madness, *but the want of power or resolution to examine them is*. Nothing, then, but an extent

will be found Mr. M. B. Sampson's "Criminal Jurisprudence considered in relation to cerebral organization." London, 1843. See also *ante*, § 79–85.

(*pp*) See *ante*, § 79–85, where this subject is discussed.

of disease, which destroys at once all possibility of reasoning, by annihilating, or entirely changing the structure of the organ, can make a man necessarily mad."(*q*)

§ 263. "A man may labor under a mental delusion," and yet be a responsible agent; and if sanity or insanity be in a great many instances the consequences of a greater or less resolution in exerting the power of reasoning still possessed, the same kind of motives which influence a man in common life, are still available, though they may require to be somewhat heightened. It is on this principle that the treatment of lunatics has been generally conducted. Fear, one of the lowest, but also one of the most general of instinctive emotions, has been called in to balance the delusions of sense, and excepting in cases where the structural disease is so extensive as to deprive the man of all power of connecting cause and effect, it has been found sufficient to curb violence, and enforce a certain degree of peaceable demeanor towards the attendants. And in this the insane person differs not from the cultivated man who is left at liberty, whose self control rarely amounts to more than the avoiding actions which would have unpleasant consequences to himself. Suppose an irascible man, incensed by a false report, which, however, he believes to be true; he seeks his supposed enemy, and horsewhips, or knocks him down; he does not assassinate, because he fears for his own life if he does; for it is clear that no feeling of duty has held his hand, or he would not have transgressed the laws both of God and man by thus revenging himself. The madman has the false report from his own senses; wherein do the two differ? Neither has employed means within his power to ascertain the truth, and both are aware that such vengeance is forbidden. I can see no distinction between them, save that the delusion of sense has, as a chemist would say, decomposed the character, and shown how much of the individual's previous conduct was rational, and how much the result of mere animal instinct. It would be well for the world if the soidisant sane were sometimes to ask themselves how far their sanity would bear this test, and endeavor to acquire that rational self-command which nothing but the last extremity of cerebral disease could unseat. We do not descend from our high rank with impunity; and as when the matter has become organized, if the process of change, occasioned by the vital force, be impeded or arrested, the plant pines away and perishes; as, after the organs of locomotion have been superadded, the animal debarred from the use of them, languishes and becomes diseased; so man, if he give not full scope to the intellectual force, becomes subject to evils greater than animals ever know, because his nature is of a higher order.(*r*)

§ 264. "Neither do severe injuries from external causes, though, like paralysis, they might cause a loss of those faculties which connect man with the world about him, *necessarily* disconnect him with the world within, so as to place him beyond his own command.

"A case has been communicated to me illustrative of this. A young lad who had been carefully instructed in the principles of religion and virtue, by the clergyman of his parish, afterwards went to sea. When he was about twenty-two, he unfortunately fell from the mast upon his

(*q*) Barlow on Man's Power over Himself, to Prevent or Control Insanity. London. W. Pickering, 1843. Phila. Lea & Blanchard, 1846. (*r*) Ibid.

head on the deck, and the injury to the brain was such that he was discharged from the service in a state of imbecility, and sent home to his parish. He was then in possession of the use of his limbs and hearing; but articulation was apparently difficult to him, and collected thought, which should enable him to speak connectedly, still more so; his sight, too, was subject to a delusion which made him imagine he saw gold and silver coin strewed about on the ground; which, as was natural, he eagerly endeavored to pick up. He was now visited by the clergyman who had been the instructor of his youth, who in kind terms assured him he was under a false impression, and advised him to give no heed to what he imagined he saw. The poor young man thanked him, and promised to do as he desired, and for a time abstained from attempting to pick up the coin, but gradually the delusion became too strong for his resolution, and he recommenced. Yet, after every visit from his former instructor, he again controlled himself for a time; and, if he did not come, anxiously sought him at his own house. He died in a few months, but during the whole time was mild and submissive, seeming perfectly aware that his mind was disordered; and, like a child who distrusts his own power, seeking to throw himself on the guidance of one whose kindness he remembered, and whose character he respected. This man was suffering mental derangement from injury of the parts, but was not insane; for the faculties left him were rationally exercised.(*s*)

§ 265. "Cases of this kind have been considered by some as a peculiar type of insanity. By French authors it is entitled *manie sans délire*. Dr. Prichard styles it *instinctive madness*. I am inclined nevertheless to refer such deranged propensities in some instances to a peculiar and morbid state of sensation, and these will come under the head we are now considering, consequently the desire is not irresistible, though strong, for we see that it has been successfully resisted; in others I should refer it to the second class, under the head of 'Inefficiency of the intellectual force,' and then it depends on the resolution of the person so affected whether the morbid sensation shall be meditated on and indulged, and thus acquire fresh force, or whether by exciting other sensations, it shall be weakened and by degrees vanquished.

§ 266. "There is no greater error than to suppose that thinking about a propensity which ought not to be gratified, will conquer it; on the contrary, every hour of lonely thought gives it fresh force; but let the man plunge into business that must be attended to, or even a lighter occupation, so it be an engrossing one; and do this resolutely, however irksome it may at first appear, and the very repose thus given to the diseased part, if there be disease, by throwing the whole stress on other portions of the brain, will assist in effecting the cure.(*t*)

§ 267. "When a man has reached mature age without making any effort to render the brain subservient to the rational will, the fatigue and even pain consequent on the endeavor to obtain the mastery over it, is such, that few have resolution to undergo it voluntarily. Thus the man subsides more and more into the animal, and is at last guided only by those instinctive emotions which belong to the vital force merely. His passions assume a delirious violence, and he is only distinguished

(*s*) Barlow on Man's Power over Himself to Prevent or Control Insanity. London, W. Pickering. 1843. Philadelphia, Lea & Blanchard. 1846. (*t*) Jbid.

from the brute from the greater skill with which he pursues their gratification. There is no *disease* of brain, but it has been left unexercised and ungoverned till it is as unmanageable as a limb that has been treated in the same way.

"Toes have been used for writing and other arts which are usually performed by fingers; they are *capable*, therefore, of such use, but those who have constantly worn shoes cannot direct one toe separately from the rest, as they can the fingers. Yet with much trouble this power of directing might be acquired. It is thus that the brain, unaccustomed to direction from the intellectual force, rebels against it, and if this latter fails to assert its sway, it may justly be termed inefficient. In a man thus animalized, the actions differ from those of his more spiritualized fellow men, who happily are more numerous; and when they find no such motive as *they* would consider a sufficient one for his conduct, they call him mad, by way of accounting for it. He commits a crime, and a plea of insanity is set up as a shelter from punishment. I will give an instance. It is recorded by the elder Pinel: 'An only son, educated by a silly and indulgent mother, was accustomed to give way to all his passions without restraint. As he grew up, the violence of his temper became quite uncontrollable, and he was constantly involved in quarrels and law-suits. If an animal offended him, he instantly killed it; yet, when calm, he was quite reasonable, managed his large estate with propriety, and was even known to be beneficent to the poor; but one day, provoked to rage by a woman, who abused him, he threw her into a well. On his trial, so many witnesses deposed to the violence of his actions, that he was condemned to imprisonment in a mad-house.' Yet any choleric man who does in his rage what he is sorry for afterwards, is as much insane as this man was; both are under the influence of the vital force. A shock to some nerve of sensation stimulates the sympathetic system; the circulation is hurried, and the blood flowing more rapidly through the brain, gives an unusual activity to the motor nerves, the movements are sudden and violent, the speech hurried, loud, and perhaps incoherent; but the intellectual force knows the source of these symptoms, and can curb them by resolute silence and inaction till the blood again flows at its usual pace; if it does not, the man, for a time, is in a state of mania, but is not the less responsible for having allowed himself to be so.

"Let us suppose another case; the thing is so constantly seen that every one could quote examples of it. A man unaccustomed to self-control, becomes occupied by one thought:—his ambition has been disappointed perhaps, or a law-suit has plagued him, or he has been much employed in some engrossing pursuit. Unable to regulate his thoughts at will, he finds the one which circumstances have made habitual, recur uncalled for. An effort would dismiss it, for every one who has studied, knows that he has had to dismiss many an intruding thought, and with some effort, too, if he wished to make progress in what he has undertaken; but this individual has never been accustomed to make any such effort, and he knows not how to free himself from the subject which thus haunts him. If it be an unpleasant one, he is wearied and worn by it; but every day that it is not driven off, it assumes a greater power, for the part of the brain thus brought into action is now by habit rendered

more fit for use than any other :—he has not resolution enough to free himself from his tormentor by a determined application to something else which would require all his attention ; he sits brooding over it, and, when life has thus become irksome, he strives to terminate his discomfort by suicide ; yet here is no structural disease ; and if the man could be persuaded to exert himself, he might be sane. I will give an instance. The master of a parish work-house, about thirty years of age, was subjected frequently to groundless suspicions of peculation. Being naturally a taciturn, low-spirited man, these false accusations which involved his character, and consequently the maintenance of his family, preyed upon his mind, and a profound melancholy was the result, attended by the usual symptomatic derangement of the digestive functions, and a constant apprehension that he had done something wrong, he did not know what. No assurance on the part of those who knew and esteemed him had any effect, and finally, after some months of melancholy, he attempted to destroy himself. He was then removed to St. Luke's hospital, whence, after a year had elapsed, he was discharged incurable. He was now placed in a private receptacle of the insane, and here suffered all the misery which at that time pauper lunatics were subjected to. He was visited at this place by a benevolent man, who, seeing his state, immediately ordered him to be removed into the gentlemen's apartments, and paid for his maintenance there. In a few months afterwards he was visited by the clergyman of his parish, who, on conversing with him, considered him sane. The man begged to be allowed to rejoin his wife and family, and the rector, after many difficulties and some threats to the parish authorities, succeeded in setting him free. The man from that time was able to maintain his family by his trade of shoemaking, for if ever a fit of melancholy came over him, a threat from his wife that he should be sent back to the madhouse was sufficient to engage him to make an effort to resume his cheerfulness ; and he remained to old age a sane man. Here the insanity had been merely *inefficiency of the intellectual force*. Placed in a situation of comparative ease, his mind had become calm ; the wish to return to his wife and family, and the hope of it, kept up by the visits of benevolent friends, did the rest : for, be it observed, during the whole time he never felt himself abandoned. The poor and the uneducated are the classes which most usually suffer from the *inefficiency* of the intellectual force ; it is among the higher ranks usually that its *misdirection* is a source of insanity. Among these, more distant objects of pursuit keep the thoughts longer upon the stretch towards one point ; the organs of mechanical memory are strengthened, nay, even strained by the habit of learning much by rote, while the constant supply of learning ready-made, leaves no necessity for the more laborious processes of reasoning and comparison. Hence we not unfrequently find an elegant scholar, who can readily quote the words and opinions of others, unable himself to carry on a course of close argument, or to *prove* the truth of what he advances. Whoever has moved in society, knows that it is rare to meet with any one who can command his thoughts in conversation frequently to reject all that is not relevant to the subject, so as to keep on the chain of reasoning unbroken.(*u*)

(*u*) Barlow on Man's Power over Himself to Prevent or Control Insanity. London, W. Pickering. 1843. Philadelphia, Lea & Blanchard. 1846.

§ 268. "When the mind is thus exercised in remembering the opinions of others, thus unaccustomed accurately to examine its own, what wonder is it if it should become prepossessed with some irrational notion which cannot be removed by reasoning, because the individual man in his healthiest state had never chosen so to exercise his mind; or if, when a delusion of sense occurs, he should choose rather to act upon it as truth, than to examine into the grounds he has for believing it to be such. It is a melancholy fact that a great number of mankind are in this estate as regards the faculties most requisite to self-control, and depend far more on the accident of good health, than the exertion of their own intellectual power, for their sanity. I have heard of more than one instance of *hard livers*, as they were termed, who probably, in consequence of a slight affection of the brain from the unnatural stimulus of wine long kept up, became possessed with an opinion that they were slighted by one or more of their friends; and, resisting all reasoning on the subject, ended by destroying themselves. Yet, they were rational on other matters of importance, and therefore it is to be concluded, that, even on this point, they were capable of being rational also, had they chosen to make the exertion. It is recorded of Henri of Bourbon, son of the great Condé, that at times he imagined himself transformed into a dog, and would then bark violently. Once this notion seized him while in the king's presence; he then felt it needful for him to control himself, and he did so: for though he turned to the window, and made grimaces as if barking, he made no noise. Had the king's eye been upon him, it is probable that he would have avoided the grimaces also."(*v*)

§ 269. "The indulgence of violent emotions," observes Dr. Connolly, "is singularly detrimental to the human understanding, and it is to be presumed, that the unmeasured emotions of insanity are sometimes perpetuated in consequence of the disorder of brain originally induced by their violence. A man is at first only irritable, but gives way to his irritability. Whatever temporarily interferes with any bodily or mental function, reproduces the disposition to be irritated, and circumstances are never wanting to act upon this disposition till it becomes a disease. The state of the brain, or part of the brain, which is produced whenever the feeling of irritation is renewed, is more easily induced at each renewal, and concurs with the moral habit to bring on the paroxysm on every slight occasion—other vehement emotions and passions effect the same disorders of the mind."(*w*)

(2.) *Prevention.*

§ 270. A very eminent American physician tells us, that "no argument should weigh, for a moment, with a court of justice, in favor of liberating such an individual (one subject to homicidal mania). The fact that life has been taken, should overbalance all motives to send such person into society again, while the delusions and estrangements

(*v*) Barlow on Man's Power over Himself to Prevent or Control Insanity. London. A. Pickering. 1843. Phila. Lea and Blanchard. 1846. See *ante*, 78–85.

(*w*) Ibid.

of insanity continue; and, we add, not until months, if not years, of peace, and freedom from excitement should have confirmed their entire release from this dangerous form of disease." "We recently attended (says the same authority) "an interesting trial on a subject of this nature in a neighboring county in this state. An habitually peaceful and worthy man was indicted for the most shocking murder of his wife, with an axe, and a horrible attempt upon the lives of his children with the same weapon. The facts were not denied, and his only defence was, that of insanity. He was acquitted, principally upon our testimony as to the fact of his being insane at the time the murder was committed, of which we have not the slightest doubt; but our astonishment was only exceeded by our alarm, when subsequently informed that bail had been admitted, and this afflicted, but truly dangerous man, was permitted to go at large. This ought not to be so. Science and humanity may interpose for the life of the homicide, but society should ever be protected from the effects of his dreadful disease. The lunatic asylum is their proper place; and it should be duly prepared for their reception and detention."(*x*)

§ 271. The man who, in an insane impulse, kills one man, is more than likely, under the same impulse, to kill another. And, indeed, the several facts of moral mania implies a chronic tendency to the particular crime. This was agreed on all sides in Hadfield's case where the point was first mooted: "For his own sake," said Lord Kenyon, "and for the sake of society at large, he must not be discharged, for this is a case which concerns every man of every station, from the king upon the throne, to the beggar at the gate—people of both sexes and all ages may, in an unfortunate, frantic hour, fall a sacrifice to this man, who is not under the guidance of sound reason, and therefore it is absolutely necessary, for the safety of society, that he should be properly disposed of, all mercy and humanity being shown to the unfortunate creature; but, for the sake of the community, he must somehow or other be taken care of, with all the attention and all the relief that can be afforded him." Hereupon the counsel for the Crown, and the counsel for the defendant, agreed that the safety of the community required that he should be taken care of. "It is laid down in some books," said the former, (Sir John Mitford, afterwards Lord Redesdale), "that by the common law, the judges of every court are competent to direct the confinement of a person under such circumstances." "That may be, Mr. Attorney-General," interposed Lord Kenyon, "but at present we can only remand him to the confinement he came from; but means will be used to confine him otherwise in a manner much better adapted to his situation." It was then suggested by Mr. Garrow (afterwards a Baron of the Exchequer) that "it would be for the benefit of posterity, if the jury would state in their verdict the grounds upon which they gave it, viz., that they acquit the prisoner of this charge, he appearing to them to have been under the influence of insanity at the time the act was committed. There would then," he added, "be a legal and sufficient reason for his confinement."(*y*) This recommendation was adopted by

(*x*) Dr. Woodward, cited in 4 Journal of Psychological Medicine, p. 469.

(*y*) Howell's State Trials, Vol. XXVII. p. 1354, et. seg. Suggestions for the future provision of Criminal Lunatics, by W. Charles Hood, M. D. London, 1854. pp. 16, 17.

the jury, who returned a verdict in these terms. Thus originated the form of verdict now commonly returned in cases of this description.

(3.) *Example.*

§ 272. The recorded cases are numerous in which the supposed irresponsibility of lunatics has led to the perpetration of crime by the insane. "They cannot hang him," was whispered about in the York lunatic asylum, when the firing of York Minster, by a supposed lunatic, was under consideration, "he is one of ourselves." And one of the most dangerous convicts in the Eastern Penitentiary,—one laboring under homicidal mania in its most inveterate shape,—was constantly expressing his disappointment at finding that notwithstanding his *acquittal* on ground of insanity, he was to be continued in prison. He had, in fact, supposed himself privileged by his disease to commit this particular crime. And even taking the strongest case,—that of the man who is possessed by a homicidal mania which equals in intensity the passion of particular classes of dogs for sheep's blood,—we will have strong ground to believe that such an instinct can be tutored. Monomanias, in fact, are epidemics, and spread precisely to the degree in which they are invested with sentimental celebrity. The Leipsic "Mædchen-Schneider," who when charged with gratifying a morbid sexual impulse by striking lancets in the arms of such young girls as he might meet in a crowded street, never exercised this propensity except when it was likely it would be undetected. Shame and the fear of punishment restrained him thus far, but it was quite otherwise when he became the object of a sentimental curiosity which visited him during his trial and imprisonment with the same attentions,—perhaps more,—which would have been paid to a Live Mermaid or the Siamese Twins. The monomania became an epidemic, and would have remained so had not an ignominious punishment been affixed.

(4.) *Reform.*

§ 273. To permit a monomaniac to go at large, will be to give fuel to his disease, as well as to supply it with victims—

> "Mobilitate viget,
> Viresque acquiret eundo;"

And to nothing does this apply with greater force than that exaggerated state of the moral system, which has just been discussed. If the indulgence in passion, even in a healthy mind, tends, as has been just shown, to derangement, it will readily be seen that no recovery can be effected while the patient is permitted to run at large, exposed to all the irritating influences of unguarded society, and gathering a momentum for *coming* excesses from the very liberty he is allowed in the present.

§ 274. Dr. Mayo thus well illustrates the awkward position of insane criminals under the present administration of the law.—"It must be confessed that the conditional responsibility which the law, and, as I think, the reason of the case, attributes to the insane, is not easily

applicable in practice, either under lucid intervals, or under such other phases of the insane state, as might seem to justify it. The law will remain a dead letter, or will be continually ignored by the sympathies of judges, juries, and I may add, of medical witnesses, unless some practical distinction can be arranged, which may enable the responsible insane to undergo some lower degree of punishment than that inflicted on similar delinquents being of sound mind. The position of many such persons under capital charges, is at present anomalous. They are acquitted in defiance of the law, as laid down by the judges respecting M'Nughten's case, because the punishment at present appertaining to the offence would be too severe; and then, instead of being consigned to confinement in a gaol, as a secondary punishment, they are consigned to it in an asylum, as a place simply of detention. This becomes a scene of severe virtual punishment to some of them, of gratification to vanity and idleness to others; those, meanwhile, to whom it is a grievance, as they do not regard it in the light of a punishment, derive from it none of the preventive effects of punishment on future conduct, while the public, for the same reason, find it equally unproductive of good, as an example to persons of actually diseased mind, or to that large class of other persons who are drifting into disease under uncontrolled eccentricity."(z)

§ 275. It is impossible to carry out the proper disciplinary and remedial measures in a penitentiary common to the sane and insane. "I am satisfied of the fact," says Dr. Hood, "that Criminal Lunatics are more difficult to manage than other lunatics; there is more irritability of temper, and general restlessness about them; they are cognizant of the offences they have committed, and being under the impression that they will never recover their liberty, they are less disposed to be contented or happy. They are also conscious that they are separated into, and form a distinct class of patients, and this very circumstance establishes a species of fraternity among them; for they are in constant communication with each other, and their curiosity is naturally excited to ascertain the circumstances connected with every new arrival. They thus soon become acquainted with each other's history, which is often the cause of much quarreling and mutual recrimination; the better class of patients are unhappy at being associated with the inferior order—criminals whose manners and language are habitually of the most revolting description. Hence, I conclude, that the fundamental principle upon which we should proceed, in providing for the safe custody, maintenance, and medical care of our Criminal Lunatics, should be that of establishing a certain classification among them, founded upon the degrees, or nature of the crimes which they may have committed. This principal conceded, we have then to consider the expediency or inexpediency of organizing a State Lunatic Asylum for their common reception; the possibility, or impossibility, of each county providing adequate accommodation in existing asylums for its own Criminal Lunatics; and whether arrangements might not be made in prisons, and houses of correction, for the medical treatment of such

(z) Mayo on Medical Testimony in Lunacy, pp. 50, 51, 52.

prisoners as may, while undergoing imprisonment or penal servitude, become insane."(*a*)

On the other hand, the confinement of an insane criminal in an ordinary lunatic asylum, is beset with still greater difficulties. "It is," says Dr. Hood, "not only annoying to other patients, but greatly disturbs the ordinary discipline of the establishment; for be it observed, lunatics, whether criminal or non-criminal, are capable of some degree of reasoning; and their conscious incapacity of enjoying this faculty to its full extent, often recoils painfully upon their feelings, and becomes, in itself, a source of irritation. In providing, indeed, for the safe custody, and the management of the insane of all classes, we should proceed upon the same principles as if we were legislating for professedly sane persons; because, the mind is never totally eclipsed, there is always some lingering ray of light which the intact reflection may seize upon with instinctive truthfulness."(*b*)

§ 276. If the views taken in the preceding sections be sound,—if, in the first place, there are inherent difficulties in the way of making insanity a ground of defence on the trial of a man, who, on this hypothesis is psychologically incapable of either tendering or preparing any such issue;(*c*) if, in the second place, the doctrine of instinctive

(*a*) Suggestions for the future provision of Criminal Lunatics, by W. Charles Hood, M. D. London, 1854 p. 28–29.

(*b*) Ibid. pp. 27, 28.

(*c*) The absurdity of our present practice, in making insanity a personal defence, to be taken or rejected by the alleged lunatic in the exercise of a volition which the very nature of the defence supposes him incapable of exercising, is fully exhibited by the following case:—

SUPREME COURT OF THE STATE OF LOUISIANA.

The Court met Monday, April 9th, 1855.

Present, their Honors Thomas Slidell, Chief Justice; Cornelius Voorhies, A. M. Buchanan, A. N. Ogden, H. M. Spafford, associate justices.

3838. The State of Louisiana, Appellee, *vs.* James Patton, Appellant. } Appear from 1st District Court, New Orleans.

Spafford, Justice, delivered the opinion of the Court.

Upon the trial of James Patton for the murder of Walter Turnbull, the following bill of exceptions was taken by the prisoner's counsel:

Be it remembered, that on the trial of this cause, on the 20th day of March, 1854, after the evidence on the part of the State was closed, and when the counsel of the prisoner were proceeding to prove by the evidence of witnesses the insanity of the said prisoner, at the time of the killing set forth on the indictment, and a long time before, and ever since the said killing, the said prisoner arose and objected to and repudiated the said defence, and insisted upon discharging his counsel, and submitting his case to the jury without any further evidence or action of his counsel in his defence; his counsel opposed and remonstrated against the prisoner's being permitted to do so, alleging that they were prepared to prove the defence by clear and irresistible testimony; but the court overruled the objection of the said counsel, and permitted the prisoner to discharge his counsel, and refused to hear them further on his defence, and gave the case to the jury without any further evidence or pleading on his behalf; to all which opinion and ruling of said court the defendant's said counsel excepts, and prays his exceptions may be signed, &c.

(Signed) John B. Robertson, *Judge.*

There was a verdict of "guilty without capital punishment"—and, after the former counsel had in the quality of *amici curiæ* attempted to obtain a new trial and arrest of judgment without success, the prisoner was sentenced to hard labor for life in the penitentiary.

or moral mania be allowed in legal theory the sweep which is asserted for it by medical experts, and which in this country at least is conceded

From this judgment the present appeal has been taken :—

The sanity or insanity of the prisoner is a matter of fact; the admissibility of evidence to establish his insanity, under the circumstances detailed in the bill of exceptions, is a matter of law, and the only matter which the constitution authorizes this tribunal to decide.

The case is so extraordinary in its circumstances that we are left without the aid of precedents.

In support of the ruling of the district judge, it has been urged that every man is presumed to be sane until the contrary appears, and that a person on trial for an alleged offence has a constitutional right to discharge his counsel at any moment, to repudiate their action on the spot, and to be heard by himself; hence the inference is deduced that the judge could not have admitted the evidence, against the protest of the prisoner, without reversing the ordinary presumption, and presuming insanity.

In criminal trials, it is important to keep ever in mind the distinction between law and fact, between the functions of a judge and those of a jury.

It was for the jury, and the jury alone, to determine whether there was insanity or not, after hearing the evidence and the instructions of the Court as to the principles of law applicable to the case.

By receiving the proffered evidence for what it might be worth, the judge would have decided no question of fact; he would merely have told the jury, "the law permits you to hear and weigh this evidence; whether it proves any thing it is for you to say."

By rejecting it, he deprived the jury of some of the means of arriving at an enlightened conclusion upon a vital point peculiarly within their province, and, in effect decided himself, and without the aid of all the evidence within his reach, that the prisoner was sane.

It is idle to say that the legal presumption, and the prisoner's own declarations, appearance and conduct on the trial, established his sanity to the satisfaction of both judge and jury;—for presumption may be overthrown, declarations may be unfounded, and conduct and appearances may be deceitful; and the prisoner's counsel, sworn officers of the court, with their professional character at stake upon the loyalty of their conduct, alleged that they stood there prepared to prove by what they deemed clear and irresistible testimony that the accused was insane at the time of the homicide, long before, and ever since; so that the sole inquiry now is, not whether they or the Court were right as to the fact of sanity upon which we can have no opinion, but, whether they should have been allowed to put the testimony they had at hand before the jury, to be weighed with the counter evidence.

If the prisoner was insane at the time of the trial, as counsel offered to prove, he was incompetent to conduct his own defence unaided, to discharge his counsel, or to waive a right.

Upon the supposition that the counsel were mistaken in regard to the weight of the evidence they wished to offer, as they may have been, still its introduction could do the prisoner no harm, nor could it estop him from any other defence he might choose to make on his own account; neither could it prejudice the State, for it is to be presumed that the jury would have given the testimony its proper weight; if, on the other hand, the counsel were not mistaken as to the legal effect of this evidence, the consequences of its rejection would be deplorable indeed.

The overruling necessity of the case seems to demand that, whenever a previous soundness of mind and consequent accountability for his acts are in question, the rule that he may control or discharge his counsel, at pleasure, should be so far relaxed as to permit them to offer evidence on those points, even against his will. Considering, therefore, that it would be more in accordance with sound legal principles and with the humane spirit which pervades even the criminal law, to allow the rejected testimony to go before the jury, the cause must be remanded for that purpose.

It was said in argument, on behalf of the State, that the alleged insanity was, at most, but a monomania upon another topic, which could not exempt the prisoner from responsibility for the homicide.

The judge will instruct the jury in regard to the principles of law which govern this subject, when all the facts shall have been heard.—At present, the discussion is premature.

It is therefore ordered, adjudged and decreed that the judgment of the Court below be reversed, the verdict of the jury set aside, and the cause remanded for a new trial according to law.

to it by the Courts; if, in the third place, it be right that the present system of confinement of insane criminals be remodelled,—then it will become necessary for those to whom the work of legislation is committed to amend the law so as to reserve the question of insanity to be determined by a competent tribunal *after* a conviction of the fact of guilt. For the following undeniable evils result from the present system:

(a.) A tribunal of, at least, but secondary competency is charged with the determination of the most difficult and yet most momentous question to which human observation can be applied.(*d*)

(b.) A subject is introduced into the question of guilt or innocence, as to which no fixed judicial rules can be laid down, and which really concerns only the character and the extent of punishment.

(c.) A fearful confusion takes place between the *sane* convict; the *insane* malignant convict, who requires discipline and is, in some degree, morally responsible; the *innocent* insane convict;(*e*) and the lunatic, who is in confinement but is not charged with crime: for all of whom there is in some jurisdictions but *one* common method of discipline provided, viz: that of the penitentiary; in others, but *two*, that of the penitentiary and of the ordinary lunatic asylum. The result of this is acquittals in some cases, when there should be convictions; convictions in other cases when there should be acquittals, and in almost all cases an erroneous system of punishment.

The remedy for these difficulties is one to which we must come sooner or later, and for which the common law has been from the beginning always striving, and yet always losing from almost its very grasp. It is to confine the inquiry before the court and jury to the mere *factum* of the commission of the offence; reserving the question of treatment to be determined by a special commission of experts, to be appointed for the purpose of examining convicts alleged to be insane. The proposition to be put by the court to the jury, under such circumstances, is not, "Was the defendant capable of judging between right and wrong," a proposition which no jury can determine, but, "Did he," as a matter of fact, "commit the specific act charged." For whether he committed it as sane or insane,

(*d*) Dr. Hood very justly remarks, "All human tribunals are fallible, and how, when this plea of insanity is raised, can we unveil the mind of the accused, and determine where responsibility ends and irresponsibility begins? We may appreciate outward and visible signs but we have no *mentometer*, (if I may be allowed to coin a word) which will indicate the thoughts that may be passing through the mind. In medical jurisprudence the diagnosis between sanity and insanity is, in many cases, infinitely difficult; and it is upon this account that specialists in this branch of our profession so often come into collision with members of the bar, and draw down upon themselves occasionally animadversions from the judges on the bench. There would be no difference of opinion between the two learned professions if we could arrive at any fixed principles by which we could explain the silent operations of the mind; but this, so far as insanity is concerned, is as impossible in law as it is in medicine. We may adjudicate upon the overt act, but the motive which dictated it will very often elude the most searching examination. But this happens continually in sane as well insane life." Suggestions for the future Provision of Criminal Lunatics, by W. C. Hood, M. D. London, 1854.

And we may add to this the testimony of a great poet on a kindred point:

> "May it please your Excelleney, your thief looks
> Exactly like the rest, or rather better;
> 'Tis only at the bar *or in the dungeon*
> That wise men know your felon by his features."

(*e*) See as to distinction between these, *ante*, § 232–251.

the result is, if the offence in point of law be indictable, that the safety of society requires that he should be placed in seclusion for such a period as will promote the joint ends of personal reformation and the preservation of the well-being of the community at large. If he be guilty without the palliation of mental infirmity, certainly the severest penal code—with the single qualification of cases of murder in the first degree,—can ask nothing more than this. If, on the other hand, he was at the time laboring under mental derangement, in no other way can the extent of his responsibility be accurately determined, and the proper degree of discipline adjusted. For this great question of sanity or insanity can really be only determined by those to whose daily and hourly care the convict is committed, and who have thus full opportunity of inquiring into his antecedent as well as his present condition. "Thus," to adopt the language of a late very intelligent commentator,(*f*) "except as regards the curative course to be adopted, on our view of the case, the subtle line of distinction which there have been so many abortive attempts to draw, between criminal and non-criminal lunatics is of no practical importance, and the unavailing search, unless as a matter of metaphysical speculation, may be abandoned as unnecessary. In either case, the person concerned, whether called a lunatic, a criminal lunatic, or an ordinary criminal, should be so placed as to put it out of his power to inflict further injury, and to afford the most likely means for his cure." And thus, also, not only will the sanctions of human life and property be protected from the recurrence of those monstrous acquittals, by which, under the plea of insanity, the most dangerous criminals are suffered to run at large, but the interests of humanity will be subserved by a proper discipline, as well as a just classification, of those whose accountability is diminished or destroyed.

(*f*) XXI. London Law Review, 364.

BOOK II.

QUESTIONS RELATIVE TO THE FŒTUS AND NEW-BORN CHILD.

CHAPTER I.

SIGNS OF PREGNANCY.

§ 277. These may be divided into the certain and uncertain. Until the period at which the pulsation of the fœtal heart becomes audible, there is not one sign, nor indeed any combination of signs, which will not occasionally prove treacherous. Some practitioners are in the habit of relying upon signs, which by others are considered of trivial or doubtful significance. It may be remarked, moreover, that evidence of pregnancy which would be quite convincing to a practitioner of midwifery, may not be so readily accepted by a medical jurist. The latter, naturally lays far greater stress upon exceptional cases. In this view, we class among the uncertain signs of pregnancy, suppression of the menses, enlargement of the abdomen, quickening, and the sympathetic phenomena.

§ 278. *Suppression of the menses.*—When the catamania are arrested in a woman previously regular, and the suppression is not followed by any morbid symptoms, this sign is usually considered quite a positive one. The exceptions that may be taken to it, depend upon the great irregularity and frequent abnormal conditions of this function. Thus, pregnancy may occur in women who have never menstruated. Dr. Gregory, of Missouri, relates the case of a woman who had six living children, and had never menstruated. M. Gillette communicated to the *Societé Med. d'Emulation de Paris* the case of a woman who had borne three children, was thirty-five years of age, but had never menstruated or had any vicarious discharge. Other cases are referred to in the Am. Jour. of Med. Sci. for April, 1844. The temporary absence of the menses is, moreover, not always an obstacle to impregnation, and in some cases, which are perfectly well authenticated, they were perceived only during the pregnant condition. Baudelocque and Deventer state that they have observed instances of this kind. Cases also are occasionally met with in which the menstrual flux, or a discharge which cannot easily be distinguished from it, occurs at the usual

periods during pregnancy as well as before it, and instances are not at all infrequent in which the menses return during the early months, only in smaller quantity than usual, and for a shorter time. On the other hand, the catamenia may be suppressed from various causes, and sometimes with no immediate bad consequences. Hence, although, as a general rule, suppression of the menses is the earliest indication of the existence of pregnancy, it cannot be relied upon, as at all positive in its nature.

§ 279. *Enlargement of the abdomen, &c.*—In pregnancy, the prominence of the abdomen generally becomes obvious about the end of the third month; and from this time, the period of pregnancy can be ascertained in an approximate manner, by the gradual ascent of the womb. Nothing, however, can be more erroneous than to consider a prominent abdomen a proof of pregnancy. It may be due to dropsy, to various kinds of tumours of the ovaries or uterus, or indeed independent of either, and it may also arise from a retention of the menstrual discharge. So far from being a good sign of pregnancy, it should not be taken into consideration until a fair presumption is first established by other evidence. The sad story of Lady Flora Hastings, who was prematurely hurried to the grave by the brutal calumnies which the alteration in her shape, from disease, had given rise to, may serve as a caution to those who are over hasty in their opinions.

§ 280. According to the observations of Elsässer,(*a*) the *brown discoloration of the linea alba* was found in 377 out of 400 pregnant women, extending from the sternum to the mons veneris, in 22 only in the lower half of the abdomen, and in 1 only in the upper. At the same time, however, this author observed other women in a pregnant condition in whom no trace of this discoloration could be perceived, and still others, not pregnant, in whom it was found; so that, although it is no doubt present in the majority of instances, there can be no safety in relying upon it as a sign of pregnancy. *Prominence of the umbilicus* is sometimes spoken of as a sign of pregnancy, but it does not occur until the abdomen is considerably distended by the uterus, at which time certain evidence of the presence of a fœtus is ascertainable by other means.

§ 281. *Changes in the mouth and neck of the womb.*—These changes vary, according as they are observed in those who have had children and in those who have never before been pregnant. We do not propose to describe them at length.(*b*) It is here sufficient to remark, in general, that the uterus sinks somewhat lower in the pelvis in the early months, and thus the *os tincæ* is brought nearer to the entrance of the vagina, and is at the same time tilted somewhat forward. This gives rise to the idea that the *cervix* is lengthened, which is not the case. It does not undergo any change in length until after the fifth month, when it becomes gradually shorter and broader, (being merged into the body of the womb,) until the close of gestation, at which time it is found to be entirely obliterated. The signs from the neck and mouth of the womb previous to the sixth month, are not to be greatly depended upon.

(*a*) Henke's Zeitschrift, 1852, 4 H.
(*b*) For a good description, see Montgomery on the Signs of Pregnancy, p. 66.

§ 282. *Quickening* is defined by Dr. Evory Kennedy to be "a sense by the mother of the first perceptible motion in the uterine region, about the sixteenth week after impregnation, having for its cause either change of position of the uterus, or the motions of the fœtus." It is frequently attended by fainting and weakness, and sometimes by a discharge of blood. Quickening occurs at no fixed period in the course of gestation. It usually is perceived at the time stated above, sometimes not until later. Occasionally, the sensation is not experienced. On the other hand, nothing is more common than for women to suppose they have quickened, when they are not even pregnant. Dr. Kennedy says: "I have known women to insist upon their having felt the child moving or kicking within them, not only in cases where there was indubitable proof of the child's death at the time, but also, as mentioned in the case of quickening, where no child was in the uterus." (*c*) Klein (*d*) reports the case of a lady who *supposed* herself pregnant, and that she felt the motions of the child, and at the proper period was seized with the pains of labour. A case is reported by Dr. Heming, in the *Lancet*, in which physician and patient were both deceived. He was called to see the wife of a respectable tradesman; she was in labour, it was said, and the physician in attendance had been with her now two days and nights. This gentleman told Dr. H. that he had felt the head of the child at first, but could not then say what part was presenting. An examination was made, and the woman found to be not even pregnant. She said that she had thought herself pregnant, because her stomach and bosom had lately become greatly enlarged, and because she had frequently felt the movements of the child, and had been irregular in her monthly periods.

Some of the most experienced and competent judges have fallen into the error of supposing that they had felt these movements in women who were not pregnant at all. (*e*)

The sensation which has received the name of quickening, is not always equally well marked in its character; sometimes it is attended with fainting, weakness, and a general commotion of the system, while at others it resolves itself into an indistinct perception of the first feeble movements of the child. These have received from the French the name of *pattes d'araignées*. By some, the sensation is supposed to be due to these movements; by others, it is attributed to the sudden rising of the womb from the pelvis. To which of these causes it is really due, we will not venture to decide, considering the reasons for either inconclusive. The fact which, above all others, is of importance, is, that the sign is strictly a *subjective* one. It is perceptible by the woman alone, and her veracity must therefore determine our acceptance of it. In midwifery practice, the statement of the female is not called in question, unless her physician have suspicion that she may have been mistaken in her sensations; in legal medicine, however, the medical examiner should first convince himself by a direct examination of the probable existence of pregnancy, before questioning the woman, since it is evident that her assertions may be influenced by various con-

(*c*) Obstet. Auscult, p. 26. (*d*) Hufeland's Journal, 1815, p. 65.
(*e*) Dewees' Essays, p, 337; Dub. Med. Jour. Vol. VI. p. 356.

siderations of interest and advantage. The examination will enable him to determine whether there is a fœtus in the womb, and whether it be living or dead, as well as to fix the probable period of pregnancy. Unless her statements corroborate the results of this physical examination, they may, if these results are positive, be entirely disregarded. Hence, the fact of quickening may be looked upon as a superfluous sign of pregnancy, having no value, except when sustained by other clear evidence of the existence of this condition.

§ 283. The undue importance attached to quickening, from the earliest times, arose from an error which modern science would long since have consigned to oblivion, had it not been fatally incorporated into the laws of various countries. It was supposed that the fœtus became endowed with vitality at a variable epoch after conception, and that quickening was an indication of the moment at which it became thus animated. Such an error, explicable in the infancy of physiological science, by an inadequate knowledge of the development of the embryo, confirmed by absurd ecclesiastical canons, and handed down from one criminal code to another, should now, when ignorance is no longer excusable, disappear from our penal system. To whatever cause the act of quickening may be attributed, its explanation is not dependent upon a solution of the question relative to the precise moment at which the child becomes endowed with life. If it be due to the first motions of the child, perceptible to the mother, it is merely an indication of its *first muscular movements;* and if it is caused by the sudden rising of the uterus from the pelvis, it evidently has a still more distant connection with the phenomena of life. No serious argument is required to prove that the fœtus, in its embryonic condition, is a new being, living by its connection with its mother, dying when this is destroyed. However rudimentary its form, it is not an inorganic body, constituted by the casual aggregation of atoms, but a living creature, from whose undeveloped lineaments a perfect human shape is to be evolved. A pulsating heart, and a nervous tract, are among its earliest recognizable elements. Reason and observation equally declare its essential original vitality.

The following remarks by Prof. Hodge, in a recent Introductory Lecture forcibly illustrate these truths:

"In a most mysterious manner brought into existence, how wonderful its formation! Imperfect in the first instance, yea, even invisible to the naked eye, the embryo is nevertheless endowed, at once, with the principles of vitality; and, although retained in the system of its mother, it has, in a strict sense, an independent existence. It immediately manifests all the phenomena of *organic* life; it forms its own fluids and circulates them; it is nourished and developed; and, very rapidly, from being a *rudes indigestaque moles*, apparently, an inorganic drop of fluid, its organs are generated and its form perfected. It daily gains strength and grows; and, while still within the organ of its mother, manifests some of the phenomena of animal life, especially as regards mobility. After the fourth month its motions are perceptible to the mother, and in a short period can be perceived by other individuals on due investigation.

"The usual impression, and one which is probably still maintained

by the mass of the community, is that the embryo is perfected at the period of quickening; say the one hundred and twelfth, or one hundred and twentieth day. When the mother first perceives motion, is considered the period when the fœtus becomes animated,—when it receives its spiritual nature into union with its corporeal.

"These, and similar suppositions are, as has been already shown, contrary to all fact, to analogy, to reason; and if it were not for the high authorities—medical, legal, and theological—in opposition, we might add, to common sense.

"What, it may be asked, have the sensations of the mother to do with the vitality of the child? Is it not alive because the mother does not feel it? Every practitioner of Obstetrics can bear witness that children live and move and thrive long before the mother is conscious of their existence; and that women have carried healthy living children to the seventh, and even to the ninth month, without being conscious of its motions. Moreover, how can a fœtus be termed *inanimate* when it grows, of course is nourished, and manifests all the phenomena of life? The supposition of inanimate embryos capable of being developed, is, at the present day, an absurdity. From the moment of conception it must be alive, for immediately it begins to be developed; it is separated from the ovary, where it was generated, and travels some three or four inches through a narrow tube or canal, to the uterus, as much disconnected from the mother as the chick in ovo is separated from the parent hen. Its subsequent attachments to the mother, by means of the placenta and uterus, are so indirect (as will be hereafter demonstrated), that we will be justified in asserting that the mother has little more influence upon the child in utero than the parent bird has upon its offspring in the egg.

"If the question, therefore, be returned upon us, when does that mystical union between our corporeal and spiritual nature, between matter and spirit, body and soul, occur? We answer at the time of *conception*. It is then, only, the father can, in any way, exert an influence over his offspring; it is then, only, the female germ is in direct union with the mother,—the connection afterwards is indirect and imperfect. To suppose that the body only is generated at conception, and that the spirit is subsequently added, is, in the absence of all direct revelation on the subject, philosophically untrue,—being at variance with the facts and with reason, as has already been illustrated and enforced."

§ 284. *Sympathetic phenomena.*—Pregnant women display various consensual symptoms, which, when confirmed by other signs, compared with their sensations in previous pregnancies, or with their usual health in the unimpregnated condition, are not without considerable weight in determining the existence of pregnancy. But there is nothing more variable than these symptoms. Some women go through the whole of their pregnancy without being affected with morning sickness, dyspepsia, longings, disgusts, &c.; while others are hardly ever free from some of these annoyances. Further, they may be easily feigned, where the female is desirous to deceive herself or others.

§ 285. A change in the *condition of the breasts* is of more importance. These become larger and firmer; the nipple and the follicles around it become more prominent, and the areola wider and of a dark brown

color. The increase in the size of the breasts being due mainly to the *secretion of milk*, does not, as a general rule, occur until the later periods of pregnancy, and sometimes not until delivery takes place. Occasionally, also, certain diseases of the uterus and ovaries will cause a tumefaction of the breasts. The presence of milk in the breasts is of value, as a sign, only in cases where a woman never before pregnant, and menstrating regularly, has the catamenia suppressed.(*f*)

The changes taking place in the *areola* are considered, by Dr. Montgomery and some other eminent authorities, to afford very valuable evidence of pregnancy. The essential characters of the true areola resulting from pregnancy, are described to be a circle around the nipple, whose color varies in intensity according to the complexion, being generally much darker in persons with black hair, dark eyes, and sallow skin, than in those of fair hair, light colored eyes, and delicate complexion. It becomes darker in color and wider as pregnancy advances. The skin over it is moist, and the follicles become prominent. These phenomena, in a woman not previously pregnant, when found in connection with other reliable signs of pregnancy, may confirm the inference made from them. Viewed singly, the changes in the areola will be found to be far from constant in their appearance. The complexion of the female has a good deal to do with their production; and, as Dr. Kennedy remarks, "we will often observe them very distinctly marked, in virgins of a dark appearance, whilst in pregnant women of fair complexion no trace of them will be visible, even when they are advanced in this state. Again, where they have once been well marked, in consequence of one or more pregnancies, they seldom or never disappear entirely; and on this account, in cases of married women, they must be acknowledged as a test far from positive in its nature. Dr. Reid(*g*) observed them in a woman not pregnant but suffering from a chronic tumor of the left breast, and found that none of them were present in a woman who was soon after delivered of a living child. They are also known to occur in a variety of uterine affections. Siebold says that they may occur independent of pregnancy, and in cases of disease of the womb; and Dubois, that they may follow a suppression of menses, whatever its cause. Dr. Simpson, of Edinburgh, in a case of spurious pregnancy under his own care, observed that the areolæ became dark and their glandulæ enlarged. This was so marked, that a drawing

(*f*) For a large number of curious instances of the secretion of milk in women beyond the age of child-bearing, and in others where it was developed under extraordinary circumstances, *vide* Beck's Med. Journ., Vol. I. p. 220. Also, Dr. Dunglison's case of a man 55 years of age who performed the office of wet nurse for several years (Physiol., p. 833). Dr. Battersby gives an instance of a male child, three weeks old, from whom a drachm of milk could be drawn by pressure from the breasts. Analyzed by Mr. Moore, under the microscope, it was found to be a genuine lacteal secretion (Dublin Med. Press, Ap., 1850). See also Guillot's observations, Ed. Month. Jour., Feb. 1854, p. 165. A most interesting case is of recent occurrence. A woman 55 years of age, whose catamenia had ceased for many years, and who was also in bad health, undertook to bring up an infant whose mother had died in childbed. To keep it quiet, she was in the habit of putting it to her breast. At the end of six months she was surprised to find that the child was really drawing milk from her breasts. All other nourishment was suspended, and the child, which before had been weakly, soon became hearty and vigorous entirely upon the milk which he drew from her. She continued to nurse him for twelve months, at which time she weaned him. (E. Warren, M. D., Edenton, N. Car., in Va. Med. & S. Jour., 1854).

(*g*) Lancet, Dec. 1838.

of them was made about the third month. These sketches presented all the usual changes as distinctly as those figured by Dr. Montgomery, in his plate of the true areola at that period; and being preserved, they were found, on comparison, as marked as the patient's own breasts were at the same date, a short time after, when actual pregnancy supervened.(*h*)

§ 286. All of the signs which have now been referred to are uncertain in their nature, and various objections may be urged against each of them, but if a majority of the more important exist, the presumption of pregnancy is necessarily very strong, although *certainty* can not be obtainable from them. The same objection cannot be made against the signs which we have designated as *certain*, from the fact that when found they indicate the presence of a fœtus infallibly; although it cannot, indeed, always be inferred from their *absence* that pregnancy does not exist. This class of signs demonstrates, therefore, the presence of a fœtus in the womb, and are obtained by physical methods of exploration, inspection, touch, auscultation, &c.

§ 287. The *passive movements* of the child are obtained by the manœuvre termed *ballottement* by the French. The female being in a standing posture, the finger is introduced into the vagina, up to the mouth of the uterus, while the other hand is placed upon the abdomen. The womb is suddenly raised up by an abrupt movement of the finger, and falling again upon it with a slight shock, communicates the sensation of sudden displacement of a body contained in a liquid. This test is seldom applicable before the fifth month, and sometimes not after the eighth, owing either to the position of the child or the small amount of amniotic fluid present. In competent hands, the test is a safe one; but it can give evidence only of the presence of a fœtus,—whether this be living or dead must be ascertained by other means.

§ 288. *The active movements of the child* become perceptible, for the first time, usually in the fourth month. They are at first extremely feeble, and in some cases remain so during the whole period of gestation. In the majority of cases, however, they are very distinct in the latter half of pregnancy. They are perceived by laying the hand upon the abdomen, and making gentle pressure upon it, or after dipping the hand in cold water before touching the skin. Sometimes an escape of gas from one portion of the intestine to another, or even the involuntary contraction of the abdominal muscles, may momentarily deceive the examiner, but a little attention will dissipate all chance of mistake from these sources. The child may not always be made to execute movements; hence, both the woman may be pregnant and the child alive, without its being revealed at the time by this mode of physical examination of the abdomen.(*i*)

§ 289. *Pulsation of the fœtal heart.*—The pulsation of the fœtal heart resembles the ticking of a watch, and is discoverable at different portions of the uterus, according to the period of pregnancy at which the observation is made. These sounds cannot be mistaken for any other heard in the abdomen, since the pulsation is a double one, and not iso-

(*h*) Edinb. Monthly Jour., July, 1853.
(*i*) Dépaul, Traité Théorique et Pratique d'Auscultation Obstetricale.

chronous with the maternal pulse, being generally about 130 beats in the minute, varying, however, considerably in frequency. These pulsations are first distinctly audible about the middle of the fifth month; but M. Dépaul says that it is possible to hear them one month earlier than this period, he having succeeded in perceiving them, with great distinctness, by depressing strongly the abdominal walls, and placing the stethescope upon the fundus of the uterus. This manœuvre would evidently succeed only in very thin persons, and by a practised auscultator. The sounds may be more audible at one examination than at another; indeed, to an inexperienced auscultator, they may frequently be inaudible. It is extremely rare, however, *not* to find them in the last three months of pregnancy, except when the fœtus is dead. Of 906 women examined at this period of pregnancy, says M. Dépaul, the sounds were absent in 8 only. The auscultation of the fœtal heart is, therefore, a test of the existence of a fœtus far more reliable than any other sign or combination of signs. It is easy of application, can be employed at a comparatively early period, and can hardly ever fail of being discovered when pregnancy really exists.

§ 290. There are two other sounds indicative of pregnancy, which are ascertained by auscultation, but neither of which can afford the same positive proof as the pulsation of the fœtal heart. These are the uterine and the umbilical *souffle*. The first is a peculiar blowing or whistling sound, audible over a greater or less extent of the uterine tumor, sometimes confined to one spot, and generally most audible in the lower and lateral portions of the uterus. It is said to be caused by the passage of the blood through the uterine arteries. It is isochronous with the pulse of the mother. It has been perceived as early as the tenth week, but most generally cannot be discovered until a later period. Its intensity increases up to the end of the seventh month. (Dépaul.) Of 307 women who had passed the fifth month, this author observed the uterine souffle in 295. M. H. F. Nägele(*k*) found it absent in only 20 cases out of 600. In affixing a value to this phenomenon, as a sign of pregnancy, the observations of M. Dépaul render it positive that a souffle perfectly similar to this is heard when the uterus is developed from any other cause than pregnancy. He relates a number of cases which show conclusively that such is the case; in some of them, post-mortem examination disclosed fibrous and carcinomatous tumors imbedded in the walls of the uterus.(*l*) If, however, a certainty can be obtained that the development of the uterus is not due to this cause, the sign is hardly less characteristic than the fœtal cardiac pulsation.

The sound discovered and described by Dr. Evory Kennedy, and called by him the umbilical sound (from the supposition that it proceeds from the umbilical vessels) is of trivial importance in the diagnosis of pregnancy. It is not audible in the majority of cases, requires an experienced ear, and when found, is a superfluous sign, because the pulsation of the fœtal heart and the uterine souffle will be also perceptible

(*k*) Die gebnrtshülfliche Auscultation, Mainz. 1838.

(*l*) The same opinion is held by Kiwisch, whose opportunities for verifying the accuracy of his views are very extensive, and whose critical acumen and sound judgment have gained him a wide reputation. Vid. *Klinische Vortraege*. Bd. 2, p. 561. Prag. 1849.

at the same time, and are not open to the same objections as is the one in question.

§ 291. *Kiestein in the Urine.*—Very little need be said of this substance as a test or sign of pregnancy. The name of *kiestein* is applied to a fatty pellicle or scum which forms on the urine of pregnant women, after it has been allowed to stand for a few days. Its nature is not very well understood, but Dr. Golding Bird supposes that it contains the caseous elements of milk mixed with the earthy phosphates. There is, however, considerable discrepancy of opinion respecting its constitution, while at present few are disposed to look upon it as of any value as a sign of pregnancy. Among the latest observations are those of Dr. Veit, who comes to the conclusion that the so called pellicle of kiestein is no peculiar matter at all, and is not of the slightest value as a sign of pregnancy. In urine of both non-pregnant and pregnant women pellicles are formed, containing vibriones and frequently the triple phosphate; the chief difference between the respective urines being, that in that of pregnant women, alkaline, and in that of non-pregnant women, acid reaction more frequently manifests itself. This may depend, perhaps, upon the greater concentration of the urine in pregnancy, and the larger proportion of mucus mixed with it.(*m*)

CHAPTER II.

DELIVERY.

§ 292. *Signs of recent delivery.*—Within a week or ten days after delivery, the following signs are distinct and well marked the earlier the examination is made. The countenance of the female is pale, her skin warm and moist, the body languid, and the mind and feelings very impressionable. The breasts are more or less distended, and their veins very distinct upon the surface. They are increased in weight, and the knotty masses of lactiferous tubes and glands are very easily felt. The nipples are prominent, and watery milk spontaneously or by pressure exudes from them. The integuments of the abdomen are loose, lying in folds, marked with livid lines, which at a later period become whiter than the surrounding skin, and resemble scars; the uterus can be felt behind the pubis, like a large firm ball; the external organs of generation are moist, relaxed, and swollen, and the vagina, both at its entrance and throughout, is very capacious, and free from folds. The mouth of the womb is low, open about three-quarters of an inch, its margins very soft and relaxed, and sometimes slightly lacerated. A sanguinolent mucus exudes from the internal organs of generation. This discharge is known under the name of the lochia, the odor is peculiar, and easily recognized by those who have once perceived it. Such are the principal signs of delivery, and in their combination, present a characteristic picture which can leave no room for doubt of a recent confinement. Taken separately, however, there is hardly any one which is not

(*m*) Am. Jour. Med. Sc. Jan. 1852, p. 259.

open to exceptions. Thus milk may be secreted independent either of pregnancy or delivery, as has been shown in the chapter on the "Signs of Pregnancy." Yet the manner in which the secretion takes place after delivery, the attendant warmth of the skin, turgescence of the glandular structure of the breast, with a certain amount of constitutional sympathy, called "milk fever," can rarely, especially during the first few days, allow one to be in doubt of its cause. There are, indeed, numerous cases in which no milk is secreted, and although even in these a certain degree of turgor and warmth may generally be observed, yet an opinion must be based upon a further examination.

§ 293. A *microscopic examination* of the milk may sometimes contribute to prove the recent occurrence of parturition. This solved all doubt in a case recently reported by Mr. Mercer Adam. The body of a new-born child, much decomposed, was found in a moss in the South of Scotland; it appeared to have been dead four or five weeks. Suspicion having fallen upon a young woman who was supposed to have been delivered secretly about that time; she was arrested and acknowledged that she had borne a child about a year and a half before, which she had nursed until within three months of her apprehension, but firmly denied having been recently delivered. No feasible plan of deciding the question appearing, some one suggested that her milk should be examined by the microscope. This was done, and it was found to abound in *colostric* globules. "This showed parturition to have lately occurred." The girl finally confessed that she had recently given birth to a still-born child.(*n*)

§ 294. The condition, as above described, in which the genital organs, after delivery, are found, is one which it is entirely impossible to mistake for the result of disease, accident, or intentional injury. The only difficulty in ascertaining the fact of delivery having taken place, arises in those cases where an examination has not been had at a sufficiently early period. After the establishment of the flow of the milk, and the disappearance of the relaxed and tumid condition of the genital organs, there remain hardly any other signs than the whitish streaks before referred to, indicative of the previous distension of the abdomen, and in addition, the state of the os uteri. If it can be shown, that abdominal dropsy, or tumors, have not been present, then the white lines, being usually permanent, afford good evidence of the woman having borne one or more children, but allow no inference as to the date of delivery, except that it has not been recent. The *os uteri*, in a woman who has been delivered once or more, differs from its virgin state, in being more open, and its margins irregularly notched or even torn.

§ 295. In conclusion, it may be stated, that the medical proof of recent delivery from an examination of the living woman, cannot be established with perfect certainty after the lapse of a week or ten days, if the female have already borne children; if it, however, have been a first labor, the existence of the whitish streaks upon the abdomen and the altered condition of the mouth of the womb will afford strong suspicion of delivery having taken place at some former period, which cannot be more nearly determined.

(*n*) Edinb. Monthly Journal of Medical Science, May, 1853.

§ 296. *Signs of delivery in the dead.*—These are extremely easy of recognition. It is evident, that in addition to the dilated and relaxed state of the vagina and vulva, the volume and capacity of the uterus, the thickness of its walls, the blood upon its inner surface, and the lacerated appearance of that portion of it to which the placenta was attached, are unmistakable signs of recent delivery. The uterus, after delivery, does not return to its former size until after the expiration of eight or twelve weeks, but will be found during this period still larger than before pregnancy, its walls thick and firm, but not vascular, although traversed by dilated veins, and the mucous membrane of the *os tincæ* softened, as if excoriated, vascular, and covered with mucus. The appendages of the uterus partake of the vascularity which characterize it at the epoch of delivery, but they soon regain their ordinary aspect. It has been supposed that the finding of a *corpus luteum*, or trace of a ruptured Graafian vesicle in the ovary was incontrovertible proof of the previous existence of pregnancy. This opinion can no longer be maintained.

§ 297. *Corpus luteum.* This body which is found in the ovary as the result of the rupture of a Graafian vesicle, indicates the escape of an ovum, but not necessarily the occurrence of impugnation. It has indeed, been supposed that if a *corpus luteum* were formed in the ovary, this would be a reliable proof that fecundation must have occurred. This view is, however, not supported by the continued and later investigations into the physiology of menstruation and reproduction.

The fact is now, perhaps, universally admitted, that the maturation and expulsion of ova, probably at the menstrual period, or immediately after it, take place independent of all sexual intercourse. The act of expulsion or discharge necessarily involves a rupture of one of the Graafian follicles, and the locality is indicated by a *corpus luteum* and a cicatrix.

The following is a description, by Dr. Dalton, of the *corpus luteum* found in the ovary of a girl who destroyed herself by the oil of tansy, in the fourth month of pregnancy. The fœtus was found in the womb. "The left ovary, which hung down a little lower than the right, had near its external extremity a small conical prominence, where the fibrous coat was wanting, and its place occupied by peritoneum alone. There was a very slight appearance here of a cicatrix, visible only on close inspection. There was no unusual vascularity here or at any other part of the ovary. Beneath this prominence the corpus luteum could be felt through the ovarian tissue, tolerably firm and well defined, showing the form of a sphere compressed laterally, much like that of the crystalline lens. On dividing the ovary longitudinally through the prominence the corpus luteum was exposed. It presented nearly a circular section, measuring seven-eighths of an inch in its long diameter, and three-fourths of an inch in its short. It consisted externally of a convoluted wall of a dull yellow color, measuring at its deepest part a little over three-sixteenths of an inch in thickness. The space enclosed by the yellow wall was occupied by a colorless, reticulated fibrous coagulum, which possessed a few minute vessels. This central coagulum was much compressed laterally; so that although it presented a cut surface of about half an inch in diameter, it had hardly more than one

line in thickness. There was no cavity or fluid any where. Both ovaries were carefully divided in every direction, but only one other body was found having any resemblance to a corpus luteum, and that was so small and imperfect as to be hardly recognizable. There were many Graafian vesicles in the interior of each ovary, varying in diameter from three-sixteenths of an inch downward, but none at all prominent on the surface. Both ovaries were quite healthy."(*o*)

§ 298. The question of practical interest in inquiries relative to the fact of impregnation or delivery having occurred, is, whether there is a sufficient distinction possible between the corpora lutea of simple menstruation and those of pregnancy to enable us to declare with *positiveness* to which cause it may be properly ascribed. It would certainly be a gratifying result of scientific observation, if this question could be answered in the affirmative.(*p*)

M. Longet(*q*) gives a concise and satisfactory description. He says: "We must distinguish *two kinds of corpora lutea;* those which result from the cicatrization of a follicle, after the spontaneous expulsion of an ovum, without any subsequent conception; and those which are produced by the same process, after the expulsion of an ovum followed by conception, and especially by gestation. Those belonging to the first class, rapidly pass through their different stages, never attain a high degree of development, are much inferior to the others in size, rapidly assume the yellow coloration, fade again in a few days, and in the course of one or two months become retracted and completely concealed in the ovarian tissue. The second species of corpora lutea, participating in the congestion and functional activity, which are established in all the sexual organs during gestation, attain a size sometimes greater than that of the ovary itself, and pass so slowly through the different stages of their development and atrophy, that they are still perceptible at the termination of pregnancy; they gradually diminish in size, in proportion to the growth of the fœtus, and the approach of the end of gestation.

§ 299. Dr. Dalton,(*r*) in his valuable monograph on this subject, says, "There can be no doubt that *in the first periods*, the corpus luteum follows the same course of development, whether the discharged ovum becomes impregnated or not. Together with the rupture of the vesicle

(*o*) Am. Jour. Med. Sci. Jan. 1852.

(*p*) M. Coste, in his splendid work upon Embryology, says, that during the first eight or ten days after the escape of the ovum, it is impossible to find any difference between the corpus luteum of menstruation and of pregnancy; after this period the first assumes a retrograde course, while the latter attaining a larger size than the other ever reaches, and becoming in every way more developed, remains stationary until about the end of the third month, at which time it begins to decline, and between the sixth and the ninth month has lost at least two-thirds of its volume; still occasionally it is completely absorbed before delivery. During the period of decadence, it is difficult to distinguish the corpus luteum of pregnancy from that of menstruation. M. Coste differs from Raciborski, Ponchet, and most other physiologists who have made researches upon this subject, in regard to the cause of the color of these bodies, believing it not to be due to an extravasation of the coloring matter of the blood, but to other causes which the reader will find fully explained in his work. (*Histoire générale et particulière du developpement des corps organisés.* Paris. 1847.

(*q*) Physiologie. Paris, 1850. Vol. II. p. 88.

(*r*) Prize Essay on the Corpus Luteum of Menstruation and Pregnancy, by Jno. C. Dalton, jr., M. D., published in the Trans. of the Am. Med. Assoc. Vol. IV. 1851.

the same effusion of blood takes place in either case, followed by a gradual absorption of the coloring matter of the clot, with hypertrophy and folding up of the membrane of the vesicle. When, however, the ovum becomes impregnated, and continues its growth in the uterus, the corpus luteum, instead of reaching its maximum of development at the end of three weeks, and afterwards undergoing a rapid process of atrophy, *continues to develop itself*, for a considerable period, and does not, in fact, become very decidedly retrograde until after the termination of pregnancy." He states, moreover, that the yellow color of the *corpus luteum* of pregnancy fades more rapidly than that of menstruation in proportion to its size and the activity of the changes it undergoes.

Bischoff(*s*) in a paper lately published upon this subject, which with him has been one of close investigation for many years, states that he has had the opportunity of examining the ovaries in thirteen women who had died while menstruating or in the pregnant condition. The results he has obtained, confirm the truth of the theory, that at every menstrual period, a Graafian follicle ripens, swells and bursts, and that the ovum escaping, a corpus luteum is formed. Still, in ordinary menstruation, it never attains the full development which characterizes it when pregnancy exists. It rapidly becomes contracted, and as the succeeding menstrual period is already indistinct, and becomes gradually more and more so, the color changing from yellow to brown and black, and a puckered cicatrix on the surface of the ovary is soon the only trace of its existence. The *corpus luteum* of pregnancy on the other hand, progresses steadily in its development, and attains a size never reached by that of menstruation. It lasts through the whole period of pregnancy, and disappears after delivery. In the early periods, therefore, the difference between the two bodies is too slight to be relied upon; after delivery it is still difficult to distinguish that of pregnancy from those of fourteen days or three weeks standing, resulting from menstruation.

§ 300. It is hence very plain, that in the many cases in which the fact of impregnation having taken place is important to be known, we cannot rely with confidence upon the evidence derivable from the corpus luteum. We doubt, moreover, whether in view of the still very conflicting opinions among physiologists in regard to the nature, origin and diagnostic value of the corpora lutea, positive evidence derived from this source would be well received. While we feel persuaded that there is, as has been so well described by M. Coste and Dr. Dalton, a striking difference between these bodies in mere menstruation and pregnancy, yet it should not be forgotten that many of the most experienced anatomists and physiologists of the day have failed to recognize it. We beg leave to refer those of our readers who desire to learn in detail the state of knowledge on this subject, to Dr. Dalton's paper above quoted. In conclusion it may be added, as that admirable observer and microscopist, Mr. Wharton Jones, remarks, that "though *physiologically* one may be permitted to speculate on the relation between the occurrence of corpora lutea in the ovaries

(*s*) Zeitschrift für rat. Med. Bd. IV. H. 1, abridged in Brit. and For. Med. Rev., April, 1854, p. 561.

and preceding coitus, it would be rash and unwarrantable in any one to pronounce positively from the occurrence of a corpus luteum in the ovaries that coitus had taken place. The discovery of an ovum in the uterus, in process of development, could alone, in the present state of knowledge, warrant such an affirmation in a court of law. But, on the other hand, the absence of a corpus luteum could not warrant the affirmation that coitus had not taken place.(*t*)

§ 301. *Feigned delivery.* Delivery may be feigned from a variety of motives, into which it is not necessary for us to enter. A medical inspection can hardly fail to expose the deceit, and usually the collateral proof is sufficient. We have abridged the following case of feigned delivery, on account of the wonderful ingenuity with which the imposture was conducted. Dr. Albert relates, that he was called upon to see a poor girl of twenty-one years of age in her last illness. In the presence of the physician and clergyman of the district, she gave the following narrative and confession. Some eighteen months previously she had entered the service of a married couple as housemaid. Her master, who was young and handsome, and assumed the title of Baron, had no children. He succeeded, by tempting presents, in overcoming her virtue. He then represented to her, that an important inheritance depended upon his having an heir, but having been married five years, and his wife still proving unfruitful, he had no longer any hope of having children by her. He then proposed to the girl, that in case she should prove with child, and would allow him to cause it to appear as his own legitimate offspring, he would not only give her a considerable sum of money, but would also let her remain in the house of her mistress, in order that she might be always near her child. She accepted the proposal, and as soon as she found herself to be pregnant, the preparations were made to carry out the projected imposture. The girl remained in the house, living in the most retired manner, while her mistress played the part of a lady in an interesting condition. She introduced wool and folded napkins under her dress, and thus gradually let her rotundity become apparent, rubbed her breasts frequently, in order to develop them, fainted in church, was often ailing and sent for midwives and consulted them concerning her symptoms; physicians were also called upon, and every means taken to make public her happy expectations, so that no one had any suspicion that she was not pregnant. The traces of her monthly sickness were carefully concealed.

At last, in due time, the young girl fell in labor, which was allowed to advance considerably before the midwife was sent for. In the mean time the bed was arranged in the following manner. A board was taken out of the bottom of the bedstead, and immediately above this opening a hole was made through the mattress and paillasse large enough to allow the legs of a person to pass through and rest upon the floor. The bed was made in such a manner as to sink down towards the headboard, while it was elevated below the opening in the mattress. The mistress now leaned in a sitting position, with her legs through the opening in the bed, and supported against the headboard, while the servant lay across her lap on a feather bed, in the attitude of

(*t*) Microscopical examination of an early *Corpus luteum*. Lond. Med. Gaz. 1844.

labor. Her body was entirely concealed by the bed coverings, which also concealed her mistress up to the neck. The midwife, upon her arrival, found the Baroness, as she supposed, in the throes of labor; she made the necessary examination, promised a speedy deliverance and gave the usual words of comfort. The lady, however, screamed lustily at every pain, the approach of which she became conscious of by the involuntary contractions of the poor girl's body; while the latter suppressed her cries as much as possible, except when she could mingle them unperceived with those of her mistress. A living male child was soon born, and the after-birth followed it immediately. While the nurse was busy in washing and dressing the child in another room, the girl escaped from the bed into an adjoining chamber. The Baroness, before the return of the midwife, drew her feet up from the opening, covered it over with the bed, and stretching herself out upon it, forbad the midwife, (who was desirous of ascertaining her condition) to touch her, except to wash off the blood with which she had previously soiled her thighs, declaring that she was in so much pain, that she could not endure the slightest touch. The child was baptized, and on the second day put to the breast of the lady. As, however, very naturally, it found nothing there, the midwife was discharged on the pretext that the Baroness's own attendant could now take care of the child, which, immediately upon her departure was confided to its own mother. The remainder of the girl's history not being essential here, is omitted. Unexplained circumstances prevented the fraud from succeeding. The authors of the conspiracy fled, leaving the servant-girl sick and in a state of destitution. She died, from the effects of privation and exposure, shortly after having made this confession.(*u*)

Dr. Rüttel relates a case of pretended pregnancy and delivery, in which a girl, with the hope of persuading her lover to marry her, had stolen a child from eight to ten weeks old, and endeavored to pass it for her own. The fraud was easily detected from the entire absence of any signs of recent delivery, and from the child being evidently older than was consonant with her statement.(*v*) Where, as has in some cases happened, a child of the proper age has been substituted, the truth will be elicited by a medical examination, or where this cannot be obtained, the imposture is apt to be disclosed by some accidental or unforeseen circumstance.

CHAPTER III.

DURATION OF PREGNANCY.

Presumption that the child born in wedlock is legitimate.

§ 302. The rule in this country, as in England, is, that when the husband has access to the wife, and the child is born within due time subsequent, no evidence, sort of absolute impotence on the husband's part, will justify a judgment of illegitimacy. The question of

(*u*) Henke's Zeitschrift, Vol. XLIV. p. 172. (*v*) Ibid. Erg. H. 31, p. 312.

access, however, may be made to rest upon circumstances.(*w*) And among these circumstances may be taken proof of open cohabitation with another man, and repudiation by the husband's family of the alleged child.(*x*) When the marriage takes place when the mother is so far advanced in pregnancy, that her situation must have been known by the husband, this will be considered a recognition of legitimacy.(*y*)

1. *Protracted Gestation.*

§ 303. The duration of pregnancy in woman, is, according to general medical and popular observation, about nine calendar months. Nine calendar months give a variable length of time, since they may contain either 273, 274, 275 or 276 days. Hence those who have thought precision was desirable, have described the term of pregnancy as comprising ten lunar months, forty weeks, or 280 days. The celebrated Harvey says, "Unquestionably the ordinary term of utero-gestation is, that which we believe was kept in the womb of his mother by our Saviour Christ, of men the most perfect; counting, viz., from the festival of the Annunciation in the month of March, to the day of the Blessed Nativity, which we celebrate in December. Prudent matrons calculating after this rule, as long as they note the day of the month in which the catamenia usually appear, are rarely out of their reckoning; but after ten lunar months have elapsed, fall in labor, and reap the fruit of their womb the very day on which the catamenia would have appeared had impregnation not taken place."(*z*)

There is a remarkable correspondence between these views of the illustrious demonstrator of the circulation and those which are at present attracting attention. The idea has of late years been put forward and sustained by direct observations, that in women whose menstrual function is regular, gestation will terminate at the tenth menstrual period after that upon which conception has ensued. Thus as the ordinary menstrual interval is about twenty-eight days, the ordinary duration of pregnancy would be a few days less than 280 days, varying according to the time occupied by the monthly flow. On this principle, the apparent difference among women in the length of their pregnancies might be explained by reference to the well-known variations in the length of the inter-menstrual periods; protracted gestation occurring in those having a menstrual interval naturally of more than twenty-eight days, and apparently premature confinements in those who menstruate at shorter intervals. The successful establishment of such a law, would afford striking confirmation of the general truth of a popular belief reposing upon ages of experience. The greater tendency to abortion or premature delivery at the recurrence of the menstrual epochs, and the usual re-establishment of the menstrual function, within one month after parturition, in case the woman does not suckle her child, afford a presumption in favor of its correctness. Nevertheless, much additional and

(*w*) Com. *v.* Shephard, 6 Binn. 283. See 3 Hawks, 623.

(*x*) Com. *v.* Stricker, 1 Br. App. xlvii.; see Com. *v.* Wentz, 1 Art. 269; Stegall *v.* Stegall, 2 Brock. 256; Bowler *v.* Bingham, 2 Munf. 442, 3 Munf. 599.

(*y*) Stegall *v.* Stegall, 2 Brock. 256.

(*z*) Harvey's Works, Willis' Translation, p. 529.

careful observation is required before we can be permitted to base a positive opinion in legal cases on such a mode of calculation.(*a*)

§ 304. The discordance in medical testimony upon the subject of the natural duration of pregnancy and the possible deviations from it, is accounted for by the want of a *fixed period* from which to date *its commencement.*

The *mode of reckoning* is various. Much reliance is placed by some women upon *peculiar sensations* experienced at the moment of conception. In some instances, they are no doubt thus enabled to calculate the probable duration of pregnancy with considerable certainty. Dr. Reid(*b*) says, that he has occasionally met with cases in which this mode of fixing the exact time of conception, proved, by the result, to have been correct; but that, in a much larger number of instances, the females were very considerably out in reckoning, by trusting to this evidence. As a general rule, he says, "it will prove most fallacious, and in disputed cases of legitimacy, it is of far too uncertain a character to rely on." We may add, that these sensations are undefined in their nature, are unperceived by a great many women, have no necessary connection with conception, and if referred to at a late period in the pregnancy or after delivery, the evidence must be utterly unworthy of consideration. Hence in questions of *paternity*, the sensations alleged to have been perceived at the time by the woman cannot be regarded.

§ 305. In an indictment for bastardy the mother will not be permitted to decide which of the connections about the same time was the operative cause of conception.(*c*) "The organs of conception, like those of digestion," said Chief-Justice Lewis, "perform their appropriate offices, without the volition of the female. She is not conscious, at the moment of the occurrence of what has taken place. It is only by *inference* that she can fix the paternity of her offspring. If her intercourse has been confined to one individual, there is no difficulty in drawing a correct conclusion from the premises. But if she has exposed herself to the embraces of several, at, or about the time she became pregnant, she has placed it out of her power to draw any safe conclusions on the subject. Where the causes are shown to exist, each of which is adequate to produce the effect, and there are no circumstances to determine the mind in favor of either, the cause must necessarily remain uncertain.(*d*)

§ 306. Another mode of calculation is from the *period of quickening.* In treating of the "signs of pregnancy," we have already shown the fallacy, to which any calculation founded upon this date is liable, since it may occur as early as the tenth week, as late as the twenty-sixth, or may never be perceived at all.

§ 307. The mode of reckoning adopted by women themselves, as well as by their medical attendants, is usually from the *cessation of the catamenia*, or from a period midway between the last monthly discharge

(*a*) Vid. Cederschjöld. Schmidt's Jahrbücher. 1849. Suppl. Bd. pp. 323 and 324, also Schuster, Henke's Zeitsch. 1849. 1 H. pp. 1–97.

(*b*) On the Duration of Pregnancy in the Human Female, by James Reid, M. D. Lancet, 1850.

(*c*) Com. *v.* Fritz, 8 P. L. J. 43. Com. *v.* M'Carty, 4 P. L. J. 140.

(*d*) Com. *v.* M'Carty, 4 P. L. J. 130.

and its next expected recurrence. It is at once obvious that such a computation must yield merely an approximate result. If calculated beforehand, it may happen to prove correct, or it may either fall short of, or exceed the actual duration. Conception may take place at any time in the interval between one menstrual period and another. Hence by reckoning from the last occurrence of the catamenia, we may be in error by the whole length of the menstrual interval,—viz., 23 to 25 days,—since impregnation may have been effected immediately before the anticipated return; or, on the other hand, the real duration of the pregnancy may be apparently shortened, by referring the impregnation to the end instead of the beginning of the menstrual interval. By adopting the common way of dating from midway between the two periods, the evil of falling into an extreme error is indeed avoided, but the certainty of exactness is no better attained.

§ 308. Another source of error lies in the *irregularity* of the menstrual function. If this continue to be performed during pregnancy the female may become very much perplexed in her calculation. By dating from the complete cessation of the monthly discharge, she may make her pregnancy appear much shorter than it is in reality, or, on the other hand, add to its real duration by ascribing its commencement to some antecedent period at which she may suppose that she experienced the "peculiar sensations" above spoken of. In general, however, the mistake by which protracted cases may be accounted for, depends upon the fact of the catamenia having been arrested by some accidental cause before impregnation occurred. The female is often sustained in her error by the appearance of symptoms not unlike those of real pregnancy, which are apt to ensue upon the arrest of the catamenial discharge. Thus a lady, mentioned by Dr. Reid, who had borne five children, and had never before had any stoppage of the menses, except when pregnant, missed a period about ten months after the birth of her last child, which was at that time weaned, and naturally concluded that she was again *enceinte;* this opinion was confirmed by the second period also passing without any catamenial appearance. All the usual general symptoms of pregnancy occurred in succession, but, to her great surprise, she did not quicken as usual at the fourth month, and this occurrence did not take place, until the supposed seventh month of her pregnancy. The infant was born exactly twelve calendar months after the last appearance of the menstrual functions. Dr. Reid remarks, "We may readily comprehend that, in this case, there was an accidental stoppage of the catamenia for three months, at which period conception took place. Fortunately, the apparently late period at which the movements of the fœtus were perceived, but which, in reality, was the usual one at four months, corroborates the above fact."

§ 309. Although, when the duration of pregnancy is reckoned in this manner—viz., from the arrest of the monthly discharge—the calculation is subject to the errors indicated, which are again further increased by the sympathetic phenomena often ensuing upon the stoppage of the catamenia from other causes; yet it cannot be denied that there are cases thus reckoned, which cannot be so explained. In two cases,

for example, related by Prof. Simpson(*e*) of Edinburgh, the actual enlargement of the uterus, corresponding to its usual size at the eighth or ninth week of pregnancy, was ascertained by manual examination at this period after the supposed commencement of pregnancy; and yet in one case the number of days which elapsed from the last menstruation to delivery was 336, and in the other, 332. Allowing an intermenstrual period of twenty-three days (since the impregnation may have occurred only at its termination) the actual duration of pregnancy would have been, in each case, respectively 313 and 309 days, or at least 33 and 29 days in these two cases beyond the generally admitted limit. We might, indeed, to show that a manual examination is not always a reliable indication, adduce cases related by another distinguished author, in which it merely confirmed the female in her error. Thus Dr. Reid relates that, "A married woman, aged twenty-five, who had not seen her husband for eight months previously, having procured a letter for a lying-in hospital was admitted into it, as labor-pains had continued for several hours. She had experienced all the usual symptoms of pregnancy and the abdomen was much enlarged. She was examined by the midwife of the establishment and by the junior medical officer, and was informed that she was only eight months advanced in pregnancy, and not at her full term. After remaining three days in the hospital, as the pains had ceased, she left, but was recommended to come back immediately if the pains returned. As she continued perfectly free from them for the space of another month, she then applied to a physician for his advice, who referred her to me. On examining the patient, she did not present one single sign of pregnancy, except that the abdomen was somewhat enlarged, but the umbilicus was depressed, and it was quite evident that she had never been pregnant." Nevertheless, we would be slow to believe that an accoucheur of the eminence of Dr. Simpson could have been deceived in supposing, in the cases referred to, that the developed size of the uterus was owing to the existence of pregnancy at the time of the examination. Yet, we cannot fail to remind the reader that the recognition of pregnancy as early as eight or nine weeks after conception by the vaginal touch, and especially where, as in these cases of Dr. Simpson, "spurious pregnancy" had before existed, and there was, moreover, chronic inflammation and enlargement of the cervix uteri, is generally considered by authors to be, if not impossible, yet far from certain.

§ 310. The value to be attached to the opinions of accoucheurs upon the subject of protracted gestation, depends naturally upon a consideration of the fallacies now enumerated. In many cases, their only guide is the assertion of the mother, relative to the time of the supposed impregnation, the interruption of the menstrual discharge, and the period of quickening. In others, reliance is placed upon the degree of the enlargement of the womb; and in others, again, they are obliged to found their opinion partly upon the testimony of the mother and partly upon their own observation. An error in any of these elements for the formation of an opinion, will necessarily invalidate its

(*e*) Contributions to Obstetric Pathology and Practice, by J. Y. Simpson, M. D., Professor of Midwifery in the University of Edinburgh. Monthly Journal of Med. Science, July, 1853.

accuracy; and hence, the testimony of an accoucheur as to his own experience, or that of a large number as to theirs, does not offer any security against error. If, for example, a physician should conscientiously believe and testify that he had witnessed a case of gestation protracted to twelve months, the grounds for that opinion become a legitimate subject of examination. The sources of error have been shown, we think, to be such that it can hardly be in the power of any man to give an unqualified opinion of the duration of pregnancy in any given case, unless perhaps, as we shall hereafter see, no more than a *single act* of intercourse has been possible. For this reason, testimony of this kind cannot become authoritative, the fallacies inherent in every mode of reckoning not being in the least diminished by the *number* of cases brought in evidence.(*f*)

We will therefore not weary the attention of the reader by adducing the discordant opinions of accoucheurs upon this point, nor refer to isolated cases in which, upon insufficient evidence, the duration of pregnancy was considered to have been much protracted beyond the usual period. Our object is, to ascertain what degree of precision is attainable for an opinion relative to the true duration of pregnancy, and within what limits it may fluctuate; the general principles, thus obtained, may then properly be applied, to explain apparently exceptional cases.

§ 311. If we now, with this view, inquire into the *statistical results* obtained by the examination of a large number of cases of pregnancy

(*f*) The following is an abstract of the celebrated Gardner Peerage case, which came before the House of Lords in 1825:—"Alan Legge Gardner, the son of Lord Gardner by his second wife, petitioned to have his name inscribed as a peer on the Parliament Roll. The peerage was, however, claimed by another person, Henry Fenton Jadis, who alleged that he was the son of Lord Gardner by his first and subsequently divorced wife. It was contended that the latter was illegitimate; and in order to establish this point, the evidence adduced was partly medical and partly moral. Lady Gardner, the mother of the alleged illegitimate child, parted from her husband on board of his ship, on the 30th of January, 1802. Lord Gardner went to the West Indies, and did not again see his wife until the 11th of July following. The child whose legitimacy was disputed was born on the 8th of December of that year. Therefore, the plain medical question, taking the extreme view, was, whether a child born 311 days (*forty-four weeks and three days*) after intercourse (from January to December), or 150 days (*twenty-one weeks and three days*), from July to December, could be considered to be the child of Lord Gardner. If these questions were answered in the affirmative, then it followed that this must have been a very premature or a very protracted birth. There was no pretence that this was a premature case, the child having been *mature* when born. The question, then, was reduced to this: Was this alleged protracted gestation consistent with medical experience? Many medical witnesses, comprising the principal obstetric practitioners in the kingdom, were examined on this point. Their evidence was very conflicting, but a large majority concurred in the opinion that natural gestation might be protracted to a period which would cover the birth of the alleged illegitimate child. On the moral side of the question, it was clearly proved that Lady Gardner, after the departure of her husband, was living in open adulterous intercouse with a Mr. Jadis; and on this ground Lord Gardner obtained a divorce from her after his return. It was contended that the other claimant was really the son of Lady Gardner by Mr. Jadis. The decision of the House was, that this claimant was illegitimate, and that the title should descend to the son of the second Lady Gardner." (Taylor's Medical Jurisprudence, 5th ed. p. 586.)

The decision in this case was motived by the proofs of adultery, and not by the medical evidence. Had it depended upon the latter, it is doubtful whether it could have been given. The inability of the medical testimony to withstand the sifting examination of the Attorney-General, fully bears out the statements in the text. Vid. Medical Evidence on the Duration of Pregnancy, with remarks and notes by R. Lyall, M. D. 2nd. ed. Lond. 1827.

calculated upon this principle, viz., from the interruption of the catamenia, we will find that the errors to which it is unavoidably exposed give a range to the possible duration of pregnancy which the most credulous will find difficult to reconcile with ordinary experience. The results which we are about to quote, are, according to the testimony of their authors, founded on the most reliable data. Yet it must be remarked, that these data are the statements of the women themselves. An amusing instance is related by Dr. Reid, of an expert midwife, who, when examined in the celebrated Gardner peerage case, deposed that she had once gone ten months with child, that she was always right in her calculations, that she always fainted away at quickening, &c., so that she could not be deceived. Some time after the trial she applied to Dr. Reid, convinced, on such grounds, that she was seven months pregnant. It proved, however, on examination, that she was not pregnant at all.

Dr. Murphy has published tables founded upon a registry of the cases observed in the obstetric practice of the University College Hospital fot 1844. These tables are made up from the data furnished by the women themselves. The errors to which we have referred as inherent in the ordinary modes of calculation, must therefore impair the value of the results obtained, and no precautions can entirely eliminate them. In addition, the class of patients furnishing these statistics should not be lost sight of. Now, with reference to hospital and dispensary practice, it may be observed that the class of women who are the recipients of charity from these institutions, can seldom give an accurate account of the date at which they suppose their pregnancy to have commenced, but fix it in their own minds in connection with some domestic or other occurrence which happened about the same time. "With the low orders of Irish," as Dr. Reid justly remarks, "dates on all subjects appear to be totally out of the question, or they are located merely by a recollection that the occurrences took place somewhere near to St. Patrick's day, Boxing day, Christmas, &c.: if they think that a decided answer will please, it is often given simply as the result of a wish to effect this object." In order to obviate the errors arising from such sources, as far as possible, this last author was obliged to erase several hundreds of cases from his tables as doubtful, and finally includes in his list of 500 cases, only 50 from hospital and dispensary practice, the rest being private cases. Yet, with all these precautions, we find that in one case, where gestation was apparently prolonged to the 314th day, it was noted that quickening did not happen until the sixth month, proving, as he himself says, that conception had taken place later than had been thought. "Had minute investigation been made, at an early period, into the remaining five cases, which went beyond the forty-fourth week, it is most likely that some similar facts might have been observed." The tables of Drs. Merriman, Murphy, and Reid, have been condensed by Prof. Simpson, into the table which will be found on the next page, which the reader will find also in the paper by Prof. Simpson already quoted.(*ff*)

(*ff*) See *ante*, § 309.

TABLE.

Dates of Delivery, calculated from the last day of Catamenia.

Week.	Days.	Merriman.	Murphy.	Reid.
37th	From 252 to 259	3	12	23
38th	" 260 to 265	13	14	48
39th	" 267 to 273	4	27	81
40th	" 274 to 280	33	28	131
41st	" 281 to 287	22	39	112
42d	" 288 to 294	15	21	63
43d	" 295 to 301	10	25	28
44th and upwards.	" 302 to 326	4	2	14
		114	168	500

The total number of cases here reported is 782, of which 355, or nearly one-half, went beyond the 280th day, up to the 326th day. If we take the number that went beyond the 274th day, there will be 547, or more than *two-thirds* of the whole number of women, in these reports, whose pregnancy lasted longer than what has been considered the average duration of this condition.

This astonishing result would be still more striking, if we should refer to Dr. Murphy's tables singly. In them there are fourteen cases not included in the foregoing table, because delivery took place before the 37th week, viz., 5 in the 33d, 3 in the 35th, and 6 in the 36th week. Dr. Murphy comes to the conclusion that 301 days is the *average limit* of gestation! Two of his cases attained the extreme period of 342 and 352 days respectively, from which, if we subtract the intermenstrual period of twenty-three days (not 28 days), we will still be left with a protracted pregnancy of 314 and 324 days, dating from the first missed period.

With all the sources of error we have indicated, and with the ludicrous result issuing from the assemblage of so-called facts in the above table, what inference, it may be asked, can be drawn relative to the laws regulating the duration of pregnancy?

§ 312. Before replying to this question, let us look at a class of cases which afford less room for error. We refer to those where there has been but *one act of intercourse*.

In this, as in all other questions affecting female chastity or continence, the evidence is always open to objection, even where there is no apparent motive for deception. Nothing is more common than for an unmarried female in a pregnant condition to acknowledge one single act of weakness, while the suggestion of its having been repeated is indignantly denied. Indeed, to use the expression of a German author, the acknowledgment of a solitary transgression is usually accompanied with a protestation of its having been as little a sin as was possible under the circumstances. However much, in individual cases

and with plausible concurrent testimony, we may be inclined to favor the statement of a female in so unfortunate a position, it is, nevertheless, incumbent upon us, in our endeavors to ascertain the existence of a natural law, to look upon the material before us solely in a scientific light, and examine and judge it accordingly. The possibility of error, therefore, from misstatement upon the part of the female, cannot be lost sight of.

§ 313. An additional source of error, even in the best authenticated cases, lies in determining the *moment of conception*. This, we do not hesitate to affirm, is altogether impossible. So far from conception being always coincident with insemination, as was positively affirmed in the evidence in the Gardner peerage case, experiments upon animals, and observations made upon the human subject, have now shown that a more or less extended interval may elapse between the sexual congress and the conception which follows it, when fruitful. Without entering upon this physiological question, which would lead us into a misplaced discussion, it may be stated without any fear of denial:—

1st. That the *ovum* occupies from eight to ten days in its passage from the ovary to the uterus;

2nd. That the seminal fluid may retain its fecundating properties in the genital passages for several days;

3rd. That conception may take place at any time in the menstrual interval; and,

4th. That, therefore, any calculation based simply upon the date of sexual intercourse, may cause the duration of pregnancy apparently to exceed by a few days the normal period.

§ 314. Nevertheless, in the absence of any more precise method of determining the day of conception, we must content ourselves with that which approaches it most nearly, and making due allowance for errors arising from moral causes, accept as good evidence those cases reported as dating from *a single coition*. Other cases have, indeed, been reported, in which the intercourse was alleged to have taken place but once; but we have rejected all such in which the woman's asseveration could fairly be called in question. In doing so, we have been influenced by no other motive than a desire to attain the truth, convinced that this could only be done by a strict preliminary analysis of each case, in reference to the credibility and standing of the witness, her motives for self-deception or interest, as well as the position and reputation of the reporter.

In the following table, we have placed together all the genuine cases, of this kind, which we have been able to collect. They amount to fifty-six, and are reported by various authors, mostly from their own observation.

TABLE(*g*)

Of the Duration of Pregnancy, as dated from a single intercourse.

Days.	Reid.	Raciborski.	Rigby.	Lockwood.	Beatty.	McIlvaine.	Montgomery.	Desormeaux.	Merriman.	Girdwood.	Skey.	Anderson *v.* Whitaker.	Lee.	Dewees.	Total for Each date.
260			1												1
263	1														1
264	1		1												2
265	1														1
266	2														2
268		1													1
270		1		1											2
271	2														2
272	1			1											2
273	1	1													2
274	6	1								1					8
275	2	1													3
276	3		1	1											5
278	1														1
280	2						1								3
281							1		1						2
283									1			1			2
284				1			1								2
286									1					1	2
287	1						1	1					1		4
288							1								1
289							1								1
291					1		1								2
293	1					1					1				3
	25	5	3	4	1	1	7	1	3	1	1	1	1	1	55
Average, 276 days.															

The result yielded by the foregoing table brings down the average duration of pregnancy much below the exaggerated estimate of some authors, below even the conceded average of many accoucheurs, but places it in remarkable harmony with the prevailing popular and medical belief. Two hundred and seventy-six days are included in nine calendar months; and, according to these calculations, represent the average duration of pregnancy from a single sexual act.

(*g*) Dr. Reid, Lancet, 1850, Vol. II.; Raciboski, De la Puberté, &c., p. 460; Rigby, System of Midwifery, p. 84; Lockwood, Am. Jour., Dec., 1847; Beatty, Dub. Med. Jour., Vol. VIII.; McIlvaine, Am. Jour., 1848; Montgomery, Signs of Pregnancy; Desormeaux, Dict de Med., Vol. X.; Merriman, S. W. J., Taylor's Med. Jur., Am. Ed., p. 399; Girdwood, Lancet, Dec., 1844; Skey; Anderson *v.* Whitaker (in Dr. Reid's Paper, loc. cit.); Lee, Med. Gaz., 1831; Dewees, Midwifery.

§ 315. Such appears to be the only result attainable at the present time; without giving positive certainty to our knowledge respecting the law governing the duration of pregnancy, it renders the probability of error in other modes of investigation than that based upon the foregoing principles, stronger than it can, by any arguments, be made to appear. In other words, it proves that the *apparent* variation in the length of the term is greater than the *actual*. Although not affording us any reason to consider the normal period to be a fixed one, from which there is really no departure, it nevertheless reduces the excess within reasonable bounds.

§ 316. That a deviation from the normal period is possible, is evident not only from the instances we have quoted, but is also sustained by observations upon certain domestic animals. Even here it is necessary to premise that there are sources of fallacy. The analogy between the function of menstruation in the female, and the period of sexual excitement in the cow, mare, &c., is far from being well established, although some late authors have assiduously endeavored to maintain that it was real. Hence the entire impossibility of knowing when conception occurs in them. Moreover, some of these animals will refuse the male, although already pregnant, and therefore the origin of the pregnancy may not be dated far enough back. This is the case with the cow.

§ 317. Prof. Krahmer,(*h*) whose observations we will cite below, gives examples of this. Thus, "No. 105" took the bull on the 2d of May and on the 23d Nov., 1815; she calved on the 17th Feb., 1816; *i. e.* 296 days from the first covering, and 86 days from the second. "No. 42" took the bull the 30th Nov., 1808, and again 31st March, 1809; calved 7th Sept., 1809; *i. e.* 281 days after first, and 160 days after second covering. Another case is mentioned in which a cow was slaughtered on account of this propensity, and was then found to have been some time with calf.

Lord Spencer(*i*) published, some years since, the result of 764 instances of the gestation of cows. The average term he found to be 285 days. Three hundred and fourteen cows calved before the 284th day, and three hundred and ten after the 285th. At 284 days, sixty-six calved; and at 285 days, seventy-four. Few cases exceeded the period of 285 days by more than five or eight days; eight only exceeded it by more than twelve days; and one only went to the eighteenth day beyond it. According to M. Tessier's observations, the excess above the average period, in 102 mares and 160 cows, was from fifty-seven to sixty days in the former, and thirty-two to thirty-five in the latter.

§ 318. The most recent and extensive researches on this subject are those of Professor Krahmer, of Halle. His observations were made on sheep and cows. Every precaution was taken to insure accuracy,—each individual in the flock or herd having been marked when heat appeared, then separated therefrom and allowed access to the male. The day of covering and of the birth of the young were registered. Among the sheep, the birth fell on the following days:—

(*h*) Beiträge zur Lehre von der Schwangerschaftsdauer-Henkes Zeitschrift, 1849, I. H, p. 98.

(*i*) Journal of the Agricultural Society, as quoted by Reid, Beck, and others.

2	fell on the	145th day,	7	fell on the	153d day.
3	"	146th "	3	"	154th "
11	"	147th "	1	"	155th "
14	"	148th "	1	"	159th "
38	"	149th "	1	"	166th "
44	"	150th "	1	"	168th "
31	"	151st "	1	"	169th "
18	"	152d "	1	"	171st "

If the average of these 177 births be calculated, it will be found to be 150, and yet only one-fourth of the whole number really fell on the 150th day. Thus the probability appears to be, that of four ewes only one will drop her lamb at what may be considered the normal term of gestation in the sheep.

The whole number of cows observed was 1105: the observations covering a space of twenty-eight years, viz: from 1808 to 1832, and including fifty-five in 1847. The average duration is stated at 282 days; but the tables of Dr. Krahmer include no less than forty-six births before the 260th day, and which ought certainly to be looked upon as premature. Leaving these aside, the average would probably be increased by a day or two. Stated in weeks, and neglecting forty-six births before the 38th week,—

12	cows calved in the	38th week.	21	cows calved in the	44th week.
72	" " "	39th "	9	" " "	45th "
335	" " "	40th "	3	" " "	46th "
429	" " "	41st "	5	" " "	47th "
135	" " "	42d "	4	" " "	48th "
33	" " "	43d "	1	" " "	51st "

§ 319. If the argument from analogy be admissible, the fact may be considered as well established, that pregnancy is a condition which may occasionally exceed the normal limit for its duration; but the limit to this excess cannot, in the present state of physiological science, be accurately known. It is undeniable, however, that the greater the amount of deviation the more authentic and convincing should be the proof of its actual protraction. The suggestion has, indeed, been made, that the development of the child might afford a key to the extent of the protraction; but facts derived from this source rather militate against than for its reality. In most of the cases in which a child is supposed to have been carried beyond the usual period, it has not attained a greater size than is met with in ordinary cases. Sometimes, indeed, it has been rather smaller than the average. If we could admit that pregnancy ever attained the period of twelve, fourteen, or sixteen months, as has been asserted, there is no reason why the child should not have continued to grow to a size incompatible with its being born alive. The supposition, that after nine months it ceases to grow, is an assumption unwarranted by analogy or reason, and put forward only with the hope of maintaining a foregone conclusion.

§ 320. While, therefore, we admit the occasional prolongation of pregnancy beyond its usual limit of 276 days, to the extent of perhaps four weeks, we cannot venture, with such fallacious evidence as often

serves as the basis of the calculation, to accept, as authentic, those instances in which it has apparently been prolonged beyond this time. The following case quoted by Dr. Reid, from Bartholin, will form a fitting conclusion to these remarks.

"A young girl of Leipsic, of doubtful character, accused a young man, who was rich, of having impregnated her. The magistrates acceded to the request of the friends of the accused and had the girl confined in prison and kept under proper surveillance. She was not delivered until after the sixteenth month; but the fœtus was very small and lived only two days, being imperfectly developed. This case was adduced as a very strong instance of protracted gestation, the young woman being so strictly watched by the keepers of the prison as to preclude all chance of impregnation whilst there. The undeveloped condition of the fœtus, however, is a sufficient proof against a sixteen months' gestation, and as to the chance alluded to, we may simply ask,—

'Sed quis custodiet ipsos custodes.'"

§ 321. We have endeavored in this chapter, to show how far the actual duration of pregnancy is capable of *demonstration*, and have therefore forborne introducing into the discussion any arguments not based upon direct observation of the phenomena of gestation in man or animals. It is not unusual, however, with writers in discussing this subject to allege in proof of the really variable and uncertain limit of this process, that nature is never restricted in her operations within precise and well-defined limits. This argument is presented with great clearness in the following pages, containing Judge Lewis' opinion in the case of Com. *v.* Hoover. We cannot, however, refrain from reiterating the opinion that the seeming analogies of nature cannot for a moment be adduced in opposition to the facts of physiological science.

Legal decisions.

§ 322. The following decision on the duration of pregnancy deserves especial weight from the character of the learned judge—now Chief-Justice of Pennsylvania, by whom it is reported as well as decided.

At a special Court of Quarter Sessions of Lycoming county, at which Judge Lewis presided, the following instructions were given in reference to the count for fornication and bastardy: "If you believe from the testimony of John Reibsam, that the prosecutrix had submitted to improper connection with the witness, *about the time when the child was begotten, this circumstance destroys her competency as a witness to prove that the defendant is the father of her child.* The organs of conception, like those of digestion, perform their appropriate offices, without the volition of the female. She is not conscious, at the moment of the occurrence, of what takes place. It is only by *inference* that she can afterwards fix the paternity of her offspring. If her intercourse has been confined to *one* individual, there is no difficulty in drawing a correct conclusion from the premises. But if she has exposed herself to the embraces of several, at or about the time she became pregnant, she has placed it out of her power to draw any safe conclusions on the subject.

Where two causes are shown to exist, either of which is adequate to produce the effect, and there are no circumstances to determine the mind in favor of either, the cause must necessarily remain uncertain; and, in that case, there is not sufficient evidence to justify a conviction."(*j*) In trials for this offence the defence is frequently rested upon the period of time which elapses between the alleged criminal connection and the birth of the child, in cases of material departures from the usual period. In a case of this description, *Com.* v. *Hoover*, the president of the Court of Quarter Sessions of Lancaster county (Lewis), gave the following charge to the jury: Com. *v.* Elisha F. Hoover. "The defendant is indicted for fornication and bastardy. The prosecutrix, Catherine E. Rife, is a competent witness, but her credibility is for the jury. According to her account the child was begotten on the 23d of March, 1845. It was born on the 30th of January, 1846—a male, fine, large, and healthy. The period of gestation was 313 days. It is conceded that the defendant had no intercourse with the mother after the 23d of March, 1845, and the time of delivery is fixed with equal certainty. A question of science has arisen, respecting the possibility of protracted gestation. The usual period is nine calendar months, or 273 or 275 days. What has been denominated the *extreme* of the *usual period* is 280 days or ten lunar months. But whether any, and if any, what longer time may be allowed as possible, are the questions which this case presents for decision. Medical writers of celebrity and authority are arrayed on both sides of these questions. And the medical witnesses upon the stand are in like manner divided in opinion. In constructing this evidence, so far as respects the *facts* narrated by each, it is proper to consider that writers and witnesses are respectively relating only the results of their own knowledge; and, when one states that no case of protracted gestation has fallen under his observation, it is but negative testimony, and cannot justly be relied upon to invalidate the negative evidence of others equally entitled to credit, who enumerate cases of the kind, which they positively affirm to have come within the range of their practice and knowledge. In the most familiar transactions of life, witnesses will differ in their narration of circumstances. In narrating a simple assault and battery, the bystanders frequently vary in their statement of the facts. Some narrate incidents which others omit. Conceding all the witnesses to be equally worthy of credit, the rule is to reconcile their evidence so that all will stand consistently together, if this be reasonably practicable. Some witnesses observe circumstances which others have not seen. Negative evidence is therefore deemed insufficient to outweigh affirmative statements from witnesses equally entitled to credit. One gentleman, in a very long course of practice, may have failed to observe any case of the kind. Another, in a very brief period, may have noticed several. And it is reasonable to believe that where such a diversity of opinion exists, each will be in some measure influenced by his own professional experience, and that this will also, to some extent, affect his belief in the cases reported by others. There are doubtless many of these cases where the struggle for character and property, and the circumstances

(*j*) Com. *v.* M'Carty, 3 Penn. L. Jour. p. 140.

of the parties whose interests have been involved, have furnished temptations to falsify, and may have influenced the decisions of the tribunals. But, after making all proper allowances for cases of this description, the whole evidence on the question, when fairly considered, appears to show that cases of protracted gestation are not impossible, although their existence is very unusual. The heads of wheat in the same field do not all ripen together. The ears of corn on the same stalk do not all come to maturity at the same time. Even the grains of corn on the same ear, ripen at different periods. The fruit on the same tree shows a like deviation. A portion will ripen and fall, while other portions remain comparatively green upon the parent stalk. The eggs of the fowl, under process of incubation at the same time, are subject to the same variation. In quadrupeds, if the testimony of M. Teissier be believed, we have proof of the like irregularity. Whatever may be the causes operating in each case, to divert nature from her accustomed course, to accelerate or delay her usual progress, the human species, like the rest of creation, seem occasionally under their influences. The developments of puberty although generally shown at a certain age, are far from regular. Some individuals approach it earlier, others, later in life. Intellectual maturity is subject to like irregularities. Some are precocious, others astonishingly tardy in arriving at the usual degree of discretion. The intervals between the catamenial visits, although in general regular and fixed, exhibit remarkable deviations. Their final departure, although generally to be expected at a certain age, are as irregular as their first approaches, and as subject to variation as were their periodical returns. A certain period of life has been usually assigned for the terminations of a mother's perils, but the instances of extensive deviations from this general rule are numerous and well established. The gestation of one child at a time is according to the usual course of nature, but the birth of twins, triplets, &c., furnish undubitable proofs of astonishing departures from the usual course. The sensations of the mother produced by the elevation of the fœtus from the cavity of the pelvis (called quickening), although usually occurring at a certain period, are known to be subject to the like departure from the usual time. It has been said, that human life does not generally extend beyond seventy years. But if this be the general rule, the departures are numerous. The most distinguished jurist perhaps now living in the whole world (Chancellor Kent), will be eighty-three years old on the 31st of July next; and yet, within a few days, I have been honored by the receipt of a letter from him, under the date of the 18th instant, in which he states, that he is still in 'good and active health—that his relish and ardor for studies and legal learning continue unabated—that he has the blessing of good eyes—and that he is still an observer of what passes with lively sensibility.' This instance may serve to illustrate not only the occasional deviations from the general rules respecting the duration of human life, but the like variation in respect to intellectual vigor, by which one individual attains a pre-eminence over the generality of mankind. All nature abounds with occasional departures from her general customs. Even the compass, which guides the mariner on the trackless ocean—which enables science to fix with reasonable certainty the boundaries of kingdoms

and farms, and the truthfulness of which to its accustomed law has been perpetuated by a proverb—is subject to mysterious but acknowledged variations. From analogy, and from the statements of distinguished authors and eminent witnesses, after making every allowance for mistakes, and the operation of unfavorable influences, we are led to the belief that, although nature delights in adherence to her general usages, she is occasionally retarded in her progress, and otherwise coerced, by causes not always apparent into extensive deviations from her accustomed path. And we are induced to believe that protracted gestation from the period of 313 days, although *unusual* and *improbable*, is not *impossible*. The evidence to establish the existence of such a considerable departure from the usual period should be clear and free from doubt. The witness should possess a character beyond reproach, and her testimony should be consistent and uncontradicted in all material facts. If the jury are satisfied that the evidence for the commonwealth is of this character, the unusually long period of gestation does not require them to disregard it. The law fixes no period as the *ultimum tempus pariendi*. The *usual* period has been stated, but longer time may be allowed, according to the opinions of the physicians, and the circumstances of the case. The question is, therefore, open for the decision of the jury. If they believe the witness, they may find the defendant guilty." The jury found the defendant guilty—the prosecution was conducted by Messrs. Frazer and Mathiot, and the defence by Mr. Stevens. The case is fully reported in the American Journal of the Medical Sciences, No. 24, new series, Oct. 1846. p. 535, accompanied with a communication from Professor Atlee, in which he mentions two cases within his own practice where the period of gestation was about a year.(*k*) This latter period has received the sanction of the legislature of Pennsylvania as the longest period of indulgence which the law allows to a married woman who has a child in the absence of her husband. If she cannot show that he was in her company, or was within the colonies between the eastermost parts of New England, and the southermost parts of North Carolina, within twelve months next before the birth of the child, she is deemed an *adulteress* under the 4th section of the act of 1705.

2. *Early Viability.*

§ 323. From the uncertainty which attends the establishment of the date of conception, and from the unequal development of the fœtus in different cases at particular periods of gestation, the difficulty of knowing the actual age of an immature child is often very great. When born at the eighth month, the weight and size do not differ materially from what is often met with at maturity, but yet there are marks of imperfect development which are generally conclusive as to its immaturity, and which enable us to judge that but a few weeks were wanting to complete the development. (Vid. ABORTION.) Thus, at *eight* months its length is only two or three inches, and its weight one to two pounds below the average. The pupillary membrane has disap-

(*k*) Amer. Jour. Med. Sciences, Oct., 1846. p. 535.

peared, the testicles are found in the internal abdominal ring, and the middle point of the body is nearer the umbilicus than the sternum. In the fœtus, at *seven* months, however, the length hardly exceeds a foot, nor its weight four pounds. Children born at this age are often reared, if they have not been neglected. There can be no possibility of mistaking a fœtus of seven months for a mature child, while this error might readily be made with one at eight months.

§ 324. The most important epochs, however, relative to questions of viability and paternity are the *fifth* and *sixth* months. A great discrepancy will be found in the statements of authors as to the weight and length of the fœtus in these months. The weight of a six months' fœtus is, for example, set down by Burns, Hamilton, and Devergie at one pound, and by Maygrier at two pounds; while the last-mentioned writer states its length to be twelve inches, the others make it from eight to ten inches. The length of a five months' fœtus is usually considered to be from six to seven inches, but Maygrier and Sömmering allow as much as ten inches. In forming an opinion, therefore, as to the exact age of a child between the fifth and seventh month of uterine life, this variation in the estimates, by different authors, should inspire caution and reserve. It is better to acknowledge the impossibility of certifying the exact age, than to attempt to give precision to a point incapable of receiving it.

§ 325. The period mentioned may be regarded as the debateable ground relative to the viability of the child. Mr. Whitehead says, that when abortion takes place before the *end* of the *sixth* month, it is invariably fatal to the offspring, either before birth or in a short time after, and at any period before the completion of the process, it is more or less injurious to its well-being. Instances are, however, on record which disprove the correctness of this statement. Dr. Erbkam, of Berlin, has reported a case in which a fœtus only six inches long, and weighing eight ounces, was born alive, and survived half an hour. It moved its arms and legs, turned its head from side to side, and opened its mouth. The action of the heart continued after all other movements had ceased. This child was shown to the celebrated Müller, who expressed the opinion that it was not more than *four* months old.(*l*) A case, which is remarkable, and of great interest, on account of the accuracy with which the date of impregnation, and therefore the true age of the child, was ascertained, is reported by Dr. Barrows, of Hartford. Mrs. J—— miscarried on the 18th May; her lochial discharges were profuse and long continued. Dr. B. was called to prescribe for her on the 18th of June, when she had increased vaginal discharge, probably the menstrual flow; this continued for a week or two, before it wholly subsided. She went from home, on the 27th of June, to spend some days in the country, and at this time, she first indulged in sexual intercourse subsequent to her miscarriage. On the 18th of November, in consequence of over exertion, she again miscarried. Dr. Barrows attended her in this, as in the previous one. The ovum was expelled entire. The sac contained at least two pints of fluid. "The membranes were not ruptured for some little time, during which the

(*l*) Am. Jour. Med. Sci., 1838, p. 244.

movements of the child were active and vigorous. On rupturing the membranes, and exposing the child to the air, it instantly gasped, or, perhaps I ought rather to say, uttered a cry so loud as to be heard distinctly at a distance of several feet, it being at the same time covered with the bed-clothes. The cord was tied on its ceasing to pulsate, at the end of two or three minutes, then separated, and the child wrapped in warm flannels. As it continued to manifest the ordinary appearances of life, its condition was watched with much interest and care. It breathed with a kind of convulsive grasp at intervals of one or two minutes, for a period of forty minutes. The heart beat regularly for forty-five minutes. . . . . The child repeatedly opened its mouth, and thrust forward its tongue." It measured (it was a female) *ten* inches in length, and weighed *fourteen* ounces. The integuments were, for the most part, firm and of a light color; the portion covering the abdomen was thin, and of a reddish hue. The hair of the head was like down, the rudiments of the nails were plainly discernible, and the iris was entirely closed by the *membrana pupillaris*. The head was tolerably firm, but the frontal and parietal bones were imperfect, and widely separated.(*m*) Dating from the first intercourse after the previous miscarriage, the age of this child was 144 days, or less than five calendar months. There is nothing in its size, weight and development, as reported, inconsistent with the mother's reckoning and the facts related by her physician.

Another case, in which a living child was born on the 179th day, is interesting from the fact that the child lived four months, and then died of an epidemic disease. When born, it was so feeble that it was not thought possible that it could live. Its cry could be heard only at a few yards' distance, it had no nails, its hair was downy, its skin florid and thin, and its extremities imperfectly developed. The bones of the head were soft and easily compressed, and the sutures wide. The pupillary membranes were entire. It was placed near the fire, in a basket, wrapped in soft cotton. It could not suck, but milk was dropped into its mouth through a quill. Forty days after birth it was found to be thirteen inches long, and weighed three pounds. The centre of the body was nearly an inch above the umbilicus.(*n*) A somewhat similar case, is that of Dr. Barker, of Dumfries, in which the child was born on the 158th day of gestation; it weighed one pound, and measured eleven inches. Three years and a half afterwards it was still living, and weighed twenty-nine pounds and a half.(*o*)

In the case related in great detail by d'Outrepont, of Bamberg, a child which was not more than twenty-seven weeks, or six months old, when it was born, was still living at the age of eleven years. It was not larger at that time, however, than a boy of eight years.(*p*) Another curious instance, in which the life of a very premature child was preserved, is narrated by Dr. Rodman, of Paisley. The child's uterine age could not have been more than five months, since, three weeks after birth, it weighed only one pound thirteen ounces, and

(*m*) Am. Jour. Med. Sci., April, 1853, p. 380.
(*n*) Lancet, April, 1852.
(*o*) Med. Times, Sept. and Oct. 1850.
(*p*) Henke, Zeitschrift, vol. vi.

measured between eleven and thirteen inches. It survived its birth one year and nine months.(*q*)

§ 326. Nothing need be said upon the possibility of premature development, except that it is not sustained by any authentic facts, and that it is disproved by daily experience, which shows that the fœtal development is regular and progressive, except when retarded or arrested by disease. That a child can anticipate, as it were, its maturity, acquiring, *e.g.*, at six or seven months the development it obtains usually only at nine, is far more difficult to credit than that the mother or her physician should be mistaken in their reckoning. In our remarks upon protracted gestation, we have exposed the difficulty, not to say impossibility, of fixing the date of fruitful intercourse or of conception, and the mistakes which the female is apt to commit by the ordinary manner of calculating the duration of pregnancy. Those remarks are equally applicable here, and perhaps, indeed, more so; for if it is rare to find the child at the close of a seemingly protracted pregnancy over-mature, it is still more contrary to experience that a fœtus should be a month or more further advanced in its development than belongs to the period of uterine life which it has reached.

§ 327. It is sometimes of importance to determine the momentary life of the child, even although the possibility of its surviving is out of the question. The question as to *what constitutes live birth*, although of less importance at this time than at the natural term of gestation, has, nevertheless, some bearings in regard to civil rights and relations. Every spontaneous movement is an evidence of life. To what degree these must be carried, to constitute evidence of life before a court of law, it is not for us to determine. The following case will serve, however, to show that a child may be born alive, in this sense, in the fourth month:—A fœtus was born which weighed exactly nine and a half ounces, and measured eight inches in length. On touching the feet and hands, the limbs were immediately drawn up and moved about. On blowing on the face, the lower part of it was tremulously moved, and the mouth at each time opened, and three or four times an attempt to respire or gasp, accompanied by an apparently respiratory movement of the chest, took place. The pulsations of the heart through the thin walls of the chest, could be readily observed. After the umbilical cord was cut, these movements became more feeble, and soon ceased. On opening the chest, the situation and appearance of the lungs and other organs were characteristic of its apparent age. The lungs, in color and volume, resembled those of an early fœtus; and, with the exception of one or two ecchymosed spots, no color or other evidence of developed air-cells were noticed, all the appearances indicating that no air whatever had ever reached the tissue of the lungs. The brain was afterwards minutely examined, and also found to be characteristic of the apparent age, as were also the other fœtal organs. The calculations of the mother corresponded with the age given to the fœtus.(*r*)

(*q*) Guy's Med. Jur. p. 180.

(*r*) Dr. Keiller. Read before the Edinburgh Obstetrical Society. Ed. Month. Jour. Sept. 1854.

CHAPTER IV.

SUPERFŒTATION.

§ 328. Conception during pregnancy is termed superfœtation. The early physicians accorded a ready belief to its frequent occurrence; but modern inquiries have led to a more precise and restricted application of the term. There are cases of apparent and of real superfœtation. They may all be conveniently considered under the following divisions:

1st. Twin pregnancies in which the children, by certain physical peculiarities, prove that they have had different fathers.

2d. Parturition of children nearly at the same time, but differing much in the degree of their development.

3d. After the birth of a mature child, a second one equally mature is born, after an interval which may amount to four months.

Under the first division, may be ranged all those cases, of which now a great number have been recorded, where women have given birth to twins of different colours. In some of these the fact of cohabitation at short intervals with men of different colors was admitted by the woman. A case, very frequently quoted, is that related by Buffon, as having occurred in South Carolina, in which a white and a mulatto child were born to a white woman, who, immediately after having had commerce with her husband, was obliged to receive the embraces of a negro. A similar case is related by Dr. Lopez, in which the mother was a negro woman, and the twins were, the one black and the other mulatto.(*s*)

§ 329. The same fact has been observed in animals. Mende relates that a mare, which had been covered by a stallion, and shortly afterwards by an ass, produced at the same birth both a horse and a mule. Dr. Read of Andover, reports a similar case, except that the mare was covered by the horse two or three days after the ass.

§ 330. Up to what period, after one conception, a second impregnation is possible, cannot, in the present unsettled state of our knowledge respecting the early phenomena of fecundation, be determined with exactness. While some eminent physiologists continue to maintain that the ovum is fecundated in the ovary itself, more recent researches tend to show that it takes place, in normal cases, in the uterus or in the fallopian tubes, the ova being detached at the menstrual periods, and finding their way into the womb, independent of fecundation. It will be readily seen, therefore, how many questions must be answered before this one can be solved. In addition, the period at which the deciduous membrane is formed in the uterus, is not known with sufficient precision to enable us to judge how soon an efficient obstacle is placed against the penetration of the seminal fluid into the uterus, or to an additional impregnation. Dr. J. M. Duncan denies that the plug of viscid mucus in the cervix of the uterus during the early stage of

(*s*) Am. Jour. Med. Sci. Oct. 1845, p. 315. For a large number of similar cases, vide references in Beck's Med. Jurisprudence, I. 265; also a case by Dr. Carter of Va., in Phil. Med. Ex., 1849, p. 523, and another by Dr. A. F. Attaway of Geo., Am. Jour. Med. Sci., July, 1854, p. 290.

pregnancy, is a sufficient barrier against a second impregnation, as he has found it in the non-menstruating *unimpregnated* uterus. (He does not, however, prove that in the latter case impregnation can take place.) He also is led to believe, from an inspection of an ovum *in situ* of about eight weeks, that sufficient space exists between the decidua vera and reflexa at this time, and an open communication to the fallopian tube, to permit impregnation. He believes that the decidua is formed by the development of the normal mucous membrane of the uterus, without closing the tubes or the cervix uteri.(*t*) In all the known cases of undoubted superfœtation, such as those above cited and referred to, the time which intervened between the separate acts of coition was very short; in fact, where the circumstance has been confessed by the woman, it appears that one sexual act followed almost immediately upon the other. In a case related by Mosely,(*u*) a negress brought forth two children at a birth, one a negro, the other a mulatto. She confessed that a white man on the estate came to her hut one morning before she had risen, and she suffered his embraces, *almost instantly* after her black husband had quitted her. In another in which the children were, one black and the other mulatto, the negro mother admitted having cohabited *during the same night* with a negro and an European.(*v*)

A case of superfœtation by Dr. Taylor of Miss., forms an exception apparently to the rule. Here a negress brought forth at one birth a black and a mulatto child. The latter appeared to be "three weeks younger than the negro," but as the woman admitted having cohabited with a white man, one week after the cessation of the catamenia and upon a *night succeeding* an act of intercourse with her husband, the case cannot, we think, be viewed differently from the preceding.(*w*) The same may be said of Dr. Attaway's case, before referred to; but in this the date of the conception of the white child might have been nearer that of the negro than three days,—the interval assigned by the woman.

§ 331. The cases of *apparent* and pseudo-superfœtation may be embraced in the second and third divisions which will here be considered together. They are all of them explicable upon the supposition of unequal development of twins; this inequality being due often to some natural defect in one placenta or one fœtus, but frequently also to a direct compression exercised by one child upon the other. In cases where this compression has been so great as to cause the death of one fœtus, it may be easily recognized after birth by the appearance of the body. Thus, in a case referred to by Dr. Beck,(*x*) Mr. Ingleby says, "A few weeks ago, on examining a mature placenta, the expulsion of which was attended with severe hemorrhage, a fœtus of four or five months, flattened but not putrid, was found within the membranes, closely adherent to the uterine surface of the mass, and yet a full sized living child, in connection with this placenta, had just been expelled." Duvernoy(*y*) also relates an instance in which the mother gave birth to a living female child, healthy and mature, and immediately afterwards

(*t*) Ed. Month. Jour., April, 1853. (*u*) Diseases of Trop. Climates, p. 111.
(*v*) Casper's Wochenschrift, Jan. 28, 1842.
(*w*) Am. Jour. Med. Sci. April, 1849, p. 549. (*x*) Med. Jur. I. p. 269.
(*y*) *Note sur une grossesse double parvenue à terme.* Strasbourg, 1834.

to a dead fœtus of about six months, with its head and face extremely flattened and deformed. Pouchet(*z*) gives the history of a most interesting case communicated to him by Dr. Merrielle. A lady was delivered of a healthy and mature female child, which was soon followed by the placenta. Her labor pains continued notwithstanding, and the next morning she expelled an entire ovum, containing another fœtus. This fœtus presented all the characters of a child of four months; it was seven inches long. Almost every part of its body bore evident traces of compression. Its head was flattened transversely to such a degree, that the sinciput presented a sharp edge, and at the temporal region its diameter was not more than six lines. The chest was also very much compressed. The upper extremities, and particularly the left hand, were greatly flattened. The appearance of the skin showed that the fœtus had been a long while dead. It was of a pale brown color, denuded of epidermis over a great part of the body. Dr. Streeter related a case to the Westminster Medical Society, in which one fœtus was alive at full term, and the other blighted, having apparently perished at the third month. It had undergone very little decomposition, and was squeezed quite flat.(*a*) Dr. Perkins, of New London, in a letter to Dr. Porter, May 16, 1840, relates as follows: that he delivered a woman of a healthy male child, at full term. The same night she expelled a fœtus enveloped in its membranes, between four and five months old, entirely undecomposed and uninjured, except the head, which was compressed.(*b*) Dr. Lopez presented to the Medical Society of Mobile a specimen of a blighted fœtus of the third month, discharged with a living child at full term. The skull was so completely compressed, that the opposite parietal surfaces were in close contact. The whole body, in fact, was distorted and flattened by the pressure exercised by the other child upon it. It was not at all decomposed.(*c*)

§ 332. Having thus seen the fatal compression which one fœtus in a twin pregnancy may exercise upon the other, it is not difficult to understand that the pressure may be sufficient to retard its growth without actually destroying its existence. If this compression becomes at a certain period so great that, without destroying the vitality of the fœtus, it only permits the blood to reach it in an insufficient degree, one twin becomes arrested in its development, while the other goes on increasing until its maturity, when it is expelled. The remaining fœtus, now relieved from the compression, grows with facility, and is born in its turn when it has reached maturity. If, for example, a fœtus, in consequence of the compression of the placenta, have at nine months a no greater development than is usual at five, it follows that after the birth of its fellow it must remain four months longer in the womb. Where the placenta is common to the two children, this cannot, of course, occur,

(*z*) Théorie positive de l'ovulation spontanée. Paris, 1847.

(*a*) Lancet, Oct. 30, 1841.

(*b*) Lopez. Am. Jour., Oct., 1846, where other cases will also be found illustrative of this fact. Dr. J. B. Davis gives a case of the unequal development of fœtuses in the same uterus. A woman, seven months advanced in pregnancy, miscarried with twins, one was of seven months' growth, the other of not more than as many weeks. Ohio Med. and Surg. Jour. (Sept. 1850.) Another case in N. W. Med. and Sur. Jour. (Nov. 1850,) and another in the New Orleans Med. and Surg. Jour. (Sept. 1850.)

(*c*) Loc. cit.

since the birth of one child would render the intra-uterine existence of the other impossible.(*d*) Among the more remarkable cases illustrating the unequal development of twins, may be mentioned that communicated to Foderé by Desgranges, at Lyons, relative to the wife of Raymond Villard. She was delivered, on the 20th January, 1780, of a living seven months' child; but the delivery was not accompanied with the usual symptoms: no milk appeared; the lochia were wanting, and the abdomen did not diminish in size. Three weeks after the delivery, she felt the movement of the fœtus, and on the 6th of July, 1780 (five months and sixteen days after the first birth), she was again delivered of a living female child. The milk now appeared, and she was enabled to nurse her offspring.(*e*) There was an interval of one month in the birth of two mature children in a case related by Dr. Irvine.(*f*) In another case, a woman, 35 years of age, was confined on the night of the 30th of March, 1848. The placenta came away without difficulty. The size of the abdomen remained very considerable; the lochia did not flow, and nevertheless the surgeon did not conceive the possibility of another child. Dr. Prival, of Bedarrieux, was called in, and at once ascertained the presence of a second child. The one already born was full-sized, healthy, and took the breast with avidity. The mother would not remain in bed; she arose and occupied herself with her household cares. Twenty-one days after the birth of the first child, labor-pains again came on, and another child was born, as strong and healthy as the first.

Instead, therefore, of attempting to explain those cases, in which, on account of the birth of mature children at an interval varying from a few days to several months, upon the hypothesis of superfœtation, it appears far more easy and rational to believe that they are all examples of twin pregnancy, in which one fœtus has grown at the expense, as it were, of the other, and is first expelled; the second remaining until it has acquired the necessary maturity. Conclusive evidence of the fact of compression is afforded in those cases of double monsters in which the fœtuses differ considerably in size. Such an one, it is stated by Dr. Duncan, exists in his pathological collection.(*g*)

§ 333. It has been suggested by various authors that superfœtation could be explained upon the supposition that the uterus was double; but although not a few instances of double uteri are on record, yet, in all, pregnancy, where it existed, occurred on one side only.(*h*) We

(*d*) *Vide* Pouchet, loc. cit.

(*e*) Foderé, Vol. I. 484. (*f*) Med. Times, Dec. 28, 1844.

(*g*) Am. Journ., July, 1849, p. 247, from Med. Times, May 26. For other cases, *vide* Med. Times, Dec., 1844; Henke's Zeitschrift, 1837,—case by Dr. Möbus; Beck's Med. Jur., I. p. 266. A similar case, with the exception that the second child was not born until forty days after the first, has been recently reported;—*vide* Month. Journ. of Med., Ed., Ap. 1855, from Gaz. des Hôpitaux, Dec., 1854.

(*h*) Dr. Oldham (in Guy's Hosp. Rep., Vol. VI. p. 551) gives several instances, one of which is particularly remarkable, since not only the uterus, but the vagina also was double. "It was divided," he says, "by a septum of dense organized tissue, sufficiently loose and elastic to stretch without causing pain, so that both canals were equally capacious." The duplicity of the uterus was ascertained beyond a doubt. The woman was safely delivered. In the unimpregnated half, menstruation did not occur during pregnancy.

Another remarkable case of double uterus and vagina is reported by Dr. Kelly, of N. York (Am. Jour., Oct., 1852, p. 328). He furnishes references, also to other cases.

have succeeded, however, in finding a remarkable case which has been hitherto strangely overlooked. A woman, native of Modena, became pregnant for the seventh time in 1817. Nine months afterwards, she was delivered of a male child, healthy and fully developed. The placenta was expelled and the woman recovered her health and strength entirely. Still, one-half of the abdomen remained enlarged, and the movements of a fœtus were distinctly ascertained. One month after her last labor, she was again confined of a living male child, also well formed. A few years after, she was again pregnant, and bore a child now living. This woman died afterwards of apoplexy. On examination, the uterus was found to be double, but with a single cervix;(*i*) hence this may have been either a case of real superfœtation,—the children occupying each one horn of the uterus, and conceived at the interval of a month—or, on the other hand, it may have been really a twin pregnancy, but whether in the same or different cavities does not appear.

§ 334. It may be necessary to state, that where extra uterine pregnancy takes place, the uterus may receive a new ovum. Mende(*j*) gives two cases of this kind, and Horn(*k*) relates a case of co-existent uterine and extra-uterine pregnancy, in which the woman was safely delivered of the child which was contained in the uterus.

CHAPTER V.

ABORTION, OR FŒTICIDE.

§ 335. The *natural causes* of the premature expulsion of the fœtus from the womb are extremely numerous. They are found in certain morbid conditions of the system, either original or dependent upon pregnancy,—in diseases of the ovum and its appendages, and in a class of causes usually called accidental, but which might, perhaps, in reference to the present subject, be termed *direct* or *immediate*. We refer our readers, for an enumeration of the predisposing causes of abortion, to those works on midwifery which treat directly and at length upon the subject. It is not our purpose to dwell upon them here. The consideration of them has, we conceive, but a slight bearing upon criminal cases, since the object in these is to ascertain the employment and mode of action of some medicinal substance, or culpable manœuvres, in reference to their tendency to produce the premature expulsion of the fœtus; and a natural tendency to abortion would not, we presume, mitigate the criminality of the act of procuring it. In truth, abortion can rarely be designedly effected, unless by mechanical means, where there is not a predisposition to it; hence the violence and fatality of the measures which are sometimes used to accomplish it. The cases are, indeed, too familiar to be deserving of special record, in which, after the most violent bodily injuries, women have not aborted, but carried their children the full time and been safely delivered. Mr. Whitehead, for example, mentions the case of a poor woman, in the fourth month of pregnancy, who received a severe frac-

(*i*) Encyclographie Medicale, Fev. 1849.
(*j*) Gericht. Med. p. 355. (*k*) Siebold's Jour. für Geburtshülfe, 8 Bd. s. 330.

ture of the skull, from a blow with a hatchet, for which she was under treatment nine weeks. She was delivered of a healthy child at the full term of utero-gestation.

§ 336. Most authors assert that there are no specific medicinal substances by which abortion may be produced. The only drug which has any claim to be considered as specific in its action upon the uterus is the *ergot of rye*. Some writers allege that it is only capable of increasing the energy of the uterine contractions when these have already begun, and deny to it the power of originating them. We need, however, in this place, only show that it has this power. Thus, Mr. Whitehead (who by no means favors the view of its specific character) states, that in a case under his care, where, owing to deformity of the pelvis, it was necessary to get rid of the fœtus in the fifth month of pregnancy, the ergot alone was employed and at first with desired effect. It was given in three successive pregnancies, and in each instance labor-pains came on after eight or ten doses had been administered, and expulsion was effected by the end of the third day. Tried in a fourth pregnancy in the same person, it failed completely.(*l*) Hoffmann has collected the experience of others with this substance. Out of forty-seven cases of premature labor in which the ergot was employed, it produced it, without the necessity of, or the employment of other means, in thirty-two, while in the remaining fifteen cases, it was given in addition to other means.(*m*) Dr. Ramsbotham says: "*egomet ipse tamen permulta vidi exempla, in quibus partus prematurus inductus fuit septimo vel octavo graviditatis mense peracto, solo secalis cornuti usu, ovuli membranis integris servatis, ore uteri occluso neque digito, neque ullo alio modo ad patefactionem excitato.*"(*n*) The same author has recently published a valuable paper on the induction of premature labor by the ergot, in which, we think, the reader will find conclusive evidence of the specific power of this drug. Premature labor was artificially induced by it in three successive pregnancies in one patient. A table of *fifty-five* cases is given in which it was successfully used.(*o*) Dr. Churchill says: "Ergot of rye is now pretty generally supposed to have the power of originating uterine contractions."(*p*) Much of the difference of opinion with respect to the uterine tendency of ergot depends no doubt upon the inertness of certain samples of the drug gathered at the wrong period, since it appears, upon good authority, that it should be collected during its stage of formation, being powerless afterwards.

§ 337. *Savin and oil of tansy* are more frequently used than ergot. They have both unfortunately a popular reputation as emmenagogues and for the purpose of producing abortion. Whatever good effect their stimulant properties may have in cases of amenorrhœa dependent upon feeble development, it is very certain that they have no direct power of instituting uterine contractions. Their action as abortives is solely due to their poisonous properties, since when given in proper medicinal doses they are merely aromatic and stimulant, and may prove emmenagogue, without necessarily exciting uterine contractions. In fact,

(*l*) On the Causes and Treatment of Abortion and Sterility. Am. ed. 1848.
(*m*) Neue Zeitschrift für Geburstkunde, Bd. 23.
(*n*) Parturition. London, 1841. Appendix, p. 639. (*o*) Med. Times, Jan., 1854.
(*p*) Syst. of Midwifery, p. 279. See also Shapter. Prov. Med. Journ. April, 1844.

tansy is in common use as an agreeable bitter for promoting the appetite. We think, however, that the administration of either of these drugs to pregnant women, should always be looked upon with suspicion, for we cannot imagine any condition which, at this time, would require or justify their employment. In a recent case, in which probably from one to two ounces of the oil of savin had been swallowed, a most violent inflammation of the stomach was excited, followed by softening and perforation of this organ, peritonitis, and death. The uterus was empty; it was of the size usual at the third or fourth month of gestation, and, judging from the state of the parts and the lochial discharge, the fœtus had been expelled, it was supposed, from two to three days. Morphia and chloroform had both been taken by the unhappy woman, but the violent inflammatory results found at the post-mortem examination were, no doubt, properly ascribed to the action of the savin.(*q*)

Dr. Lee states that he has known an instance where sixty drops of the oil of savin were taken every morning for a week, for the purpose of procuring abortion in the sixth month of pregnancy. It brought on violent pain in the abdomen and region of the uterus, and the woman died on the third day after the delivery of a still-born fœtus; on dissection, the uterine organs as well as the pelvic viscera generally were found to be in a state of high inflammation. Another case is mentioned in which an infusion of savin was taken for a similar purpose. It brought on violent and incessant vomiting, extreme pain and uterine hemorrhage, and death in a few days.(*r*)

Dr. Taylor met with a case in which death was caused by powdered savin,—abortion having first taken place. Eight ounces of green liquid were found in the stomach, which, with the œsophagus and the small intestines, was highly inflamed. The poison was identified by observing the minute portions of the leaves under the microscope.(*s*)

A case of poisoning with oil of tansy is reported by Dr. Dalton of Boston, in which death, after the most violent convulsions, took place at the end of three hours and a half; the quantity swallowed was more than an onnce. The uterus contained a well-formed fœtus about four months old, and there was not the least appearance any where of the fœtus or membranes having suffered any disturbance.(*t*) In another fatal case of poisoning with this oil, reported by Dr. Hildreth, the quantity taken was half an ounce, and death followed in less than two hours. Pregnancy of a few weeks standing existed, and the drug was, as in the former case, undoubtedly taken for the purpose of producing abortion, but nothing of the kind took place.(*u*)

§ 338. The leaves and unripe fruit of the common *rue* have been used with the hope of procuring abortion. They act, however, most probably like the foregoing drugs, solely by their irritant properties. The only cases which we have met with, where this was successfully induced, are those reported by Dr. Hélie. The constitutional symp-

(*q*) Am. Journ. Med. Sci. April, 1851. p. 529. Communicated to Dr. T. R. Beck by James H. Salisbury, M. D., of Albany, N. Y.

(*r*) Copland's Med. Dict. Am. ed. Art. "Abortion."

(*s*) Med. Gaz., XXXVI. 646.

(*t*) Am. Journ. Med. Sci., Jan., 1852. p. 140. (*u*) Ibid. May, 1835.

toms were, in them, very alarming, resembling such as are produced by poisons of a narcotico-acrid character.(*v*)

§ 339. Powerful purgative medicines, such as aloes, jalap, croton oil, and elaterium, given repeatedly, or in doses capable of setting up violent action of the lower bowels, may produce abortion by a secondary action upon the uterus. The same may be said of cantharides and turpentine. All of these drugs are capable of producing a great degree of active congestion and inflammation in the pelvic viscera, and hence the uterus is not always exempt from their action. At the same time, they can hardly produce this result without seriously endangering the mother's life. It is certain that in the greater number of cases, where abortives are criminally employed, the life of the mother is more readily sacrificed than that of her offspring.

§ 340. *Venesection* has seldom a tendency to produce abortion. On the contrary, there is no remedy more in vogue for warding off a threatened abortion than this, and numerous authors testify that pregnant women have been bled many times in succession without this result ensuing.

Nevertheless, when pushed to the extent of causing syncope it may have that effect. M. Dépaul(*w*) relates an instance in his own practice, where a woman, apparently suffering with severe headache, in two successive pregnancies, applied to him for the purpose of being bled. He afterwards discovered that the bleedings in these and on one previous occasion had destroyed the fœtus, and that he thus had ignorantly seconded the intentions of the mother.

§ 341. *Mechanical means.* In some instances the woman seeks to rid herself of her burden, by making use of violent exertion, by direct injury to the abdomen, or by the introduction of instruments into the womb. These attempts are often unsuccessful when made by the female herself. Although the use of instruments generally indicates the intervention of a third person, yet cases are known in which the woman has herself succeeded in introducing them. Thus, in a case in this country, a female brought on abortion by "probing herself with a piece of whalebone," and she declared that she had miscarried five times previously by the use of drugs.(*x*) More frequently, however, the abortion is accomplished through the culpable assistance of persons who make a trade of this nefarious practice. While, for the most part, the persons who are ready to degrade their humanity to this occupation are exceedingly ignorant and wholly unskilled in medical knowledge, it cannot be denied that occasionally medical men will lend their skill to the accomplishment of the woman's purpose. Such conduct cannot be too strongly condemned, and is the more deserving of receiving the punishment awarded for the criminal offence in question than are the blundering and reckless attempts of those less skilled, and who may, in many instances, be scarcely aware of the probable results of the operation to the mother.(*y*) In the one case, the practice may

(*v*) Ann d'Hyg. pub. Vol. XX. p. 120.
(*w*) Traité d'Auscultation Obstetricale. p. 270.
(*x*) New York Journ. of Med. Vol. VII. p. 199.
(*y*) We blush, while we record the fact, that in this country, in our cities and towns, in this city, where literature, science, morality, and Christianity are supposed to have

be carried on for a considerable time with impunity, and hence a larger number of children be secretly sacrificed; in the other, the career is usually short or interrupted, for its murderous consequences become soon too apparent.

It is not necessary to describe the manner in which the operation is

so much influence; where all the domestic and social virtues are reported as being in full and delightful exercise; even here individuals, male and female, exist, who are continually imbruing their hands and consciences in the blood of unborn infants; yea, even *medical* men are to be found, who, for some trifling pecuniary recompense, will poison the fountains of life, or forcibly induce labor, to the certain destruction of the fœtus, and not unfrequently of its parent.

So low, gentlemen, is the moral sense of the community on this subject; so ignorant are the greater number of individuals, that even mothers, in many instances, shrink not from the commission of this crime, but will voluntarily destroy their own progeny, in violation of every natural sentiment, and in opposition to the laws of God and man. Perhaps there are few individuals, in extensive practice as obstetricians, who have not had frequent applications made to them by the fathers or mothers of unborn children (respectable and polite in their general appearance and manners), to destroy the fruit of illicit pleasure, under the vain hope of preserving their reputation by this unnatural and guilty sacrifice.

Married women, also, from the fear of labor, from indisposition to have the care, the expense, or the trouble of children, or some other motive equally trifling and degrading, have solicited that the embryo should be destroyed by their medical attendant. And when such individuals are informed of the nature of the transaction, there is an expression of real or pretended surprise that any one should deem the act improper—much more guilty; yea, in spite even of the solemn warning of the physician, they will resort to the debased and murderous charlatan, who, for a piece of silver, will annihilate the life of a fœtus, and endanger even that of its ignorant or guilty mother.

This low estimate of the importance of fœtal life is by no means restricted to the ignorant, or to the lower classes of society. Educated, refined, and fashionable women —yea, in many instances, women whose moral character is, in other respects, without reproach; mothers who are devoted, with an ardent and self-denying affection, to the children who already constitute their family, are perfectly indifferent respecting the fœtus in the utero. They seem not to realize that the being within them is indeed *animate*—that it is, in verity, a *human being*—body and spirit; that it is of importance, that its value is inestimable, having reference to this world and the next. Hence, they in every way neglect *its* interests. They eat and drink; they walk and ride; they will practise no self-restraint, but will indulge every caprice, every passion, utterly regardless of the unseen and unloved embryo. They act with as much indifference as if the living, intelligent, immortal existence lodged within their organs, were of no more value than the bread eaten, or the common excretions of the system. Even in cases where mothers have suffered from repeated abortions, where fœtus after fœtus has perished through their neglect or carelessness, and where even their own health is involved in the issue, even in such cases every obstetrician can bear testimony to the great difficulty of inducing our wayward patients to forego certain gratifications, to practise certain self-denials, and to adopt efficient means for the salvation of the child.

This is not all. We can bear testimony, that, in some instances, the woman who has been well educated, who occupies high stations in society, whose influence over others is great, and whose character has not been impugned, will deliberately resort to any and every measure which may effectually destroy her unborn offspring. Ashamed, or afraid, to apply to the charlatan, who sustains his existence by the price of blood, dreading it may be publicity, she recklessly and boldly adopts measures, however severe and dangerous, for the accomplishment of her unnatural, her guilty purpose. She will make extra muscular efforts by long fatiguing walks, by dancing, running, jumping, kept up as long as possible; she will swallow the most nauseous, irritating, and poisonous drugs, and, in some instances, will actually arm herself with the surgeon's instrument, and operate upon her own body, that she may be delivered of an embryo, for which she has no desire, and whose birth and appearance she dreads.

These facts are horrible, but they are too frequent, and too true. Often, very often, must all the eloquence and all the authority of the practitioner be employed; often he must, as it were, grasp the conscience of his weak and erring patient, and let her know, in language not to be misunderstood, that she is responsible to her Creator for the life of the being within her.—On Criminal Abortion; a Lecture Introductory to the Course on Obstetrics, &c., in Univ. of Penn. By Hugh L. Hodge, M. D., Philadelphia, 1854.

performed. The deplorable results of the clumsy manœuvres usually practised, are sometimes, though rarely, brought to light. An inquest was held at Nottingham in a case of abortion, which had been produced by the introduction of a wooden skewer into the uterus. The child's head had been perforated by this instrument; it was four and a half months old. A verdict was rendered, in accordance with the surgical evidence, that the woman had died of peritonitis caused—by the rupture of an abscess in the ovary!(*z*) A female, a single woman, went to the house of the prisoner, and having informed her of her pregnancy, underwent an operation as described by witness, of having a pin thrust up into the womb. This was repeated for several days, and it ended in the delivery of a male child, of about six months' development. The child was born alive, but died about five hours afterwards.(*a*)

§ 342. The operation required is one of an exceedingly delicate and difficult nature, and even those who are conversant with the anatomical arrangement of the parts interested, require to be careful in their manipulations. The operation of inducing premature labour in this way, has been sometimes attended with accidents. Thus, Dr. J. B. S. Jackson reports an instance in which the internal iliac artery was opened by an instrument introduced for the purpose of expediting labour. (*b*) A similar case is recorded, in which the left common iliac was punctured. In this case, which was brought to trial, the jury returned a verdict, that the woman had died of a spontaneous rupture of the artery.(*c*) In France, an attempt was made recently to produce abortion by the injection of a corrosive and irritating substance into the vagina.

§ 343. It is evident, that in all these cases of local violence, should death result, a careful anatomical inspection would reveal the crime. In case, however, the woman survive the operation, a medical examination would probably be superfluous.

We do not recollect to have met with any case of criminal abortion more horrible than that recently reported in one of the English medical journals.(*d*)

A man named Asher, known as an "herb doctor," undertook, for the sum of two sovereigns, to procure abortion upon the person of a woman named Elizabeth Fletcher, who, in the absence of her husband, had become pregnant. The operation was performed upon the woman at his own house, and from that moment she began to suffer pain, which increased, and she became seriously ill. Asher being called upon to see her, "introduced *his hand and arm into the vagina*, and kept them there from five to ten minutes, during the whole of which time the woman was in frightful agony." From this time the pain increased greatly in severity, and vomiting commenced. Her death ensued in less than a week from the operation. An examination of the body was instituted. There were marks of contusions extending from about two inches below the umbilicus, on either side, to the symphysis

(*z*) Lond. Med. Gaz. XLV.

(*a*) Am. Journ. April, 1851, p. 526, from "The Queen *v.* West, Carrington and Kirwan's Nisi Prius Reports." Vol. II. p. 784.

(*b*) Dublin Med. Press, Aug. 1848. (*c*) Ibid.

(*d*) Med. Times and Gaz. Mar. 1855.

pubis. The muscles of the abdomen, at this part, were infiltrated with pus, and coagulated blood was found between them. Recent adhesions united the omentum to the surface of the intestines, and blood was extravasated in the vicinity of the uterus and bladder. The bladder was almost black, and in a state of gangrene. In its posterior wall was a large lacerated opening, and an aperture of considerable size in the corresponding part of the anterior wall of the neck of the uterus; two-thirds of the neck of the uterus were detached from the body of the organ. Through these openings the fœtus had escaped *from the uterus into the bladder*, in which latter viscus it was found, together with some coagulated blood. This criminal, who is described as "a grey-headed old man, upwards of sixty years old," and who appears to have had much experience in performing these iniquitous operations, was sentenced to transportation for fourteen years only.

§ 344. *Premature labor* is frequently induced in *legitimate medical practice*, for the purpose of avoiding the risks which in some cases attend parturition at term. The pelvis is sometimes so much deformed, that a mature child cannot possibly be born alive. The choice, in such cases, lies between the Cesarean operation and an artificial premature birth. The proportion of children born at seven months that live, is, of course, smaller than if they were carried to the end of gestation, and could be delivered; but as, in the cases of deformity alluded to, the child's life must inevitably be sacrificed by birth through the natural passages, it becomes a vital question how its life may be preserved with the least risk to the mother. The statistics of the results of the Cesarean operation give no cheering view of its value; the danger to the mother's life is infinitely greater than in the induction of artificial labour, which, in fact, in competent hands is a trifling operation. The average number of children saved by this means is rather more than one-half of the cases operated upon. The practice which, when first proposed, awakened some doubts as to its morality, has now received the sanction of the highest medical authorities, and is universally regarded as justifiable and beneficent. Although deformity of the pelvis is usually the motive for the operation, it may be properly employed in other cases, as for example, in women whose children habitually die before the term of gestation is reached, or who are suffering from diseases the danger of which is much heightened by the continuance of pregnancy. Yet the propriety of its employment in the latter case must be admitted with some reserve; the sympathetic phenomena of pregnancy are often far more alarming in appearance than in reality, and will rarely justify any interference with the natural progress of gestation. In all cases, the physician should consult with one or more of his colleagues before inducing premature labour; in this manner, his humane intentions will not expose him, in case of failure, to reproach, suspicion, or prosecution.

§ 345. *Blows upon the abdomen* are often designedly given with the view of causing a woman to miscarry. It is impossible to define the degree or mode of violence required to effect this purpose. Where uterine hemorrhage occurs shortly after ill-usage of this nature, it is reasonable to attribute it, and the abortion which follows, to the violence used. Great circumspection is, however, necessary in giving a

positive opinion when the hemorrhage preceding the miscarriage is not the immediate consequence of the injuries received, since a woman may happen to abort from other causes, or she may be near her confinement. In such a case, it may be necessary to determine whether labour has been spontaneous, or been provoked by the ill treatment. Ordinary labor does not commence with free hemorrhage (except in the case of placenta previa), while, on the contrary, that which is brought on by blows upon the abdomen does, because the placenta becomes, by this violence, partly or wholly detached from the uterus. If the violence has, however, been inflicted upon other parts than the abdomen or loins, this criterion cannot be safely relied upon, and the dependence of the premature labor upon the injury must be established by other means.

§ 346. The *signs of abortion* having taken place, are obtained, 1st. From an *examination of the object expelled.* This is necessary, in order to determine *its human character* and *its probable age.* Other bodies are expelled from the womb which bear a greater or less resemblance to the human embryo, but are not always the products of conception. Most frequently, however, they are the products of conception, but in a diseased condition.

§ 347. The substances called *moles*, which are not unfrequently met with, fall under this denomination. The fleshy mole (also called "false germ") is composed of layers of fibrous matter enclosing a central cavity, in which sometimes fragments of the embryo can be recognized, but in others it appears to have been dissolved in the amniotic liquor. This body is supposed to be a hypertrophy of the placental surface of the chorion. The hydatid mole, or *môle vesiculaire*, is certainly a morbid alteration of the placental surface of the chorion. Velpeau and Mad. Boivin(*e*) have given so clear and accurate a description of the real character of this pathological product, that there remains but little of the mystery which formerly enveloped it. It consists of a dilatation of the cellular spongioles of the chorion. These increase, until they form a mass enclosing the ovum more or less completely. The remains of the fœtus are sometimes found;(*f*) at others, again, the disease would seem to have originated at so early a period, that the embryo has become dissolved in the amniotic fluid. In this case, a trace of the umbilical cord is sometimes found. These hydatids may remain in the uterus a much longer time than the usual duration of pregnancy; and hence, as they are the result of conception, an opinion as to their probable age should be given with great caution, lest unjust aspersions should be thrown upon the character of the woman. The principal obstetrical authorities relate instances of the expulsion of hydatids from the uterus at ten, eleven, and fourteen months after conception, and some agree in admitting that they may be retained many years. Dr. Montgomery says, that he has not met with any instance of such long retention.(*g*)

§ 348. In cases of difficult menstruation, there is sometimes ex-

(*e*) Nouvelles Recherches sur l'Origine, la Nature, &c., de la môle vesiculaire.

(*f*) Dr. J. B. S. Jackson exhibited to the Society for Medical Improvement in Boston, a specimen, showing uterine hydatids connected with the membranes of a four months fœtus. Am. Jour. Med. Sci. April, p. 379.

(*g*) Pregnancy, &c., Philada. ed. p. 97.

pelled a substance which by some persons might be mistaken for an early ovum. These are, in some cases, false membranes, occasionally discharged entire,(*h*) preserving the shape of the uterine cavity; in others, again, they are membranous concretions, originating from coagula of blood. The first variety is distinguished from the ovum by the absence of the flocculi of the chorion, to which the outer surface of the menstrual membrane, however rough it may be, bears no resemblance.(*i*) In the other, the central cavity is wanting, and no trace of umbilical cord or placental surface can be found; besides this, it differs from the ovum in shape, being longer, thick in the middle, and pointed at either end. Of these productions, Dr. Denman says: "As the first cases in which this membrane was discharged were those of married women, a doubt arose in my mind whether it was not really a consequence of early conception, but I have lately had the most undoubted proofs that it is sometimes discharged by unmarried women, and may be found previous to and without connubial communication; and that the uterus has occasionally, or constantly, in some women, the property of forming it at or in the interval between the periods of the menstrual discharges. It seems particularly necessary to establish this fact, as the appearance of this membrane has more than once given rise to erroneous opinions and unjust aspersions."(*j*) In examining doubtful masses expelled from the womb, they should be carefully cleansed and macerated in water, to dissolve the coagula.

§ 349. In conclusion, it may be mentioned that there can be no danger of mistaking for ova, the *polypi* which are sometimes discharged from the uterus, since these are easily recognized by the remains of the pedicle, as well as by their structure.

§ 350. The brief description given above of the various substances which may be discharged from the uterus, will suffice, we hope, to show that those which are called *moles* and hydatids are diseases of the appendages of the embryo, and that even if no trace of the latter remain, yet the existence of these peculiar degenerations places the fact of impregnation beyond question; while, on the other hand, the products of a disordered menstrual function are so different in character, as to be recognized as such without difficulty.

§ 351. The probable age of the ovum, or of the fœtus, is ascertained from a consideration of the degree of its development. It is impossible to declare with positive accuracy the dimensions, weight, and degree of development of the fœtus at any given period of its intra-uterine life. The date of conception can never be known with certainty, and even if it could, and the age of the fœtus be ascertained, yet the weight and length, as well as the development, depend upon individual peculiarities. The same variety that is found in the bodily proportions of adults, must prevail in the fœtus. Hence, the statements which follow, must be looked upon as average only.

§ 352. At the earliest period at which the human embryo can be

(*h*) Dubois, of Neufchâtel, gives the case of a girl who, at every menstrual period, expelled a hollow membranous body corresponding exactly with the shape of the uterus. Gaz. Med. 1847, p. 729.

(*i*) Churchill, Dis. of Females, p. 103.

(*j*) Introduct. to Midwifery, p. 161.

recognized, it is of a somewhat crescentic shape, with the cephalic extremity large and rounded; it is a semi-transparent viscid mass, and from the lower portion of its concave side the umbilical cord takes its origin. The whole ovum presents a loose, shaggy appearance, arising from the tufts of the chorion. A few weeks later, this is confined to only a portion of the surface of the ovum, from which the placenta becomes afterwards developed.

In the course of the *fourth and fifth week*, the rudiments of the several parts of the fœtus become distinct. The mouth is the first feature which is observed, and is very large, and of a triangular shape; the eyes are like two black specks, and the liver occupies the whole of the abdomen. A moving point can be seen where the heart is afterwards developed, but the blood is not yet of a red color.

By the *sixth week* the fore arm and leg are distinct, and the former is detached from the side, to which it was bound. The rudiments of fingers and toes can be discerned. At the *eighth week* the head forms more than one-third of the body, the features are more distinct, but the sex is not yet manifest. Red blood is found in the vessels of the cord.

At *three months* the fœtus has attained the length of two to two and a half inches (Devergie), and the size of the whole ovum is about that of a goose's egg. The fingers are separate, the toes are connected together by a soft substance, the soles of the feet are turned inwards, and the genital organs are quite distinct, having indeed a size and prominence disproportioned to their subsequent development.

At *four months* the length is from five to six inches (Devergie, Velpeau), and the weight, as given by the best authorities, is very various, ranging from two and a half to eight ounces. At this time the pupillary membrane is more distinct than before, the skin is rosy but very delicate, and covered with a fine down, while the hair of the head is short, and of a silvery white appearance.

At *five months*, the fœtus is from six to seven inches long, and weighs from five to seven ounces (Devergie). The head forms one-fourth of the body. The large intestines contain meconium in their upper portion. Quickening takes place usually at the beginning of the fifth month. In case of abortion at this period, the fœtus usually escapes first through the ruptured membranes, these, with the placenta, following it.

At *six months*, the head is no longer so disproportioned to the size of the body, and the umbilical cord arises a little above the pubis. The length is nine to ten inches, and the weight one pound (Devergie). Fat is found in small quantity under the skin; the latter is of a purplish color, especially in the palms of the hands and soles of the feet, as well as in the lips and ears. The scrotum, however, is of a reddish color; the testicles are still in the abdomen. In females, the external labia project, but do not conceal the clitoris, which is large and prominent. The pupillary membrane is distinct and firm. The nails look like folds of skin. The hair is scanty and short, and of a silvery white color.

At *seven months*, the fœtus is found to have increased in all its proportions. It measures in length from twelve to fourteen inches, and weighs from two to three pounds. The bones of the head are still

yielding on pressure; the frontal bone consists still of two parts; the ears lie close to the head; the arms and legs are bent in the position which they had in the uterus, if the child be born alive. At the *eighth* month, the length is from sixteen to eighteen inches, and the weight three or four pounds. The skin, in color and thickness, is more like that of a child at term; it is covered with a fine, short hair, and the hair of the head is of a darker color. Sometimes one of the testicles (generally the left) has descended into the scrotum; usually, however, they have not passed the abdominal ring. The pupillary membrane begins to disappear towards the close of this month. During the *ninth* month the fœtus gradually increases its length, until it attains from eighteen to twenty-two inches, and in weight on an average about seven pounds. The characteristic marks of maturity are considered to be the following:—

§ 353. The average length of a healthy, mature child is about eighteen inches, and its weight six to seven pounds. Its skin is of a reddish white color; the hair is pretty thick and strong; the nails of the fingers perfect, and the ears cartilaginous. The limbs are firm and rounded, and the testicles of the males usually are found in the scrotum. According to Moreau, the navel string is inserted a few lines below the centre of the body,—a statement which is confirmed by the observations of Dr. Taylor,(*k*) Ollivier, and Elsässer, although opposed to the opinion formerly held, that its point of attachment at the end of gestation was exactly the centre of the body. It is, moreover, firm and elastic. The child breathes and cries immediately after birth, unless the third stage of labor has been protracted; is able to take the breast and swallow, and within a few hours passes its urine and meconium. The meconium, however, is often not passed for two or three days; and in some cases is voided unobserved during birth. The presence of the *vernix caseosa*, a sebacious secretion upon the skin, is found, according to Elsässer, upon about one-half of newly-born children.

§ 354. The several signs of *immaturity* may be thus stated in general terms. The body is small, lean, and flaccid; the skin tender, wrinkled, red, and upon the palms and soles, purple; and the lips, ears, and genitals bleed very easily. The head is out of all proportion to the body, as is also the skull to the face; the bones of the skull are widely separated by membranous sutures, and very moveable; the hair of the head is scant, short, and silvery; the eyelids and lashes are downy. The face has an old and painful look; the pupillary membrane is present, and the ears are thin and membranous. The navel string is attached near the pubis; the scrotum is very red, and not much wrinkled; the testicles are still in the abdomen; the lips of the vulva stand apart from each other, and the disproportionate clitoris protrudes between them.(*l*) The immature child, moreover, breathes with difficulty; its voice is

(*k*) Med. Jur. p. 285, Am. Ed. Dict. des Sci. Med. Art. *Œuf.* Henke's Zeitschrift Bd. 42, p. 256. Dr. Elsässer also states, that in the well proportioned adult, the middle of the body is not at the navel, but at the rising point of the *mons veneris*; a fact which, he says, is generally received by artists and confirmed by a measurement of the best antiques.—S. Tabelle für bildende Küunstler von Joseph Mattersberger (nach Antiken), 1805.

(*l*) Bock, loc. cit. p. 241.

weak and whimpering; it sleeps continually, cannot suck, and shows no desire for food.

§ 355. 2nd. The signs of abortion, as obtained by an *examination of the female*, are not very certain in their character. It is seldom, indeed, that an examination of the living female is had, and especially at a period early enough to afford any valuable indications. When abortion occurs in the early months, it leaves but slight and evanescent traces behind it. A relaxed condition of the parts, which at the same time are covered with blood proceeding from the womb, resembles so closely the condition present during the catamenial flow that, practically, they could hardly be distinguished. The open state of the mouth of the womb may, in some cases, throw light upon the question. All these signs are, however, more distinct in the latter half of pregnancy, and, as the term of gestation approaches, closely resemble the signs of "delivery." (See § 292.)

We would also refer the reader for a consideration of the value of the *Corpora Lutea*, as indicative of pregnancy, to the chapter on the Signs of Delivery. We would merely repeat here, that although there is, in our opinion, sufficient evidence of a marked difference between the *corpora lutea* of pregnancy and those of menstruation, it requires more general assent and more complete substantiation to allow positive inferences from their discovery to be put forward in criminal, or other important cases, without reserve.

CHAPTER VI.

INFANTICIDE.

§ 356. In the following considerations upon this subject, we shall restrict our remarks to the medical testimony required in the determination of questions arising out of the doubtful causes of death in *newborn* children. By this latter term we propose to designate those cases in which doubts concerning live birth may fairly be entertained. Those which do not require the solution of this question as preliminary to a judgment upon the fact or the manner of criminal interference, cannot, with strict propriety, be classified under the head of Infanticide. The degree of criminality of the offence is determined by the period at which it was committed, whether before or after birth; but manifestly this point is, at a certain period after birth, no longer subject to doubt. The mode of death at this time, whether criminal or otherwise, will be determined by the same general rules as are applicable in adult life. Hence the first purpose of medical investigation in cases of infanticide, is to ascertain whether the child was born alive.

§ 357. In order that the reader may have a clear view of the evidence required to establish this fact, it will not be unnecessary to prefix to it a comparative sketch of the still-born child and that which is born living. The visceral and other changes which indicate that a child has survived its birth, derive all their importance, as evidence, from a contrast with the condition and peculiarities of the same organs in the fœtus; and the degree to which the change has been accomplished,

corresponds in general with the energy and extent of the new functions. Hence, before we can safely determine that a new-born child has been criminally destroyed, we must be prepared to show, as a necessary preliminary, and beyond the shadow of a doubt, that the essential fœtal characteristics no longer exist.

A child which is born dead, having perished immediately before its birth, will be usually found, in medico-legal cases, owing to the hurry of concealment, to be still covered with the sebaceous secretion called *vernix caseosa*. Its hair is closely agglutinated; its ears lie closely to the head; the eyes are closed, and the eyelids when raised do not remain open. The mouth also is closed, and a drop of watery blood is often seen trickling from the nostril. The thorax, being unexpanded by respiration, appears flat and contracted, and the remnant of the umbilical cord has a fresher look than in a child which has lived for a few hours. The trachea is flattened, and often contains a viscid mucous secretion. *The lungs* lie in the posterior part of the thorax, and the rest of this cavity is often filled with a yellowish fluid of a slightly glutinous consistence. They are of a brownish red color, granular structure, and do not crepitate upon incision. Their length is greater than their breadth, and their edges are rounded. Their absolute weight is less than after respiration has occurred, since upon their expansion by this process, an active circulation of blood takes place through them; but their specific gravity is greater, their vesicular structure being undistended with air.

§ 358. A child which has been *born alive* presents the following characteristics; the period of survivance, the mode of death, and the time after it, at which the examination is made, have of course a considerable influence upon these. As a general rule, however, if the body be fresh, the remains of the *vernix caseosa* will be found under the arm pits, behind the ears, &c., the hair will be dry and clean, the ears not so closely applied to the head as in the still-born child, and the eyes remain half open, in spite of all efforts to close them. The swelling upon the back of the head which is common to all new-born children, (*caput succedaneum*,) in whom the head has been the presenting part, is far more marked in the child which is born alive than in the still-born; provided death has occurred before the expulsive pains of labour have begun. In the one case, it also contains a glutinous bloody serum, while in the other, the small quantity of liquid effused is colorless. The thorax is higher and more arched than in the fœtus.

§ 359. The *umbilical cord* affords more valuable proof of extrauterine life, as well as of the period of its duration, than any other of the external marks. It is generally of a bluish pearly-white color, of the thickness of a finger, and within twelve to twenty-four hours after its birth, loses its polish and becomes dry and flaccid. The process of desiccation begins at the severed end, and in the course of twenty-four hours reaches to within half an inch of the navel; this portion of it still remaining pulpy and of an amber color. About this time the skin of the abdomen, around the attachments of the cord, becomes red and swollen, and is pushed up around it in the shape of an inverted cone. During the second and third day the cord dries gradually away, becomes twisted and flattened like a riband, while the preparatory stage

of separation is seen in the suppurative process which attacks the still moist portion by which it remains attached to the navel. On the fourth day, the cord is found to have acquired a yellowish brown or black color, and in those parts of it not traversed by the umbilical vessels has the transparency and appearance of glue. The separation takes place more frequently on this than on the third day, but the time of its falling off is subject to great variation. According to the observations of Dr. Elsässer,(*m*) out of one hundred and thirty cases, it occurred

On the 4th day in 10 cases, on the 7th day in 16 cases, on the 10th day in 1 case,
" 5th " " 40 " " " 8th " " 5 "
" 6th " " 55 " " " 9th " " 3 "

Cicatrization of the navel is generally complete by the fourteenth day.

§ 360. The process of desiccation above described is not invariable. Occasionally where the navel string is thick and pulpy, instead of withering and drying away, it will putrefy, even in the healthiest children. Elsässer has often made this observation in his hospital at Stuttgart, and the fact is fully confirmed by the observations of Sömmering and Oseander.(*n*) Moreover the process of desiccation is not confined to the cord of living children alone. In two still-born children, Elsässer found the cord still remaining on the fifteenth and twenty-eighth day respectively after birth. It had undergone complete desiccation into a horny substance, while the bodies of the children were at the same time considerably advanced in putrefaction. Pieces of umbilical cord cut off and exposed to the open air, at 40° to 60° Fahrenheit, underwent the same withering and desiccating process as in the living child, and without the least foul smell. These observations may appear to invalidate the statement of Billard, which has been generally accepted as just, viz: that the desiccation of the cord is an act of vitality, and consequently cannot and does not occur in the still-born child. That they do not, however, materially affect its truth is evident, when we reflect that the process in the living child commences immediately after birth, and is completed generally within three or four days, whereas, in these observations, actual desiccation did not commence until much later, in one case on the ninth day, and in the other as late as the twentieth day. Furthermore, in neither case was there any indication of the cord becoming detached, a process which is alone of no trifling significance, both as evidence of life and of its duration. Hence, the withering and desiccation of the cord gives a fair presumption that the child has lived and the degree to which the process has advanced, a valuable indication of the length of time it has survived its birth.

§ 361. The *Lungs* are the source from which the most reliable proof of live-birth is derived. In the child which has perfectly respired, the lungs occupy a larger space in the thorax than in the still born fœtus. They fill up, in general, its cavity completely, and partly cover and conceal the pericardium. Their color is of a pale red, shading into blue on the posterior surface, and becoming brighter upon exposure to the air. They have also a marbled appearance, which peculiarity can

(*m*) Henke's Zeitschrift, 1852, 4 Heft. p. 262.
(*n*) Uber die Nabelbrüche. Lehrbuch für Hebammen.

not be given to fœtal lungs by inflation. Their edges are sharp, here and there curved inwards or projecting in tongue-like procepes. They feel tough when handled, and retain slightly the impression of the finger. They crepitate also when pressed or cut, and upon incision yield a small quantity of frothy blood. They are heavier than the fœtal lungs, but specifically lighter than water, floating upon it both with the heart and thymus gland attached, and also when cut to pieces. When pressed between the fingers under water, air bubbles rise from them to the surface. The thorax is wider and more arched than in the fœtus, and the diaphragm is lower than before respiration, its convexity not reaching above the seventh or eighth rib.

§ 362. Certain changes take place in the *fœtal channels* for the circulation of the blood, upon the occurrence of respiration. As, however, these changes are gradual in their nature, they can hardly with propriety be enumerated among the signs of live-birth. They are only considered in this place from the fact that they *commence* at birth, although not perfected until a later period. From the cases reported by Elsässer,(*o*) it will be seen that the obliteration of the fœtal channels occurs in a very indeterminate manner. In forty-eight out of fifty-two mature still-born children they were all open except in four, in which the *foramen ovale* was closed. In ninety-two who died in the first month, they remained open in two-thirds. Later researches on a still more extensive scale by the same indefatigable author prove, as the result of the examination of three hundred and seventy cases, the little reliance which can be placed on so variable a test. In illustration of this fact, we may remark that in one still-born child the *ductus venosus* was found closed, and in a child which lived only a quarter of an hour, the *foramen ovale and ductus arteriosus were both closed.* On the other hand, in a child thirty-nine days old, he found *all* the fœtal channels remaining open. Dr. Norman Chevers(*p*) substantiates this statement by the facts which he has collected respecting the frequent contraction and obliteration of the foramen ovale and the ductus arteriosus before birth. It is evident that if but one authentic case exist in which any of the fœtal channels have been found closed at birth, it is enough to throw doubt upon any case in which its closure is assigned as a proof that the child must have survived its birth. Moreover, the continued patency of these channels is of still less importance in a medico-legal sense than their closure, since the foramen ovale and ductus arteriosus are found open in certain cases in adult life. We have ourselves elsewhere brought abundant proof of this fact.(*q*)

§ 363. Professor Bernt,(*r*) of Vienna, has endeavored to determine, by means of the progressive closure of the foramen ovale and ductus arteriosus, the period for which the new-born child has survived, and his views have heretofore met with considerable attention, and been adduced as authority. He says: 1. If the child has lived only a *few seconds*, the aortal end of the duct appears contracted, and the vessel, instead of being cylindrical throughout, acquires the form of a trun-

(*o*) Henke's Zeitch. 1841 and 1852. (*p*) Med. Gaz. XXXV. and XXXVI.
(*q*) On Cyanosis. Am. Jour. Med Sci. July, 1844.
(*r*) Das verfahren bei der ger-med. ausmittelung zweifelhafter Todesarten der Neugebornen, von Joseph Bernt. Wien. 1826. Vid. Taylor, Med. Jur. p. 319.

cated cone. 2. If the child has lived for *several hours* or a *whole day*, the duct becomes again cylindrical, although shortened and contracted in diameter. Its size is about equal to a goose's quill; it is, therefore, much smaller than its root, and about as large as either of the two branches of the pulmonary artery, which have in the mean time become increased in size. 3. If the child has lived for *several days* or a *whole week*, the duct contracts to the diameter of a few lines, about equal to a crow-quill, while the two branches of the pulmonary artery are equal in size to a goose's quill. 4. The duct is met with, perfectly closed, and quite impervious at a much later period, *i. e.*, after the lapse of a very uncertain number of weeks, or even months. That these phenomena are far from being constant, is attested by the experience of other writers(*s*) as well as by my own. I have never succeeded in finding the peculiar condition of the arterial duct, under the circumstances described by Professor Bernt. As has been before stated, the great irregularity in the process of obliteration, renders any dependence upon signs, which are at least neither constant nor well marked, highly fallacious. In fact, the alteration in the form and calibre of the fœtal channels is not noticeable immediately after birth; the closure of the foramen ovale, and the obliteration of the several canals, is gradual; they are not closed in any determinate order, although, as a general rule, the foramen ovale is the last to be obliterated. These signs are, therefore, too inexact to be depended upon as proof of respiration having taken place, and have at most, only a secondary importance in the question as to the period of survivance.

§ 364. We have now to consider the characteristic marks by which a child which has respired *imperfectly* may be known from one that has not breathed at all, and also the pathological and extraneous causes of imperfect respiration.

The external aspect of a child which has breathed imperfectly, is not strikingly different from that of one which has fully respired. During its life, such a child will exhibit signs of feebleness, its cry will be weak and whimpering, its color pale, and its movements languid. If the imperfect expansion of the lungs be due to compression of the head or neck, owing to a tedious labor, or from some obstacle to delivery, the surface will be found of a livid hue, especially the face, and the child will gasp for air. In the lungs, however, will be found the principal indication of incomplete respiration. They will not reach as far forward as the pericardium; the brownish red color of the fœtal lungs will be replaced, in part only, by the lighter and clearer red due to the presence of respired air, and these aerated portions will be found chiefly in the upper lobe of the right lung, owing to the size of the bronchial tube which opens into it being larger than that on the left side. These portions will float in water, while other parts of the pulmonary substance will sink, and the degree of buoyancy of the whole lung will depend upon the amount of air contained in it. As a general rule, it may be stated that a very small quantity of respired air is sufficient to cause the whole lung to float.

§ 365. The principal pathological cause of imperfect respiration is

(*s*) Vid. Elsässer. Also Taylor, loc. cit.

the condition called by Jörg, who first correctly described it, *atelectasis*. This word means *defective expansion*, and is appropriate, since a portion of the lung remains in the fœtal condition. We borrow the following accurate sketch from the valuable work of Dr. J. F. Meigs, on the Diseases of Children, p. 115: "In congenital atelectasis, the parts of the lung most frequently affected are the posterior portion and lower edge of the inferior lobes, the middle lobe of the right lung, and the languette and lower edge of the upper lobes. In some instances, as in one examined by myself, the greater portion of the lower lobes of both lungs, while in others still larger portions of these organs, have been found to present this condition. The imperfectly expanded portions of the lung are of a dark red, or purplish color, and are diminished in size, so as to be depressed below the level of the healthy parts. They are solid to the touch, and yet they have not lost their cohesive properties, as they are neither friable, easily torn, nor readily penetrable by the finger, and no air bubbles are seen in the fluid squeezed out by pressure: they sink when thrown into water. They, in fact, resemble exactly the fœtal lung. The most convincing proof of the real nature of this condition, is obtained by the inflation of the lung. When this is done, the depressed, hard, and dark-colored portions, unless the subject from whom the specimen has been taken may have lived long enough to have allowed the different tissues of the lung to become adherent, rise to their natural level, become elastic, soft and crepitating, and change, under the influence of the entering air, from a dark and livid tint, to the rosy or pink color of healthy pulmonary tissue."

§ 366. The distinction between this condition and that of hepatization of the lung from inflammation, must at once be evident to the physician. The only similarity is found in the increased density of the inflamed lung, in consequence of which it sinks in water. But, we need hardly remind the reader, that the occurrence of pre-natal or congenital pneumonia is very questionable, and that its immediate development after birth must be excessively rare. Should it, however, exist, it will not be difficult to distinguish it from atelectasis, except perhaps in those cases where a portion of the lung still remaining in the fœtal condition is attacked with inflammation. Such a case, however, would have no importance in a medico-legal point of view, since the phenomena observed on trial of the hydrostatic test, would not be affected by it. Pneumonia attacks indifferently all portions of the pulmonary structure, but preferably, perhaps, the inferior and lower parts. In aletectasis, the parts affected are usually the margins of the lobes, or those portions most remote from, or not so readily accessible by, the air. The color of the hepatized portions of the lung is of a yellowish or mahogany red, the surface is homogeneous, the contours of the vesicles not visible, the hepatized structure is granular and firable, and, upon incision, there exudes from the surface a thin sanguinolent pus.(*t*) Finally, it cannot be inflated, the vesicular structure having become consolidated by the plastic effusion; whereas, in the case of atelectasis, the lung being merely in the fœtal condition, readily expands upon the insufflation of air.

(*t*) Legendre. Malad. de l'Enfance. Paris, 1846. Jacquemier Accouchemens, Vol. II.

§ 367. The most interesting *causes of imperfect respiration* are those which act by impeding the free access of air to the lungs. They may be divided into two classes, according as they act *before* or *after* birth.

The fact that respiration may take place *before* birth, comes to us attested by too respectable authority, to be discarded as fabulous. However improbable it may seem that a child should breathe and cry while yet in its mother's womb, and however much the establishment of the possible occurrence of this phenomena may perplex the question of infanticide, rendering evidence apparently the most convincing of no avail, we cannot hesitate to admit that this singular fact has been really observed. We find few writers at the present day denying it. It is reported that Velpeau has said that "he believed it, since it was asserted by learned and credible men, but that he would not believe it if he observed it himself." We subjoin the following cases, in illustration. The first is related by Marc,(*u*) as communicated to him by Dr. Henry: "The 10th of October, 1824, I was desired by M. Jobert to assist him in an *accouchement* in which the pelvis was deformed in such a manner as to interfere with the delivery. Madame G—— was twenty-seven or eight years of age, and of a good constitution. Her two previous pregnancies were unfortunate; in both she miscarried. Upon our arrival, we found her in great suffering; the membranes had broken about forty-eight hours previously. I found the head of the child above the superior strait, the occiput turned to the right iliac fossa. The parietal bones alone had descended into the superior strait, and projected slightly into the pelvis; the *os uteri* was open to the extent of two inches. The deformity of the pelvis consisted in a very great prominence of the sacro-vertebral angle and absence of curvature in the pubis, so that the antero-posterior diameter was diminished one inch, while the transverse was increased to the same extent. M. Jobert and I concluded to turn the child; but, however, as the head did not appear to be of a large size, we hoped to be able to disengage it by means of the forceps. This instrument was applied. At the moment that Dr. Jobert commenced to make traction, the fœtus cried distinctly for a dozen seconds, so as to be heard by all present. The head remaining impacted, in spite of all our efforts, the forceps were removed. While we were conversing upon the necessity of performing the operation of version of the child, cries were again heard as distinct as the first, which could only be the result of several inspirations. And again, when I introduced my hand to search for the feet, in slipping it over the left shoulder, the fœtus, for the third time, gave vent to several cries, not so loud as the first, but sufficiently so to be heard by all the persons present. The delivery was accomplished with a great deal of difficulty, and the child breathed no longer; still, as the pulsations of the heart were pretty strong, we tried various means to restore it to life, and I endeavored to inflate its lungs. Our efforts were, however, of no avail, and the circulation ceased after a few minutes. I regret my inability to describe the condition of the lungs; but of

(*u*) Dict. des Sciences Medicales. (en 30 vol.) Art. Infanticide.

what importance could it have been, as I had already introduced air into them?"

Landsberg gives a case of *vagitus uterinus* which occurred in his own practice. The first stage of labor had been unusually protracted, lasting, indeed, for nearly a week. At last, however, the membranes broke, and the child presented in the first position of the head. "At this time I, as well as some women standing at the bed-side, heard plainly repeated cries of a child, as if one were covered by the bed-clothes." This was not the case, however; the room was searched, to ascertain if, perchance, a cat could be found, and finally all convinced themselves that the sounds really came from the yet undelivered child. The labor was brought to a termination by the application of the forceps. "The child was apparently dead, but soon revived, and is now living."(*v*)

No mistake could be possible in the following case, reported by Dr. Kennedy, formerly Master of the Dublin Lying-in Hospital. He says: "I was called up one night by an intelligent pupil in the hospital, who informed me that a very strange sound was observed to come from a patient in labor, resembling exactly the whine of a child. On going into the labor-ward, I found the nurses and pupils surrounding a patient's couch, with outstretched necks, listening with great intensity and amazement; and on approaching within about six feet of the bed, I distinctly heard a low moaning whine, resembling the faint and painful cry of a delicate seven months' child; this became more distinct the nearer I approached the patient, and there could be no doubt whatever that it came from the abdomen of the woman on the couch, however produced. Still skeptical, I applied the stethoscope, when the fact was proved beyond a doubt as not only the cry mentioned, but the labored respiration of the fœtus was perfectly audible. A vaginal examination was instituted, and the head was found presenting, but high in the pelvis. The parts were only partially dilated, although the membranes were ruptured, and the waters had drained off shortly before. This woman was not delivered for four hours, and the above phenomena were observed by several of the pupils up to the time of the child's birth. The patient's name was Morell; the date of her delivery, the 2nd of December, 1830."

Two other cases, of more recent occurrence, are related.(*w*) One of these occurred to Dr. Falkenbach, who, during the operation for turning for a cross birth, and while the child was undoubtedly within the uterus, heard it cry loudly several times, as did other persons in the room.

The other case is of still more importance, and occurred also during an attempt at version. The tone of voice was like that of a new-born

(*v*) Neue Revision der Lehre von der Athemprobe. Henke's Zeitsch. Erg. Heft. 38. 1849.

(*w*) Brit. and For. Med. Chir. Rev. Jan. 1850, from Med. Zeitung, Nos. 20 and 30. Another case has been recently reported by Dr. Knüppel. In consequence of a cross position, the child was turned, during which operation vagitus was distinctly heard. It was, however, born dead. The lungs were of a pale red color, filled the chest completely, crepitated on incision, and swam in water. Canstatt's Jahresbericht für 1853. VII. Bd. p. 19.

child, only duller, as if it came from a cellar. It continued crying at intervals for two or three minutes. After this, delivery progressed rapidly, until the shoulders arrived in the pelvis, which was rather narrow, while the child was a large one. The child was born dead, beyond recovery. Its cries, while in the womb, were heard by three other people in the room, as well as by the midwife, who was hard of hearing. The chest was examined twenty-four hours afterwards and was found to be well expanded. The lungs partly covered the pericardium. They were removed, in connection with the heart and thymus gland, and being placed in a vessel of cold water, *swam* completely. The lungs were of a bright red color, with bluish spots here and there. They crepitated on incision, and some foam and a little blood flowed out. When cut under water, large air-bubbles rose to the surface; not the smallest portion of the structure sank. This last case is, except that in the note (*w*), we believe, the only one in which the lungs, in a case of uterine vagitus, have been submitted to the hydrostatic test; and hence, from it, we have undoubted proof of the possible occurrence of uterine respiration, and an increased probability of the observations in the previously related cases having been accurate.

We have assumed that uterine respiration must be *imperfect*, a position which seems to be contradicted by this case; but we find it stated by the author that "the air cells of the periphery had not become completely filled with air," a fact which we will not undertake to reconcile with the statement that no part of the lungs sank in water.

The extreme rarity of uterine and vaginal respiration or *vagitus* is evident from the few authentic cases upon record, as well as from the incredulity with which the fact has been received by some authors. Moreover, certain obstetricians of most extensive experience state that they have never witnessed this phenomenon, and Baudelocque and Capuron declare that even in cases where the face and mouth of the child presented at the vulva, giving a favorable opportunity for the access of air, they have never observed it. We are not able to define the causes which favor its occurrence in some cases and not in others, nor explain how the air could gain access to the lungs in cases like those above narrated, and in others which might be referred to. All that can be safely asserted is, that this phenomenon never occurs before the rupture of the membranes and the dilatation of the mouth of the womb, and that it has been observed as yet, only in tedious labors, or when the hand of the accoucheur has been introduced to assist the delivery. Dr. Beck relates two cases in which it was distinctly perceived under this latter contingency. It is not, however, a necessary element for its production.

§ 368. Another, and in its practical bearings more important condition, under which imperfect respiration may take place before birth, is after the delivery of the head, while the body remains yet in the vagina and the womb. It is undeniable, that in this position the child often breathes and cries. The delivery of the body may be retarded by various circumstances, the principal of which are a too great size of the shoulders and a sudden cessation of the expulsive pains. The fact, as above stated, is beyond all cavil, and Ritgen, a German obstetrician of high standing, from the frequency with which he has observed it, con-

siders it not even exceptional. It will be readily seen how much doubt this fact may cast upon the question, whether the child has been born alive. It may breathe before it is fully born, and yet, as it is not accounted by the law to be born, until *fully expelled* from the mother, fatal violence exercised upon it in this situation, has been adjudged not to constitute the crime of Infanticide. We will allude more in detail to this fact under the "*Causes of death in new-born children.*" In the same place will be found an account of those causes of imperfect respiration which act *after* birth.

The Tests of Live-birth.

§ 369. The most important of the proofs of live-birth, which, from their general application, have been called "tests," are derived from an examination of the absolute and the specific weight of the lungs. Although the data yielded by them are said to prove *life*, they do so only incidentally, by proving respiration; and, although, in criminal practice, it is requisite that the fact of respiration should be established, yet it is important to bear in mind that there may be *life without respiration*. The circulation may go on, and the child may make various muscular movements, after it is separated from the mother, without respiring. Sometimes, owing to congenital feebleness or to its being in an asphyxiated condition, it makes no effort to breathe; and again, all its efforts may be fruitless, from the obstruction of the fauces and larynx with a viscid mucus. Hence, paradoxical as it may seem, a child may live and die without having breathed. In such a case, the lungs will, of course, reveal no trace of respired air.(*x*) If the argument should ever be used in any case of Infanticide, that the violence was inflicted upon a child in the above condition, it would have to be sustained by other testimony or evidence than that of a medical expert; since there is no medical proof of extra-uterine life, independent of respiration. Hence, the commission of infanticide, by submerging a child in water before it has breathed, or the exclusion of air from it, in any other way in which no external mark is left, deprives the medical examiner of the means of deciding whether the act was committed upon a living child; because we repeat, the lungs remain in the same condition after as before birth, provided respiration has not taken place, and in the short interval of existence possible under such circumstances, no other change could occur, which could be relied upon as an indication of extra-uterine life.(*y*)

§ 370. *The hydrostatic lung test*, (*Docimasia pulmonum hydrostatica*,) is an experiment in which the lungs of a new-born child are placed in a vessel containing water, in order to judge from their *specific gravity* whether or not the child has breathed.(*z*) Its first applica-

(*x*) This fact was urged as an objection to the hydrostatic test by the Wittemberg Faculty, (Valentin's Pand. Med. Leg., P. II. sec. vii. chap. 12, p. 583, ed. 1701,) at the very beginning of its application to medical jurisprudence. We have ventured to depart from the custom of medical writers on this subject in treating of it under this head, because the object of the hydrostatic test is to ascertain whether the child has breathed, and not to determine the fact of its having lived without respiration.

(*y*) Henke's Lehrbuch, 12th ed. p. 341.

(*z*) Valentin, Pand. Med. Leg., Par. II. sec. vii. p. 502. "De infanticidio per-pulmonum inaquam project. subsident. elidendo."

tion in medical jurisprudence was made by Dr. Schreyer of Zeitz, although the principle was known, it is said, by Galen. The experiment is conducted in the following manner. The lungs are carefully removed from the chest, sometimes with the heart attached, at others not, but always in connection with the trachea. They are then placed upon the surface of pure water. If they float, the evidence is very clear that they contain air, and the higher they float the more perfect has their expansion been. If, on the contrary, they sink to the bottom, the evidence is equally plain that they contain air to a very imperfect extent, if at all. In order, however, to judge fairly of their degree of buoyancy, and to ascertain how much and what parts of the organs contain air, a further investigation is required. The heart and pericardium should be removed with care, to avoid injuring the pulmonary tissue, after which the lungs should be again put in the water. Each lung should then be tried separately, and finally divided into small pieces, and each of these thrown by itself into the water, before and after compression between the fingers. By carefully observing the results elicited by this experiment, satisfactory proof of the presence or absence of air in the lungs may be acquired. At this stage of the inquiry no further inference is allowable; we can neither say that the child has lived and breathed, because its lungs float on the water, nor deny that it has lived if they sink to the bottom of the vessel. And yet this experiment must always retain its great importance in cases of presumed infanticide. Restricted within its proper limits and sources of error properly guarded against, there is no medical test so simple and conclusive.(*a*)

§ 371. The objections made to the hydrostatic test are founded upon two facts:

1st. That the air which gives buoyancy to the lungs may have been derived from other sources than natural respiration; and,

2nd. That notwithstanding the absence of demonstrable air from these organs, the child may have lived. The sources from which the air may have been derived are, Putrefaction, Emphysema, and Artificial Inflation.

1st. *Putrefaction.*—At an undetermined stage of the putrefactive process, gas is disengaged by the decomposition of the blood contained in the lungs, and sometimes in sufficient quantity to give buoyancy to the whole or a portion of them. The air thus evolved is, however, not contained in the pulmonary vesicles, but in the cellular tissue, and chiefly between the lobes and on their margins. Here it is seen collected in rows of bubbles, much larger than the air-vesicles, prominent, and easily disappearing under slight pressure. At the same time, the lungs present other signs of the putrefactive process, in their greenish color, diminished consistence, and fœtid odor. The period at which the putrefactive vesicles are developed is not accurately known, and is influenced by circumstances, as, indeed, are all the other incidents of putrefaction. It is a fact, however, worthy of remark, that this process is set up later in the lungs than in most of the other organs of the child. This fact is attested by many writers and particular stress is

(*a*) De usu partium corp. human. Lib. XV. cap. 6.

laid upon it by Dr. Casper. In four cases examined by this author, where the child's body was already greatly decomposed, the lungs retained their firmness and dark brown color, and sank in water. In one case the heart and liver were both covered with putrefactive vesicles, and swam upon the surface of the water, while the lungs, which were firm and brown, sank to the bottom.(*b*) I have, myself, frequently found the lungs of new-born children entirely unchanged in color, consistence, and appropriate hydrostatic relations, when at the same time the brain was reduced to a mere pulp, the abdomen thoroughly putrescent, and the epidermis peeling from the whole body. The striking changes which attend the commencement of decomposition in the lungs cannot permit an error on the part of the examiner. Should the buoyancy of the lungs be due to putrefaction, by the development of spurious air-vesicles upon the pulmonary tissue, the fact may be easily recognized, and ascribed to its real cause. Should, however, no signs of putrefaction in the lungs be found, and yet these organs float, the objection is theoretical merely, and not at all pertinent. The obvious inference is, that the objection cannot be urged when there is no proof of its applicability to the case in hand. It is not unnecessary to press these apparently simple truths upon the attention of the reader, for every day's experience in forensic medicine attests the false importance attached to irrelevant objections. When the above mentioned changes have supervened in the lungs, they can no longer be used in evidence, since the buoyancy of these organs may be due to air derived either from decomposition, or from respiration. A discrimination between the two at this period is manifestly impossible.

Emphysema was formerly distinguished from putrefaction, as a condition giving buoyaney to fœtal lungs. It may safely be asserted that no such condition is found in lungs which have not respired. It is probable that the older authors mistook for it the appearances presented by putrefaction. Drs. Cummin and Lécieux(*c*) speak of a "sort of contusion suffered by the lungs in difficult labors, to which they attribute the development of air in large vesicles on their surface," while the lungs presented at the time no signs of putrefaction; but these observations have not been confirmed by others. Mr. Taylor(*d*) says, in examining the bodies of many still-born children, he has never met with any appearance resembling what has been described as a state of emphysema, independently of respiration and putrefaction.

§ 372. The last objection to the inference that the lungs must have respired if they float on water is found in the fact, that *Artificial Inflation* will cause the lungs to float. If the lungs of a still-born child be fully inflated by means of a tube, they increase rapidly in volume and acquire a dirty yellowish red color; when the insufflation is discontinued, they immediately collapse, but still retain enough air to enable them to float. The effect of strong pressure in expelling this air, is according to my own experience, which corresponds very nearly with that of Dr. Guy, almost similar to that in lungs which have respired.

(*b*) Casper's ger. Leich. öff. 1 and 2 Hundert, Fälle 67, 68; 65, 66.

(*c*) The proofs of Infanticide, by Wm. Cummin, M.D. p. 61. Consid. Méd. Lég. sur l'Infanticide par Lécieux. Vid. also, Schmitt, loc. cit. Versuch 32. S. 41 and 212.

(*d*) Loc. cit. p. 303. Am. ed.

Nothing short of a strong and continued pressure will cause them to sink; and the compression in the one case, is so nearly what is required in the other, that the difference is practically unimportant. If, however, an attempt be made to introduce air into these organs, in the only manner in which it is important to consider its effects, viz., by insufflation through the mouth of the child; the greater part of the air passes into the stomach, while a very inconsiderable portion, and sometimes none at all, reaches the lungs. Mr. Taylor says that he has had several opportunities of examining the lungs in children, where inflation had been resorted to, not for the express purpose of creating an objection to the hydrostatic test, but with the *bonâ fide* intention of resuscitating them. In some of these instances a tube had been used, in others the mouth. In the first case it was found, on inspection, that only about one-thirteenth part of the structure of the lungs had received air. In the second, no part of the lungs had received a trace of air, although inflation had been repeatedly resorted to; the air had passed entirely into the abdomen. In a third, attempts were made for upwards of half an hour to inflate the organs; but on examination, not a particle of air was found to have penetrated into them. In a fourth, no air had entered the lungs; and in a fifth, although a small portion had penetrated into the organs, it was readily forced out by compression. In repeatedly performing the experiments upon dead children, the results have been very similar; the lungs, after several attempts, were found to have received only a small quantity of air.(*e*)

On the other hand, Schmitt, of Vienna,(*f*) has made numerous experiments, from which he has drawn the following conclusions:

1. That it is possible to inflate the lungs of still-born or asphyxiated children.

2. That the insufflation succeeds easily and completely, if done in the proper manner, and if there is no mechanical obstruction to the entrance of the air.

3. That the inflation is imperfect and difficult, and even entirely fails, when the respiratory passages are filled with mucus.

4. That the increase of volume, the spongy texture, the rosy color, and the buoyancy of the inflated lungs, vary according to the degree of the success of the operation.

5. That lungs, properly inflated, are crepitant, like those which have respired, and yield frothy blood on incision.

6. That inflation increases the convexity of the thorax.

7. That it does not increase the weight of the lungs in a child which has not respired, and that, in the great majority of cases, the same relation exists between the weight of the lungs and the body after insufflation, as in the fœtus which has never breathed.

The results obtained by Mr. Jennings(*g*) are equivalent to those of Schmitt.

Dr. Elsässer concluded, after a large number of carefully conducted experiments, that the insufflation of the lungs through and by the mouth

(*e*) Med. Jur. p. 305. Am. Ed.

(*f*) *Neue Versuche u. Erfahrungen über die Ploucquetische und hydrostatische Lungenprobe. Wien*, 1806.

(*g*) Trans. Prov. Med. and Surg. Assoc. Vol. II. p. 440.

is possible. We find, however, that he really succeeded only in one instance out of fifty-two cases, and in this one case, it is stated, *that the child made six distinct efforts to respire.*(*h*)

Dr. Browne, of King's College Hospital, endeavored to resuscitate a still-born child by artificial respiration, having failed with other means. He closed the nostrils with the thumb and forefingers of the left hand, and grasped the breast and body of the child with the other. Placing his own mouth upon that of the child, he continued to breath into it for ten minutes, imitating by pressure with his hand, the natural movements of respiration. He failed, however, to revive the child. Upon inspection of the body, the lungs were found fully expanded, of a pale red color, buoyant, and frothy upon incision. Cut into pieces, however, and subjected to compression, they sank in water.

Dr. Roth(*i*) made this experiment upon a still-born female child, twenty-four hours after birth. Having previously removed the anterior wall of the thorax, in order to observe the changes produced by the insufflation of air by the mouth, he saw that upon the first insufflation the lungs began to expand, and that they acquired a clear red color in spots upon their surface. By continuing the inflation, this color spread all over the lungs. At the same time, the stomach became so distended with air that he was obliged to discontinue the experiment, from the fear that this organ would burst. The difference between these lungs and those which had breathed, he states, consisted in the fact, that their expansion was less, the color of a brighter red, and the buoyancy and crepitation less. He succeeded in expelling the air from them by compression, and then they sank in water.

§ 373. Our own opinion upon the possibility of a successful inflation of the *lungs in situ* does not differ from that of the most recent and best authorities upon the subject, viz., that the lungs cannot be fully inflated by this means in such a manner as to resemble, in their appearance and hydrostatic relations, lungs which have perfectly respired. Those cases where the resemblance appears to have been very close, may be explained upon the assumption that the child was not completely passive under the experiment, but retained sufficient vitality to make, during it, and unperceived by the physician, one or more efforts at inspiration. That the lungs of a dead child can be wholly inflated *in situ*, and made to resemble those which have naturally and fully breathed, is, we believe, at variance with the experience of the great majority of those who have given their attention to the subject.

The fact that pressure will expel the air from lungs which have been inflated *through the mouth*, while no compression less than what would destroy completely the pulmonary tissue, will avail to force it from those which have fully respired in the natural way, is the chief and most reliable distinction which can be made between them.

§ 374. It must be admitted, however, without the least reserve, that the effects of artificial inflation cannot be distinguished from those of *imperfect respiration*. Although the distension of the stomach and in-

(*h*) Untersuchungen über die Veränderungen, &c., durch Athmen in Lufteinblasen. Stuttgart, 1853.

(*i*) Henke Zeitsch. 1850. 4 H.

testines with air is an inevitable accident in artificial inflation, it cannot be relied upon as a diagnostic sign, since it may be merely a cadaveric phenomenon. Its *absence*, indeed, in a case where it is supposed that these means had been used, would, of course, disprove the supposition. A distinction might, perhaps, be hoped for, from the employment of Ploucquet's test, since the artificial filling of the lungs with air, increases their volume alone, without altering their absolute weight; while natural respiration being attended with a circulation of blood through the pulmonary vessels, increases their weight and volume together. But it will be seen further on, that the results attained by Ploucquet are too variable and uncertain to be used where a distinction of so delicate and momentous a nature is required. The question can be disposed of only in one manner. If other evidence can establish the presumption that artificial inflation has been attempted, the physician must then be ready to answer, whether the results of his examination are such as to justify and support this presumption. But if, on the other hand, no such evidence is offered, we do not see how it can be required of the physician to take into consideration the possibility of a manœuvre which he knows can be effected only by skilful and careful professional management, and which, moreover, the nature of the alleged crime renders in the highest degree improbable. From the prominence usually given to this objection to the hydrostatic test, one might be led to suppose, as Mr. Taylor justly remarks, "that every woman tried for child murder had made the praiseworthy attempt to restore a still-born child, although circumstances may show that she had cut its throat, severed its head, or strangled it while the circulation was going on."

§ 375. Having now examined the circumstances which will cause the lungs of a new born child to float, when submitted to the hydrostatic test, it remains for us to notice briefly those which will cause them to sink and to remain at the bottom of the vessel, as in the fœtal condition. *Diseases* of any kind which increases the density of the pulmonary structure will cause them to sink, or rather that portion of them affected thereby. *Pneumonia*, or inflammation of the lung, so increases the density of pulmonary structure as to cause it to sink in water. It is rare, however, that pneumonia occurs congenitally and it does not necessarily involve the whole lung; hence portions of it may be found to be buoyant. It has been asserted that a very great *congestion of lungs* which have already respired will destroy their buoyancy, but this fact has been clearly disproved.(*j*) We need hardly say that if the structure of the lungs be so diseased that they will sink in water, the cause cannot fail to be evident. Reference has been previously made to that condition of imperfect expansion of the lung, called *atelectasis*. Occasionally the lungs contain such a trifling amount of air, that it is not sufficient to float the whole of the organ, and life and respiration may exist without bringing about the usual changes in the pulmonary tissue. We are obliged, moreover, to admit, on the authority of credible writers, the fact that life and respiration may be prolonged for a considerable time, and yet, on *post-mortem* examination, the lungs, either whole or divided, sink in water. Such instances have been met

(*j*) Vid. Schmitt, loc cit.

with by trustworthy German writers,(*k*) and have been further confirmed by the experience of Mr. Taylor. He says:(*l*) "I may add to these instances, two which have occurred under my own observation. In one, the case of a mature male child, the lungs sank in water, although the child had survived its birth for a period of *six hours*. In the other, the case of a female twin, the child survived *twenty-four hours*, and after death, the lungs were divided into thirty pieces, but not a single piece floated; showing, therefore, that although life had been thus protracted, not one-thirtieth part of the structure of the lungs had received, from respiration, sufficient air to render it buoyant." Now, although these results conflict with general experience, and are not clearly explicable upon any known physiological ground, they must be allowed to have their weight. Hence, if a child's lungs sink in water, and no disease be found by which the fact can be explained, we cannot infer that the child has not lived, nor even that it has not breathed, although the respiration must have been exceedingly restricted. Hence, in this case the hydrostatic test can give us no positive proof of the non-occurrence of respiration. This certainly is a matter of regret; but although it does not enable us to attain the truth, it does not, on the other hand, cause the life of an innocent person to be placed in jeopardy. It is merely an imperfection in the test, and affords no ground for an objection to its application in other cases in which it undoubtedly is capable of affording positive and useful knowledge.

§ 376. *The Static tests* are founded upon the observation that the lungs of children who have breathed, are heavier than the fœtal lungs. This fact has been ascertained by direct experiment and is attributed to the blood, which as soon as the child makes the first attempt to breathe, enters the lungs. In proportion, therefore, to the degree of the pulmonary expansion will be the weight of these organs. Now, it is obvious, that if a constant average weight of the lungs before and after respiration could be ascertained, drawn from numbers which fluctuated but slightly, it would afford a useful means of comparison by which we could judge whether a child had really lived and breathed. For if, as was estimated by Daniel, the weight of the lungs after respiration was constantly augmented to the amount of two ounces, and this could be established as the general rule, there would no longer be any difficulty in deciding the knotty question of live-birth. Observations, however, have satisfactorily shown that no such constant average weight of the lungs is possible. These organs in some mature still-born children actually weigh *more* than in those who have enjoyed full and complete respiration, and in this respect the difference is not more singular than is the great variation in size and weight of the whole body in healthy children born at full time.

§ 377. The second form of the static test, advocated by *Ploucquet*, in 1782, and usually named after him, is quite as uncertain as the foregoing one. It is founded on a comparison of the absolute weight of the lungs with the weight of the body. Ploucquet having made a few experiments respecting the proportion existing between them, fixed the average at 1:70 before respiration and at 2:70 after it; in other words,

(*k*) Remer, Bernt, Schenck, Osiander, Mieckel. (*l*) Med. Jur. Am. ed. p. 300.

he considered that the lungs, after breathing, weighed twice as much as they did before. The repeated and numerous observations since made by Jäger, Schmitt, Lecieux, Chaussier, Orfila, Taylor, Guy, and Beck, have clearly proved that any constant ratio, like that assumed by Ploucquet, is illusory and inexact.

According to Elsässer, the congenital differences in the absolute weight of the lungs are far greater than those in the absolute weight of the body. Thus, in 68 still-born mature children, he found the average weight of the lungs to be 13 drachms 18 grains. The *maximum* weight (in perfectly normal lungs) was 20 dr. 35 gr. The *minimum*, 8 dr. 35 gr. Hence the difference or variation was 12 drachms, which almost equals the average weight. The average weight of the body in these 68 children was 7 lbs., and the difference between the greatest weight did not amount to *one* half of the average weight.(*m*)

The relative weight of the lungs and body varies in different individuals, according to sex, peculiarities of conformation, and other circumstances. Almost every author who has experimented with a view of ascertaining a fixed average ratio, has adopted a different one from his predecessor, and the conclusion appears to be generally admitted that the test is not reliable. In conclusion, we may remark, that if these static tests are not worthy of dependence in those cases where the child has *fully* respired, still less are they to be relied upon where the function of respiration has been *imperfectly* established. It is in these latter cases, that, practically, the great difficulty of a correct judgment lies; the former are much more satisfactorily determined by the hydrostatic test.

§ 378. The following are the chief points which have now been demonstrated:—

1st. That although respiration is conclusive evidence of life, it may take place previous to birth.

2d. That life for a brief period is compatible with absence of respiration.

3d. That none of the mere anatomical proofs of live-birth are satisfactory, when taken singly.

4th. That even when combined, they fall short of demonstration.

5th. That the result of the hydrostatic test may (in some as yet unexplained cases, as where the lungs sink in water although the child has breathed) be negative in its character.

6th. That the hydrostatic relations of the lung afford evidence in reference to respiration which, especially when confirmed by the static tests, is exposed to few real sources of error.

7th. That the objections to the hydrostatic test are mainly theoretical.

8th. That the burden of showing their applicability rests with the objector.

Causes of Death in the New-born Child.

§ 379. These causes are usually divided into accidental and criminal, and also into causes of death by commission and by omission. The

(*m*) Loc. cit. p. 96.

necessity, however, of constantly keeping in mind the fact, that the imputation of a criminal purpose, rests upon the explanation given to the marks by which the various modes of death can be distinguished from one another, induces us to consider them from another point of view,—viz., according to the *time* at which they are brought into operation. By this arrangement, the reader will be able to see at a glance that accident and design will often produce the same physical results, and will be enabled to obtain a correct view of the cause in proportion to the closeness of the apposition in which the effects are placed. For the sake of convenience the causes of death in the new-born child may be divided, into those which act *before* or *during* birth, and those which act *after* birth.

§ 380. 1st. Causes of death *before or during birth.*

Compression of, and by, the umbilical cord. The umbilical cord suffers compression during birth unavoidably in breech presentations, and also when it is prolapsed in presentations of the head. In the latter case, if the labor be not brought speedily to an end, or the cord replaced, the obstacle to the circulation of the blood is such, that the child will soon perish. A curious case is referred to by Dr. Elsässer, in which the hand of the child was found grasping the cord firmly and holding it against its face. The child was nearly asphyxiated, and recovered only after a quarter of an hour. There are no distinctive marks by which certainty can be acquired, that death is owing to compression of the cord. Great turgescence and lividity of the features, with a congested state of the head and thoracic viscera, would, in the absence of any marks of violence, give a fair presumption of it. The converse of this accident happens, when the cord becomes the direct instrument of the child's destruction by being wound around its neck.(*n*) In this case, when death results, it is not brought about exactly in the same manner as in strangulation after birth, the child having then respired; but ensues, either from an interruption in the current in the cord itself, from the tightness with which it is wound around the neck, and the stretch put upon it in the latter stage of labor, or probably, also, from its constriction of the vessels of the neck, causing congestion, and perhaps extravasation of blood in the brain. It does not appear that this accident occurs only when the cord is of unusual length; in fact, in many cases, this circumstance is doubtless that to which the child owes its escape, because it is probably wound around the neck but loosely and not rendered tense by the descent of the child. As, however, fatal results occasionally happen from this cause, and as, in unassisted labors, there is greater probability of their occurrence, we cannot dispense with a consideration of the marks by which it may be distinguished from intentional strangulation before birth. The cases in which intentional strangulation may be effected before birth, are those in which the head alone is born, while the body is not yet expelled. Children are not unfrequently strangled while in this position, and it is therefore important to know whether this violence has really been inflicted, or whether they may not have perished accidentally by con-

(*n*) The average frequency of this complication of labor is, according to Elsässer, as one to five.

striction of the neck by the umbilical cord. A case is reported by Ritgen, in which a child, whose head was born and who had breathed, died of apoplexy, from strangulation by the umbilical cord.(*n*)

§ 381. The statement, that marks similar to those of wilful strangulation may be produced in this manner, has, we think, been too readily accepted. Instances have indeed been met with, which support this view, but a very large and careful experience has shown, that the occurrence is far from being a necessary or a common one. Dr. Elsässer,(*o*) in his capacity of superintendent of a large lying-in hospital in Stuttgart, instituted a series of observations which have given much greater exactitude to our previous knowledge on this subject.

In the space of seven years, there occurred in that institution 327 cases of labor in which the umbilical cord was twisted around the neck. Of this number, there was one fold of it around the neck in 228 cases, two folds in 82 cases, three in 13, and four in 4 cases. Yet, in the whole series, there was not a single instance, in which the least mark, impression, or ecchymosis was visible. In some cases, the cord was so tightly wound around both neck and body, that it was necessary to divide it before birth could be accomplished. Dr. E. adds, that in a private pratice of twenty-four years (1835) he had never met with a case in which any mark was left by the cord. These observations establish satisfactorily the great rarity of the occurrence.

Yet it would be impossible to maintain that no mark *ever* is left. The author quoted above admits it freely, upon the authority of Carus, Wildberg, Mende, Albert, and other obstetricians. The marks are described as very various in their character; sometimes being merely furrows in the skin, without color, and sometimes red or blue stripes crossing each other and occasionally extending a short distance over the breast or back. Mr. Foster(*p*) reports a case in which the child was born dead, the labor being very tedious. The umbilical cord was twisted around the neck, leaving three parallel colored depressions. Dr. Döring (*q*) examined a new-born child found dead, in which the navel cord was coiled twice around the thigh, passed across the front of the body, and crossing the shoulder blades, formed a tight loop around the neck. On the left side of the neck, beginning at the ear, there was a purple discoloration of the skin in two directions, viz., towards the nape of the neck and towards the breast, corresponding to the parts which were pressed upon by the cord. There was no indentation nor ecchymosis, and the death of the child was found, upon examination, to be due to violence. Two cases are given in the same journal by Dr. Albert(*r*) in which the cord left a groove upon the neck, three to four lines wide, and of a dark blue color. The face in both cases was livid and turgid; and in one, in which the child had partly breathed, the eyes and tongue protruded, the latter being blue and swollen.

(*n*) Gemein. deutschen Zeitschrift. Bd. I.

(*o*) Henke Zeitsch. 1835. Uber Umschlingungen der Nabelschnur um den Hals der Kinder bei der Geburt, in forensischer Hinsicht. Also, Henke Zeitsch. 31 Erg. H. 1842.

(*p*) Med. Gaz., XXX. vii. 485.

(*q*) Henke Zeitsch., Erg. H. 23, p. 29.

(*r*) Ibid. Bd 42, p. 207.

§ 382. A real ecchymosis, or extravasation of blood under the skin, has probably been but seldom observed in accidental strangulation by the umbilical cord.(*s*) A livid mark does not always indicate an effusion of blood, but is frequently caused by a simple congestion,—a fact which is proved by its rapid disappearance if the child survives.(*t*) It would not be safe to assume the existence of ecchymosis as disproving the idea of this accident, because, in addition to the possible occasional occurrence of extravasation, it must be remembered that the marks remaining after intentional strangulation are not always accompanied by it. Even in hanged persons, an extravasation of blood under the mark of the cord is not always found. Yet, nevertheless, if ecchymosis be found under a deep and discolored mark upon the neck, and at the same time there is abrasion of the cuticle or laceration of the skin, such an injury cannot possibly be attributed to the umbilical cord. This opinion is held by Dr. A. S. Taylor,(*u*) and is fully substantiated by a large number of recorded cases. In order that the reader may form an approximate estimate of the proportion of children born dead, in consequence of strangulation by the umbilical cord, we may state that Elsässer reports, that out of 318 children born with the cord around the neck, three died, or one in 106; Carus found one in 43; and Siebold, one in 61 cases. Two points, however, must not be forgotten in connection with these data, viz., that they were all cases of labor where the best assistance was at hand, and that a certain number of the children were born apparently dead, but revived under the use of proper restoratives. The mortality in concealed and unassisted deliveries would certainly be much greater. Hence a woman, secretly delivered, may be unjustly accused of infanticide whose child has perished from a purely accidental and, by her, irremediable cause. In fact, the cord may be twisted around the child's neck or body during pregnancy, and its death is thus sometimes accomplished before the occurrence of labor.(*v*)

§ 383. The child is not unfrequently wilfully strangled before it is completely born. When the ligature is found upon its neck, there can of course be no longer a question whether the impressions made were due to the umbilical cord. The defence is usually that the ligature was placed upon the neck by the woman herself, with the object of assisting her delivery. No medical evidence can disprove such a statement. If, however, the child has been strangled by the hand, whether wilfully or by accident, in attempts at self-delivery, the impressions left will be of a different character from those produced by the constriction by the umbilical cord. A consideration of these will be found under the head of *strangulation after birth.* It may be sometimes important to remember that, in fat children especially, if the neck be short and the body been kept or found in a cold place, that the fat, becoming congealed in the folds of the skin upon the neck, will give rise to furrows, which,

(*s*) Elsässer, loc. cit., 1842, p. 7.

(*t*) Windel. Henke Zeitsch. Jahrg., 1836, 1 Heft.; Heyfelder Med. Annal., Heidelberg, 1838, S 258; Eichorn, Med. Corr. Bl. bayer, Ærtze. 1840, Aug. 8.

(*u*) Med. Jur., p. 343.

(*v*) Daubert, dissertat. de funiculo umb. fœtu circumvoluto. Götting., 1808. Freyer, de partu diffic propter funic. umbil. fœtus collum obstringentem. Halle, 1765.

to those who may disregard the other signs of strangulation, may cause the suspicion of a ligature having been used.

§ 384. *Protracted delivery.*—The child frequently dies solely in consequence of the protraction of the labor, and this is especially the case in first labors, or where the membranes have broken early in the first stage. In such cases, death takes place usually from congestion of the brain, in consequence of the compression its suffers. After such tedious labors, the head becomes apparently elongated, and over the occiput a tumor forms, often called *caput succedaneum*, caused by a congestion of the vessels of the scalp and an exudation of bloody serum into the cellular tissue under it.

§ 385. *Debility.*—The child may die, also, from constitutional feebleness, inherited from its parents, or produced by causes acting upon it during its intra-uterine existence. It may survive its birth a few hours or days, and then perish from inherent debility or the neglect of some trifling precaution, which in a healthy child would be of little importance. The inspection of the body will often warrant this judgment when there is no other evidence to show the cause of death.

§ 386. *Hemorrhage from the Umbilical Cord*—If the body of a new-born child present the evidence, in its blanched and waxy hue, and in the paleness and dryness of the internal organs, particularly of the heart and lungs, of a great loss of blood, the hemorrhage will have proceeded, when no wounds are found which will otherwise account for it, from the umbilical cord. This rule, which is generally admitted, is, however, not applicable when the body of the child is already decomposed; since, during the putrefactive process, according to Casper, the body parts with a considerable portion of its blood. The hemorrhage may have been accidental, or permitted with a criminal design. In either case, it may arise from laceration of the cord, or from neglect or omission to tie it. The question of the necessity of tying the umbilical cord, although one which we, in common with the majority of writers, would unhesitatingly decide in the affirmative, is not necessary to be discussed in this place.(*w*) As has been very justly remarked by Dr. Beck,(*x*) the whole question rests upon a simple matter of fact, viz., whether the omission to tie the cord has ever been attended with fatal hemorrhage. "That it has been so, cannot be questioned." Dr. Beck quotes cases in illustration from Foderé and from Dr. Campbell. Many other examples(*y*) might be added to these, but we do not suppose that the least instructed practitioner would neglect this precaution, since even if hemorrhage should not immediately ensue, there is no guarantee against its occurring at any time within the first two days.

§ 387. The cord may have been left untied in a *first* labor, through excusable ignorance upon the part of the woman. Such ignorance

(*w*) It is worthy of remark, that it is the habit of the Indian squaws to *break* the cord, and that they then bind the fœtal end with a strip of bark. This fact we have on the best authority.

(*x*) Med. Jur. Vol. I. p. 511

(*y*) *Haller*, Elem. Physiol. Tome VIII. p. 443. *Nägele*, Salzb. Med. Zeit., 1819, N. 88, S. 151. *Cederschjöld*, Med. Chir. Zeit. N. 11, S. 181,—seven days after birth. *Klose*, Henke's Zeitsch. Bd 40, S. 105. *Dolscius*, ibid. Erg. H. 34, 1845, S. 180. In this case, the fragment of the cord remaining attached to the child was sixteen inches long. The cord had been torn, not cut, by the mother. The child had breathed.

cannot, however, be plausibly urged in subsequent labors. That a woman, in an unassisted labor, who had neglected placing a ligature upon the cord, should be convicted of infanticide in consequence of the child dying from a neglect of this precaution, is of course hardly supposable.

In many cases, however, of precipitate labor, in positions other than the horizontal one, the cord frequently breaks. Hemorrhage, under these circumstances, would not be surprising. The result of observations on this point is, that in the great majority of cases it does *not* take place. In twenty-six cases given by Dr. Klein, where the cord was torn off close to the navel, no hemorrhage resulted. In Pyl's Aufsätze the account of a child is given which had been placed in a close box, and covered with wool, where it remained six hours, and was taken out perfectly sound and healthy, although its navel string had been torn and no ligature applied. In eleven cases reported by Elsässer, in which the child had fallen from the mother, upon the hard ground or pavement, and the cord ruptured, no hemorrhage resulted except in two.(*z*) In these, the life of the child was saved by timely help. In two cases, in which the cord was ruptured at the navel, a very small quantity of blood escaped. In two other cases, in which the cord had been cut and no ligature applied to it, no hemorrhage resulted from the omission. One woman is reported to have followed the animal instinct, and divided the cord with her teeth.(*a*) Others broke it in two with the hands. In one case the mother (who had previously borne children) was suddenly delivered in the street, in a squatting position. The child, which weighed seven pounds, fell upon the pavement. The mother immediately broke the cord in two, about four inches from the navel, and without tying it, put the child in her apron and ran with it to the hospital. There she was delivered of the placenta, with considerable hemorrhage, from which she soon, however, recovered. The child showed no signs of loss of blood. The general opinion, undoubtedly, is correct, that a ruptured or lacerated cord will be much less apt to bleed, than one which has been divided by a clean incision.

§ 388. *The length of the umbilical cord* is an important element in the consideration of those cases in which it has been broken, from delivery taking place in the standing position. An example may be cited from Siebold's Journal, XVI. p. 3, where a woman was overtaken by labor and the child born, while she was in a standing posture. It fell with its head upon the stone floor and sustained no injury. The cord did not give way; it was twenty-nine inches long. A similar case by Heyfelder is referred to by Elsässer.(*b*)

The usual length of the cord is from eighteen to twenty inches,(*c*)

(*z*) Henke, Zeitsch, Erg. H. 31, p. 38.

(*a*) This is not the practice with all the domestic animals, as is erroneously supposed, but only with the dog, cat and pig, which, moreover, devour the after-birth. But in the horse and in the ruminant animals, the cord is generally broken by the fall of the young when the mother is in a standing position, or, when delivered in the recumbent posture, by her suddenly springing up. The rupture occurs in general near to the navel. When it is not broken in either of these ways, assistance is usually at hand to make the separation.

(*b*) Loc. cit.

(*c*) Dr. Tyler Smith exhibited to the Westminster Medical Society, (Jan. 12, 1850,) a funis which, measuring from the attachment to the umbilicus, to its insertion into the

and the average distance of the vulva from the ground, in a woman standing, is, according to fifty accurate measurements made in Dr. E.'s hospital, twenty-six inches, and in a woman in the squatting posture, one-half or two-thirds of this distance. The distance from the child's navel to the top of its head, is from nine to ten inches. Hence, if we add this to the whole length of the umbilical cord, in consequence of the head being the heaviest part of the body, it will be seen that the child can fall from twenty-eight to thirty inches without putting a strain upon the cord. But this distance will necessarily be diminished by the unavoidable separation of the limbs during the descent of the child, it being clearly impossible that a woman can be delivered in a *perfectly* erect position. The cord may, however, be unusually short or wound round the neck, in which cases, of course, the rupture will readily take place. The point at which the cord breaks is, in the great majority of cases, near the navel, the distance varying from one to six inches, occasionally, however, it occurs at other points. This circumstance admits of explanation upon the ground, that the greatest resistance is at the fœtal end of the cord, the placental portion being more yielding. When the cord does not break, the placenta is sometimes dragged out by the weight of the child. A curious and important case in which the cord was ruptured while the woman was in the *recumbent* posture, is given by Elsässer.(*d*) The cord was unusually short, and the child forcibly expelled, immediately after the rupture of the membranes. When taken up, the child cried loudly, and was found to be bleeding freely from the umbilical cord, which was ruptured about three inches from the navel. The cord was from thirteen to fourteen inches long, and not thicker than the little finger, although healthy. The woman had previously given birth to six children.

§ 389. *Fractures of the skull.* Where fractures are found on the head of a new-born child, they may be attributed as well to accidental as to criminal causes. If a woman have received, in the latter portion of her pregnancy, a violent blow or fall upon the abdomen, the child's head may be fractured by the same force. J. P. Frank relates the case of a woman, six months pregnant, who received, on the abdomen, a blow from the butt of a musket, in consequence of which she was prematurely delivered.(*e*) The child's skull was crushed and the navel-cord broken. Another case(*f*) may be referred to, where a woman, near her confinement, fell upon an angular stone. The skull of the child was completely crushed, and the woman herself died. Such cases, however, have little practical bearing upon the subject; the child is born dead in consequence of the injury, and if not putrid, an inspection of the lungs will at once show that it has not respired. Hence there can be no question of Infanticide.

§ 390. Again, however, fracture of the skull may occur *during* labor, in consequence of the relative disproportion of the head to the pelvis,

placenta, was *fifty-nine* inches and a half in length. In the Boston Med. Surg. Journal for July, 1850, one is mentioned which measured *sixty-nine* inches.

(*d*) Henke, Zeitsch. Erg., H. 31, p. 39.

(*e*) For another similar case by Callenfels, vid. Fröbel Die Nabelschnur in ihrem pathol. Verhalten währender Geburt.

(*f*) Gaz. des Hop., Nov. 7, 1846.

or of a deformity in the latter, arising from osseous projections or tumors. The child may survive these injuries a sufficient time to breathe,(*g*) and, indeed, may recover from them altogether. It becomes necessary, therefore, to take the circumstance into consideration, in all cases of fracture of the skull in new-born children, that it may have occurred *accidentally during labor*.(*h*) Fractures produced in this way, are certainly of very rare occurrence, for the child's head often sustains extreme compression, both from the uterus and in forceps deliveries, without being injured. They are found most frequently in the parietal bones, sometimes in the frontal, and never, as far as we know, in the occipital bone. Usually they are mere fissures, unattended with depression and laceration of the integuments. Cases, however, are related by Landsberg,(*i*) and by Danyau, and Ollivier d'Angers,(*j*) in which there was depression.

§ 391. Although respiration may have taken place, the fact being established by the hydrostatic test or direct evidence, it will not serve as a criterion of the time at which the fracture was produced, since the child may have received it during the labor, and yet have survived the injury until after it was born and had breathed. In such a case we have nothing left to guide our judgment, but an examination of the extent, situation and appearance of the fracture. In the majority of cases, in which criminal violence has been used, the fracture is stellated, depressed and the scalp contused and lacerated. It is plain, however, that slight fractures, productive of fatal results, may be inflicted by violence, and in such cases no reliable distinction can be made between them and those which are caused by compression of the head during labor. The following will serve as an example of fracture without injury to the integuments, but still in all probability caused by criminal violence. An inquest was held in Islington, before Mr. Wakley, on the body of an infant, whose death, there was reason to believe, had been caused through violence wilfully inflicted by the mother. Over each orbital ridge, the frontal bone was fractured horizontally, to the length of about an inch. On the right frontal protuberance the bone had been driven in to the extent of three quarters of an inch, in the form of an acute wedge-like fracture. The parietal bones were both fractured vertically, to the length of an inch and a quarter, and there were several minor fractures of all the bones forming the superior and lateral portions of the skull. There was, with all these fractures, no trace of injury to the scalp. No evidence was obtained as to the manner in which they were produced. The child had been born alive, and the mother alleged that its death was caused by its having fallen into the pan of the water-closet, where she asserted she was seated at the moment of its birth. The extent of the injuries, and

(*g*) Klein. (Bemerkungen über die bisher angenommenen Folgen, &c., 1817, § 193.) The child lived forty-six hours. The parietal bones were fractured, and there was extravasation of blood in the brain and spinal canal.

(*h*) For cases vid. *Deventer*, *Röderer*, *Baudelocque*. *E.* v. *Siebold*, (his Journal, xi. 3,) *Schwörer*, (Beiträge Zur Lehre von der Schädelsbrüche, &c.) *Begasse*, (Preuss. Med. Vereinschrift, 1841, No. 37, sec. 181.) *Mende*, (Gutachten über einen Zweifelhaften Fall, &c. H. Z. Bd. 3, sec. 277.) *Casper's* (Wochenscrift, 1837, 1840, 1851.) Osiander, loc. cit.

(*i*) Henke, Zeitsch., 1847. (*j*) Ann. d'Hygiène, 32, 121.

the small distance of the alleged fall, disproved the truth of this statement.(*k*)

The physician should be aware that a *defective ossification* of the bones of the head may be mistaken for fracture. The distinction is, however, not a difficult one. This condition, when observed, is usually found in the parietal bones, and consists in an absence of one or more of the osseous *spiculæ*, which radiate from the central point of ossification. The gap is filled up by a membrane which unites the bony portions together. The edges of the bone on each side of this membrane are thin and beveled, sometimes shading off insensibly into it. A fissure, however, which is the result of violence, is indicated, on removing the pericranium by a red line, the edges of the bone are jagged and bloody, and no membrane intervenes. More or less blood is effused in the neighborhood of the fracture, under the scalp and on the dura mater. If no bone is lost, the edges of the fracture can be adjusted closely together.

§ 392. The fractures which are occasioned by the *fall of the child* upon the ground, when the mother is delivered in a standing, sitting or kneeling posture, are deserving of particular attention in a medico-legal point of view. The fractures thus produced, present, indeed, no particular features by which they may be distinguished from others, caused by direct violence, but the probability of their being due to this accident becomes often a question of extreme delicacy. Landsberg gives a good illustration of this accident in the following case.(*l*) A woman who had already borne children, was taken in labor, as she ran from her house which was on fire; the child fell from her upon a heap of broken bricks and stones. Fourteen days afterwards there was found upon the left parietal bone of the child, a swelling of the size of a pigeon's egg, without any discoloration of the skin, and with slight fluctuation. The fragments of bone and crepitation could be easily distinguished by pressure of the finger upon this spot. The child got well.(*m*) Numerous other cases might be quoted; the curious reader will find many referred to by Henke.(*n*) Dr. Klein collected one hundred and eighty cases of delivery in the erect posture, in none of which the head of the child was fractured. It is contrary to reason, however, to adduce this as proof, (as has been done by some authors,) that fractures are not occasioned by the accident in question. The instances which demonstrate its occurrence are perfectly authentic, and if we were reasoning abstractly, it would be far more credible that the fractures should occur under the circumstances referred to, than that they should not. The possibility of the accident may therefore always be taken into consideration, in cases of concealed birth, when fractures of the cranium are discovered. Other evidence will be of course required to confirm the supposition.

(*k*) Brit. and For. Med. Rev., April, 1854. (*l*) Henke, Zeitsch., 1847, 3 Heft.

(*m*) Dr. Swayne reports a case in which a woman, 29 years of age, in her third labor, at full time, bore a child in the erect posture. The umbilical cord was torn, and the child, though much bruised, lived to the sixth day, when it died of convulsions. The parietal bone was fractured, and a coagulum was found on the membranes of the brain. Another case is reported by Casper, (Ger. Leichencöff.) (Assoc. Jour., Oct. 14, 1852, p. 401.)

(*n*) Handbuch der Gericht. Med., 12th ed., by Bergmann, 1851.

§ 393. 2nd. *Causes of death after birth.* The modes in which a newborn child may meet its death shortly after birth, are very numerous. A child may be born with such a degree of *malformation or disease*, as to incapacitate it from sustaining life. In all such cases an examination by a competent person will be sufficient to expose the reason of death. It must be remembered, however, that there is hardly any malformation which *necessarily* prevents the child from existing for a brief period, even though it should be inevitably fatal as a natural consequence. Anencephalous children frequently survive for hours and days, and perform most of the animal functions perfectly well. If violence should be inflicted upon such an unfortunate being, it may be judged according to the ordinary rules; the aim of the physician being only to ascertain what share the injury had in its death. The question of the degree of criminality, if any, attached to the destruction of a monstrous child, is not, of course, within his province. Minor degrees of malformation are not infrequent, such as extroversion of the bladder, displacement of the viscera, spina bifida, imperforate rectum, abnormal communications between the cavities of the heart, &c.; many of them are remediable, others are not inconsistent with the attainment of adult life, and none can interfere with the judgment of a medical examiner in any case of infanticide. The same remark will apply to *congenital diseases.* Their actual existence can be ascertained, and allowance made for any influence they may possibly have exerted in causing the child's death.

§ 394. *Exposure.*—Under this name may be included all those modes of death which result from the abandonment of the child. The newborn child, unlike the young of other animals, speedily perishes if uncared for. It requires both warmth and nourishment, and if deprived of either, cannot maintain its existence. The period of time which a child may survive, exposed to hunger and cold, is uncertain. Instances are on record, which show a remarkable tenacity of life. A case is related,(*o*) in which a child, in the middle of the night, was thrown out of a window, nine feet from the ground. It was still attached to the placenta. It fell upon a pavement which was covered with straw and dung. It remained there, naked and exposed to the night air, (in the month of April,) for three-quarters of an hour. It was then found, and lived twenty-four hour afterwards. It had received no injury from the fall.

A peasant woman delivered herself of a mature child, in the vicinity of a wood, 18th of August, 1842, and fearing discovery, she concealed it in the hollow of a tree, thrusting it, head forwards, into the portion of the cavity which led towards the root, so as to exert considerable compression on the body, doubling it up, as it were. She then laid two stones of three or four pounds weight upon its buttocks, and concealed the hole in the tree with a larger stone. By a lucky accident, a passer-by on the 21st, heard its moaning, and withdrew it from its prison, covered all over with fir spiculæ and ants. There were numerous contusions and lacerations upon different parts of the body. Its respiration, at first very rapid, soon became more tranquil, and, although much emaciated, it cried with some vigor, and very readily par-

(*o*) Henke's Zeitsch. Erg. Heft. 31.

took of food. Its temperature was normal. Any change of position called forth screams, due evidently to the pain from the various excoriations of the surface. It continued until the 25th to take nourishment, but the sores on the surface put on an ill character, and it died on the 29th. It seems almost incredible that life should have been prolonged during the exposure of this naked infant, without food, for three days and nights, the temperature of the air varying from 50° to 80° Fahr. Probably its close quarters within the tree protected it in some measure from cold; but the deprivation of food ought, according to the generally received opinions, to have proved fatal before the period of its having been discovered. Foderé states that danger to life is imminent after twenty-four hours; and at most, that the infant can fast from one to two days only.(*p*)

§ 395. Cases of such long survivance are, of course, exceedingly rare. The judgment of the physician must therefore be founded, not only upon an examination of the body, but also from concurrent evidence. He must be aware of the length of time the child had been exposed, and the temperature of the locality in which it was found, before he can rely with confidence upon the signs of death from cold. These signs are far from being positive, unless the child has been actually frozen. In this case the skin will be found of a purplish color, the hands and feet swollen, the nails blue, and the face of a bright red color. The brain is greatly congested, and the lungs and right cavities of the heart contain more blood than is usual. When the body is brought into a warm place, it putrefies rapidly. The same remarks will apply in cases where death is supposed to have resulted from starvation. It is necessary to know approximately how long the child has been deprived of nutriment, before the absence of food from the stomach, and the general signs of death from this cause, can warrant the opinion that the child has perished for want of food. The signs usually given are, a shrivelled and wasted body, a pale and wrinkled countenance, expressive of suffering, and a dry, tough, and yellowish skin. The mouth, tongue, and fauces, are dry, the stomach and intestines empty; the surface of the former inflamed in points, the latter distended with air, the heart flaccid, and the great vessels containing but little blood.(*q*) It is evident that a child may be given unsuitable food, or in insufficient quantities with a view of destroying its life; such a fact can hardly come under the cognizance of the physician in a criminal case except in reference to the general effects of such treatment.

§ 396. *Suffocation.*—This word is used here to signify any means by which access of air to the lungs is cut off. It includes, therefore, death by smothering, strangling, and drowning, as well as the purely accidental modes of death immediately after delivery. The general signs of suffocation are the same in these various cases, but if wounds have been inflicted upon the child, causing hemorrhage, or if it has lost blood from the navel-cord, the signs alluded to will mostly disappear. They consist in congestion of the brain, but particularly of the lungs and right side of the heart, which are filled with dark blood.

(*p*) Brit. and For. Med. Chirurg Rev. Jan. 1850, from Henke's Zeitschrift. 1847, 3 H.
(*q*) Bock. p. 257.

Besides these appearances, which are common to asphyxia in the adult and in the child, there are in the latter, often observed, numberless sanguineous extravasations very much like petechiae, in the pia mater, upon the pleura, surface of the heart, and the aorta. These have been carefully described by Casper and by Mr. Canton, of London, as occurring in children which have been overlain, or which have been intentionally suffocated. All the cases upon which these observations were founded, were subjects of judicial inquiry.

The *accidental* causes of suffocation are present after delivery. Frequently the woman, being either unconscious or unable to help herself, neglects to remove the child from the pool often made by the discharges in the bed. Lying in this, with its mouth downward, the child will perish from want of attention. Again, the membranes may interpose between its mouth and the air, or its mouth be so filled with viscid mucus, that unless some little help is given it, it may easily be suffocated. Children are often designedly or accidentally smothered under the bedclothes, in boxes, &c.

The following is a curious example of accidental suffocation of an infant. Mr. Llewellyn, surgeon, found the child dead; the tongue protruded, the face was very livid, and it had all the appearance of having been suffocated. He questioned the mother, and she told him she had dreamt that a mad bull was attacking her, and had squeezed up the child to protect it, and when she awoke, as she found the child cold, she called her husband. The child had been properly taken care of. The parents had three other children, were very industrious people, and kind to their children. The child was lying on her arm, and its death might very probably have occurred as she described it.(*r*)

If much pressure have been made upon them, the body and head will be found flattened, the eyes and lips remain half open, blood flows from the nose, the tongue protrudes, and frothy mucus is present at the corners of the mouth, and the excrements have been voided. The limbs are generally extended, the skin is not uniform in color, and presents here and there violet ecchymoses, the lips look blackish, and the nails livid.

§ 397. Sometimes the child is suffocated by stopping its mouth with foreign substances. Hence the necessity in every case presenting signs of suffocation, of closely examining the mouth and fauces, although, indeed, instances are not wanting where all traces have been carefully removed previously. A recent and very interesting case is reported, in which the child was immersed living in a pot of ashes. The woman's confession confirmed the result of the medical examination, which showed that the child had been gradually asphyxiated. The ashes were found in the nostrils, mouth, fauces, and pharynx. There were none in the windpipe.(*s*) Another case,(*t*) instructive in this connection, is also of interest from the uncertainty whether or not the child was living when the outrage was inflicted upon it. A child was found, in which the fauces, the upper portion of the æsophagus, the larynx, and the

(*r*) Brit. and For. Med. Chir. Rev. Jan. 1855, p. 292.
(*s*) Ann. d'Hygiène 47, p. 460. 1852.
(*t*) Casper's Vierteljahrschrift. 1852. H. 2.

trachea, were tightly packed with a coarse greenish-black sand. At the same time the child's lungs evinced no sign of respiration, and sank to the bottom of the water when subjected to the hydrostatic test. While it is difficult to imagine for what purpose, if the child were already dead, the substance found so tightly wedged into the entrance of the respiratory passages and throat could have been forced there, it is no less strange that such an act of violence could have been perpetrated upon a living child, without its lungs showing signs of, at least, imperfect respiration. The case unfortunately remains without solution; but in whichever light it may be viewed—whether as an unaccountable act of violence after death, or an unique case of successful prevention of *respiration*—it cannot fail of being of great interest to the medical jurist.

§ 398. *Strangling.*—The marks of strangulation differ according to the means by which the violence is effected. As a general rule, more violence being used than is necessary to accomplish the purpose, distinct marks of a cord or of the fingers, with abrasion of the skin, will be met with. These marks will be irregular in shape and size, being either spots, furrows, or indentations, red or livid in color, with sometimes sub-cutaneous extravasation. In the absence of these signs, we may be at a loss to explain the manner in which suffocation was accomplished. But even if the marks spoken of exist, it may be alleged that they were produced accidentally by the umbilical cord, as we have before explained, or, as some authors affirm, by the efforts of the woman to assist herself in her delivery. Such an idle assumption will frustrate the best medical evidence, if received, since the physician can only determine whether the marks are those of strangulation or not; but he can seldom decide with certainty how they were made, and much less whether before or after complete birth and respiration. It is sometimes necessary to know whether the marks of strangulation could not have been produced *after death*. This, upon good authority,(*u*) may be answered in the affirmative, if the body be still warm when the constricting force is applied. The question as to whether the umbilical cord had been severed before the strangling was attempted, is of no importance in a medical point of view, since this circumstance will not in any manner affect the signs of the mode of death, and respiration may have been perfectly well established long before the cord is cut.

A case is related in the Lancet,(*v*) where a child, with the placenta attached to it, was buried in the ground, and covered one inch and a-half deep with earth. It was found that at least half an hour had elapsed since the earth had covered the child, and yet when it was taken up, respiration was still going on.

§ 399. *Drowning.*—The signs of death by drowning in the new-born child, do not differ from those found in the adult, and elsewhere fully considered. Generally, however, children which are found dead in the water, have been thrown into it, for the purpose of concealing the body, after they have already perished by natural or criminal means. Hence it is not often that the peculiar signs of death by drowning will be met with, but in all cases where children are found dead in the water, search

(*u*) Casper's Wochenschrift, 1837; Ollivier (d'Angers) Ann. d'Hyg. Vol. XXIX. p. 149
(*v*) Am. edit. 1850, p. 513.

should be made for traces of other violent injury, and it should be especially noted whether respiration has occurred. If marks of violence are found upon the body, particularly fractures, they must be carefully examined for the purpose of ascertaining, if possible, whether they could have been accidentally produced by objects in the water, or whether they were not rather due to criminal violence, and inflicted during life. Such a question will very naturally arise, when, for instance, a large stone is found in the bag in which the child has been thrown into the water. A case of this kind has been reported in Henke's Zeitschrift. The general rules elsewhere detailed, by which a distinction may be made between wounds inflicted before or after death, are applicable here. If, for instance, there be found, under a contused wound of the scalp, an extravasation of blood; if, moreover, one or more fractures be found, and blood effused upon the cerebral membranes below them, the inference will be reasonable, that they must have been produced during the life of the child. These signs will not be affected by the submersion unless putrefaction has take place.

§ 400. *Wounds.* The general distinctions between wounds inflicted before and after death, are considered in the chapter on WOUNDS, Book V. Part II. The remarks there made, are equally applicable in the case of new-born children. Wounds inflicted upon them being very rapidly fatal, the signs which show that they were made during life, drawn from the ensuing inflammation, rarely come under notice. The character of the blood effused is, however, a diagnostic sign of great value. If this is found coagulated, there can be little doubt that the child was living when it received the injury; but if, on the contrary, blood be found extravasated under the wound, or effused around it, and still remaining liquid, we may be equally sure that the wound was made shortly after death, and while the body was still warm. A recent observation by Ollivier d'Angers, will illustrate this fact. In this case, the child was murdered before it had breathed, but while the circulation was still going on, as was proved by the examination of numerous wounds made by a cutting instrument in the back of the throat, as well as of other injuries. Coagula were found upon the orifices of the wounds. An incised wound may be accidentally inflicted upon a child by the knife or scissors, in severing the umbilical cord. When this happens, it will generally be found that the fingers or toes, or some part of the limbs, which have been suddenly elevated by the child at the moment of the incision, are injured. Where there is any suspicion of the wound having been produced in this way, the physician must carefully examine the situation, extent, and shape of it, and assure himself that the cord has really been cut, before assenting to the probability of this explanation. A peculiar mode by which the new-born child is often destroyed, is the introduction of pointed instruments, such as pins or knitting needles, into the fontanelles, the ears, nose, and between the vertebræ. In a superficial examination, these injuries may be overlooked. Hence, in doubtful cases, attention should be carefully given to this point. By dissecting out the suspected portion of skin, and stretching it against the light, the finest puncture can be detected. Sometimes a multiplicity of wounds is inflicted. The following cases will serve as examples. A young woman becoming pregnant, con-

cealed her situation with great care. Her parents could not prevail upon her to acknowledge it, but it was finally ascertained by a midwife. She was confined alone. She seized a pocket-knife, thrust the blade into the child's head, back, abdomen and limbs, cut off its head, and concealed the bleeding fragments under her paillasse. She was soon discovered, and at first denied the crime. Afterwards she brought the knife to the mayor, and made no attempt to escape, but confessed the act, and ascribed it to despair at having been abandoned by her lover. (*w*)

A still more inhuman example of infanticide is reported by Prof. Toulmouche.(*x*) It was proved that Severine L—— had borne an illegitimate child, of which no traces could be found. The girl, who at first obstinately denied the charge, finally confessed the crime, and indicated to the medical officers the place where she had concealed its remains. She said that she had been delivered at night, had suffocated her child, then cut it into pieces, the better to conceal it in the chamber vessel, which she then carried into the garden, and threw the contents into a dung-heap. With some difficulty, the fragments were nearly all recovered, and placed in apposition. The head, thorax, and abdomen had been all separated from each other by a cutting instrument. The head was dreadfully mangled, the arms were cut off from the chest, and the fore-arms from them again, and many of the fingers also were separated. In like manner, the lower extremities were dissevered. The genital organs were separated completely. The lungs were of a rosy color, crepitant, and weighed two and a half ounces, with the heart and thymus attached. Being put into water, they floated, even after being subjected to enormous pressure. A portion, after being placed under a weight of 60 kilogrammes (132 lbs.), still swam. The heart and the blood vessels were entirely empty of blood, and the substance of the former was very pale. From these, and the signs which indicated the maturity of the child, it was justly concluded that it was at term, had lived and breathed, and that its death was caused by the wounds inflicted upon it by a cutting instrument. Siebold(*y*) also witnessed a case somewhat like the foregoing, in which the mother, actuated by the usual motive, viz., fear of abandonment, destroyed her new-born child by cutting off its head. In this case also, the hydrostatic test clearly proved that the child had fully breathed.

§ 401. *Dislocation of the neck.* There have been examples of this mode of infanticide. The discovery of the luxation requires no unusual skill in post-mortem examinations.(*z*)

§ 402. *Unconscious delivery.* It is frequently alleged, in defence of women charged with infanticide, that the rapidity of their labor, and the sensations attending it, were such, that they were not sufficiently conscious, at the moment of the expulsion of the child, to save it from danger. This defence is often made in those cases where the dead body of the child is found in a privy-well, or water-closet. Although,

(*w*) Ann. d'Hyg. 1851.
(*x*) Ann. d'Hyg. July, 1853.
(*y*) Henke's Zeitsch. 1845, p. 157.
(*z*) For a case in point, see Orfila Med. Leg. Vol. II. p. 109.

in many cases, the proof of delivery having taken place in the manner described, depends upon other evidence than that required of the physician, yet there are questions which he will be called upon to answer, relative to the probability of the occurrence, which will demand very careful reflection. At first sight, the fact may appear highly improbable, that a woman should possibly mistake the convulsive pains of labor for the ordinary sensation of a call to stool, or that any labor, however easy or rapid, could be accomplished without her being fully conscious of it. With due allowance for cases of wilful deception and of purposed wrong to the child, there remains sufficient evidence to show the possibility of unconscious delivery in this sense. As the child's head descends into the pelvis, the mother is often seized with an irrepressible desire to evacuate the bowels, and nothing is more common than for this evacuation to take place, in spite of all efforts to restrain it, at the very moment that the child is expelled. Hence, it is quite explicable, how a woman in labor, in the absence of proper advice, should seat herself upon the privy, or night-stool, at precisely the most critical moment for the child. By a forcible pain, favored by a very yielding condition of the parts, the head may be abruptly expelled; the cord may break with the fall of the child, which may perish miserably, either by the injury received in its fall, or stifled with the filth into which it is plunged. The mother, exhausted and terrified, may be unable to prevent this catastrophe. Cases of this kind are related, of married women and of others, where there was no attempt to conceal the birth, and no suspicion of criminal intentions.(*a*) While a want of knowledge of the phenomena of labor, may plausibly account for the event in a woman with her first child, yet the greater rigidity of the parts, and the slower progress of the delivery in this case, render its occurrence far more unlikely than in those who have already borne children. It is said, that if the cord be found broken, instead of cut, it will confirm the story; but this circumstance is not conclusive, since it may have been broken by the hands of the mother, and the child afterwards thrown into the privy for concealment. In most cases, our opinion can be founded only upon the traces of blood at and near the alleged scene of labor, and upon the absence of conflicting testimony. The concealment of the fact of having given birth to a child, will throw just doubt upon the woman's veracity, since, if the delivery were accidental, the natural presumption is, that the mother would have sought for immediate assistance.

Other forms of unconscious delivery do not possess the same practical interest as the foregoing. Women may be delivered in a state of insensibility, and, according to Dr. Montgomery, even during deep natural sleep: in such cases, the child may perish from want of attention, and in some one of the various ways before alluded to.(*b*)

§ 403. Delivery may also be so *rapid*, although the mother is aware

(*a*) For cases illustrative of this fact, vid. Henke's Abhandlungen, Bd. I., S. 49 ff. 2te Aufl.; Dr. Schnitzer (Med. Zeitung d. ver. f. Heilk in Preussen, 1839); Fleischmann (Henke's Zeitsch. 1839, 2 H.); Dr. Beck (Ed. Med. Jur. p. 317, note); Ricker (Henke's Zeitsch. 1843, 3 H. p. 197.)

(*b*) See Rawson, Lancet, 1841; Schultze Ann. d'Hyg. V. 33, p. 216.

of being in labour, that she is unable to guard against an accident to the child. Mrs. B., of Quebec, aged thirty, married, and pregnant with her first child, was seized during the night with labour pains. After bearing them for a long while, she requested a woman to give her some warm water to "set over," to relieve what she described as a great pressure at the lower part of her bowels. She had hardly seated herself upon the edge of a rather high chair, when a severe bearing-down pain seized her, and before any assistance could be afforded (although one or two women were in the room), the child was forcibly expelled, and fell, head foremost, on the floor, being killed upon the spot. When the physician arrived, about twenty minutes after delivery, the child, although dead, was still attached by the cord to the placenta, which came away shortly after the infant. In another instance, the wife of a clergyman, in labour with her *second child*, but not suffering from any pain, was suddenly seized with a strong bearing-down pain, and got up with the intention of walking into an adjoining room. Before she had proceeded more than a few yards, another pain threw the infant upon the carpet. The cord was ruptured near the umbilicus, but fortunately *did not bleed* from the fœtal portion. The child was not injured. A similar case is related by Dr. Larkin, of Wrentham, Mass., except that the cord was so long, that it was not broken. The mother broke it in two, and succeeded in reaching her bed-room, although much exhausted from hemorrhage. Both mother and child recovered.(*c*)

§ 404. *Poisoning.* This form of infanticide is extremely rare. Dr. Taylor states, that the earliest age at which he has known a trial to take place for the murder of a child by poison, was *two months.* In this case, a quantity of arsenic was given to the child, and it died in three hours and a quarter after its administration.(*d*)

More recently, a woman destroyed her child, which was only *one day* old, by arsenic. She was tried, and acquitted upon the plea of *puerperal insanity*, although the evidence certainly did not warrant such a verdict. Mr. Justice Cresswell, at the close of his charge to the jury, "read the whole of the evidence, and at the close remarked that he was bound to tell them that there was undoubtedly no direct proof that the prisoner was otherwise than in her perfect senses, as no person saw her laboring under delusion or insanity." (*e*)

§ 405. The defence in this case should suggest to the medical expert the reflection, that however palpable the fact of criminal agency may, in a case of infanticide, appear to him, and however complete may be the proof of the child having both lived and breathed, he can never be exempt from the mortification of hearing objections urged, entirely foreign to the case, and a line of defence set up which has merely an imaginary basis. The reader will not fail to perceive, that in the considerations upon infanticide now presented, the author has not taken up all the objections which are usually urged against the various points in the medical evidence; to have done so, would not merely have unduly

(*c*) Am. Journ. Med. Sci. Jan. 1846, quoted from various sources.
(*d*) R. *v.* South, Norf. Aut. Circ. 1834.
(*e*) Ed. Monthly Jour. Sept. 1852.

lengthened the chapter, but have presented the subject under an aspect of obscurity and difficulty which it really does not in itself possess. It has appeared to him that the simplest and most perspicuous mode of presenting the subject, was one in which it should be entirely divested of the trivial and irrelevant objections which are often thrown around it, and which are by no means essential for a correct understanding of it.

BOOK III.

QUESTIONS ARISING OUT OF THE DIFFERENCE OF SEX.

CHAPTER I.

DOUBTFUL SEX.

§ 406. The word *hermaphroditism*, which at one time was used to describe the union of the organs of both sexes in one individual, is now generally applied to all those cases in which doubts exist concerning the real sex, in consequence of some aberration from the normal type of the genital organs. The word can no longer be used in its original acceptation, for most certainly there is no authentic case of self-impregnation recorded, nor even of the association of the generative functions of both sexes in one person. The cause of these deviations from the usual form may be found in the earlier stages of embryonic development; but an exposition of the present state of medical knowledge relative to the processes of faulty evolution would here be out of place.

§ 407. The practical question which we have to determine is, how far it is possible to discriminate the true sex of a living person. The solution of it is attended with no little difficulty, and in some cases is indeed impossible. The physician will be chiefly embarrassed in the case of children, since the important indications derivable from the general as well as local sexual development will be wanting. It should not be forgotten, that even after death, a positive opinion is, in some cases of hermaphroditism, hardly warranted by the most careful anatomical inspection. The male and female sexual organs, imperfect in development although distinctive in character, may be so evenly distributed that it will not be possible to know which predominate. Or, on the other hand, the traces of sexual organs may be so indistinct, that we can give them no appropriate sexual name. Hence, the reader will perceive how much more excusable is reserve in pronouncing an opinion upon the sex of a *living* person, the essential generative organs being concealed from our observation. We can only hope to approximate to the truth, by observing whether there is not some regularity in the freaks of nature, and thus discover, if possible, some uniform

correspondence between the visible deviations and those which are hidden from our view. With this object, the cases of hermaphroditism may be divided into the *apparent and real*, besides which there are a certain number in which literally *no* sexual organs exist. In the cases of *apparent or false* hermaphroditism, either the male or female character predominates.

§ 408. (1.) *Male Hermaphrodites.* In these the only anomaly is external, the internal organs having their natural conformation and development. The penis exists, more or less developed, with an urethra either normal or opening at variable distances between the glanis and the pubis,—a condition which is called *hypospadias.* The scrotum is divided or cleft, and thus presents a resemblance to the vulva, but neither nymphæ or vagina are found, although not unfrequently there is a shallow depression or cul de sac between these false labia, which is lined with a delicate skin and bears no very distant resemblance to the vaginal entrance. The testes are found on each side of the divided scrotum. The history of a supposed female named Marie Rosine Göttliche is related, who had been in the practice of cohabitation with the male sex. Her genital organs were formed in the manner here described.(*a*) Nägele gives a case of twins who were considered as female until their seventeenth year. At this time it was discovered that they were male, the penis being imperforate, and the divided scrotum resembling a vulva, but containing a testis on each side.(*b*) The case of Adelaide Préville who lived in the married state for a long time and on good terms with her husband, is related in full by St. Hilaire, with a number of other cases which will also fall under the above general description.(*c*) Persons with these mal-formations are not necessarily impotent, except where the urethra opens at or near the base of the penis. In consequence of the position of this orifice, the semen cannot be ejaculated into the vagina, but escapes along the sides of the cleft in the scrotum. Impregnation may, however, take place, if the urethra opens far enough forward to allow of the inclusion of its orifice within the vagina, and instances of impregnation by persons affected with a considerable degree of hypospadias are upon record. Sometimes the only deficiency observable in this class, is the absence of the testes from their usual location. This condition is liable to be mistaken for another, but far more important deviation from the natural type in the internal organs of generation, (mentioned further on) since in both, the scrotum is empty. But, in this case, the testes are not really deficient but have remained in the abdomen, instead of descending as is usual in the ninth month of fœtal existence. In the case of persons in this condition, the power of procreation is unaffected, provided the testes are healthy. (vid. IMPOTENCE.) This anatomical defect is very rare. Siebold states that of 37,000 recruits in Würtemberg, only twenty-four were found in whom the testes had not descended.(*d*)

§ 409. (2.) *Female Hermaphrodites.* By far the greater number of these, owe the doubts concerning their sex to an unusual size of the clitoris. Commonly associated with this circumstance, are an unfeminine

(*a*) Casper's Wochenschrift, 1833, No. 3.
(*b*) Siebold's Handbuch, p. 95.
(*c*) Hist. des Anomalies, T. II. p. 53.
(*d*) Handbuch, p. 82.

appearance, more or less beard, a rough and masculine voice and manner; although their sexual desires are violent, they are usually barren. The usual size of the clitoris in the adult female is about half an inch in length, but Remer mentions having seen a clitoris an inch long in a girl seven years of age, and Home,(*e*) one of two inches long and as thick as the thumb, in a negress twenty-four years old. In addition to this hypertrophied condition of the clitoris, an imperfect urethra with one or more openings is often found, and, at the same time, a constriction of the vagina to such a degree that it becomes almost imperforate. Such was the anatomical condition in *Marie Lefort;* she had menstruated regularly from the age of eight years until her death at thirty; the existence of a uterus was clearly established. Her voice was masculine, and she had a thick and strong beard.(*f*) Sir Astley Cooper examined the body of a charwoman, aged eighty-six years, who presented these deviations. He says, she differed from other women in the magnitude and length of the clitoris, in the absence of the external orifice of the vagina, which began in the urethra itself, and in the imperfect development of the ovaries.(*g*) A woman twenty-five years of age, on account of her notorious commerce with both sexes, was placed under strict police supervision. Resorting to masturbation, her health became so much impaired that she died in the course of sixteen months. The external genitals were found to have their natural conformation, with the exception of the clitoris, which was three and a half inches long and three inches in circumference, and imperforate, except at the base. The uterus and one ovary were rudimentary, and the general conformation of the breasts was masculine, although, owing to the occurrence of a trifling periodical discharge, she was considered to be a woman. It was proved that this person had been guilty of the most astonishing and unnatural excesses with young people of both sexes.(*h*) A child described by Mr. E. Smith, may be placed in the same class, as all the female organs were complete; the only anomaly being that the urethra opened in two places, and the clitoris bore some resemblance to the penis.(*i*) In a black female subject, dissected by Dr. Jno. Neill, the clitoris was five inches long and one inch in diameter, and resembled a penis, except that it was not traversed by a perfect urethra. The permial opening was not larger in diameter than a catheter of average size, and the vagina was extremely narrow. On one side of the penis existed what appeared to be a scrotum, but which contained an irreducible omental hernia. This gave the feel of a testicle, but no true glandular structure or excretory tube could be detected. The internal organs were completely female, although not completely developed. The general habitus was feminine.(*j*) The case related by Dr. Mayer of Bonn, which gave rise to much discussion, and which is usually classed among the cases of mixed sex, may with more reason, we think, be placed under this head. The only male organs were a

(*e*) Philos. Trans. 1799, p. 163. (*f*) St. Hilaire. Hist. des Anomalies, T. II. p. 74.

(*g*) History of a supposed Hermaphrodite, by Robt. Merry, Surgeon. Guy's Hosp. Rep. Oct. 1840.

(*h*) Henke's Zeitschrift, Bd. 44, § 183, by Albert, of Euerdorf.

(*i*) Lond. Med. Gaz. Vol. XXXIII.

(*j*) Quarterly Summary of Trans. Coll. Phys. Philad. N. S. Vol. I. No. 3.

(so called) penis, which was only two inches long, imperforate and partly concealed under the *mons veneris*. On the other hand, the orifice of the urethra was situated as in the female, there was a large vagina, a uterus with its appendages, and a defective ovarium on one side, and (what is called) a withered testis on the other. We cannot avoid holding some doubts concerning this last mentioned organ. From the absence of any account of the seminal tubes, deferent vessels, or seminal vesicles and the evidently rudimentary nature of this body, it might as properly have been termed an ovary. This supposition would, moreover, have been favored by its position. However this may be, it is evident that the female character greatly predominated. When twenty years of age, this person menstruated on three different occasions. A certain number of cases are recorded in which a prolapsed uterus, or extroverted bladder has grossly imitated the male organ, but these cases are so easy of detection, and have so little claim to be classified with permanent anomalies of evolution in the sexual organs, that it is not necessary to dwell upon them.(*k*)

§ 410. (3.) *Real Hermaphrodites.* Not a few authors have doubted the existence of persons entitled to this designation, but there can, at the present day, be no question of the fact. It is, of course, not meant that the union of the *functions* of either sex in one individual ever occurs, but merely that the essential generative organs of both sexes may co-exist. It will be seen from the following cases that this abnormal condition is found in different degrees. The first we will mention is the case observed by Petit, and communicated to the French Academy in 1820. The subject was a soldier who died of a wound at the age of twenty-two years. The penis was normal, scrotum empty, the testes small and soft, occupying the position of the ovaries, but provided with epididymis and vasa deferentia. The seminal vesicles and prostate gland likewise were present. The uterus opened into the urethra at the neck of the bladder; the vagina was absent. It is stated that the fallopian tubes were found, but they were probably in an imperfect condition.

A recent case, described by two of the most eminent of the pathologists of Germany, Kiwisch and Kölliker, is of great interest. The individual died at the age of 33 years. The external genitals were, a perfectly normal penis, with a rugose but empty scrotum. The uterus was perfect, somewhat longer than usual but in its ordinary position. The vagina was rudimentary and opened into the prostatic portion of the urethra. The fallopian tubes were $3\frac{3}{4}$ inches long, with imperfectly developed fimbriæ. The round ligaments had their usual position and attachments. In place of the ovaries were found testes, provided each with epididymis and deferent duct leading to the inguinal ring, and turning to the uterus, followed its sides and finally opened into the prostate. This latter body was of normal size; on each side of it were vesiculæ seminales.(*l*) MM. Bouiland and Manec have reported a

(*k*) For cases exemplifying these deceptions, vid. Saviard (Rec. d'Obs. Chirurg, p. 150.) Home, (Philos. Trans. for 1799.) (Ed. Med. and Surg. Jour. Vol. I. p. 54.) St. Hilaire, (Hist. des Anomal. T. I. pp. 272–277.)

(*l*) Kiwisch (*Klinische Vortraege Abth.* II. Prag. 1849). This thoroughly authenticated fact of the co-existence of the prostate and uterus in one individual, is a serious blow to

case, in which the person had attained the age of sixty-two years, and had lived and been married as a man. The general appearance was feminine, with the exception of the beard. The external organs consisted only of a penis with the orifice of the urethra at the base of the gland. A loose fold of skin occupied the place of the scrotum. The internal organs were, however, completely feminine, with the exception of the prostate gland, which occupied its usual position. The vagina opened into the membranous portion of the urethra. It is not stated whether the menstrual function was performed.(*m*) A curious and well described case is that of Ackermann.(*n*) An imperforate penis, a vulva containing a normal testis on each side, a common vagino-urethral canal, and vasa deferentia opening on either side of the os uteri, but entering the walls of the uterus at the points whence usually spring the fallopian tubes. Perhaps the most remarkable case of double sex is that examined by Dr. Horace A. Ackley, Professor of Surgery in the Cleveland Med. College, and reported by Dr. George Blackman.(*o*) The person from whom the parts were removed was about twenty-six years of age, and had been employed as a servant. "The history of this individual, as furnished by Prof. Ackley, is briefly as follows: Stature large; external conformation, with the exception of the hips, male; beard moderate; habits solitary, and had a dislike to women; menstruation, per penis monthly; this was always attended with much suffering, and during one of these menstrual periods he died from cerebral congestion. After death, the body found its way to the Cleveland Medical College." Upon dissection the disposition of the sexual organs was the following: The penis was large, the scrotum empty, a perfect uterus with pervious fallopian tubes and ovaries, testes on each side above the ovaries and excretory ducts leading from them, a vagina opening into the neck of the bladder and a prostate gland." The inner surface of the vagina was reddened and its cavity contained, what was supposed to be menstrual blood.(*p*) This statement was

the cultivators of transcendental anatomy, who have maintained its impossibility. Weber, Leuckardt, and many other authors consider the prostate gland to be a rudimentary uterus, or rather the analogue of this organ in the female.

(*m*) *Journ. univ et hebdom. de Med.* T. X. p. 467.

(*n*) *Infantis Androgyni historia et iconographia.* Jena, 1805.

(*o*) Am. Jour. Med. Sci. July, 1853. p. 63. Another singular case exemplifying the condition called lateral hermaphroditism, has been reported by Dr. Banon. The penis was of the usual size in the adult, and imperforate, although subject to erections. Beneath were the external female parts nearly perfect; the orifice of the urethra was placed as in the female, the vagina was rudimentary, but was provided with a hymen, the prostate was absent; the uterus was small, but well formed. There was one testis and one ovary, the vas deferens opened into the uterus. This individual had never menstruated, preferred manly exercises, and in conformation presented a curious intermingling of the characteristics of both sexes. Am. Jour. Med. Sci. July, 1852, from Dublin Med. Press. The somewhat similar case of Angelique Courtois, is more particularly interesting, from the fact that the single, well formed, and undoubted testis had no excretory duct, but lay under a pervious and fimbriated fallopian tube. There were no ovaries, seminal vesicles, or prostate.—*Follin Gaz. des. hop.* Dec., 1851.

(*p*) Other cases of menstruation through the penis, or from an orifice at its base when imperforate, are on record. One is reported by Dr. Harris of Virginia, and another by Dr. Barry of Connecticut, in which it was necessary to determine the sex on account of a denial of the person's right to vote (Am. Jour. Med. Sci. 1847, July.) Prof. Simpson of Edinburgh, states, that he has been informed, on credible authority, of two instances where, in males,(?) the menstrual discharge was perfectly regular in its occurrence and considerable in quantity. One of these persons was seventeen years of age, the other

afterwards supported by an examination of the parts made by Dr. W. L. Burnett of Boston.

§ 411. The necessity, however, of the most minute and conscientious examination of such remarkable cases as this, has since become apparent, for we find that the internal sexual organs were not so distinctive as represented. Dr. J. B. S. Jackson of Boston, in addressing the society for Medical Improvement on this subject, stated, that he had been permitted by Prof. Ackley to examine the specimen. He found no trace of the os tincæ, but the uterus passed insensibly into the vagina. This last was extremely small, measuring in the smallest part, on the inner surface, not more than four or five lines in circumference. Dr. J. found some thickening of the tissues about where the ovaries should be, but it was ill-defined and slight; "and it would not have been thought of, except in connection with the present question." Upon one side an incision was made into this questionable part; but nothing like a Graafian vesicle was seen, nothing but a loose cellular, or fibro-cellular, tissue. The size and structure of the testicles, so far as examined, was quite normal, and, it is said, that there was an epidydimis, although the existence of a vas deferens was not clearly ascertained. The vesiculæ seminales were not found, and the prostate gland, Dr. Jackson says, had not been demonstrated.(*q*)

§ 412. *Absence of sexual organs.* Siebold states that he has in his museum a child with no external genitals. Notwithstanding this, two testicles were found in the abdomen. The case is related in full in Faber's "*Duorum monstrorum humanorum descriptio anatomica.*" He also refers to another case of a child, three years old, in whom no internal generative organs were found, and externally only an urethral orifice.(*r*)

§ 413. The foregoing enumeration of anomalous conditions of the sexual organs will suffice, we think, to convince the reader, upon careful examination, that the determination of sex in a living person presenting any of those which are external, is attended with much difficulty, in consequence of the absence of a uniform correspondence between the

had been married for several years, and his wife had no children. (Art. Hermaphroditism, Cyc. of Anat. and Physiol.) Dr. Blackman saw in the Northern Hospital at Liverpool, a sailor from the American merchantman Rappahannock. He says: "This person was about thirty years of age, and with the exception of the breasts, which were large, had the general appearance of a male. The penis, however, was short and the scrotum somewhat cleft, so as to resemble in some respects the external labia of the female. At the time of my examination menstrual blood was passing through the penis, and we believe this was a regular monthly occurrence. (Am. Jour. Med. Sci. July, 1853.) A case apparently similar in anatomical conditions to that of Suydam, above referred to, is reported by Dr. Coste of Marseilles. His patient was 21 years of age, the penis was of the size of a boy's of 12 or 14 years, it was imperforate and the urethra opened at its base. The menses flowed from this orifice at regular periods. There was no external orifice of the vagina, the perineum was covered with hair, the labia majora were rudimentary, and on the right side there was a body like a testicle. The habitus was feminine, and there was no beard. An operation was performed to make an artificial vagina, and eight months afterwards she was married.—*Med. Zeitschrift für Geburtskunde von Busch*, &c. 1836. Bd. 4, H. 2, p. 267.

(*q*) Am. Jour. Med. Sci. Oct. 1853. For other cases vid. Beck's Med. Jurisprudence, and St. Hilaire's Historie des Anomalies. T. II. p. 99.

(*r*) For similar cases vid. Ström in *Svenska Lakaré-Saellskapets Handlingar*. Bd. I. H. 1. Also in Am. Jour. Med. Sci. Vol. II. Also in Henke's Zeitschrift. Bd. 44, § 185. A still-born seven-months' child had no external genitals.

outward and inward defects. It will also be seen from some of the cases, that reliance cannot be placed upon the general conformation of the individual nor upon the tastes and habits, since experience shows that the indications derived from them are often fallacious. Practically therefore the question must often remain unresolved, or be determined solely by the sexual predominance in the external organs alone. It may be observed, however, that the rarity of *real* duplicity of sex, or of the complete absence of the sexual organs, compared with the ordinary cases of presumed hermaphroditism, from the penis being imperforate, the testes not descended or the clitoris excessively developed, is so extreme, that the question will, in its legal relations, seldom require elucidation.

§ 414. In conclusion, we cannot forbear referring with regret to a recent instance(*s*) in which an operation was performed with the object of depriving a child "of that portion of the genital apparatus which, if permitted to remain until the age of puberty, would be sure to be followed by sexual desire, and which might thus conduce to the establishment of a matrimonial connection." The child was three years old, had been considered a girl until the age of two years, when she began to evince the tastes, disposition, and feelings of the other sex; she rejected dolls and similar articles of amusement, and became fond of boyish sports." "There was neither a penis nor a vagina; but, instead of the former, there was a small clitoris, and instead of the latter, a superficial depression, or *cul de sac*, covered with mucous membrane, and devoid of every thing like an aperture or inlet. The urethra occupied the usual situation(*t*) and appeared to be entirely natural; the nymphæ were remarkably diminutive; but the labia were well developed, and contained each a well formed testis, quite as large and consistent as this organ generally is at the same age in boys." After mature consideration an operation was resolved upon and the testes removed. They, as well as the spermatic cords, are described as being *perfectly formed in every respect.* Three years after the operation the disposition and habits of the child had undergone a material change, and she took delight in all feminine occupations. The author proposes this example as a precedent in similar cases. We sincerely hope that it may not be followed. The operation removes merely the *external*, and in cases like this the very distinct evidence of sex, and hence only adds to the doubts of the rightful sexual character. It does not necessarily extinguish the sexual instinct, nor deprive the person of "his only incentive to matrimony," and, finally, in no way relieves him from the odium or aversion with which the malevolent or ignorant may regard him.

(*s*) *Case of Hermaphrodism, Involving the Operation of Castration, and Illustrating a New Principle in Judicial Medicine.* By S. D. Gross, M. D., Professor of Surgery in the Medical Department of the University of Louisville.

(*t*) Whether this was the usual situation in the male or female does not appear; it was probably the latter.

CHAPTER II.

SEXUAL DISABILITY.

(1.) *Sterility.*

§ 415. The causes of sterility are numerous. Many of them are known and some of them are curable; but there are also many altogether beyond the power of medical science to discover or remedy. Among the removable causes of sterility may be first mentioned an *imperforate hymen*. This membrane is sometimes quite thick, dense, and fibrous in its structure, opposing a complete obstacle to the passage of the catamenia, and rendering impregnation impossible. It is remedied by incision and gradual dilatation. If the hymen be not, however, completely imperforate, impregnation may occur. The vagina may be, congenitally, extremely narrow, or have become occluded from inflammation and its consequences. The mouth of the womb is also subject to the same accident, and this, in connection with a narrowing of the upper portion of the vagina, is supposed to be a frequent cause of sterility. In all these cases, however, a cure is possible.

Menstrual irregularity, displacements of the uterus, with extreme irritability of this organ, prolapsus, intra-uterine tumors, such as polypi, are frequent causes of sterility, but are, also, generally under the control of the physician. Some authors have stated that uterine cancer was a certain cause of sterility; this opinion is, however, not sustained by facts, numerous instances being recorded of impregnation in this disease. Dr. Lever mentions several cases. Siebold says that he has, in his pathological collection, a cancerous uterus containing a seven months' child.

§ 416. Of the absolute and incurable causes of sterility, those depending upon *malformation* are the only ones of practical importance. An imperfect development of the sexual organs has been frequently described. The following are some of the more striking cases:

Dr. Meigs relates a case of entire absence of the vagina, the external sexual organs being perfectly natural. An incision was made, by Dr. Randolph, three inches and a half in depth, but he could find no vagina.(*u*) Dr. Oldham reports the case of a servant girl, whose health had been delicate for some time. "She had not menstruated, suffered periodical pains in the pelvis on any vicarious bleeding. She had a dull, inanimate, and rather timid look, with the voice and articulation of a delicate female. Her mind was apathetic, and she was sexually indifferent. The chest was flat, and the mammary glands scarcely developed. The pelvis was well-formed. The mons-veneris, external labia, nymphæ and clitoris were normally developed, and the first covered abundantly with hair. The situation of the orifice of the vagina was occupied by a raised raphé of mucous membrane, but there was no aperture." A catheter being introduced into the bladder, and the finger into the rectum, no solid intervening structure and no trace of

(*u*) Velpeau. Midwifery, p. 114.

uterus could be discovered.(*v*) Troschel relates the case of two sisters in whom the uterus was wanting.(*w*) Siebold examined a woman, 20 years of age, in whom the vagina was like that of a new-born child,—no uterus could be discovered by an examination *per rectum*.(*x*) Dr. Rüttel had under his care a woman 27 years old, of small stature. The external genitals were like those of a child of nine or ten years of age; the vagina was smooth, very narrow, and hardly two inches long; the mouth of the uterus hardly perceptible, and the uterus itself, of the size and shape of an olive. The breasts were undeveloped.(*y*) A curious case is quoted by Siebold, in which, although there were no external sexual organs whatever, nevertheless the woman became pregnant. The impregnation was effected through the rectum, in which a small orifice communicated with the vagina. At the approach of labor, this opening was widened by the knife, and the woman was delivered of a child which lived six hours.(*z*) Mr. Hunt related to the Medical Society of London, the case of a lady, aged thirty, of refined mind and feminine development, who consulted him for stricture of the rectum. The meatus urinarius was more capacious than usual, and there was *no vaginal aperture*, the perineum being continued from the anus to the meatus. No trace of the fundus uteri or of ovaries could be felt by the rectum. The clitoris and labia were normal, the mammæ well developed, and sexual feeling was admitted to exist, probably in its normal degree. She had never menstruated, nor had there been any vicarious discharge or periodical inconvenience. Dr. Murphy mentioned a case in which the vagina terminated in a *cul de sac*, and there was no sign of an uterus. The woman was handsome and well formed.(*a*)

Finally, there are some causes of sterility which are relative in their nature. Such a disproportion between the sexual organs of the two sexes as to render intercourse extremely painful to the female, may be taken as an example. Other causes, of a psychical nature, are sometimes as operative as the physical impediments before spoken of. For the most part they are exceedingly intangible in their nature. In the *causes celébres* an amusing instance of want of sexual harmony is given by Pitaval. Two gentleman of rank, very much of the same age and personal appearance, were both married to wives who proved unfruitful after several years of marriage. The two couples at last determined to proceed to a celebrated watering place, in the hope of deriving some benefit from the change and the use of the springs. On the way, they put up at an inn and retired for the night. But the two wives had preceded their husbands to bed, and each of the latter mistook his

(*v*) Guy's Hosp. Rep. Vol. VI. p. 362.

(*w*) Rust's Magazin., Bd 37, S. 163; Gaz. Med., 1851, p. 9, by Dr. Ziehl of Nuremberg. Total absence of uterus in a woman 57 years of age,—observed after death. Dr. Meigs relates two cases of total absence of uterus, but with otherwise perfect sexual development, in his own practice.—Treat. on Obstet. p. 131. Dr. G. S. Crawford gives another case of absence of uterus.—N. W. Med. & Surg. Jour., Nov. 1850. Dr. Cummings found the uterus half an inch long, and the ovaries mere lines, in a woman who had never menstruated.—Ed. Month. Jour., Sept. 1854, p. 275. Dr. Chew, of Baltimore, observed a case in which the uterus was absent. The woman was 22 years of age, and had never menstruated.—Am. Jour. Med. Sci. 1840. p. 39.

(*x*) Handbuch p. 91.

(*y*) Henke's Zeitsch. Bd 47, S. 250.

(*z*) Handbuch, p. 88.

(*a*) Am. Jour. Med. Sci., July, 1852, p. 275.

friend's room for his own. In consequence of the mistake, each of the ladies proved with child.

§ 417. The functions of menstruation and reproduction are generally co-incident. Hence, as a general rule, a female is not susceptible of impregnation before the catamenia have appeared nor after they have ceased. Like all other physiological rules, these will be found to have exceptions. Many instances are on record in which women who had never menstruated have become mothers.(*b*) Cases of precocious menstruation are also numerous, and many of them well attested.

Mr. Whitmore relates an interesting instance of precocious development in a female child. The catamenia appeared a few days after birth, and returned at regular intervals of three weeks and two or three days until her death, at the age of four years. The development at this age was equal to that usual at ten or eleven. The mammæ were unusually large; the mons veneris was covered with hair, and the development of the genitals was considerable. It is stated that she manifested at her monthly periods the reserve usual to women at such times.(*c*)

Velpeau quotes the case of a young girl, in the Havana, whose menses appeared at the age of 18 months, and continued regularly afterwards. The child, moreover, exhibited in her development all the characteristics of puberty. A girl at New Orleans was born in 1837 with her breasts developed and the mons veneris covered with hair. Her catamenia appeared at the age of three years, and continued to return every month thereafter. A case is mentioned in the Lancet where menstruation commenced at the age of two years.(*d*) Another is reported where it began in the tenth year; the girl became pregnant between the eleventh and twelfth, and bore a child.(*e*) A similar case is reported by Dr. J. B. Walker, in which menstruation commenced at the age of eleven and a half years, and the girl was delivered of a child when only twelve years and eight months of age.(*f*) Rüttel refers to a case by Haller where a girl of nine years of age became pregnant; and D'Outrepont met with others of pregnancy at the ages of nine and thirteen.(*g*) Another instance may be added in which menstruation commenced in the first year and pregnancy in the ninth. The girl was delivered of a child weighing seven and three-quarter pounds. The case occured in Kentucky, and is reported by Dr. Rowlett.(*h*)

§ 418. The usual period for the *cessation of the menses* and, consequently the capacity of child-bearing, is from 45 to 50 years; but cases could easily be multiplied showing that occasionally they continued even to the age of 75 years. Indeed, a case is quoted by Orfila in which they continued until the 99th year. This woman menstruated first at the age of 20, bore her first child at 47, and her seventh and last at 60.(*i*)

Many of the cases in which menstruation in old women is reported, are probably apocryphal,—hemorrhage proceeding from some disor-

(*b*) Vid. Whitehead on Abortion, &c., p. 223; also Capuron Méd. Lég. des Accouchemens, 96.

(*c*) Am. Jour. Med. Sci. Oct. 1845, p. 430, from Ed. Month. Jour. of Med.

(*d*) Jan. 29, 1848.

(*e*) Lond. Med. Gaz., Nov. 1849.

(*f*) Bost. Med. & Surg. Jour., Sept. 9, 146.

(*g*) Henke's Zeitsch., 1844.

(*h*) Transylvania Jour. Vol. VII. p. 447.

(*i*) Méd. Lég. 4ème. ed. 1, 257.

ganized tissue being mistaken for it. Nevertheless, many of these instances of late menstruation and pregnancy are genuine. When the monthly periods continue to return after the ordinary time for their cessation, the female remains susceptible of impregnation, but she will rarely be capable of conceiving after this function has ceased. The only case we have met with is one quoted by Dr. Taylor, from the Lancet, in which a lady became pregnant between eight and nine months after the final cessation of the discharge. In this case, however, the lady was only 44, and consequently had not arrived at the usual season for its cessation. The discharge had, it is stated, been decreasing gradually for nearly two years before it entirely ceased. If this function continues, however, the woman is liable to conceive. Dr. Rüttel observed in twelve women that they bore their last children between the ages of 45 and 50. He refers to a case in Schmidt's Jahrbuch in which a woman who was married at 19 did not bear a child until she was 50 years old.(*j*) Ottinger and Cederschjöld met with cases of parturition and menstruation at the ages of 50 and 53; and Nevermann(*k*) found, out of 1000 cases, that 436 children were born by females at the following ages: 101 at 41, 113 at 42, 70 at 43, 58 at 44, 43 at 45, 12 at 46, 13 at 47, 8 at 48, 6 at 49, 9 at 50, 1 at 52, 1 at 53, and one at 54 years. From these facts, it is evident that the ordinary limits of the function of gestation are occasionally anticipated or transcended. Note must be taken of these rare exceptions in estimating the probabilities in any doubtful case.

2. *Impotence.*

§ 419. By this word, is here meant, the want of procreative power in the male, whether arising from a faulty condition of the external or internal organs of generation, or from any moral or physical causes. The causes of impotence are extremely numerous, and often obscure. Some of them are remediable by art and time; others are permanent, and incurable. They may be conveniently examined by a division into those which depend upon the secreting portion of the generative apparatus, and those which depend upon some deviation of the copulative portion from its normal condition.

Congenital absence of the testes. The only satisfactory example of this defect, is a case related by Dr. Fisher, of Boston, in the twenty-third volume of the American Journ. of Med. Sciences. The post-mortem examination was minute and careful. All of the accessary parts of the seminal apparatus were present, except the testes. The penis was undeveloped, and the individual, who was forty-five years of age, had never experienced any amorous desires. There were a few scanty hairs upon the pubis, but there was no beard; yet the constitution was vigorous, and the habits of the person active. It is seldom, however, that this deficiency can be safely asserted during life, for although the scrotum be empty, yet the testicles may have been retained in the abdomen. While in this situation, they may be rudimentary and defective, or not; for experience has shown that some

(*j*) Henke's Zeitsch., 1844, p. 251. (*k*) Ibid.

crypsorchides have been remarkable for their sexual powers. One of the most remarkable cases of premature sexual development coinciding with non-descent of the testes, reported by Dr. Lopez, of Mobile, in Am. Jour. Med. Sci. 1843, p. 500, is that of a mulatto boy, aged three years, ten months and fifteen days. His weight was eighty-two pounds; height, four feet and half an inch; width around chest, twenty-seven and a half inches; thigh, nineteen inches; head, twenty-two inches; length of penis at rest, four; circumference, three and a half: testes not descended; has whiskers, and hairy axillæ; and lifts a man of one hundred and forty pounds. The habit of body, scantiness of beard, and feminine voice, are not always safe indications of the absence of the testes, or their defective condition, should they have been retained within the abdomen or in the inguinal canal. Our opinion in these cases should be very guarded, since the organs upon whose condition it is required cannot be inspected. In some cases, one testis only has descended; but if it be not diseased, the individual will be quite capable of fulfilling his conjugal duties. The rarity, however, of either of these conditions, may be judged from the fact, that in 10,800 recruits, Dr. Marshall found only eleven in whom a single testis had descended, and one where both were retained in the abdomen.

§ 420. *Castration.* If one testis only be lost, whether by accident, disease, or extirpation, the virile powers will not be impaired, unless the remaining one be imperfect or diseased. But if the individual have lost both of these organs, he becomes, of course, incurably impotent. Yet it is a question of some medico-legal interest, whether impotence is an immediate result. A man who was castrated by Sir Astley Cooper, stated that he retained the sensation of emission for twelve months, and the power of copulation for ten years, after the operation. Otto found the vesiculæ seminales still full of semen in a man who died nine months after he had castrated himself.(*l*) Ricord mentions the case of a man who was castrated on account of disease of both testes; he was also affected with a tumor of the cerebellum. He had, nevertheless, erections, and the most violent sexual desires.(*m*) Some of the older authors (*n*) assert the possibility of fruitful intercourse after the loss of the testes, giving instances in illustration of it. It is also asserted, upon the authority of Aristotle,(*o*) Varro,(*p*) Sanchez,(*q*) and others, that animals have been known to be capable of propagation soon after they have been castrated. That the fact is authentic as regards animals, may be admitted, without giving assent to the possibility of a like transaction upon the part of man. It is conceivable that an animal might attempt sexual intercourse immediately after castration; but the case has yet to arise in which the question of paternity would hang upon the decision as to the possibility of a man being capable of the same attempt.

(*l*) Handb. der Pathol. Anat. p. 344.
(*m*) Bull. de l'Acad. Nat. de Med. 1851, p. 687.
(*n*) Venette. Leipzig, 1698; Nic. Fontan, Obs. rar. Amstelod. 1641.
(*o*) *Historia Animal.* lib. I. cap. 4; lib. II, 13.
(*p*) Re Rustica, lib. II. cap. 5, "de quibusdam bovibus admirandum scriptum inveni, exemtis testibus, si statim adnosseris concipere."
(*q*) Sanchez, de Matrimonio, Lugdun. Batav. 1669.

§ 421. For how long a time, then, after castration, can the faculty of generation be retained? We believe that this question has yet to be answered. The cases cited above, do not solve it. The erectile faculty of the penis is retained in eunuchs, if they have been castrated after the age of puberty, and is in itself alone, or when attended with sexual desire, not indicative of procreative power. Nor is the sensation of emission, or even the actual extrusion of a liquid having some of the sensible qualities of the semen, sufficient evidence of it. Unless a microscopic examination reveal the presence of spermatozoa, which alone are characteristic of the fruitful semen, there can be no certainty that the secretion is more than the *liquor prostaticus*, or a mucous discharge. The observation of Otto is, therefore, not complete. As for those instances in which pregnancy is said to have resulted from the cohabitation with their wives of husbands who had sustained the loss of which we are speaking, it is a matter of regret that the connection in them between cause and effect is not susceptible of demonstration.

Diseases of the testes. These are numerous, but usually implicate one of the organs only: hence, as has been said before, if the remaining testicle be not affected, or if indeed, as is sometimes the case, only a part of the structure is destroyed, the person will not be rendered impotent. It will not be necessary for us to dwell upon the special diseases to which the testes and its appendages are liable. A safe opinion, in cases of alleged impotence from disease of the testes, can rarely be given, since it is impossible to know to what extent the true glandular structure is affected. The physician will probably be compelled to judge from the same facts which are equally open to others. In addition, however, to the diseases arising from inflammation and morbid growths, which are the most common, the testis is liable to become atrophied, from various causes. Thus, large double herniæ are said to have produced impotence by pressure, and the same is asserted of hydrocele. One or both testes are liable to be attacked in the course of *cynanche parotidæa*, or mumps, and waste away in consequence. Atrophy of the testicle, and impotence, may sometimes be produced by mechanical injury to the spine or to the occiput. Both Larrey and Hennen mention cases in which, from blows with a sabre upon the occipital protuberance, impotence resulted. Dr. Fisher,(*r*) of Boston, has a case in which the loss of virile power was only temporary, after an injury of a similar character. Larrey states that many of the soldiers in the French expedition to Egypt became impotent from atrophy of the testes, which he ascribed to the use of date-brandy sophisticated with *solanum capsicum* or *pseudo capsicum*.

§ 422. In some cases, the inability to procreate, arises from some defect in the copulative organ.

Defect in size and malformation of the penis. The general rule may be laid down, that if the organ be of sufficient size to be introduced within the entrance of the vagina, fecundation may be the result. Hence, except the penis be congenitally absent, or have been removed close to the pubis, the person is not necessarily incapable. In case of hypospadias or epispadias, *i. e.*, where the orifice of the urethra is

(*r*) Am. Jour. Med. Sci. Vol. XXIII.

either below or above the organ, in some point of its length, the individual may become a father, if the orifice can be brought within the female parts. Cases proving this fact satisfactorily, are reported by Foderé, Belloc, Kopp, and others;(*s*) in some of which instances the malformation was transmitted to the children. This defect is also, in some cases, curable by an operation. Examples of bifid penes,(*t*) and cases in which this organ had an unnatural attachment to the abdomen(*u*) and to the scrotum,(*v*) are to be regarded rather as medical curiosities, than as likely to give rise to practical difficulty in legal relations. The same may be said of an excessive size of the penis.

§ 423. *Obstruction from large hydroceles, or herniæ.* This is sometimes an effectual hinderance to copulation, if voluminous. A case is related where a man of fifty-one years of age, who had been affected with a scrotal hernia for nine years, was nevertheless able to beget children, since, in the horizontal position, the tumour became a third smaller, and allowed the protrusion of the penis.(*w*) An interesting case is related in Henke's Zeitschrift, in which the paternity of a child was attributed by the mother to a married man of sixty years of age. It was represented, in his defence, that he was affected with a double scrotal hernia of ten years' standing, which rendered the sexual act impossible, since the penis was almost entirely concealed by the immense tumour, measuring in circumference 18$\frac{3}{4}$ inches. A very careful examination and report was made by the official surgeons; they declared that this state of the parts did not hinder the act of coition, since the tumour was of such a yielding nature as to allow, by proper manipulation, of the sufficient protrusion of the organ.(*x*)

Local relaxation. Constitutional causes often impair the sexual power, not only by rendering the seminal secretion inactive, but by destroying the ability to copulate. Excessive abuse of venery, and the vice of masturbation, are the most frequent causes of that local relaxation which often constitutes an insuperable obstacle to sexual intercourse. If impotence be ever caused by the use of colchicum, nitre, camphor, dulcamara, and other drugs, as is alleged, the defect will be, most probably, only of a temporary nature.

§ 424. Finally, there are causes of impotence of a purely *psychical* character. These are, in some cases, hardly explicable by the individual himself. Cases are on record in which, notwithstanding the existence of proper sexual feelings on the part of the husband, he has been unable to accomplish that part of the act which is essential to impregnation. Devergie relates a case of this kind.(*y*) Another one is given by Dr. Strecker.(*z*) In both cases, the husbands had the sensation and the knowledge of emission with other women. In one of these cases, this circumstance was attributable to indifference on the

(*s*) Beck's Med. Jur. vol. I.

(*t*) Ephem. Nat. Curios. Dec. 1, Ann. 1, Obs. 110, Dec. 3, Obs. 77; Sixtus D. de diffusione genitalium, singulari penis bifidi observatione illustrat; Kopp. Jahrbuch, VII. p. 386. The preparation is in the Anatomical Cabinet in Würzburg.

(*u*) Schurig. Spermatologie, p. 134.

(*v*) Cheselden's Anatomy, p. 314; Brand. Ed. Encycloped. Art. Hermaphrodites.

(*w*) Pyl's Aufsätze, Sammlung VIII. s. 204.

(*x*) Band, 44, s. 379.

(*y*) Med. Legale. Nullité de Mariage.

(*z*) Henke's Zeitschrift, 1840, 1 H. p. 223.

part of the female. Generally, where relative impotence exists, it will depend, in the absence of physical causes, upon some prejudice or passion. Excessive sexual desire will sometimes defeat its own end; and on the other hand, too great timidity, or disgust and aversion, may prove causes of impotence. We need hardly add, that they are often but temporary in their nature.

Age. The seminal secretion is established at the age of puberty, which is about the fifteenth year in temperate climates, and ceases at no determinate period. The establishment of this secretion is marked by familiar changes, both local and general. The genital organs become developed, hair appears upon the pubis and under the axillæ, the beard becomes apparent, the voice more grave, and the muscular system developed. Curious instances have been reported, in which there has been unusual sexual precocity. The most astonishing of these, is one related by Professor Stone, of Washington.(*a*) The child was only *four* years old; he was four feet and a quarter of an inch in height, and weighed nearly seventy pounds. His bones and muscles were developed in an extraordinary degree, his voice was grave, and the pubis was covered with a luxuriant growth of hair. The penis measured, in a semi-flaccid state, four and a quarter inches in length, and when perfectly flaccid three and a half inches. The prepuce was short, leaving exposed a perfectly formed glans penis. The papillæ of the corona glandis were salient, and exquisitely sensitive. In the scrotum were two firm, apparently well-developed testicles, perhaps rather under the average size of those organs in the adult. The spermatic cords were distinct, and, under the finger, gave the impression of perfect organs. His father having observed "during the night, when he had slept with him for the first time, a constant erection of the penis, accompanied by a nickering, like an excited stallion," consulted Dr. Stone concerning him. The boy was said to be extremely fond of embracing the opposite sex, and on one occasion, when in a bed with a near relative, a married lady, the latter was aroused by finding him closely clasped to her back and her night-dress saturated with a very different and glutinous material from that she expected, as she had supposed he had emptied his bladder upon her. The author had no opportunity of examining the secretion with the microscope.

Dr. Rüttel observed a case in which a girl of fourteen became pregnant by a boy of the same age.

M. Ruelle, of Cambrai, has recorded an example of precocious virility. A child three and a half years of age, muscular and strong as one of eight, all his male organs of the full adult size, with long black hair on the pubes, and, under excitement, discharged semen four or five times daily. He had also a full male voice, and dark short hair on the cheek and upper lip.(*b*)

§ 425. Old age is usually attended with impotence, but there is no fixed period at which, either medically or legally, a man must cease to be capable of begetting children. Mr. Curling has found the spermatoza in the semen of men at sixty, seventy, and even eighty-seven years of age. Parr is said to have become a father at the age of 140

(*a*) Am. Jour. of Med. Sci. Oct. 1852.
(*b*) Brit. and For. Med. Rev. Jan. 1844, p. 277.

years; and quite a sufficient number of instances are known, to determine the fact of the occasional retention of virility much beyond the age of sixty years. The preservation of this faculty coincides with a vigor and haleness of constitution which is the lot of but few aged men.

CHAPTER III.

RAPE.

§ 426. Medical evidence in cases of Rape, is seriously affected by circumstances over which the physician can have no control. One of the most important of these is the want of an examination at a *sufficiently early period* to afford useful results. In genuine cases, where rape has been really attempted, the local marks of violence are often extremely insignificant, and consequently soon disappear. A slight contusion of the genitals, a laceration of the hymen, or a trifling discharge of blood, are the sole indications of the transaction, and may, within forty-eight hours, be no longer present. Hence, it is seldom possible for the medical examiner to make any useful note of "the marks of violence upon the person, the disorder of the clothing," &c., which are usually prescribed by authors. The dress has been smoothed or changed, the marks of injury have disappeared, and all that remains is perhaps a suspicious stain upon a chemise, *alleged* to have been worn at the time of the assault. It is stated by a celebrated author, who has had much experience of such cases, (Casper,) that in fifty-eight cases which he had been required to examine, the time that had elapsed from the alleged commission of the rape varied from three weeks to one year.

(1.) *Rape upon Children.*

§ 427. We propose in this chapter to refer a good deal to the experience of this author, believing that the subject will be more profitably illustrated by authentic cases, than by theoretical discussions. There is no subject upon which it is more necessary for the physician to be guarded in his opinion than this; since he may be designedly entrapped into an admission, entirely at variance with his real view of the case.

Thus,—a tradesman of irreproachable character was accused by a woman of having violated her daughter, who was but eleven years of age, and of having communicated to her a gonorrhœa. The child was of a very scrofulous constitution. The labia majora were apart and flaccid, the clitoris unusually developed, the entrance of the vagina inflamed, and evidently painful to the touch, and the hymen obviously stretched. There was also a copious urethral discharge. The opinion given by Dr. Casper was, that a complete penetration had not taken place, but efforts by the male organ, affected with gonorrhœa, had been made to effect it. The further progress of the case showed the truth of this opinion but not of the accusation, for the defendant was found

perfectly free from disease, and the cross examination developed the fact, that the mother, after having fruitlessly endeavored to extort money from the tradesman, had delivered the child to her own paramour, a journeyman living in the same house, whom she knew was affected with gonorrhœa. She then threatened to denounce the tradesman, unless he gave her money.

§ 428. In thirteen cases of alleged rape on children from two and a half years to fourteen, he found, upon examination, nothing whatever to support the accusation, as the sexual parts were in a perfectly natural condition. Yet many of these cases had been previously examined by physicians, and were provided with certificates attesting various degrees of injury. In two cases the accused parties were also said to exhibit unmistakable traces of the previous existence of chancres. Dr. Casper ascertained that the children were wholly uninjured, and that the presumed venereal cicatrices were perfectly natural appearances.

§ 429. It is also important to know, that it is by no means easy to ascertain the condition of the hymen, especially in children, who form the majority of cases. There are two reasons for this. 1st. Where the outrage has been really committed, the tender parts of the child become so sensitive in consequence of their inflamed and swollen condition, that they will not bear the slightest touch, much less a separation of the labia; the child becomes so uncontrollable, that it is often necessary to give up entirely the examination without attaining the desired end, and this repeatedly, if the physician happen to be inexperienced.

§ 430. The second reason is based upon the variety of structure presented by the hymen. It is not always crescentic, but frequently is attached all round to the vagina, having a circular hole in the centre. This free edge is sometimes swollen and loose, and is then particularly deceptive. It varies a great deal in thickness and firmness. Its place of insertion also varies, it being sometimes attached near the entrance of the vagina, and at others so far back that it is found with difficulty, especially under the circumstances before referred to. "For these reasons," says Casper, "those cases are explicable, which I have so frequently met with, where a previous medical or surgical examiner had certified that the hymen was absent, when I myself have afterwards found it entirely uninjured."(*c*)

In order to have a clear understanding of medical evidence in cases of rape, the subject may properly be considered under the divisions of, 1st. *Rape upon Children.* 2d. *Rape upon Adults.* We here refer, however, only to the outrage upon persons of the female sex, the crime in a contrary sense being considered hereafter.

§ 431. 1st. The *frequency* of attempted rape upon children has been lately shown by Casper. Of sixty cases of rape which he had examined in the course of twenty-five years, thirty-nine were children under twelve years of age, and twelve between the ages of twelve and fourteen. It is probable that very nearly the same proportion might be observed in other places if proper statistical inquiry were made. This

(*c*) Casper, loc. cit.

frequency may be accounted for by the comparative ease with which a child's resistance may be overcome, and by its entire ignorance of the nature and consequences of the sexual act. We may mention also here, that the author above quoted refers it, as well as the superadded disgrace and misery of venereal infection, to the prevalent superstition among the lower classes in his country, that connection with a pure virgin will cure a person affected with this disease, and hence, for the sake of certainty, the youngest children are chosen as victims of this revolting crime.(*d*) Casper found syphilitic gonorrhœa in thirteen girls from five to fourteen years of age. One of them, aged only five years, had, moreover, venereal warts, and in a child of three years of age he found a primary chancre.

§ 432. The traces left after an attempt at sexual connection by an adult with a girl under the age of puberty, vary somewhat with the *age*, but more still with the degree of violence and the frequency of its repetition. A full and complete connection between an adult male and a child under twelve years of age, is, on the first attempt, manifestly impossible; repeated efforts, however, will produce such a dilatation of the parts, as to render it finally practicable. A case, where the vagina of a child, seven years of age, became by degrees sufficiently dilated to admit the adult male organ completely, is mentioned in Canstatt's Jahresbericht for 1851. But in the majority of cases the penetration is but partial, and in some cases the chief injury has been inflicted by the use of the finger. The truth of this statement is shown by the frequently uninjured condition of the hymen. In fifty-one cases of rape upon children, many of them under fourteen, complicated with syphilis, Casper found the hymen destroyed only seven times in those between nine and fourteen years, and twice slightly torn in children of nine and ten years of age. In all the remaining cases, viz., *four-fifths of the whole number, it was entirely uninjured.*

The usual *marks of violence* left after the attempt upon children, are a swollen condition of the labia-majora, together with an inflamed and painful state of the vaginal entrance, and a secretion from these parts of a muco-purulent discharge. There is also pain in urination and defecation.

This condition may be illustrated by a case where a child ten years of age was assaulted by a man aged thirty-eight; the following signs were found immediately afterwards. The nymphæ swollen, of a dark red color, and very painful, the hymen torn into three parts, the vaginal entrance free, but of a deep red color as far as the attachment of the hymen. The child was feverish and had pain in and after urination. Spots of blood were found on the under garment. In the course of a

(*d*) The superstition exists in other countries. Mr. Wilde of Dublin, (Med. Times and Gaz., Sept. 10, 1853,) says, "A delusion prevails very extensively among the lower orders in Ireland, to the effect that a man can get rid of an obstinate gonorrhœa, which has 'foiled the doctors' by having connection with a virgin, and as the easiest mode of effecting that object, a child of tender years is selected." He states also that he had been informed by Dr. Montgomery that he knew a case in which a servant woman, affected with gonorrhœa, induced a child to have connection with her, in the hope of thus curing herself. From the work of Duchesne on the prostitution of Algiers, just published, we learn, that "the Arabs believe that the syphilis may be transmitted to a negro female, the individual thus transmitting it becoming free from the disease."

week the hymen was healed, but not united, the swelling subsided, but there remained a muco-purulent discharge for about two weeks.(*e*)

If gonorrhœa or syphilis have been communicated, there may be, in addition to these marks of injury, an urethral discharge, chancres, condylomata, and, if sufficient time have elapsed, buboes and constitutional symptoms. We subjoin here a few cases, chiefly from Casper's Memoir, showing the appearances we may expect to find in children, upon whom rape has been attempted.

X., a man of leisure, was accused of having repeatedly misused three sisters, Agnes, aged 12, Clara, 11, and Antonia, 8. In all three the hymen was destroyed; in the two elder, the vaginal canal uncommonly widened for their age, but not in the youngest. The opinion given was, therefore, that all three of the children had been deflowered, but that it was probable that the youngest had been masturbated with the finger. The evidence of the children, and some witnesses, gave all the details of this filthy transaction. Several more cases of an exactly similar character are given; we will therefore not repeat them. In the following case the whole proceeding was seen. Ottilia, aged 10 years, still retained her hymen, although this was inflamed and relaxed. The vaginal entrance was dilated, irritated, and very sensitive. An old man of not less than sixty-five years, had, it was said, often abused the child, having first enticed her by the present of a silver penny. On the last occasion, when he was discovered, the act took place in a barn, and a witness observed it through the chinks of the wall. The opinion of Dr. Casper, founded merely upon the condition of the child, was that a complete penetration had not taken place. A journeyman baker, affected with gonorrhœa, was accused of rape upon a child 7 years of age, of healthy constitution. The child, examined one month afterward, was found to have the hymen uninjured, but had gonorrhœa, and the mucous membrane of the vaginal entrance in an inflamed condition. Hence the opinion was given that the condition of the child was due to an *attempted*, but not completed, coition by a man affected with gonorrhœa. Eight other similar cases are given. Another instructive case is the following. The girl was 14 years of age. The labia-majora were relaxed and inelastic, and did not cover the vaginal entrance as they do in the virgin state. The orifice of the vagina was dilated, particularly in the lower portion. The opening of the hymen, which was itself not destroyed, was unusually large, and the vaginal mucous membrane very red and inflamed. The hymen and clitoris were swollen, and there was also gonorrhœa. The defendant, a bookbinder, who was charged with having frequently had connection with the young girl, as well as others who visited his shop to buy writing materials, represented that he had merely used manipulations with his hand. Dr. Casper, in reply to the question put by the judge, stated that "it was improbable that the defendant had merely manipulated with the hand, since the dilation of the vagina was adverse to this opinion, and that masturbation merely could not induce so much inflammation, nor the urethral gonorrhœa which was present. Hence it was to be presumed that the defendant had at least *endeavored* to introduce his organ into the vagina.

(*e*) Keller. Casper's Vierteljahrschrift. V. Band. 1 H. 1854.

§ 433. A case of genuine rape, with syphilitic infection, gave rise to an indictment against a journeyman hatter, who had abused his master's daughter in the most shameful manner. "The girl was only 8 years of age, her private parts were very much dilated, and the mucous membrane, particularly at the entrance, very red and painful to the touch. The hymen was destroyed, and she had a virulent gonorrhœa." Dr. Casper gave his opinion, "That there was no room for doubt that an impure coition had taken place, and been really consummated." It was afterwards discovered that the accused was really affected with gonorrhœa. But on account of his obstinate denial of the charge, and his endeavor to escape conviction by assigning other reasons for the infection, the judge proposed the question, if the common use of an *unclean chamber vessel* could possibly be the means of conveying the gonorrhœal disease. The answer was, that this was possible, but that such an origin of the disease could not properly be assumed in this case, on account of the destruction of the hymen, and dilatation of the vaginal canal.

§ 434. There can be no doubt of the occasional transmission of gonorrhœa by other means than sexual intercourse; but it is important for the physician to keep in mind the fact, that *in the case of children* at least, the presumption is entirely in favor of the ordinary mode of infection, unless the signs of violence before enumerated do not exist. Dr. Ryan,(*f*) nevertheless, examined two children who were infected with gonorrhœa by using a sponge belonging to a servant girl who had the disease. Mr. Hamilton(*g*) has published a case, in which a girl 6 years of age was infected with syphilis by a boy of 19. The contagious matter was carried by the fingers. In Henke's Zeitschrift for 1850,(*h*) the details of a judicial examination of a somewhat similar case, where also the virus was conveyed by the finger, are given by Dr. Henrich, of Mayence.

§ 435. *Leucorrhœa* and gangrenous inflammation of the vulva are diseases which arise *spontaneously* in young children, especially of the poorer class, and are due to bad diet, uncleanliness, scrofulous taint, and epidemic influences. In the minds of anxious relatives they may awaken suspicion of violence with intent to commit rape, and sometimes form the occasion for criminal prosecutions against innocent persons, for the sake of gain.

Leucorrhœa may be easily mistaken for gonorrhœa, for the discharge in the two diseases is nearly similar, and the local symptoms so much alike as to render a positive opinion, in legal cases, rather hazardous. And yet, it is apparent, that the truth of the accusation may depend upon the determination of this difference alone.

According to Churchill,(*i*) "The commencement of the disease, (infantile leucorrhœa,) is marked by local uneasiness, itching and scalding on making water; the mucous membrane is found inflamed and swollen, but for some time there is no discharge. * * At a more advanced

(*f*) Lond. Med. Gaz. Vol. XLVII. p. 744.
(*g*) Dublin Med. Press. Vol. XX. No. 511. 1848.
(*h*) Erg. Heft. 41.
(*i*) Dis. of Females, p. 35.

stage there is observed a thin, colorless mucous discharge, which slowly becomes more copious, thicker, and of a white or yellowish color. It is often of an acrid character, and causes a circle of inflammation, and sometimes of excoriation of the skin at the margin of the vulva. If the labia be separated, the mucous membrane will be found more vascular, and of a deeper color than usual; but in very few cases does this extend up the vagina. * * Under ordinary circumstances the disease is neither very tedious, nor very obstinate, and after running a certain course, it terminates in resolution."

This description, with the exception of the last sentence, would answer equally well for gonorrhœa, the only reliable point of difference being the obstinacy and indefinite course of the latter.

In the case before referred to in Henke's Zeitschrift,(*j*) the virulent character of the discharge from the private parts was settled by the unmistakable gonorrhœal ophthalmia which the child had brought on by touching her eyes with her soiled fingers. As regards the existence of gonorrhœa in a child, in the vast majority of cases presupposing a criminal attempt, the proof of the former is merged in the proof of rape.

§ 436. Where, however, there is found *leucorrhœa*, *i. e.* a simple mucous vaginal discharge, without any signs of violence, such as contusions, lacerations, dilatation of the orifice of the vagina, or injury of the adjoining parts, it may still be doubtful whether these marks of violence have not existed *previously* and disappeared, or whether it has had a spontaneous origin. This is a question which can only be decided from a knowledge of the time elapsed since the alleged injury. Where it results from mechanical violence, the discharge is at first mixed with blood, owing to the laceration and distention of the parts, and afterwards changes its character, becoming thick and yellow or thin and albuminous, according to the degree of inflammation and the influence of treatment, but is not as copious as where the disease is of spontaneous origin. But the leucorrhœa of children is *never bloody*, and, of course, no marks of mechanical distension or of laceration will be found at any period of the disease. In conclusion, it may be remarked that leucorrhœa of children is quite a rare affection, so much so that no mention is made of it by some of the best authorities.

One of the latest authorities upon this subject is Mr. Kesteven, of London, who, in the *Medical Gazette* for February 28, 1851, has recorded a case and attached thereto some practical and useful observations, from which the following is an extract. With reference to the physical indications of chastity, the medical opinion upon which, he says, may be divided into two classes, the public and private, the former, or the most frequent, "are those in which vaginal discharges in young children are mistaken by the parents or friends for the evidences of sexual intercourse by elder male persons having gonorrhœa or syphilis. Such cases have frequently occurred to myself, as they have to others; and, although now better understood by the profession than formerly, yet so strong is often the notion entertained by the public with regard to these cases, that it is not unfrequently ex-

(*j*) Erg. H. No. 41.

tremely difficult to persuade parents that we have merely to deal with the results of ordinary disease, and not with those of violence. This notion, in several cases that have come under my notice, has unfortunately been *confirmed by hasty and erroneous opinions*, given by surgeons on the mere representation of the friends, without a proper examination having been made. *It is scarcely possible to speak too severely of such culpable and wilful ignorance.* Within the last few weeks, a child of nine years of age was brought to me, upon whom it was suspected that violence had been inflicted. A careful examination afforded evidence that the case was simply one of vaginitis. There was complete absence of any indication of violence, for although it can scarcely be believed to be possible that sexual entrance into the vagina of an infant could, under any circumstances, be perpetrated; yet in the *attempt*, much contusion of the young and delicate soft parts *must have ensued*, had it been made. The parents were satisfied, and an individual unjustly suspected was forthwith released from so odious an imputation."

"This disease," says Mr. Wilde, "although denominated by Churchill and other modern writers upon the diseases of children, *leucorrhœa infantilis*, is better designated by the term *vaginitis*, for it is of a much more inflammatory character than either leucorrhœa or gonorrhœa, at least, as these two diseases present in the adult female; and the discharge is much more profuse in the former, and much more purulent in the latter. This discharge proceeds principally from the vagina, although the external parts are generally bathed with it when we come to examine them, in the same way as the surface of the glans and the inside of the prepuce are usually covered with discharge, in persons laboring under gonorrhœa, particularly where the foreskin is abundant. The redness and swelling of the labia, clitoris, and orifice of the vagina, are generally very great, and the hue of the former is somewhat purplish. Not being acquainted with the appearance of gonorrhœa in children under ten years of age, I cannot say whether the inflammatory symptoms are equal in appearance to those now described. The disease is, I believe, usually painless in the first instance; and it is only when excoriation has taken place from the irritation of the discharge, and that the urine passing over the abraded surface produces some degree of soreness, that any complaint is made. After some time, the period varying according to the virulence of the disease, and the state of cleanliness or the contrary in which the child is kept, the discharge excoriates the labia both on their external and internal surfaces, the fourchette, perineum, the margin of the anus, and all that portion of the integument of the thighs washed by the discharge, or which come in contact when moved one upon another. In fat children, the amount and extent of excoriation, which presents much the character of an eczematous eruption, is always greater than in those who are thin, or have been in any way wasted by previous ill health. The extent of this eruption is generally very well marked by a defined eczematous margin, extending from the pudendum, in a crescentic form, over the thighs, and sometimes into the cleft of the nates. The character of this eruption, its *defined margin and extent*, may possibly, to a practised and unprejudiced eye, serve to distinguish this disease from the

results either of violence or the mechanical irritation produced by the 'friction of the penis' between the thighs and external labia, as was endeavored to be proved by the crown in the late trials in Green street. With respect to the discharge, it is generally of a very acrid nature, and is the cause of the excoriation and eruption upon the true skin; and, unless the disease has been discovered by accident in an earlier stage, (such as by observation of the child's linen, or by the chance of some second party seeing the child,) the two circumstances which first attract attention are, the difficulty of walking, or the pain in making water; but the date of the discovery varies from a few days to several weeks, according to the violence of the affection, or the care and attention bestowed by the mothers on their children. For the same reasons, the duration of the disease will vary from a fortnight to six weeks or two months. The age at which this vaginitis is most frequent is from four to ten, but it may appear earlier."

The latest notice of it is by Mr. Wilde, of Dublin, (in the Med. Times and Gaz., Sept. 1853.) This paper is entitled a "History of the Recent Epidemic of Infantile Leucorrhœa, with an account of five cases of alleged Felonious Assaults recently tried in Dublin." He says considerable excitement has prevailed among all classes in Dublin during the last month, owing to the circumstance of no less than three cases of felonious assaults upon children under ten years of age, having been brought forward by the crown, at the late Commission before the Chief Justices. * * * So impressed were those members of the profession in Dublin, who were acquainted with the circumstances of the cases, that Professors Cusack, Beatty and Geoghegan, and Drs. Churchill, Hughes, Hatchell and Speedy, all came forward in court gratuitously, to tender their evidence in what they considered the cause of truth, science, and humanity. Most practical physicians and surgeons, particularly those attached to public institutions, or who are well acquainted with the diseases of the lower classes, know perfectly well that vaginal discharges attended with inflammation of the external parts, and an eczematous excoriation of the labia and the adjacent portion of the thighs, are not uncommon affections in girls aged from four or five to ten years." Mr. Wilde gives some curious and instructive details of the manner in which the charge of rape is got up in some of these cases. We will give one as a specimen: "The first of these cases was that of Margaret Walsh, a child aged nine and a half years, in whom the disease presented a very virulent form, when it was discovered by her step-mother, who, however, acknowledged that she had remarked her *walking lame for several weeks before.* There was considerable swelling and inflammation of the parts, and a most profuse purulent discharge. Upon the discovery of the disease by the step-mother, she at once accused the child of impropriety, and demanded the name of the person who had diseased her. Upon the child's denying all knowledge of such, she was forthwith "soundly flogged," and repetitions of the punishment promised, until she confessed. It came out at the investigation, that the mother took down the cross from the mantelpiece, and threatened her therewith,—a very impressive mode of adjuration among the lower order of Irish. The neighboring women interfered, and by threats and promises endeavored

to extort an acknowledgement, but without effect. Names of different persons were then suggested, but still the child said she could not remember any of them having offended her. Finally, an elder sister, who was present during one of these scenes of torture, reminded the child of an old pensioner named Barber, (who resided in a distant part of the city, but who was formerly a neighbor of hers,) having given her a bit of sugar some months before, when they lived in his neighborhood. This she acknowledged, and then arose the accusation." The man was arrested, committed for trial, and sent to prison. The child stated that the prisoner took her into the open hall of a house adjoining his own, and entered into a detail of the transaction, which it is not necessary to quote. The medical evidence showed that the prisoner was not in any way diseased. "After a few words from Chief Justice Monahan, the jury at once acquitted the prisoner, who was discharged, with, however, that suspicion against his character, which, among persons of his own class, is not easily eradicated,—while the unhappy child was stigmatized as a young prostitute, who had acquired gonorrhœa when little more than nine years of age!"(*g*)

§ 437. The gangrenous inflammation of the vulva, to which we have referred, as giving rise to suspicion of rape is a still rarer disease than leucorrhœa. It is due generally to some unknown epidemic influence

(*g*) The following testimony by Mr. Cusack in one of Mr. Wilde's cases will further establish this point:—"I examined the two children, (Cosgrave, the prosecutrix, and Delmere;) both were affected with the same complaint. They were filthy, and had a discharge from the pudendum. There was a crust surrounding the parts upon the true skin, which arose from the deposits from the discharge. This child had not the slightest mark of violence; and it was simply a case of a disease which all medical men have met with, and which is very common among children who are strumous, or badly cared for, or who have been in contact with each other. It is usually found in low life, but sometimes it is found in the better walks of life, where children have suffered from other complaints tending to weaken the constitution; and, I confess, I was horror-stricken at the time to hear that the prisoner at the bar was accused of such a crime. I was as convinced as I am of my existence, that there was no violence offered or attempted upon this child, and that this was a common disease which is universally known to the profession. I conversed with Sir Astley Cooper on this very subject, and I entirely concur with what appears in his lectures, that numbers have suffered unjustly from such charges as the present, being fabricated by the mothers of children." "This evidence," says Mr. Wilde, "which was given in a very decided and energetic manner, seemed to produce a considerable sensation in court; on which the Lord Chief Justice and the crown counsel cross-examined the witness to a considerable extent, in order to show that, although there were no marks of violence, 'a penetration between the labia, accompanied with force, but not sufficient to do any injury to the surface,' might have occurred. In answer to this mode of putting the question, the witness said: 'If the penis was brought into contact with the parts, and a discharge ensued in consequence, it would certainly be a species of violence; but, in the present case, there was nothing to show me that any friction had taken place externally, or that any attempt had been made to do anything wrong. I am confident that the discharge was not, in any respect, the consequence of friction from the penis of any man. If there is violence, it would cause pain, but I could find not a trace of violence upon this child.' One would have thought that this evidence might have induced the crown to give up the case; but the lawyers only took it up the more determinedly, and, seeing that disease from natural causes was established, changed their hand, and endeavored to prove, by the subsequent witness, that, acknowledging the child was in the diseased state described, at the time the crime was committed, still penetration between the labia, without what might be styled violence, but as a simple application of the parts, might have taken place; as the Chief Justice described it, the introduction of the parts without force, and even to the 'hundredth part of an inch.'" Notwithstanding the explicitness of the medical testimony in this case, the defendant got off only by proving an *alibi*.

or occurs as the sequel of certain prostrating diseases—as measles, or scarlet and typhus fever. Velpeau says, it commences with a greyish, red, or blackish vesicle, which ulcerates and then sinks below the level of the surrounding tissues, which assume a dusky red color. The mortification gradually extends on every side, and the labia become covered with a sanious and fœtid discharge. The whole constitution suffers terribly, and without the prompt use of energetic remedies many children would perish. Mr. Kinder Wood, in 1825,(*h*) saw twelve cases of this disease, of which only two recovered. It is peculiar to children. We think that too much importance may be attached to this disease as rendering really difficult the question of rape. In all the cases of rape on children we have met with, we do not find one which presented any appearance which could be for a moment mistaken for this disease. The discrimination should not embarrass the physician, although the parents or relatives of the child may be so far misled as to attribute the disease to criminal violence.

(2.) *Rape on Adult Females.*

§ 438. The question of the possibility of rape on an adult female is one that presents considerable difficulty. The testimony of the female herself is naturally open to suspicion, since the cases of false accusations of rape are by no means rare. The majority of writers on Medical Jurisprudence maintain, that when there is no disproportion between the age and strength of the parties, and the woman is awake, well, and conscious, a rape cannot be accomplished unless through threats against her life. It must be remembered, however, that there are few circumstances in which a woman can be placed, where from confusion, surprise, and terror, she is sooner deprived of the command of her will and the power of resistance. We believe that no general rule should govern our opinion on this question, but that it ought to be decided in each case according to the correspondence of the injury received with the woman's narrative, and her character for modesty and veracity.

We subjoin the following case because it seems to disprove the accuracy of the general opinion, and bears strong internal evidence of credibility. On the 22d of March, 1849, a girl, 20 years of age, unmarried, and of virtuous character, returning home from an errand to a neighboring village, was met in the pathway through a wood by a young soldier of 22 years of age, with whom she had previously a slight acquaintance. He asked her to let him accompany her a little way on her road, to which she consented. After having gone a short distance the soldier proposed to her to go with him into the bushes. He made an effort to force her, but did not succeed. He kept his arm around her body, however, and seizing a favorable opportunity suddenly raised her from the ground, and, with one hand confining her arms behind her back, threw her down, and with the other pulling up her clothes, prepared to effect his purpose. Upon her beseeching him to let her hands free, he did so, when she again made repeated efforts to get loose from him. He succeeded, however, in again securing her hands, and now

(*h*) Med. Chir. Trans. Vol. VII. p. 84.

lay with all his weight upon her, and endeavored with his knees to separate her limbs, but with a last effort she freed her hands and seized him by the privates. She would not let go until he promised to desist. He did so, when, as she attempted to rise, he caught her by the leg and throwing her back, finally succeeded by perseverance in securing her hands and separating her limbs, after which he fully accomplished his purpose. All this was done without blows or any unnecessary violence. A witness, who passed by after this was over, testified that he heard them quarreling together, that the girl was crying, and the young man endeavoring to smooth her disordered dress. Upon her return home, she informed her mother, with many tears, of what had happened, upon which her father insisted upon her going to the parish priest, who lived about a mile distant, which journey she accomplished, though not without considerable pain and difficulty. Medical examination was had three days after the occurrence. The traces of a recently ruptured hymen were found, but other marks of violence were very trifling. There were no spots of blood upon her linen, but some traces bearing a resemblance to seminal spots were found. It further appeared that she was strong and healthy, and it having been suggested to her that she had probably lost her breath in ascending the hill, and hence had been easily overpowered, she said no; she had entirely recovered her breath. The place was examined which she had indicated as the scene of the outrage, and evident marks of a struggle were found. The woman's statement was entirely unaffected by the cross-examination, while the prisoner contradicted himself repeatedly during the trial. He was sentenced to five years imprisonment.(*i*)

§ 439. Where a woman has been wrought into a *state of unconsciousness by intoxicating liquors* or by narcotic drugs, and when she is prevented by these means from making much resistance, there can be no doubt that her chastity can be violated. The cases are quite numerous which attest this.(*j*)

§ 440. The question whether a *deep natural sleep* can render the female unaware of the sexual act is more difficult to decide. There are certainly some persons whose sleep is always exceedingly heavy, and who cannot be awakened by loud noise such as thunder, by strong light, or by being rudely shaken. Long watching and fatigue, and heating drinks are often followed by very profound sleep. It is not difficult to suppose that, in some rare instances, females whose slumber may have been rendered unusually heavy from any of these causes, may be unconscious of sexual connection taking place at the time; and it may be even admitted, that it may occasionally happen to virgins. If, moreover, the act be perpetrated under the cover of darkness upon a woman who has fallen asleep while awaiting her husband or lover, a certain degree of belief must be given to such an explanation. Yet while allowing all due weight to these exceptional cases, their occurrence should not be lightly assumed, the presumption being certainly against it.(*k*)

§ 441. The proof of unconscious sexual connection is usually derived from the occurrence of pregnancy without a knowledge of its origin.

(*i*) Henke's Zeitschrift Erg. Heft 41, pp. 21–44.
(*j*) See *post*, § 458, for the legal relations of this point.
(*k*) *Ibid.* et seq.

We subjoin a few examples. Klein(*j*) reports a case where a step-father violated and impregnated his daughter, of the age of 18, during her sleep. Zittmann(*k*) relates the case of girl, who was impregnated during her sleep, and was only conscious of having had an oppressive dream. Alberti(*l*) mentions the fact of a girl being violated and rendered pregnant, while in a state of stupor from a potion prepared from the seeds of *datura stramonium* (Jamestown weed). Osiander(*m*) relates that a young girl, only 15 years of age, having fainted with terror at the sight of some drunken soldiers, was shamefully misused by them and left bleeding, and in an almost dying condition; she, however, recovered, but had got the venereal disease and became pregnant. Klose(*n*) met with the case of a clergyman who while watching by the corpse of a young girl, gratified his lust upon her. Her death, however, was but a temporary suspension of animation, for she awoke and was pregnant.(*o*) It should of course be remembered that the truth of the statement relative to the commencement of the pregnancy is open to examination.

§ 442. Rape may be committed with comparative ease upon women *advanced in life*. Casper(*p*) relates a case in which a woman, 68 years of age, decrepid and horribly pitted with the small-pox, was violated by a young fellow of 27.

Rape on persons under the influence of ether or chloroform.

§ 443. A recent trial in this city has developed the importance of the question, how far the capacity of resistance upon the part of the female, and her consciousness of the act is abolished by the intoxicating and narcotic influence of ether and chloroform. With the exception of a somewhat similar case which occurred in Paris, we believe that this is the only one which has been made the subject of judicial investigation.

From the novelty and importance of the questions to which it has given rise, we have concluded to give here a full account of the history of the case, chiefly extracted from Dr. Hartshorne's vindication, and some remarks in the note, of our own, on the "psychical effects of ether inhalation," both of which are published in the Phil. Med. Exam. for Dec., 1854.

"A young lady of unimpeachable character who has for some time been engaged to be married, is accompanied by her betrothed to the house of an eminent and highly respectable dentist, who had engaged to plug one of her teeth. They arrive about 10 o'clock on a Friday morning. She enters the house, and after "a few minutes" spent in

(*j*) Kopp's Jahrt. der St. Arzneikunde. 10 Jahrg. (*k*) Med. forens. Cent. V. cas. 21
(*l*) Syst. Jurisprud. Med. T. II. p. 200. See *ante*, § 201.
(*m*) Handb. der Geburtsh, § 286. (*n*) System der gericht. Physik. § 286.
(*o*) See also, Rüttel Henke's Zeitschrift, 1844. 264; Henke's Handbuch; Zeitschrift, 37 Bd. p. 290; Hartman, Canstatt's Jahresbericht für, 1851. Bd. VII. p. 84. In this last case the woman could not only not be convinced of the existence of pregnancy, but was even unaware of the nature of her labor until she saw the child. See also, Capuron, Med. Lég. pp. 57, 84. Foderé Méd. Lég. T. I. 497. Dict. de Med. T. XXI. pp. 358–9; also, T. X. p. 465. Devergie Méd. Lég. T. I. p. 431. Gooch. Compend. of Midwifery. pp. 81–2. Montgomery, Signs of Pregnancy. p. 134.
(*p*) Loc. cit. p. 26.

awaiting the exit of two other ladies, she is ushered into the operating room or office. Here we will allow her to continue the narration in her own words.

"I went into the office; took off my bonnet, and Dr. B—— went to the washstand to wash his hands, and he asked me after the family; I took a seat on the operating chair; in a few minutes Dr. B—— told me one of the men wanted to speak to him, and he gave me a book to read and left the room; did not say what man; I supposed there were men there; he has a room in which the teeth are made; I believed those to be the men; Dr. B——'s family were out of town at that time; he said so, and the door was opened, and there was no furniture in the front room; I don't know how long Dr. B—— was absent; when he came back I was sitting in the operating chair; he went to the instrument case, and began with my tooth; the tooth was on the left side; he commenced operating on the tooth before he gave me ether; the operation was very painful; he said he would either put something in to destroy the nerve, or give me ether, leaving the choice to me; I told him I'd prefer taking ether; I didn't learn what he proposed putting into the tooth; he gave me the ether on a small napkin, folded up; I felt very dizzy at first; I was cold and felt very numb; it increased upon me; I did not lose my consciousness of what was doing; I continued to breathe the ether; my eyes were closed; I closed them voluntarily; I did not try to open them for some time after; after he gave me the ether he did not, as I remember, operate on my tooth; he felt my pulse several times; but his hand on my arm under my sleeve, up my arm; I had a loose sleeve; he did it once; he put his hand on my breast under my dress; on the bosom; he put his hand on my person, under my dress; I have a distinct memory of that; I was not able to make any resistance or outcry; he went round before me and raised my clothes; I am perfectly distinct in my memory of that; I did not try to cry out; do not know if I was able; after he had raised my clothes, my feet were crossed, and he raised them and put one on each side of the stool; he then put his arm around me under my clothes; he drew me down to the edge of the chair; I do not know what he did after that till I felt pain; he did enter my person; it was then I felt the pain; I was not able to cry out or resist; I did not try; I don't know what was his position; my eyes were closed; I have no doubt that he did enter my person, and did give me pain; all this time I was conscious of everything that was going on; after this he left me and crossed the room to the washstand; I heard him pour out water into the basin; after he had been to the washstand and returned, I opened my eyes, and saw my clothes up; he did not see me; I have a clear recollection of seeing my clothes up; I closed my eyes immediately; he put down my clothes, and in a few minutes he was at the side of the chair, and lifted me up into the seat; I was just to the edge of the seat; it was a large dentist chair; in a few minutes he told me he'd have to take the tooth out; that was the first remark he made, except the first, when he asked me if I was getting sleepy; at the time he entered my person I did not feel his person against me; pain I distinctly felt; when he spoke about taking out the tooth, I asked him why? he said they were both decayed, and he could not save them both;

I told him I was afraid it would pain me, and he said he would not let it; he then gave me more ether, and extracted the tooth; I was on the left side; when he extracted the tooth it was painful; I screamed then; he then assisted me to rise, and led me to the rocking chair; I felt a little dizzy when he led me to the rocking chair; he then went out of the room, and in a few minutes came up with a lady; I have not seen her since; he asked me if I would be introduced to her; I believe I said no; he did not introduce me then; I heard him tell the lady he'd always been our dentist, and that we never had been to any other; he said my teeth were very good; he said I had taken ether, when the tooth was extracted; I think she said something about hearing me scream; he said yes, ether had not much effect on me, I was either nervous or for some cause; in a little while I got up, and he introduced me to the lady; I think it was Mrs. P——; I made several remarks, but I don't know what they were; I then put on my bonnet, and Dr. B—— followed me down stairs; the lady was left up stairs; he came to the door, and I wanted to stop an omnibus; he asked me how far I was going, and I told him to Third street and Lombard; he told me I had better walk; he said he thought I had some of the ether in me, and the walking would do me good; I walked down Walnut to Sixth, and did not get in an omnibus; I did not reproach Dr. B—— at the house; I was afraid; I stopped in C—— ice cream saloon, at Sixth below Prune; I got ice cream; I went then along Sixth street to Spruce, and down to Third and Lombard street; I was going to see a young woman that sent for me; I did see her; don't recollect how long I was there; when I left I came up to Mr. T——'s, at Chestnut street, near Fifth; I was very intimate with Mr. and Mrs. T——; I met Mr. M—— on the way up, near Sixth and Chestnut street; he joined me and spoke to me; did not accompany me to Mr. T——'s; did not meet any but those I have named; I reached Mrs. T——'s at 1 o'clock; they had not been to dinner; I first mentioned to Mrs. T—— what had occurred at Dr. B——'s; the same day after tea; that afternoon I was taken unwell; it was the usual time; the door of the dentistry room at Dr. B——'s was shut; there are two doors in the room; the one leading to the entry door was closed; Dr. B—— said that he closed the door because the smell of the ether would go over the house; the door was shut before he gave me the ether; the chair is one that leans backwards.

"*Cross-examined.*—Dr. B—— was the dentist of our family; don't remember the number of years; it was from the time of my early youth; he attended all the members of the family so far as they required it; I went to him with the approval of my parents; he generally behaved like a gentleman; I did not know his family; don't know how many years I have been his patient; when I called with Miss Thr—— it was to get my tooth plugged; on several times before I had taken ether; I requested it to be given; I don't remember of his persuading me from it; the tooth was not plugged when I was there with Miss Thr——; the following Thursday was appointed for future operation; I did not go on Thursday; Mr. Thr—— had the appointment made; I believe it was on Wednesday morning; I received a letter from him to that effect; I requested him to go in with me; he

was there when the woman came to the door; I was shown into the front parlor; it was the usual place; it was but a few minutes before the ladies came down; Mr. B—— came down before; he said he had several young ladies up stairs and would be down in a few minutes; I went into the usual operating room up stairs; the door opening into the front room was opened at the time; it was the back room of the main building I was in; the workshop is in the second story brick building; don't know how far from the room in which I was; it is not upon the same level; it is lower; I don't know if I could see into the windows of the workshop from the window of the room in which I sat; when Mr. B—— went to see the workmen he gave me one of the monthly magazines; while I was in the room nobody came to the door that I saw or heard; don't know of the doctor leaving that room; did not see any women there except Mrs. P—— and the Miss H——; the windows were closed in the room, *i. e.*, the sashes were down; no change was made in their condition while I was there; don't remember any one calling as a sitter while I was there and Dr. B——'s speaking of it; I did not know of Mrs. P——'s being in that house before she was brought up stairs; I don't remember speaking to Dr. B—— of the fan and requesting him to give me ether; from the time I closed my eyes after the ether had been taken, I did not open them until after the liberties had been taken; I did not open my eyes until he returned from the washstand; what I have described is from what I have heard and did not see; I did not see any part of his person exposed, nor the application of any part of his person to me; don't know, except from the pain, what part of his person was applied to me; he passed his hand up my arm immediately after he had felt my pulse; after the ether was administered a second time no liberties were taken; I judge that he did not see me when I opened my eyes, because he was not in front of me; when he told me he would have to pull the tooth, I asked him why; the reason why I agreed to take the ether a second time was, because I was afraid; I was not afraid to have my tooth taken out, or to be operated upon further; I don't know if either of my teeth were prepared for plugging; I suppose he touched the tooth he took out; that gave me pain; I told him I'd had the toothache; another appointment was made for Monday at 2 o'clock; I asked him when I was to come again to have them finished, and he said at that time; I asked him that when I was going and had my things on; he booked it at my instance; I don't know if it was before Mrs. P—— came in or not; Dr. B—— did not say there was a sitter waiting for the chair; I did not see any one call to inform him of a sitter; I never notice such small things as that; don't know how long after he had finished the tooth that he went down for Mrs. P——; I did not remain more than five minutes; Mrs. P—— said she came from the country and came to have her teeth attended to; Dr. B—— followed me down stairs; that is his custom, not only with me but with other ladies; when at the door I did not manifest any displeasure with him; I told the doctor I wanted an omnibus; I believe I bid him good bye; soon after I got out of the door of the second story, I told him to say good bye to Mrs. P—— for me, as I had forgotten it; the chair I sat in was the one I had always used; there was but one operating chair in the room; Dr. B—— asked me if I ever rode on

horseback; I said yes, sometimes; he said ride over and see us; I replied, perhaps I will; that was up stairs; on the way down to C——'s I did not meet any one I knew; I did not meet any one on my way to Third and Lombard street; I told Dr. B—— I was going on an errand to Third and Lombard streets; it was an errand for my sister in respect to some articles of dress; I did not speak to her of the treatment I received; did not sit down very long; when I left Dr. B——'s I think it was a few minutes before or after 12 o'clock; I don't remember which; I don't know how long I was at C——'s; not long; reached Mrs. T——'s a little after 1 o'clock; Mr. M'K——, whom I met, asked after the family; I did not tell him where I had been; he only walked with me a short distance; I did not complain of any pain to Dr. B——, except the pain of my teeth; I don't remember how long the first application of the ether lasted; after I took it I felt no pain in my teeth; cannot describe the effect of the ether, except that it made me dizzy; I did not see the doctor at all during the operation of the first ether; I felt his breath as well as felt pain; the pain did not continue long; I had no other indication of the approach of my monthly discharge but that day; it occurred in the evening; I did not examine my person in the interval; nobody examined it between those times; I did not examine my garments; my mother did on Sunday afternoon; nobody before; those garments don't remain now as they did then; they are washed; I don't known when; I made the communication to Mrs. T—— after tea on Friday evening; I told Mrs. T—— before I became unwell; I gave evidence before the Mayor; don't know if the garment was washed before that; it was not washed till I went out home; during the time I was at Mrs. T——'s till I was taken unwell, no physician was sent for; I was never examined by a physician; on the afternoon of Friday I was out riding with Mr. and Mrs. T——; we set out about six; I do not know where we went; somewhere on the plank road; it was some time after I returned that I felt unwell; spoke to Mrs. T—— on that subject after tea; we had tea as soon as we came home from riding; Mrs. T—— told Mr. T——, and Mr. Thr—— asked me a single question about it; I answered it; and that was all I said; it was before I felt unwell that I told Mr. Thr—— about it; he remained as long as I did, and went to my grandmother's with me; on the next day I went out to the depot, but did not go to my father's; Mr. Thr—— accompanied me to the depot; I met Mr. and Mrs. T—— out there; I did not see my father or mother; I saw my father on Monday morning in Fifth street; at the time he left to go down stairs, I did not see if he opened the door or not; I was sitting with my back to the door; I don't know why I refused to be introduced to the lady when he first asked me the question; my father and Mr. Thr—— accompanied me to the Mayor; Mr. and Mrs. T—— and my two uncles were there; my father was there before I was.

"Re-examined.—I said that Dr. B—— generally used me like a gentleman; he said a year ago that he should like me for his second wife; he had a good many children, but they should not trouble me, as he would get nurses for them; I spoke of it at home to my mother and sisters; after the doctor took me out of the chair after the operation, all that I said was in answer to questions by him, or to remarks; the

reason why I did make another appointment with him (Dr. B——) was that I did not want him to know that I knew anything of his conduct; I had not concluded what course to pursue."

We leave the comments upon the legal proof of penetration or of rape in this case to our colleague; the question as to the capability of evidence on the part of a female, relative to what has occurred during the period of etherization, and the possibility of resistance under such circumstances, may, we hope, receive an answer in the subjoined remarks.(*q*)

(*q*) There is a striking analogy between the effects of ether and those of alcohol; the chief difference between them being in the more rapid and complete insensibility produced by the former, and in the more evanescent character of the intoxication. There is a period of excitement, of stupor, and of recovery, and the phenomena observed in different individuals vary according to their temperament and habits. In general, the state of excitement in etherized patients is short, and verges rapidily into that of unconsciousness and insensibility to pain. The vapors of ether seem literally to ascend and diffuse themselves through the brain, and to permeate every portion of the body; the patient has a sense of fullness and warmth; the whole body feels lighter and seems to spurn the earth; the sense of hearing becomes confused, the sight dim, and the touch benumbed. External objects lose themselves in a confused mist, which appears to swell their proportions and contort their shape; the muscles become relaxed, and the patient sinks lethargic and unconscious into a profound sleep.

During the transition into a stage of entire insensibility, he responds to external impressions only in an automatic manner: the most painful incisions, if felt at all, seem to him like the marking out of lines upon the skin, and the extraction of deep-seated tumors like the crackling of hair between the fingers. All his movements are instinctive; an expression of suffering is often depicted upon the face; the hands are raised against the operator as he attempts to draw a tooth, and when spoken to, he answers in a vague and dreamy manner. The recovery from this condition, or from a more advanced stage, is apparently sudden, but, as in the waking from profound natural sleep, the perceptions are for a few moments confused, even while the person thinks himself fully awake and appears to be so.

Dr. Forbes has well described the *psychical* state under the influence of ether. "Generally speaking," he says, "the sense of external impressions becomes at first confused, then dull, then false, with optical spectra or auditory illusions, general mental confusion, and then a state of dreaming or utter oblivion. In the majority of cases, the mind is busy in dreaming, the dreams being generally of an active kind, often agreeable, sometimes the reverse, occasionally most singular, and frequently a great deal is transacted in the few short moments of this singular trance. Many of the patients who have undergone the moat dreadful operations, such as amputation of one or both thighs or arms, extraction of the stone, excision of bones, extirpation of the mamma, have readily detailed to us, and most with wondering thankfulness, the dreams with which, and with which alone, they were occupied during the operations. The character of the dreams seemed to be influenced, as in ordinary cases, by various causes, immediate or remote, present or past, relating to events or flowing from temperament." * * * * * * "A good many seemed to fancy themselves on the railway, amid its whirl and noise and smoke; some young men were hunting, others riding on coaches; the boys were happy at their sports, in the open fields or the filthy lane; the worn Londoner was in his old haunts carousing with his fellows; and our merry friend, Paddy, of the London Hospital, was again at his fair, wielding his shilela in defence of his friends. Others of milder mood, and especially some of the women patients from the country, felt themselves suddenly transported from the great city and crowded hospital-ward, to their old quiet home in the distant village, happy once more with their mothers and brothers and sisters. As with the dying gladiator of the poet, the thoughts of these poor people—

'Were with their heart, and that was far away.'

Some seemed transported to a less definite, but still happy region, which they vaguely indicated by saying they were in heaven; while others had still odder and warmer visions which need not be particularized."—(Brit. & For. Med. Chir. Rev., April, 1843.) It is with this psychical condition that we have now chiefly to do.

What then is the influence of the inhalation of ether upon the *perceptions?* It undoubtedly cuts off, more or less quickly, the life of relation, and severs us from the ex-

§ 444. Finally, although a woman may be of age and strength sufficient for effectual resistance, she may be naturally so simple-minded or

ternal world. The lapse into unconsciousness is gradual but rapid, and does not admit of division into distinct intervals. The sensation of pain is often lost before outward consciousness has become totally obscured. Indeed, instances are related in which the patient has himself looked on as a calm spectator of the painless mutilation of his body. A patient of Prof. Pitha, being put under the influence of chloroform, at once fancied himself in his beloved Italy, and gave full vent to his expressions of delight; he raised himself up during the operation for the liberation of a hernia, and watched it with great interest,—answering to the question whether he felt any pain, "*Si io sento l'incisione, ma non sento dolori.*"—(Prager Viertel jahrschrift, 1848. 3 Bd.) Such cases are rare, and it is important that we should not be misled by this apparent outward consciousness. In the instance just cited, the perception was by no means unperverted; since, although the patient replied correctly when questioned, he imagined himself in a distant country. During an extremely painful operation performed by Velpeau upon a young girl, she raised herself into a sitting position, as if to observe it. She said afterwards that she supposed herself seated at a dinner table.—(Rev. Med. 1847.) In the greater number of cases, however, the perceptions are greatly perverted,—illusions being sometimes suggested by the scene actually passing, and at others arising without being prompted by the external perceptions. Some cases, illustrating this fact, we quote from the interesting work of Dr. Flagg.—(Ether and Chloroform, &c., by J. F. B. Flagg, M. D., Surgeon Dentist, &c. Philadelphia, Lindsay & Blakiston, 1851.)

After an operation performed on the forehead of Mr. T.——, a dentist of this city, he said that although his eyes were shut, he saw every cut of the knife. "He saw the shape of the wound upon the forehead; and, what was better than all, this cutting appeared to him to be done upon somebody else." A lady dreamed that she was at Cape May, and was going into the surf, and that while in the water she was attacked by a shark, which held her fast, but without pain, until the company present extracted his teeth and liberated her. A little girl, the extraction of whose tooth made a report like the drawing of a cork, sprang out of the chair, "crouched upon the floor, and looked up anxiously at me and inquired if any body was killed." She supposed she was travelling upon a locomotive engine, which had been blown up and thrown her into the air. A boy fancied himself in a cotton mill; an Irishwoman dreamed that she had been home, and seen her friends engaged in spinning; and others dreamed that they were in railway cars or shipwrecked: the dream in some cases being suggested intentionally by the dentist, or being due to accidental noises. A countless number of cases might be adduced to show that patients under the influence of ether have been completely ignorant of all that has passed around them while in this condition, and have been surprised to find upon their recovery that they have undergone the most severe surgical operations. But this fact is too familiar to need illustration. It is only important to observe that, during this state of utter oblivion, the mind is often busily engaged upon its own inward perceptions, which may or may not be pertinent to the actual position of the patient. These perceptions shape themselves into dreams entirely similar to those of natural sleep, being grotesque and improbable, cheerful or painful, according to the temperament, occupation, and habitual mode of thought of the individual.

One of the most extraordinary effects of the inhalation of ether is its effects upon the *emotions*. Thus some persons are seized with the most irrepressible mirth, while others seem to sink under the weight of despondency. Women are especially liable to these effects. Hysterical paroxysms are by no means a rare accompaniment of ether inhalation. In others, the erotic propensities are strangely excited. Siebold relates the case of a woman whom he rendered insensible by ether. Upon regaining her consciousness, she appeared to be in a highly excited state, and was loud in her praises of the delightful condition in which she had been,—her eyes sparkled, and a certain erotic excitation was very observable.—(Uber die Anwendung der Schwefel—Æther—Dämpfe in der Geburtshülfe, Göttingen, 1847.) Pitha observed excitement of the sexual feelings in two cases, one of a woman and the other of a man upon whom he operated.—(Prager Vierteljahrschrift, 1847, Bd 3.) "In one of these cases observed by M. Dubois, the woman drew an attendant towards her to kiss, as she was lapsing into insensibility, and this woman afterwards confessed to dreaming of coitus with her husband while she lay etherized. In ungravid women, rendered insensible for the performance of surgical operations, erotic gesticulations have occasionally been observed, and in one case, in which enlarged nymphæ were removed, the woman went unconsciously through the movements attendant on the sexual orgasm in the presence of numerous bystanders."—(A Lecture on the utility and safety of the inhalation of Ether in Obstetric Practice, by W. Tyler Smith, M. B., Lancet, Mar. 27, 1841,) also in Bulletin de l'Académie, Vol. XII. p. 406.) We doubt

so ignorant of the nature and consequences of the sexual act as to offer the greatest facilities to any one who may have the knavery to take ad-

not that other cases might be brought forward to illustrate this fact, but the paucity of published reports of such a nature will be readily attributed to the natural unwillingness of patients to disclose painful illusions of this kind, and of physicians to make them known. In further illustration of the disordered condition of the mind under the influence of ether, the following case may be cited. A female rendered insensible by ether, after some unintelligible phrases, related some most circumstantial details of her private life. This involuntary confidence, which might have been followed by serious consequences had it taken place anywhere but in a hospital, was discovered afterwards to have been perfectly true.—Ann. Médico-psycholog., Vol. XII. p. 376.

In the above observations, it may very plainly be seen that the *will* no longer exercises its control over the mental operations. The thoughts run headlong upon their accustomed track, or in any direction in which they may have been impelled by fortuitous impressions, made upon the nerves of general or special sensation. There is no power to restrain them, and while the dream is a pleasant one, no desire to do so. Often, however, the illusions are painful or disagreeable, and in such cases the individual may make an effort to escape from or to repel them. Movements under these circumstances, therefore, imply an exercise of the will. This resistance is almost always to illusions proceeding from external impressions. We have already referred to the frequent occurrence of instinctive struggles against the hand of the operator, while the impression, as afterwards related, has been upon the mind of the patient that he was playing a part in some very different scene. Thus the little girl whose case is before referred to, and who fancied, when her tooth was drawn, that she was blown from a locomotive, *sprang* from her chair upon the floor while still unconscious.

Another young lady, mentioned by Dr. Flagg, when the forceps was placed upon the tooth, cried out, "Stop pulling! stop pulling!" The tooth was nevertheless extracted. "She *rose* from the chair in much excitement, and would have fallen to the floor, but I caught and sustained her for a moment, when the ether instantly passed off." This young lady dreamed that she was in danger of shipwreck, and, seeing the rocks and breakers ahead, cried out to the man at the wheel, with all her strength, to "stop pulling." In another instance, a lady while under the influence of ether resisted the attempt to extract her tooth. She *got up* from the chair, seeming much offended, and took her seat in another part of the room. When the effect of the ether passed off, which was in about a minute, she was much astonished at finding herself so remote from the position she occupied when she fell asleep.—(Flagg, p. 102.)

The following singular instance may be appropriate in this place. A young man having been sufficiently etherized, the dentist prepared to extract a tooth. In a moment he dashed the instrument from his mouth, *left the chair* and, striding about the room, demanded what they meant to do with him. In a few moments the affect of the ether passed off. Being again put under its influence, the same scene was enacted with even greater violence, and he endeavored to jump out of the window. When he regained his memory, he related that he imagined himself surrounded by a great number of enemies, one of whom endeavored to drive a nail into his mouth, and being unable to struggle with them, he had sought safety in flight.—(Union Med., Sept. 1847.)

Mr. Gerdy in trying the effect of ether upon himself, with the object of observing closely its successive phenomena, found that with the exception of the vibratory and benumbed sensation which rendered the sense of touch and of pain obtuse, and the noise in the ears which dulled the sense of hearing, his intelligence was clear, his attention active, and his *will* so firm that he willed to walk, and he did walk, in order to observe the effect upon his locomotion. He found that his step was only less sure than usual, and was similar to the progression of an intoxicated person.—(Bulletin de l'Académie, Vol. XII. p. 304.)

We have cited these examples, out of many of a similar nature, for the purpose of showing that the power of the will over muscular movement is not entirely abolished in etherization. It is true that the muscles are speedily relaxed, but they are not paralyzed. The patient may exercise his will or he may not; if he does, it is to escape from danger, real or imaginary, but which has always to him the form of reality. If he does not make any movement, the fact is due either to the pleasurable or trivial character of his mental perceptions, or to the temporary but complete unconsciousness and insensibility in which he is plunged. That advanced stage of etherization in which perfect narcotism is produced, is, in reference to the present question, of considerable importance; for if the power of resistance is then lost, so also is the consciousness of a real motive for it. To be more explicit, if an outrage be perpetrated upon a woman lying wholly helpless and unconscious, she cannot be aware of the liberties which are being taken with her person,

vantage of it. A case in point may be found in the second edition of Wharton's Criminal law, p. 439. Here a girl allowed a medical man to have connection with her, under the belief that this was medical treatment. Dr. Fleischmann(*r*) relates a case which occurred in his own practice. He was consulted by the parents concerning their daughter, a girl of 17 years of age. She had been brought up in a very secluded manner, and was both weak-minded and wholly inexperienced. Her monthly periods were suppressed, and a certain train of symptoms set in which awakened in his mind suspicions of pregnancy. The mother

and will not, therefore make any opposition to them. She cannot, moreover, afterwards describe, with elaborate detail, the manner and particulars of the assault, and yet have been incapable of withdrawing from or repelling it. If her muscles and voice have been paralyzed, so also has her outward consciousness.

The recollection of what has passed during this stage of etherization is wholly confined to the inward mental perceptions—to the dreams, which have all the vividness of real occurrences. In the language of Dr. Forbes, "the old story of the magician in the Arabian tales seems more than realized; the ether being like the tub of water, one moment's dip of the head into which produced a life-long vision in the dreamer's mind." It is possible that these dreams may be so vividly impressed upon the mind that they may have afterwards to the patient all the force of real occurrences, and that he may refuse to believe that they have been merely the disordered perceptions of his own brain. In general, these dreams being of a trivial or of a pleasing character, it is not surprising that the patient should acquiesce in the belief of their unreal nature, but the case is very readily conceivable in which the hallucination may have been so distinct and, at the same time, of so repulsive a character as to leave an indelible impression upon the mind and a conviction of its reality. Authentic published evidence of this fact is indeed wanting, and we purposely forbear, for reasons which cannot fail to be apparent to our readers, to refer to that which was said to have been offered in the recent trial, as well as to that which we possess from private sources.

The following cautious remarks of M. Bayard are not without significance: "If," he says, "in some cases, individuals have rendered an exact report of what has passed around them, or of the liberties which have been taken with them while under the influence of ether and chloroform, it must not be forgotten that very frequently they have dreams, hallucinations, and illusions which they relate with a conviction of their actual reality. Experts should therefore receive with extreme circumspection declarations made before them under these circumstances, and, both in their written reports and verbal depositions, should endeavor to enlighten magistrate and jury upon the relative value and credibility of such revelations."—(Appréciation Médico legale de l'action de l'ether et du chloroforme. Ann. d'Hygiene, Vol. XLII. p. 201.) It appears to us, from what has now been stated, that the following positions may be assumed as correct:

1st. That the consciousness or perception of external objects and impressions is impaired in the early and lost in the final stage of etherization.

2d. That during the time the mind remains susceptible to external impressions at all, these reach it in a feeble or perverted manner.

3d. That the emotions, and especially those of an erotic character, are excited by the inhalation of ether.

4th. That voluntary muscular movement is not paralyzed until the state of perfect narcotism is produced, at which time, however, all outward consciousness is extinct.

5th. That the memory of what has passed during the state of etherization is either of events wholly unreal, or of real occurrences perverted from their actual nature.

6th. That there is reason to believe that the impressions left by the dreams occasioned by ether, may remain permanently fixed in the memory with all the vividness of real events.

[Since these remarks were written, there has been much evidence published, given at meetings of the dentists in New York and Baltimore, which fully confirms what has been now stated, and places the whole of the positions assumed by us beyond the possibility of a doubt as to their accuracy. We have only to add that the dentist, Dr. B., was found *guilty* by the jury, and sentenced by the judge to four years and six months imprisonment. We sincerely believe that a great wrong *may* here have been inflicted upon an innocent man, which can only be compensated by the probability that the fallible nature of the evidence upon which he was convicted, will hereafter render it difficult to sustain an accusation upon similar proof.]

(*r*) Henke Zeits. 1839, p. 294.

indignantly repelled this idea. He still, however, continued his attendance and prescribed various remedies, without any avail. At last the violence of her pains compelled the girl to take to her bed. Here she lay for a short time in a half unconscious condition, but suddenly she gave a loud cry, threw aside the cover, and displayed, to the astonishment of all, a living child, just born, lying between her thighs. In answer to her mother's anxious inquiries, she declared with the greatest candor and simplicity, that she had never slept with a man, and knew nothing more except that a long while before, her cousin N——, on a Sunday, when her parents were not at home, had played with her, and caressed her a great deal, and then, said she, "*er hat mir auf dem sofa recht schön gethan.*"(*s*)

§ 445. Very little need be said of the *physical signs* of rape upon the adult female. Where the violence employed has been great, it will be found generally that it has been expended in overcoming the resistance of the woman before an actual penetration has been attempted. Hence, although bruises may be found upon the thighs and knees, and on other parts of the body, they are certainly inconclusive of rape, without some marks of injury can be found upon the private parts also. We of course refer only to the medical evidence, as it is plain that the fact of rape having been attempted may be established by other testimony. We have already alluded to the fact that a medical examination in cases of rape is seldom had early enough to secure any useful data; this is especially vexatious in the case of adults, in whom, of course, the traces of sexual connection will soon disappear.

§ 446. The only valuable indications are deduced from the *condition of the hymen and the traces of blood and semen.*

Condition of the hymen.—This comes under consideration only, of course, where the female is represented as having been a virgin. Indeed, the hymen is looked upon as the infallible sign of virginity. A brief mention of the various circumstances which affect its value as a test of virginity, will show under what limitations evidence from it may be received.

§ 447. 1st. *It is not always destroyed by the first connection.*—This is abundantly proved by the numerous instances in which it has been preserved entire until the occurrence of parturition; a fact which proves also that it is not an insuperable obstacle to impregnation.(*t*) The accoucheur has sometimes been obliged to incise it, in order to allow the delivery of the child; in some rare cases, on the other hand, it has become gradually dilated and extended in such a manner as to permit the child to pass without its being ruptured.

In Henke's Zeitsch. Vol. XL. p. 173, is related, with detail, a case in which, after four years marriage, the hymen was found to be still

(*s*) We know of no equivalent English phrase by which to translate this remark.

(*t*) Canstatt's Jahresbericht für. 1851. Credé. Bd. IV.; Kluge. Med. Preuss. Vereinzeitschrift. 1835. No. 22; Siebold.—Siebold's Journal. Bd. XII. S. 210; Scanton. Lancet. Mar. 8, 1851; Schmittmüller Henke's Zeitsch. Bd. XLI. S. 172; Möller, ibid. Erg. Heft. No. 32. 1843; Schildbach ibid. Bd. XL. p. 210; Ribke, Casper's Wochenschrift. 1835, No. 2, S. 16; Streeker, Henke's Zeitschrift. Bd. XXXIX. S. 218; Himmer. Neue Zeitsch. für Geburtskunde. Bd. IV. H. 1 S. 3; Montgomery, Signs of Pregnancy, &c. p. 135 et seq. where numerous other references will be found. See also a recent case in Casper's Vierteljahrschrift. 1855, p. 93.

uninjured, being thick and parchment-like, although yielding and presenting an opening about the size of a pea. The pair fulfilled their marital duties, imperfectly, of course, yet nevertheless the lady became pregnant, and was confined prematurely in the sixth month. Dr. Montgomery says, "The existence of the hymen at the time of labor has been observed by Ambrose Paré, Willis, Ruysch, Nægelé, Baudelocque, Mauriceau, and many others; the cases related by the last two are particularly remarkable. Dr. Blundell met with four cases of impregnation in which the hymen remained unbroken; the diameter of the vaginal orifice not exceeding that of the little finger; and he knew of three other cases in which the male organ was not suffered to enter the vagina at all; yet impregnation took place from the mere deposition of semen on the vulva."(*u*)

§ 448. 2nd. *It may be lost from other causes than coition.*—Without insisting upon the fact of its occasional congenital absence, which, although mentioned by Capuron, is probably, as a solitary defect, extremely rare, the hymen may be destroyed by accident or disease. Siebold(*v*) mentions a case in which this membrane was destroyed by an ignorant midwife, in examining a young lady for a supposed prolapsus of the womb. He also refers to a case related by Steinberger, where a young girl who had climbed a tree to gather fruit, fell down in such a manner, that a stake, planted underneath, penetrated the vagina an inch and a half deep, producing serious injury, and of course destroying the hymen. A case, in which the hymen was lost in a somewhat similar manner, is related by Jörg. It is sometimes destroyed by ulceration, by the first eruption of the menses, and by self-abuse. From a consideration of these circumstances it follows, that while the hymen is far from being good proof of chastity, it may be lost, and the female still be pure. Perhaps the only exception to this remark will be found in cases where the traces of its destruction are recent. Here, of course, the presumption will be, that its laceration is due to sexual connection, unless other means are apparent. Where the female supposed to be violated does not deny having previously had carnal intercourse, the signs from the presence or absence of the hymen do not come under consideration.

§ 449. The other traces of sexual intercourse, such as turgescence of the parts with heat and moisture may, where opportunity for an early examination is given, be of some weight when taken in connection with other evidence. An interesting case of *post mortem examination*, in which these signs were of value, may be found in Henke's Zeitschrift, Vol. XLVI. p. 41. The external genitals were found swollen and red, the clitoris in a state of partial erection, and the vagina, turgescent and very moist. The mucous membrane of the uterus was highly injected, and the mouth of the womb open. In its cavity there was found a yellowish white liquid of gelatinous consistence, and which from its smell and other peculiarities by chemical reagents was evidently semen. The dead body of the woman had been found lying near a public road, with the clothes thrown up over the face, exposing the lower part of the body, and the thighs stretched widely apart.

(*u*) Loc. cit. 135. (*v*) Handbuch, p. 102.

Other marks of violence were found upon the body, but the cause of death was forcible suffocation. This opinion, given by the official surgeon, was confirmed by the subsequent confession of the criminal, that while violating the person of the deceased, he had endeavored to stifle her cries by forcing the clothes over her face.

§ 450. *Seminal stains* upon the clothing of the female, form, however, the most reliable medical evidence in rape either upon children or adults. It is of course evident that they will not always be present, since none of the semen may have been shed outwardly. Practically there is considerable difficulty in ascertaining the presence of seminal spots; in illustration of this remark, we cannot do better than quote the words of the acute Dr. Casper, than whom there is, perhaps, no better authority.(*w*) He says, "In all the numerous cases which have come under my observation, I have never omitted, even when several months have elapsed since the alleged rape, to direct my attention to the *chemise*. But this is not the white, fine, and frequently changed garment of the upper classes of society, but almost without exception, of coarse material, ragged, and not washed for weeks or months; the lower half presenting two large, disgusting stains, made up of a compound of menstrual blood, dirt, excrement, urine, gonorrhœal matter, &c. &c. Nothing is said of this 'in the books;' and hence the possibility of recognizing traces of semen in such a mixture is out of the question. But we have in the microscope, which, as well as I am aware, Rudolph Wagner first used for this purpose, an excellent means of diagnosis."

§ 451. The microscopical characters of semen can be recognized equally in the dried spot and in the recent secretion. In the former, however, the spermatic animalcules will most probably be dead, and in a fragmentary condition. M. Bayard(*x*) has been able to recognize them in spots as much as six years old. The following directions for preparing the spots for microscopical examination are given by M. Bayard: "The tissues covered by the stain should be allowed to macerate in lukewarm water for several hours. The liquid should then be filtered, and if the spots have not entirely disappeared, the tissue should be placed in a porcelain cup with a little distilled water, and heated over an alcoholic lamp to 80° Centig. If any glutinous matter still remain upon the filter, it should be again macerated in water, to which a sixth part of ether or ammonia has been added. All the resulting liquids should then be poured upon the same filter. The point of this, being carefully cut and reversed upon a glass slide, should be moistened with ammonia to dissolve the fatty matters, and the paper then removed, leaving the matter to be examined upon the glass." Schmidt, in his valuable paper(*y*) recommends the following simple plan, which has, moreover, the advantage that the spot need not be cut out. The inner surface of the spot, which is known by a slight shining prominence in the centre, and easy to find by the light of a candle, should be turned outward, and the tissue so folded that the middle of the spot shall form the apex of a funnel-shaped bag, which should dip in a watch-glass half filled with water. After three or four hours, warm the water in the watch-

(*w*) Vierteljahrschrift für ger. u öff. Medicin. Bd. 1. H. 1. (*x*) Ann. d'Hyg. T. XXII.
(*y*) Die Diagnostik verdächtiger Flecke in Criminalfällen.

glass over an alcohol lamp, after the addition of a drop of ammonia. A drop of the water may then be examined for *spermatozœ*, and being dried upon a glass plate, kept for future reference.

§ 452. Spermatic animalcules exist in all animals capable of procreation, and are found in the semen of man from the age of puberty to quite an advanced period of life. "They are extremely small, scarcely surpassing the one-fiftieth, and at the very most the one-fortieth, of a line in length. The little, oval, somewhat flattened, almond-shaped, and perfectly transparent body, seldom exceeds from the one six-hundredth to the one eight-hundredth of a line in length; the filiform tail at the top is thickish, and so strong, that the double contours are plainly visible, but towards the end it becomes so fine, that it cannot be followed even with the highest powers, to the point; so that it is possible the delicate extremity proceeds further than it can be traced, and that the animalcule is actually longer than it can be determined to be by micrometric admeasurement." (*z*) It is hardly possible for one accustomed to microscopic examinations to confound the spermatozæ with other objects, unless they should be *all* in a fragmentary condition. In such case, an opinion should be given and received cautiously. When *any* are found entire, we do not think that there is any other microscopic animalcule which a practised observer can mistake for them.

§ 453. With respect to the *chemical* relations of semen, we think little need be said. The spots are usually of a slightly yellow color, somewhat stiff, as if the tissue were starched, and give out the peculiar odor of semen when moistened. They become of a deeper color by being held near the fire, and small whitish specks become visible in them—an effect which is said not to occur with stains from other discharges. Semen is alkaline, glutinous, but slowly soluble in water. When seminal stains are not mixed with any other matter, they may be recognized by the following properties, in addition to those just mentioned. The solution obtained by macerating the stain in distilled water is not limpid, is not coagulable by heat, gives a characteristic odor on evaporation, and when the latter is complete, there is left a shining, transparent substance, sparingly soluble in water, but yielding a glutinous solution with potash. Pure nitric acid causes no precipitate. (*a*)

§ 454. *Feigned Rape.* The following singular case occurred recently in France. Marie V——, aged twenty-three years, was seen to fall down, apparently in a faint, near the house of her uncle, the district schoolmaster, at the entrance of a field adjoining the public road. Her hands were found fastened by a cord, her handkerchief was tied over her mouth, her hood (capote) was drawn over the upper part of her face and fastened by pins in front of the eyes, leaving, however, a sufficient interval for the use of sight; her clothes were soiled with mud at the lower part only, and her camisole was laced. She did not apparently regain consciousness for several hours: she then related, with circumstantial detail, that she had been assaulted by four young

(*z*) Wagner's Physiology, translated by Dr. Willis. London, 1841. p. 9.
(*a*) For evidence derivable from traces of *Blood*, vid. BLOOD-STAINS.

men, who had endeavored, though unsuccessfully, to violate her person. A medical examination being ordered, a vast number of superficial linear incisions were found, made apparently with the point of a knife or scissors; there were no contusions, or marks of recent violence on the genital organs, or their vicinity. Her clothes were not torn or crushed, and in her pockets a penknife and scissors were found, on the points of which there were slight traces of blood. The girl at last, after much hesitation, confessed that she had not been the victim of any assault, but that, in a paroxysm of hysteria, without any reason to account for the strange idea which took possession of her mind, she had herself inflicted these wounds with scissors on the parts of her body which she had been able to reach. The legal proceedings were consequently stopped. (*b*)

§ 455. *Rape by females.* An instance of this kind is related by Casper, in which a child, only six years of age, received a gonorrhœa from his governess, with whom he slept. Two cases have occurred in France, in one of which, a female of eighteen years obliged a boy, under fifteen years, to comply with her wishes; and in another, a girl of eighteen was charged with rape upon two children, the one of thirteen, and the other only eleven, years of age. She was affected with syphilis, which she communicated to the children. It is stated also, that, from a narrowness of the vagina, she was unable to gratify her propensities with adults. The only means by which the rape can be established through medical evidence, is where gonorrhœa or syphilis has been thus communicated.

Pæderasty—Sodomy.

§ 456. This unnatural crime demands but little notice from us. It has been customary for authors, in describing the physical results of this vice, to enumerate various local injuries, such as laceration and patulous condition of the sphincter ani, prolapsus of the rectum, and ulcerations, together with constitutional effects, as consumption, dropsy, &c., as the inevitable results by which the commission of it could be ascertained. The observations of Parent Duchatelet,(*c*) and of Casper,(*d*) show, however, that such consequences are far from being even the common effect of this disgusting vice. The former of these authors speaks from a long experience; he says that he has *never* observed the results above enumerated. Dr. Casper, in a valuable monograph on this subject, in which he communicates a number of cases which fell under his notice, says, that none of the signs enumerated by authors are to be depended upon. In one case, however, mentioned by him, in which a medical examination was obtained *immediately* after the commission of the crime, the sphincter ani was lacerated to the depth of

(*b*) Lond. and Ed. Month. Jour. Dec. 1853, p. 550; from Gaz. des Hop. Oct. 30.

(*c*) De la prostitution dans la ville de Paris, Vol. I. p. 225.

(*d*) Vierteljahrschrift für ger. ŭ öff. Med. Bd. I. H. 1. Also Ibid. Bd. VII. H 2. For an historical account of this vice, see "Geschichte der Lustseuche im Alterthume nebst ausführlichen Untersuchungen über den Venus und Phalluscultus, Bordelle, Νουσος δήλεια der Skythen, Poederastie und andere geschlechtlichen Ausschweifungen der Alten, &c." By Dr. Julius Rosenbaum. Halle, 1845. 8vo.

two lines, and the parts irritated and painful. The most frequent result which he witnessed may be described in the words of Zacchias, strangely heretofore overlooked: "Multo magis frequentem tam nefandi coitus usum significare poterit ipsius podicis constitutio, qui cum ex natura rugosus existal, ex hujusmodi congressu laevis ac planus efficitur, obliterantur ennir rugae illae in ani curriculo existentes ob assiduam membri attritionem." He also describes a funnel-shaped depression of the nortes, as a frequent result. It should be remembered, however, that these observations were made upon persons whose lives had been spent in the practice of this degrading vice, or who had been for a considerable time in the practice of it. Syphilitic ulcerations or growths, in these parts, although of suspicious origin, may be really due to other causes than a direct transmission by unnatural connection. Marks of violence may be naturally expected in young persons. It is unfortunate that there is no medical evidence by which the crime can be brought home to the *active* transgressor; and the one who is the passive instrument, is most generally incapable of having a correct appreciation of the enormity of the sin.

Legal Relations of Rape.

§ 457. The points to which medical testimony is most likely to be invited, in prosecutions for rape, are the following:—

1st. Submission of prosecutrix.
- (1) From artificial stupefaction.
- (2) From ignorance of the nature of the act.
- (3) From mistake of person.
- (4) From fear.

2d. Prior want of character of prosecutrix.
3d. Subsequent suppression of the fact by prosecutrix.
4th. Extent to which coition was carried.
5th. Want of age of defendant.
6th. Want of sexual capacity of defendant.

The law on each of these points, will be now briefly considered.

1st. *Submission of prosecutrix.*

This may happen from either of the following causes:—

(1) *From artificial stupefaction.*(*d*)

§ 458. It makes no matter whether the drug was given for the purpose of producing stupefaction, in order that the rape might be effected on the female thus made unconscious, or whether it was administered for the purpose of causing sexual excitement, and thereby leading to a voluntary submission. It is rape in either case; the law being, that the overcoming of chastity, and the destroying of resistance by artificial means, is rape, when the offence is consummated. If the result of the

(*d*) See the medical relations of this point, *ante*, § 439.

dose be stupefaction, and if on the woman, thus become insensible, carnal intercourse be effected, it is rape, though the intention was merely to excite. Thus, where the prosecutrix was made drunk by the prisoner, who then violated her person, it was held in England, where, from the offence being capital, it is kept within its strict common law limits, that the crime was rape, though the jury expressly found that the liquor was given with the intent of *stupefying*, not *exciting*.(*e*) And in this case, it was held, that where the insensibility is the defendant's act, and where the defendant knows that "the act was against the prosecutrix's consent at the last moment she was capable of exercising her will," it is rape. On this point agreed all the ten judges of England, constituting the final Court of Revision in criminal causes; and it was not required by the exigencies of the case that they should go further. Several, however, thought—and this view is in accordance with the analogous cases to be hereafter noticed—that the crime was consummated by the mere act of knowingly violating an insensible woman, whether the insensibility was produced by the defendant himself or not.

§ 459. In the late prosecution of Dr. Beale, in Philadelphia, which has been noticed above,(*ee*) the point was not made, and it was assumed by both sides, that carnal intercourse with a woman who was stupefied by chloroform was rape, though the chloroform was administered, at her request, for the purpose of facilitating the extracting a tooth. And if the law—and the cases to be subsequently noticed unite with the reason of the case in indicating that it is—it goes to establish the broad position, that rape is sexual intercourse with a woman, not *against*—as has been formerly said—her will, but *without* it.

(2) *From ignorance of the nature of the act.*

§ 460. A striking instance of this is to be found in the case of the imbecile girl already mentioned, who had no notion of what the sexual act consisted, and who was totally unable to account for her pregnancy, except by the statement that her cousin had played with her on the sofa.(*f*)

§ 461. In England, the point received a judicial decision on the trial of a physician, who had sexual connection with a young girl, who made no resistance, solely from a belief that the defendant was, as he represented, treating her medically. All the judges held the case was rape.(*ff*) And it was said in another case, where the patient was directed to lean forward, for the purpose of receiving an injection, and where sexual intercourse was then attempted, that if the attempt had succeeded, rape would have been complete.(*g*)

§ 462. It is no defence, also, that the party ravished gave consent, or even aided in the commission of the offence, when from her very tender years she is to be presumed incapable of knowing the nature of the act.(*h*)

§ 463. From the same reasoning it results that it is rape to have

(*e*) R. *v.* Camplin, 1 Car. & K. 746; Wh. Cr. Law, (3d ed.) 514–5.
(*ee*) See *ante*, § 445. (*f*) Ibid.
(*ff*) R. *v.* Case, 1 Eng. R. 544; Wh. Cr. Law, (3d ed.) 519.
(*g*) R. *v.* Stanton, 1 Car. & Kir. 415.
(*h*) Hays *v.* People, 1 Hill, N. Y. R. 351.

carnal intercourse with an idiotic or insane woman, even though her consent is given, she being incapable of intelligent submission.(*i*)

(*i*) This point was lately affirmed by a highly respectable Ohio court, in the following case: The defendant was indicted—1. For having committed a rape on the person of Louisa Dowler; 2. For an assault with the intent to commit a rape on said Louisa; and, 3. For having carnal knowledge she, the said Louisa, being an insane woman, and he, said defendant, knowing her to be such. The defendant pleaded not guilty, and the cause was tried by a jury at the March Term of the Court of Common Pleas. The evidence on the trial proved that the said Louisa Dowler was of unsound mind, and had been so from her nativity: though she was not so absolutely destitute of mind that she did not perform the necessary functions and calls of humanity; but that she had not mind enough to testify as a witness or to be held legally responsible for her acts, whether civil or criminal. The words of the statute are: That if any male person, 17 years old and upwards shall have carnal knowledge of any other woman than his wife, such woman being insane, he knowing her to be such, every person so offending shall be deemed guilty of a misdemeanor, and upon conviction thereof, shall be imprisoned in the penitentiary and kept at hard labor not more than ten nor less than three years. Mr. Knowles for the State, Messrs. Nye and Jewett for defendant, claimed that the said Louisa being an idiot, had no will, and therefore that a rape could not be committed on her person against her will: it was further claimed that the word insane, in the 6th section of the Act, did not embrace an idiot, and hence the defendant could not be convicted of either of the charges embraced in the indictment. Mr. Justice Nash.—It is claimed, *first*, that a female idiot is not the subject of a rape; that she has no will and hence an act cannot be done to her person against her will. No authorities are cited for this startling position. On looking into the books I can find no such distinction intimated; and if such was the law, it is singular that so important a qualification of the crime of rape should not have been noticed hitherto in any treatise on this subject. Rape is defined to be, the having carnal knowledge of a female *forcibly and against her will*. There is here no limit to the use of the word female; nothing said as to the soundness or unsoundness of her mind as to idiocy or insanity. In this respect our statute follows the common law, and must therefore be construed as the same words were construed in the definition of the crime at common law. There is another consideration not to be overlooked. The section providing for punishing assaults with a criminal intent, declares that an assault committed on another with the intent to commit a rape, shall be criminal. Now, if a rape cannot be committed on the person of an idiot, then it is no crime to assault her person with such an intent. The same question applies also to assaults committed on an insane person; since this argument places them without the protection of the law, punishing the crime of rape. Nor the insane persons protected under the 6th section, since the crime there described is committed only when the perpetrator knows the woman to be insane. Indeed that section is clearly limited to the case of a male person's knowingly having sexual knowledge of an insane female without resistance on her part, and with her acquiescence. Hence this section cannot be made to embrace the case of one having such sexual intercourse forcibly and against the will or resistance of such insane female. It is further claimed that an idiot is not an insane person under the meaning of that term in the 6th section. The result then, follows, that a female idiot is left wholly unprotected against this class of crimes. A person cannot be punished for having carnal knowledge of her person forcibly and against her will, as she has no will to overcome; she is not an insane person, and so not under the protection of the 6th section, and neither an idiot nor an insane female is protected against assaults with intent to commit a rape, since a rape cannot be committed on the person of either. It must require some very cogent reasoning, or some very convincing authorities before the court could be induced to give a construction to a statute which must lead to such results. But here is no such authority; no such decision has been found. Is there any more force in this reasoning? Let us examine it for a moment. In the first place, where the carnal knowledge is had by *force*, it must be against the will of the female. Nor need there be any direct evidence of this action of the will; the law implies the want of consent from the force itself. It is the *consent* of the female which takes away all criminality from this connection; it is this want of consent which renders this connection, obtained by force, criminal. Hence if an idiot has no will to be overcome, she has none to consent, and then the law implies that the act being accomplished by force is done against her will. But is it true that an idiot or insane person has no will? What is the definition of these two words? Do they imply a *loss of will* or a mere unsoundness of mind? These words as thus defined by Webster: "Idiot—a natural fool, a fool from birth; a human being, in form, but destitute of reason or the ordinary intellectual powers of man. Insane—unsound in mind or intellect; mad; deranged in

(3) *From mistake of person.*

§ 464. Very early in the judicial history of this country, a conviction of

mind;" and one of the words used to define *insanely*, is *foolishly*. Fool is defined to be one who is destitute of reason or the common powers of understanding; an idiot. Some persons are born *fools*, and are called *natural fools;* others may become *fools* by some injury done to the brain. In Chitty's Medical Jurisprudence, p. 348, an idiot is defined to be "a person who has been *defective* in intellectual powers, from the instant of his birth, or at least before his mind had received the impression of any idea." Again, Chitty says "that idiocy consists in a defect or sterility of the intellectual powers; but it may be induced in after life; while lunacy or madness consists in a perversion of intellect." All these definitions imply either a *weakness* or *perversion* of the mind, or its powers, not their *destruction*. The powers are still all present but in an impaired and weakened state. Hence an idiot cannot be said to have no *will*, but a *will weakened and impaired*—a will acting, but not acting in conformity to those rules, and motives, and views which control the action of the will in persons of sound mind. Indeed in an insane person the will is too often fearfully active, and wholly uncontrollable by reason or persuasion. There is here no lack of will, but simply a *perversion* of it. Nor is this the most conclusive answer to this argument. If there is no will, how are voluntary actions continued? Actions which, like respiration, are instinctive, and independent of the will; but eating and numerous other acts which necessarily imply the exercise of the will are performed by idiots and insane persons; and their exercise demonstrates the existence of a will—of a will which can assent to, or dissent from, what are clearly voluntary acts. I have therefore no hesitation in holding, that both idiots and insane persons are possessed of a will, so that it may be legally and metaphysically said, that a carnal knowledge may be had of their persons *forcibly* and against their will. The next inquiry is, what is the proper construction to be given to the word *insane?* In the 6th section of the act for the punishment of crimes, Curren's *Revised Statutes*, p. 184, that section provides: "That if any male person seventeen years old and upward, shall have carnal knowledge of any woman, other than his wife, such woman being *insane*, he knowing her to be such, shall be deemed guilty," &c. It is claimed that this word *insane* does not embrace a female who is an idiot. We have already seen that idiocy may be induced after infancy, as well as be congenital, Chitty's Med. Jurisp. p. 347, and that both terms are defined by the same words, *unsoundness of mind*. In the one case this unsoundness of mind develops its existence in want of capacity to reason at all; or, at least, in a much less degree than the generality of mankind; while in the other there is, perhaps, greater acuteness, though upon false and fancied hypothesis. (Chitty's Med. Jurisprudence, p. 348.) Still, in both cases, unsoundness of mind is the cause. The very origin of the word *insane* demonstrates this; in its Latin origin, it is a word simply meaning *unsoundness* and nothing more; and in the popular language it is used in this sense to this day, whatever may be the specific meaning attached to it by writers on mental diseases. If, then, the object and policy of this statute embraces idiots as well as lunatics, there is nothing in the use of the word *insane* which absolutely precludes us from giving that elementary meaning to the word in this statute. The reason of this provision clearly applies to idiots as well as to lunatics; if there is any reason in the case of female lunatics, why sexual intercourse with them should be prohibited, equally strong is the reason why it should not be permitted with female idiots. If the offspring in one case might be affected with insanity, so in the other it might with idiocy. Whatever reason, therefore, can be found to so declare the law in relation to female lunatics will apply equally forcibly to idiots. If the one class ought to be protected, equally so ought the other. Such then being the manifest scope of the law, I can have no hesitation in concluding that such was the intention of the legislature; that this word *insane* was used in its elementary and popular meaning, as descriptive of that unsoundness of mind, which renders individuals civilly and criminally irresponsible for their acts, whether the unsoundness uncloses itself in idiocy or lunacy. In accordance with these views I hold that a female idiot, or an insane female, is the subject of rape; and, hence of an assault with the intent to commit that crime; and that a male person, of proper age, who shall have carnal knowledge of a female idiot, knowing her to be such, is guilty, under the 6th section, of having carnal knowledge of an insane woman, knowing her to be such. The jury were so charged and they returned a verdict of guilty of an assault with an intent to commit a rape, and not guilty on the other two counts. And sentence was passed on the prisoner.—State *v.* Crow, Common Pleas of Athens County, Ohio. *Western Law Journal.* Vol. X. pp. 501–5.*

rape was sustained in New York by a very eminent judge—Thompson, C. J.—upon evidence showing that the prosecutrix mistook the defendant for her husband, and permitted his embraces, under that impression.(*k*) The same point was again taken in subsequent cases: one in New York,(*l*) and the other in Connecticut.(*m*) In England it was at first thought that such evidence would not sustain a conviction;(*n*) though, afterwards, convictions of the assault with intent, were ordered.(*o*) The intimation, at the same time, was thrown out, that if the question arose again, it would be reconsidered; and, indeed, it is difficult to reconcile an acquittal under such circumstances, with a conviction upon evidence that consent was given under the impression that the act was, as it was represented to be by the aggressor, an application in a course of medical treatment.(*p*)

(4) *From fear.*

§ 465. If consent is forced by fear of death, or by duress, it is no defence that such consent was given.(*q*)

2d *Prior want of character of prosecutrix.*

§ 466. While it is no defence that the woman was a common strumpet, or even that she was the defendant's mistress, the question of prior chastity is always a material one to be considered by the medical examiner, since unchastity can be shown by the defendant, not as an excuse or justification, but as a fact throwing much light on the value of her testimony. Thus it has been expressly decided, that it is competent for the defendant to show that the prosecutrix's previous character for chastity was bad, and that she had before been connected with himself; though the general opinion in England has been, that he cannot show particular acts of unchastity, except those committed with himself.(*r*) But, even in England, a wider range seems now to be encouraged, it having been held admissible to ask the prosecutrix "whether she was not, on the Friday last, walking on the High-street to look out for men," and, upon her denying this, to call witnesses to contradict her.(*s*) And in New York it is now ruled, that the prosecutrix may be asked whether she had not had previous connection with other men; and that, in such case, she is not privileged from answering.(*t*)

§ 467. The *object* of such testimony is twofold: 1st, in making the fact of *coercion* less likely; and, 2d, in diminishing the witness's weight as respects credibility generally. It is less likely that a strumpet, or one holding herself out as submitting to illicit intercourse, though on

(*k*) 1 Wheel. C. C., 381.
(*l*) People *v.* Metcalf, 1 Wheel. C. C., 378.
(*m*) State *v.* Shephard, 7 Conn. 54.
(*n*) R. *v.* Jackson, R. & R. 487.
(*o*) R. *v.* Saunders, 3 C. & P. 265; R. *v.* Williams, id. 286.
(*p*) See Wharton's Cr. Law (3d ed.), 512.
(*q*) 1 Hawk. P. C. Ca. 41; Whar. C. L. (3d ed.), 513.
(*r*) R. *v.* Hodgson, R. & R. 2; R. *v.* Clarke, 211 Stark. 243; R. *v.* Barker, 3 C. & P. 589; R. *v.* Martin, 6 C. & P. 562. See People *v.* Abbott, 19 Wend. 192; Campo *v.* State, 3 Kelly, 417.
(*s*) R. *v.* Barket, 3 C. & P. 589.
(*t*) People *v.* Abbott, 19 Wend. 192.

special inducements or occasions alone, would resist to the extremity which a prosecution for rape requires, than would a chaste woman. And although, under ordinary circumstances, it is inadmissible to impeach *veracity* by attacking *chastity*, yet, in such an issue as the present, this seems but proper. Such being the case, it will be seen that medical testimony as to the prosecutrix's prior condition, is of peculiar value. Evidence of any prior venereal complaints, or of any other facts tending to prove previous illicit intercourse, it is always proper, under such circumstances, to receive.

3d *Subsequent suppression of the fact by prosecutrix.*

§ 468. It is here that the presence or absence of a medical examination tells most forcibly. The omission of the friends of the injured party to obtain an instantaneous medical inspection, may be their misfortune, arising from ignorance or false shame; but it is better that they should suffer from it, in the acquittal of the offender, than that the stimulus to supposititious prosecutions be given, which will always result from dispensing with this most salutary check. It is not, of course, pretended that the *want* of immediate medical inspection is a legal *bar*. This it is not; for no matter how suspicious the omission may be, it is for the court to leave the whole question of the reality of the alleged rape, to the jury alone. But it is maintained that it is a salutary rule of policy, which juries should themselves enforce, in no case to sustain a prosecution for rape, unless the prosecutrix's evidence is corroborated by the testimony of experienced persons, medical or otherwise, who were called in to inspect her person, as soon after the occurrence as the circumstances of the case would allow. And such seems to be the case in England, where the courts agree in telling the jury, that unless there be positive medical evidence of some sort of violence to the person, there is not sufficient penetration to constitute the offence.(*u*)

The nature and character of the testimony so to be obtained, has been already discussed. Under this head, it is enough to say, that in all cases, the results of, as well as the fact of, an examination, are admissible evidence. It is admissible also for the prosecutrix to prove that she made a complaint, though she cannot put in evidence what were the particulars of her statement.(*v*)

4th *Extent to which coition was carried.*

§ 469. The English law, as to the extent to which the act must have been consummated, has undergone much fluctuation. Thus, it was at first held, that *emission* must be proved. Great difficulty was thus produced, which was obviated by the statute of 9 Geo. IV. c. 31, which dispensed with proof of emission. Then the question arose as to the *degree* to which penetration must be shown to have taken place. In Ireland, it was said somewhat loosely by Lord Carlton, C. J., in 1800, (*w*) that it was enough if the prosecutrix swore to "carnal knowledge of

(*u*) R. *v.* Gammon, 5 C. & P. 321, *post* § 469–470. (*v*) Wharton's C. L. (3d ed.) 522.
(*w*) R. *v.* Lidwell, 1 M'Nally's Evid. 606.

her person." But, in England, it has always been held that the entrance of the private parts of the man within the private parts of the woman, must be specifically proved. The first case tried on this point laid down a rule, which, though once or twice subsequently departed from, may now be considered as the settled law, viz., that though it is not necessary to prove the *hymen* to have been ruptured, yet the evidence of penetration must be positive.(*x*) The only point in which this rule has fluctuated has been in respect to the necessity of a rupture of the *hymen*. Thus, in 1832, in a case before Mr. Baron GURNEY, that learned judge said, that "if the hymen is not ruptured, there is not a sufficient penetration to constitute the offence."(*y*) In 1839, however, Chief Justice TINDAL declared the only question for the jury to be, whether the private parts of the man did or did not enter into the person of the woman; and that therefore, though it appear from the evidence, beyond all possibility of doubt, that the party was disturbed immediately after penetration, and before the completion of his purpose, yet he must be found guilty of having committed the complete offence of rape.(*z*) In the same year, a boy named John Jordan was indicted for carnally knowing a girl under ten years; and there being no evidence of a rupture of the hymen, it was insisted by the prisoner's counsel, on the authority of Gammon's case, just cited, that the offence had not been completed. The defendant was acquitted on other grounds; but Mr. Justice WILLIAMS told the jury, "I am of opinion, as matter of law, that it is not essential that the hymen should be ruptured. In the case of Rex *v.* Gammon, it was proved that the hymen was ruptured, and the point was therefore not necessary to the decision of that case. I also think that it is impossible to lay down any express rule as to what constitutes penetration. All I can say is, that the parts of the male must be inserted in those of the female, but I cannot suggest any rule as to the extent."(*a*)

§ 470. Shortly previous to this, though not reported until afterwards, was a trial before Mr. Justice BOSANQUET, in which Mr. Justice COLERIDGE and Mr. Justice COLTMAN concurred with that learned judge in saying, that it "is not necessary, in order to complete the offence, that the hymen should be ruptured; but that, where that which is so very near the entrance has not been ruptured, it is very difficult to come to the conclusion that there has been penetration, so as to sustain a charge of rape." In consequence of this charge, the defendant was acquitted of the rape, and convicted of the assault, although there was evidence from the surgeon who attended the injured party, that her private parts internally were very much inflamed, but that, in consequence, he could not tell whether the hymen was ruptured or not.(*b*) In 1841, however, the question was put to rest by a case which came before the twelve judges, in which the early decision of R. *v.* Russen was finally reviewed and sustained. The prisoner was charged with having feloniously ravished Mary Ann Wesley; and it was very clearly proved by her—she being a girl between eleven and twelve years of age—as well as by a woman who detected

(*x*) R. v. Russen, 1 East, P. C. 438, 439.
(*y*) R. *v.* Gammon, 5 C. & P. 321.
(*z*) R. *v.* Allen, 9 C. & P. 31.
(*a*) R. *v.* Jordan, 9 C. & P. 118.
(*b*) R. *v.* M'Rue, 8 C. & P. 641.

the prisoner in the act, that carnal intercourse had been attempted. With respect to penetration, a surgeon was called, who deposed to the appearances in and about the child's private parts, and stated his belief that penetration had taken place, but that the hymen, which in the prosecutrix was placed at the usual distance from the opening, had not been ruptured. The jury returned a verdict of guilty, finding, "that there had been penetration, but that the penetration had not proceeded to the rupture of the hymen." On this finding the prisoner was sentenced, and the judgment sustained by all the judges.(*c*) In accordance with this result, in a case tried in 1844, where the surgeon deposed that "the hymen of the child was not ruptured, but that upon the hymen was a venereal sore, which must have arisen from actual contact with the virile member of a man," Mr. Baron PARKE left it to the jury to say "whether, at any time, any part of the virile member of the man was within the labia of the pudendum of the prosecutrix; for if ever it was (no matter how little), that will be sufficient to constitute a penetration, and the jury ought to convict the prisoner of the complete offence." The verdict was, not guilty.(*d*)

§ 471. In this country, the rule thus laid down—that there must be *some* entrance proved of the male within the female organ, but that neither rupture of the hymen nor emission need be proved—has been universally followed.(*e*) Perhaps the furthest limit to which it has reached is in a recent case in Philadelphia, where, though there was no medical examination, it was held that proof by the prosecutrix of pain in the sexual organ, and of the juxta-position at the time of the defendant's face to her own—she at the time being in a dentist's chair, under the influence of chloroform—was enough to justify a jury in presuming that there was penetration, and that the penetration was sexual. The general result of both medical and legal opinion, however, is, that while the learned and able judge who tried the case properly left it to the jury as a question of fact, as he was obliged to do, to determine whether penetration had taken place, the verdict was not sustained by the evidence, and forms an unsafe precedent for the future.(*f*)

Want of age of defendant.

§ 472. There is an absolute rule, in this respect, at common law, viz., that an infant *under* fourteen is to be presumed positively incapable of committing a rape, though he may be convicted of an assault with intent to ravish.(*g*) *Over* fourteen, this question resolves itself into the ordinary one of capacity.

6th. *Want of sexual capacity of defendant.*

This is purely a medical question, which has been examined under another head.(*gg*)

(*c*) R. *v.* Hughes, 8 C. & P. 752.
(*d*) R. *v.* Lines, 1 C. & K. 393.
(*e*) State *v.* Leblanc, 3 Brevard, 339; Penns. *v.* Sullivan, Add. 143; Stroud *v.* Com. 11 S. & R. 177; Com. v. Thomas, 1 Virg. Cases, 307.
(*f*) Com. *v.* Beale, Phil. 1854. Cited Whar. C. L. (3d ed.) 518–9; see *ante*, § 443 *et seq.*
(*g*) Wharton's Cr. Law, (3d ed.) 512.
(*gg*) See *ante*, § 419–425.

BOOK IV.

QUESTIONS RELATIVE TO IDENTITY.

CHAPTER I.

IDENTIFICATION OF THE LIVING OR DEAD.

§ 473. Many curious cases of doubtful or disputed identity might be cited to illustrate the singular fortuitous resemblance between individuals, not only in their general personal appearance, but also in accidental marks. Other cases also might be related, in which long absence and various circumstances have so changed a person, that his nearest relatives have not been able to recognize him. Usually, in cases of disputed identity, whether of the dead or living, a scar, a deformity, or some congenital or indelible mark has proved the only means of recognition.

Salomé Muller sued for her liberty before the courts of Louisiana, alleging that she was a white woman, and had come over from Germany with her parents, at the age of three years. Since that time she had been held in slavery. She was recognized by her resemblance to her family, and further indentified by the existence of two small *nævi materni* upon the inside of each thigh, which were correctly described by the midwife who assisted at her birth, and the woman who took care of her upon the Atlantic passage, after the death of her mother.(*a*)

Usually, medical testimony can hardly be required respecting the identity of the living. In disputed cases, it may become necessary for the physician to give his opinion respecting the permanence of cicatrices, tattoo marks, and congenital or acquired deformities. But more frequently he is called upon to assist in the identification of the dead, or to state after how long a period of time and under what circumstances such identification is possible. Krügelstein says that he assisted at the inquest upon the body of a man found dead in a morass. The body was recognized by a number of persons present, as well as by the wife of the deceased, who, however, remarked that her husband when he had left her, wore a different jacket from the one on the body. Some-

(*a*) Beck, Vol. II. p. 664, from the Monthly Law Reporter, Boston, 1845, Wh. C. L., (2d Ed.) 337.

time afterwards, however, the man who was supposed to have been dead, came home again, and upon investigation it was finally discovered that the deceased was a person belonging to a neighboring village, who had left his home at an early age, and upon his return was recognized by no one. The likeness between the two men, it is stated, was most extraordinary.(*b*) Dr. Kinlock, of Drumoak, Aberdeenshire, relates a case of mistaken identity under extraordinary circumstances. The body of a man between sixty and seventy years of age, was found slightly imbedded in the sand, on the bank of a river; both eyes had been picked out by hooded crows, but decomposition had made no progress. The left ear and the first finger of the left hand were wanting, having the appearance of having been lost in early life. The body was conveyed to a suitable place, and persons were requested by advertisements to come and identify it. After some time, two young women claimed it as the body of their father, who, they stated, was a lawyer; that he was in the habit of leaving home for two or three weeks at a time, without informing them where he went, and that he had lost the left ear, and first finger of his left hand. They apparently recognized the clothes and the body, and gave vent to expressions of grief on the event. Subsequent doubts in the mind of the one sister were overruled by the confident affirmations of the other. The funeral took place accordingly, and was attended by the daughters and friends of the supposed deceased lawyer. Returning from the funeral, the boatman of the ferry which they had to cross, asked them for whom they were in mourning, and upon receiving their answer, laughingly informed them that he had, only half an hour before, ferried their father over alive and well, and directed them where they would find him. This, to their great joy, proved true. Whose was the body they had buried in the churchyard at Drumoak remained undiscovered.(*c*)

(*b*) Henke's Zeitschrift. 1850, 4 H.

(*c*) Ed. Month. Jour. Feb. 1854. The following curious case occurred in Boston:—It was said that on the testimony of the captain of a vessel and six of his crew, a man named James Guard, had been arrested by the police on the charge of attempting to rob a vessel, but was afterwards released on its appearing that he could not be the man, as on the night of the robbery he was safely slumbering in the watch-house of the North End, where he had repaired for lodging. It was also stated, that on Monday night a body was found in the water at the end of Commercial Wharf, which an officer of the north station testified before a coroner's jury was the body of the unfortunate James Guard, who, but a night previous, had been so falsely charged with crime, but who, nevertheless, appeared to have rather suddenly come to a tragic end.

The coroner's jury had no doubt, from the testimony of the officer, that the body was really that of James Guard, and they returned a verdict in accordance thereto, stating that, "James Guard came to his death by accidental drowning." Thus the matter was deemed and considered to be settled, when—so runs the report—last night, as the aforesaid officer sat meditating in his office, at the station-house, upon matters connected, no doubt, with the city's welfare, the door slowly opened, and what appeared to be the body of James Guard entered. In these days, a police officer is not apt to be a believer in ghosts, but, for a moment, thoughts of that character flitted through his brain. A request for lodgings uttered in no ghostly tones, awakened him to a sense of reality, and an explanation ensued, when it appeared that James Guard, who had been once charged with robbery, and on the oath of a coroner's jury with having been picked up drowned, was in reality alive and kicking, with sufficient love of the things of this world to receive with gratitude the gift of a soup ticket, presented to him by the penitent police officer. Thus the body now lying in the dead-house is not that of James Guard, but of some one who so closely resembled him as to have been mistaken for him by a dozen persons.

§ 474. *Age.* The means of recognizing from the skeleton the age of the deceased, are found chiefly in an observation of the process of ossification. A brief description of this process at different ages up to the time at which it is completed, will enable us to determine the question in an approximate manner. One of the most reliable indications of age in the skeleton of a supposed new-born child, will be found in the osseous point in the cartilaginous epiphysis of the lower extremity of the femur. Its importance in this relation was first pointed out by Béclard, but has lately been further substantiated by the observations of Ollivier and Mildner.(*d*) In the commencement of the last month of intra-uterine existence, there may be seen upon a transverse section of this epiphysis, a spot which is more vascular and darker than the surrounding structure, in the midst of which a body of the size of a poppy seed or the head of a fly may be recognized, which, upon drying, will be found to be of newly formed bony matter. At the time of birth, this osseous point has attained the size of a pea or lentil, is hollow and encloses a porous and vascular substance; the shell, itself, being of a firm, bony nature. From the observations of the above mentioned authors, it results that, 1st, If this osseous point be wanting, the skeleton is that of a fœtus of not more than eight months; 2d, When it has attained the size of a poppy seed or the head of a fly, the fœtus was probably in the last month of gestation; 3d, When it has acquired a diameter of one and a quarter lines, the full period has been reached; and, 4th, If the point of ossefication be three lines, or more, it may be assumed that the child has lived after its birth. These statements have been verified by their authors, but, it is needless to say, that having so important a bearing upon questions of infanticide, as well as upon other questions not less vital in their character, much additional confirmation is required to entitle them to our unreserved confidence.

§ 475. The length of the skeleton of a new-born, mature child is between fifteen and sixteen inches. At the end of the *first* year, the two sides of the frontal bone are united in half their length, the fontanelles diminish in size, the temporal bone is still composed of four pieces, and the four incisor teeth have appeared. Points of ossification are found in the coracoid process of the scapula, in the ensiform cartilage, and in the patella. At the end of the *second* year, the length is about thirty-two inches; the four portions of the temporal bone form but one piece; the anterior fontanelle is closed, and both halves of the os frontis are united. Two canine and four molar teeth have made their appearance. The pelvic bones, which are afterwards consolidated in the acetabulum, touch each other; the epiphyses of the metatarsal and metacarpal bones are ossified, and points of ossification are seen in the lower end of the tibia and fibula. At the expiration of the *third* year, the sutures of the bones of the head have a zigzag appearance; all the first set of teeth are fully extruded; the odontoid process of the second vertebra is firmly united with the body; the spinous process of the vertebræ ossify, as do the trochanter major, the patella and the cuneiform bones.

It is probably fortunate for the living, that this "Dromio," who might have continued to work mischief for him, has really deceased. It is, certainly, a strong case of personal resemblance. Boston Law Reporter, Vol. VIII. No. 1, page 55, &c.

(*d*) Prag. Vierteljahrschrift, 4, 1850.

At the end of the *fourth* year, the child is about three feet long, the styloid process of temporal bone is formed, and the process of ossification continues in the parts mentioned. In the *fifth* and *sixth* year, no further trace of the division of the os frontis is found; the sutures unite, the arches of the vertebræ become united with the bodies and the lower extremity of the ulna, and the pisiform bones become ossified. In the *seventh* and *eighth* year, the second set of teeth replace the first. If the eight permanent incisors are present, the age is probably at least nine years. The canine and molar teeth make their appearance between the *tenth* and *twelfth* year, with the exception of the last molar, which is very irregular in the period of its extrusion. Orfila describes the ossification at this period as follows: At *eight* years, the upper extremity of the radius; at *nine*, the navicular bone of the carpus; at *twelve*, the trochla of the os humeri; from *thirteen* to *fourteen*, the trochanter minor and the three parts of the os innominatum, which last is sometimes delayed till the fifteenth year; and at *fifteen*, the sacral vertebræ are united together. From this period up to the age of twenty-five, the same author observes that the process of ossification is most noticeable in the following points: From *fifteen* to *sixteen*, the coracoid process of the scapula is united with the body of the bone, and the acromion contains an ossific point; from *fifteen* to *eighteen*, an osseous point in the sternal end of the clavicle; from *fifteen* to *twenty*, ossification of the last bone of the coccyx. At *sixteen* years, an osseous point is seen in the head and tubercles of the ribs; at *seventeen*, bony union of the epiphyses of the phalanges; and at *eighteen*, of the head and trochanter of the femur. From *eighteen* to *twenty-five*, union of the sphenoid and occipital bone of the three parts of the tibia; and from *twenty* to *twenty-five*, of the first piece of the sternum to the rest of the bone. Between *twenty-five* and *thirty* years, occurs the complete union of the first to the second bone of the sacrum; from *forty* to *fifty*, of the ensiform cartilage to the lower extremity of the sternum; and between this and the *sixtieth* year, the union of the sacrum and coccyx. In advanced life, the bones lose their density; the earthy matter predominates, and they hence become more brittle. Acccording to Sömmering, they lose nearly a fourth part of their weight. They are yellower than in the previous years of life; the diplœ in the flat bones disappears, so that the two plates of bone touch each other, are thin and sometimes lose their substance in this part, forming an opening. The sutures in the bones of the skull become indistinct, and generally first on the inside of the cranium. The intervertebral substance loses its thickness, and the borders of the cervical vertebræ smaller before than behind. If the teeth have been lost, the alveolar processes become absorbed, but if they remain, they bear unmistakable signs of age in their yellow color and worn appearance. The ensiform cartilage is completely ossified, as well as those of the ribs. There are, however, no such alterations in the condition of the skeleton as would give more than an approximate appreciation of the exact age at this period of life.(*e*)

§ 476. *Stature.*—When the whole skeleton has been preserved, and

(*e*) The foregoing statements have been taken chiefly from the works of Mendé, Nicholai, and Friedreich, who have devoted particular attention to the subject; also from Dr.

the articulating ends of the long bones have not been wasted by decay, the height of the individual can be obtained by adding from one and a half to two inches to the length of the skeleton. Should, however, the bony remains be in a fragmentary condition, an accurate estimate of the height of the living person cannot be obtained. Orfila and Sue have, indeed, by assuming the superior border of the pubes to form the exact centre of the body (as it should do in a well-formed adult), considered it possible to calculate the height. The tables prepared by M. Orfila comprise, moreover, measurements of the several cylindrical bones, from which he proposes to calculate the stature of the skeleton and of the living body.(*f*) Dr. Guy has found, however, upon a careful examination of these tables, that they cannot be relied upon as accurate, since in one instance, the upper half of the body exceeded in length the lower by five and a half inches, and in another the excess was six inches in a contrary direction. By taking the average of all the measurements, this author states that we may be in error to the extent of two and a quarter inches, and in the table of the measurements of the cylindrical bones we may be led into error in calculating from them the height of the skeleton, to the extent of more than four inches, and in no case of less than one and three-quarter inches.(*g*) Hence, from the false inferences (which occasionally may be of serious importance) to which these calculations may lead, the physician should use great reserve in giving an opinion as to the stature of the body, from the inspection of merely a portion of the skeleton.

§ 477. *Teeth.*—The most striking part of the evidence by which the identification of the remains of the murdered Dr. Parkman was secured, was that given by the dentist, Dr. Keep. He testified that about three years previously he made and fitted a set of teeth for Dr. Parkman, a set for each jaw, consisting of manufactured artificial teeth, formed in combinations of three blocks to each jaw, and set upon gold plates fitted and adjusted thereto. He stated that several natural teeth and stumps remained, to which, as well as to the natural shape and peculiarities of the jaws, it was necessary that the plates should be adjusted. An attempt having been made to consume the head by fire, in an assay furnace, the gold had melted away, but the mineral teeth, being composed of an infusible material, remained,—preserving more or less of their original shape. Dr. Keep recognized the blocks of mineral teeth as of his own manufacture, as having been made for Dr. P., and showed that they could have belonged to no one else, from their correspondence with the trial-plate and the mould of the jaw of the deceased, which had been carefully preserved and marked with his name. In addition, the lower jaw had a certain peculiarity of natural formation which served to distinguish it from others, and render the correspondence of the block of mineral teeth with it more significant than it might otherwise have been.

Dr. Guy states that a doubtful case of identity, in Edinburgh, was decided by a dentist, who produced a cast of the gums which he had

J. Miller, Das Knochengerüste des Menschen, &c., in Henke's Zeitschrift for 1852, 3 H. p. 62.

(*f*) Traite de Méd. Lég., 4 Ed. (*g*) Forensic Medicine, p. 24.

taken before death. So, also, the remains of the Marchioness of Salis bury, discovered among the ruins of Hatfield House, were identified by the jaw-bone having gold appendages for artificial teeth.(*h*)

In Mr. Sargent's late history of Braddock's expedition(*i*) is narrated a very interesting instance of identification by means of an artificial tooth. Sir Peter Halket, in 1758, after the reduction of Fort Du Quesne, proceeded to the spot of Braddock's defeat for the purpose of discovering, if possible, the remains of his father who was there killed. "In reply to his anxious questions," we are told, "one of his tawny guides had already told Halket that he recollected, during the combat, to have seen an officer fall beneath such a remarkable tree as he should have no difficulty in recognizing; and, at the same moment, another, rushing to his side, was instantly shot down, and fell across his comrade's body. As they drew near the spot, the detachment was halted, and the Indians peered about through the trees to recall their memories of the scene. With speaking gesture, they briefly discoursed in their own tongue. Suddenly, and with a shrill cry, the Indian of whom we have spoken sprang to the well-remembered tree. While the troops rested on their arms in a circle around, he and his companions searched among the thick fallen leaves. In a moment, two gaunt skeletons were exposed lying together, the one upon the other, as they had died. The hand that tore away their scalps had not disturbed their position; but no sign remained to distinguish the relics from the hundred others that strewed the ground. At the moment, Sir Peter remembered him of a peculiar artificial tooth which his father bore. The bones were then separated, and an examination of those which lay undermost at once solved all doubts—'It is my father!' exclaimed the unhappy youth, as he sunk into the arms of his scarce less affected friends."

A most singular case of disputed identity, in which there was between two persons such a similarity of name, time, place, age, occupation, and circumstances, as for a long time utterly to perplex the investigation, occurred in London. The body of a woman supposed to have been murdered, was missing, and another woman was arrested upon suspicion of having secretly made way with her and sold her remains for dissection. Both direct and circumstantial evidence brought the crime home to her. The day after the alleged murder, an old woman, of the description of the supposed deceased, was found, with a fractured thigh, lying exhausted in the streets. She gave her name as Caroline Walsh, and said that she was from Ireland. She died, and was buried at the London Hospital. The name of the missing woman was also Caroline Walsh, and she was also Irish. The prisoner, Elizabeth Ross, when arrested, insisted that this was the female whom she was accused of having murdered. Various points of difference were established by the evidence of a large number of witnesses, but the chief distinction was, that while it was stated that the missing woman had very perfect incisor teeth, (a remarkable circumstance for her age, which was eighty-four,) the other one, who died at the Hospital, had no front teeth, and the alveolar cavities corresponding to them had been obliterated for a considerable time. Moreover, the non-identity was further confirmed by the grand-

(*h*) Guy's Forensic Med. p. 23.

(*i*) Philada., 1850, p. 277.

daughters of the missing woman, who swore that the exhumed body of Caroline Walsh was not that of their grand-mother.

§ 478. *Sex.* The determination of sex from an inspection of the skeleton, is seldom attended with much difficulty, and even when but a few of the bones remain it is sometimes possible to give a positive opinion relative to the sex of the deceased person. The general osseous development is greater in man than in woman; in two persons of equal weight, of the two sexes, the proportion is, according to Autenrieth, as 8:10. The skull of the female is a little smaller than that of the male, while the facial portion is obviously shorter and smaller; hence the apparent disproportion between the cranium and the face in the female. Its bones are also thinner, the forehead is lower and narrower, the frontal sinues and all the foramina smaller, the orbits comparatively larger, and the buccal and nasal cavities less capacious than in man. The thorax is shorter and narrower than in the male, and the difference is particularly marked in the upper part; the clavicles are less bent, and the shoulders are lower and narrower, the arms and hands shorter, and the fingers more delicate and pointed. The bodies of the lumbar vertebræ are higher, and the intervertebral substance thicker than in the male skeleton. The ribs are shorter, thinner, and flatter, and have sharper edges than in the male, and have also other peculiarities, which it is not necessary to dwell upon. The most striking difference, however, is in the pelvis; the hip bones being more widely apart, and all the diameters of the true pelvis, both of its entrance, cavity, and outlet, being greater than in man; the sacrum is more concave, the upper border of the symphysis pubis is inclined more forward, and the arch of the pubis is wider. On account of the greater width of the pelvis the hip-joints are further apart than in the male, although the trochanter are smaller; the neck of the femur forms an angle of 120°–125° with the body of the bone, while in the male it is from 127°–135°; the femur is shorter, more bent, and directed obliquely inwards, and the tibia is also shorter, and the bones of the feet smaller and more delicate.(*j*)

Some of these differences are not so striking in the skeletons of females advanced in life, but the essential character of the pelvic bones remain and are sufficient to indicate the sex.(*k*)

§ 479. *Fractures, deformities,* and *peculiarities* in the dead body. Dr. Taylor relates an instance in which the utility of evidence of this kind was shown. A gentleman was tried in India for the murder of a native. It was stated that the prisoner had struck the deceased, a few hours before his death, several blows upon the chest and had thereby broken his ribs. A skeleton was produced as being that of the dead man, and upon examination it was found that one of the ribs had been broken, but that it was united by a firm osseous callus. Hence the

(*j*) Dr. Jno. Neill found, upon an examination of thirty-two skeletons, that the *thyroid foramen* in the *male* is *oval,* and in the *female* is triangular. He also observed that the male foramen is longer and narrower, and that the long axis is nearly parallel to the rami of the pubes and ischium; whereas in the female, the foramen is not only smaller and triangular, but the apex of the triangle is downward, its internal side nearly parallel to the rami, and the base of the triangle is proportional to the chord of the arch of the pubes.—*Trans. Coll. Phys. of Phila.* Vol. III. No. 2.

(*k*) Krause Handbuch der Menschl. Anat. 2 Aufl. Bd. 1, p. 225.

opinion was very properly given that the fracture could not have been caused a few hours before death, but must have taken place from another cause some time previously. The period at which callus is fully formed after a fracture depends somewhat upon the age and constitution of the individual; it is usually, however, several weeks before it is sufficiently firm to bear the weight of the body, when one of the long bones of the lower extremity has been broken. Gunshot and other penetrating wounds of the skull are generally identified by the form of the opening and the sharp and broken character of the edges. Sometimes a portion of the weapon or the ball is found in the head. The absorption of bone made by the pressure of a tumor is recognized by the loss of substance around the opening and its smooth and polished character, and the previous existence of necrosis can also be readily known by its diffusion around the orifice, and in other parts of the skull.

In 1814, portions of a human body having been found floating in the Seine, were taken up and submitted to a medico-legal examination. The body was identified from the fact that disease of both hip-joints was found which must necessarily have caused considerable deformity and lameness, since it was evidently of old standing, new cavities having been formed above the acetabula, in which the heads of the thigh bones rested. The assassin was afterwards discovered.(*l*)

§ 480. In those cases in which certain portions only of the human body are found, or in which all appear to be present though in a dissevered condition, the preliminary step to the identification depends necessarily upon the ability of the examiner to so adjust the parts together as to be certain that they naturally formed parts of one body. This has been successfully done in many remarkable cases, as in the one just quoted, in the case of Ramus, where the head was found in the Seine, the trunk in a sewer, and the legs near the Pont-Neuf; and in that of Dr. Parkman where the remains of the bones of the head were found in a furnace, and the thorax and limbs concealed in different localities. In this latter case, the head having been almost entirely consumed, nothing remaining but a few fragments of bone, there could be no clue to identity from the features; but it having been found that the other portions of the body could be adjusted to each other in such a manner as to prove that they had once constituted a whole, a presumption of identity was established from the computed stature, certain peculiarities of form, the presence of grey hair upon various portions of the body, and, finally, from the block of mineral teeth, which, as before stated, fitted the mould of the jaw of the deceased, as previously taken by a dentist.

§ 481. *Cicatrices.* The indelible marks upon the skin which are left by wounds, cutaneous diseases, and surgical operations, afford frequently valuable means of identification. The tissue of which the scar is formed is of a dense and fibrous nature, and it is distinguished from the surrounding skin by its whiter color, and the absence of hair and sebaceous follicles. When not distinct it can often be brought out by friction which reddens the adjoining skin but does not affect the scar.

(*l*) Briand, Méd. Lég. p. 586.
(*m*) Guy's Forensic Medicine.
(*n*) Lond. Med. Gaz. Vol. XXXVIII. p. 481.

Some have, however, a red or purplish color, especially those which are the result of eruptions depending upon a constitutional cause, as syphilis or scurvy. The *shape* presented by cicatrices is very various. A *linear* cicatrix is the result of a simple incised or punctured wound, which has healed by adhesion. But all incised wounds do not leave scars of this shape. They are sometimes curved or elliptical in shape, owing to the retraction of the skin, or to the wound having been inflicted upon a convex surface. Whenever the injury has been attended with loss of substance, the healing process must necessarily take place by granulation and the scar will be irregular in shape. *Gunshot wounds*, when a bullet has been the projectile, leave a *round* and *sunken* scar, which is usually much smaller than the ball, if no efforts to dilate the wound have been made; and it is also adherent to the subjacent parts. If the shot has been fired close to the individual, the grains of powder will also sometimes penetrate the skin and give it a tatooed appearance. A round scar is sometimes also left by a penetrating wound from a weapon with a rounded or triangular blade, but it has not the sunken appearance left by a gunshot wound. The cicatrix which results from the healing of a scrofulous or syphilitic sore has considerable similarity to that made by a ball. If the scar has resulted from a scrofulous abscess in the gland, the appearance of it is peculiar. Its shape is more angular than round, it is traversed by adherent bridles of skin, therefore uneven and fenestrated, although its surface is shining, smooth, and white. When it is seated on other parts of the cutaneous surface it is not so deep, except it has become adherent to a subjacent bone, and resembles in its smooth and enameled surface very much that which is left by a burn. Those which are caused by *syphilitic* ulcerations are irregular in shape, are puckered, hard, often elevated, and of a more or less copper color. The position of these cicatrices will often, moreover, give a key to their origin, being usually seated over the lymphatic glands. The cicatrices resulting from burns are too familiar to need description.

§ 482. The question may arise as to the possibility of the *disappearance* of a scar. We believe that, as a general rule, all scars resulting from wounds and from cutaneous diseases which involve any loss of substance are indelible; the only exception that can be made, being in regard to trifling punctured wounds where but little violence has been done to the skin. *Tattoo* marks are also usually considered indelible. This is not the opinion of Dr. Casper, who, in a recent trial at Berlin where the question came up, stated, as the result of his inquiries made among the old soldiers at the Invalid hospital in that city, that the marks of tattooing can disappear.(*o*) The evidence, however, was not, we think, of sufficiently precise a character to warrant this statement. "Out of 36 examples, the marks had become faint with time in 3; were partially effaced in 2; and completely obliterated in 4." Hence for the actual previous existence of these last he had to depend upon the word of the person whom he examined. Moreover, the age and the substance with which the operation was effected are not reported. No

(*o*) Casper's Vierteljahrschrift, 1852. 1 Bd. 2 Heft. (Der Process *Schall* eine *cause célèbre*.)

donbt the pigment used is often partly absorbed, since the lymphatic vessels leading from the spot have been found filled with it, but better evidence of its complete disappearance is yet required before the well established belief of the contrary can be shaken.

§ 483. *Hair.*—A curious case, illustrating the possibility of a fraudulent discoloration of the hair interfering with the identification of a person, is reported by Orfila.

A man named Benoit was arrested on suspicion of murder. Some witnesses testified that they had seen him in Paris at two in the afternoon with black hair, while others declared that *they* saw him at Versailles, with fair hair, at five or six in the evening of the same day. The question being proposed whether it was possible to change the color of the hair from dark to light, Orfila deposed that it was. He made numerous experiments to show this, from which it resulted, that by washing the hair with solutions of chlorine, black hair could be changed to various lighter shades, according to the strength of the solution, and the length of time it remained applied. This mode of discoloration can, however, readily be detected by the peculiar smell of the chlorine, and by there being something unnatural in the color resulting from its application. He found also that the most effectual way to darken hair naturally light, was by the employment of a compound of litharge, chalk, and fresh lime in nearly equal parts. After the hair which has been wetted with a solution of these materials, has become dry, the chalk and oxide of lead remaining attached to the hair, are removed by weak acetic acid, and cleaned with the yolk of an egg. The hair is thus effectually dyed black, without any injury to its texture. The fraud can, however, easily be detected by steeping some of the hair in dilute nitric acid, which dissolves the ingredients with effervescence, and on testing the solution with hydrosulphuric acid, the black sulphide of lead will be obtained. Such cases can, however, very seldom come before courts of justice, this being, as far as we know, the only instance in which, since the ancient union of the functions of the barber and the surgeon, they have been again combined.

The color and peculiarities of the hair may undoubtedly, in many cases, assist in the identification of the dead, but it is not unimportant to remember that in those cases where the body has been exposed to the vicissitudes of the weather for some time after death, the hair becomes bleached by the exposure, and thus hair which was really dark during the lifetime of the deceased, may present a tawny appearance.

§ 484. *The length of time which has elapsed since death*, as ascertained from an inspection of the remains of the human body, can seldom be known with great precision, and in many cases, especially at a late period in the process of decomposition, many errors may be committed. The rapidity of this process depends upon a great variety of circumstances, and the influence of these, it is therefore of some importance to consider.

The age and constitution of the person, his last sickness and mode of death, the existence of wounds, the length of time the body has remained exposed to the air before interment, and the temperature and hygrometric condition of the air at this time, the nature and depth of the ground, if burial has taken place, and if not, the nature of the

medium in which the body has remained, and many other causes which it is here needless to particularize, must all be carefully considered in any estimate of the time that has elapsed since death.

§ 485. *Heat*, especially when accompanied with humidity, is a powerful accelerating cause of putrefaction. Dry heat, if the temperature is elevated, does not promote it. Thus, the bodies of those that have perished in the caravans that traverse the African deserts, are often found in a dry and mummy-like condition. Even in temperate climates corpses interred in very dry vaults, as in the Catacombs at Rome, the leaden vaults of Bremen, the convent of the Capuchins at Toulouse, a church at Bordeaux, &c., remain in a tolerably perfect condition, very much resembling the Egyptian mummies.

§ 486. On the other hand, in very cold climates, bodies may be preserved for a long time. This is the case in some parts of Norway, where persons dying in the winter are not interred until the spring, the ground being frozen too hard to permit burial, and the corpse is preserved uninjured for several months. The body of Prince Menschikoff, banished to Siberia by Peter the Great, was found ninety-two years afterwards entirely unchanged. In the beginning of this century, the thawing of large masses of ice on the banks of the Lena, left exposed the body of a mammoth, which was in such a state of preservation, that the flesh was eagerly devoured by dogs, bears, wolves, &c. The corpses which are preserved in the hospice on the top of Mount St. Bernard, where the thermometer stands nearly the whole year round below the freezing point, are perfectly recognizable after the lapse of several years.(*p*)

(*p*) There is upon the summit of the Great St. Bernard, a sort of morgue (*dead house*,) in which have been deposited, from time immemorial, the bodies of those unfortunate persons who have perished upon this mountain by cold, or the fall of avalanches. The study of the circumstances of locality, and of temperature in which this establishment is placed, may, to a certain degree, indicate the most favorable conditions for the long preservation of bodies. Thus are shown to travellers, bodies, which they assert have been sufficiently well preserved to be recognizable after the lapse of two or three years. A physician, whose position as former prosector of the faculty of Medicine of Paris, rendered him curious to visit this part of the hospital in all its details, verified, with his own eyes, all that travellers have written, and has transmitted to us the following observations:

"The hospital of Saint Bernard is, as is well known, the most elevated habitation in Europe, being 7,200 feet above the level of the sea. The temperature of this part of the globe is always very low, rarely above zero, even during summer. This extensive establishment is built upon the borders of a lake, at the bottom of a gorge in the mountain; the principal mass of the building represents a long parallelogram, placed in the direction of the gorge, so that its two principal faces, pierced with numerous windows, are sheltered from the wind by the rocks; whilst the two extremities, on the contrary, are exposed to all the violence of those which blow from one side of the gorge to the other. About fifty steps beyond the principal building, and a little out of a right line with it, is situated the morgue, a sort of square chamber, the walls of which are three or four feet thick, constructed of good stone, and the arched roof of which is very solid. Two windows, of about four feet square, are pierced in the direction of the breadth of the valley, directly facing each other, so that a perpetual current of cool air traverses the interior of the chamber. There is, further, but a single table in this morgue, upon which they place the bodies when first introduced; after a while they are arranged around the walls in an upright attitude. At the time of my passage of the Great Saint Bernard, (31st August, 1837,) there were several of these mummified bodies along the walls of the chamber, but a greater number were entirely divested of flesh, and lie scattered about the earthy floor of the room. They informed me that decomposition only took place when the bodies fell by accident to the ground, which was owing to the humidity occasioned by

§ 487. The *air*, at its ordinary temperature, favors the progress of putrefaction. In bodies which are exposed for a long time to all the changes of the weather, it is estimated that all the soft parts are completely destroyed in less than six years, and most of the bones in twelve, as they become light, brittle, and honeycombed in their appearance.

§ 488. *Water* being a natural constituent of the human body, is also one of the elements necessary for the progress of decomposition. If, however, the body be sunk in water, putrefaction does not advance so rapidly as in the air, and often the changes which take place are different from those of ordinary decomposition. The soft parts of the body become converted into substance, called, by Chevreul, *adipocere*. It is solid, white, and fusible. The ammonia which results from the decomposition of the muscles, as well as a certain quantity of potash and lime, form a combination with the oleic and margaric acids of the fatty portions of the body. The bodies of children, and of stout, fat persons, undergo this change most readily. But the presence of considerable moisture is necessary for it, and it therefore occurs only in the water, or in moist soils, especially where many bodies are buried together. It is uncertain at what time this saponification takes place in the water: according to Devergie's observations, it is pretty complete in five months. In the ground, the process is much slower, requiring at least three years for a total transformation.

§ 489. The dryness or moisture of the *ground*, the depth at which the body is buried, and its more or less complete isolation from contact with the earth, are circumstances which modify the progress of putrefaction, and render any general opinion as to period of death inapplicable. The body of Numa Pompilius was preserved in a stone sarcophagus for several centuries; and the bones of Dagobert, who died nearly twelve hundred years ago, were found entire, having been placed in a wooden coffin enclosed in a stone tomb. The bones of Abelard and Heloise were so well preserved, after a lapse of five hundred years, that the female skeleton could be readily distinguished from the male.(*q*) On the other hand, the body of a child buried in the earth has been found reduced to the mere bones in nine months; and that of a young man, who died of small-pox, in less than six.(*r*) In general, observation has shown, that of the body of an adult, buried in an ordinary coffin, nothing at the end of twenty years will remain but the skull and the thigh bones, sometimes also the arm-bones; and

the snows, which occasionally entered with the currents of air through the windows of the morgue."

Dr. Harlan says, "Early in September, 1833, I had an opportunity of inspecting the contents of the morgue of Saint Bernard. Among the group of bodies of every age and sex, we were particularly struck with two figures, one, that of a man, whose countenance was horridly contorted by the act of desiccation; each limb and every muscle of the body had assumed the expression of a wretch in purgatory. The other was that of a mother holding her infant to her bosom, the latter with an imploring expression, looking up to the face of the mother, whom it appeared to have survived some time, as is generally the case when mother and child are frozen together, a greater power of forming animal heat, existing in children. (History of Embalming, &c., by J. N. Gannal. Translated from the French by R. Harlan, M. D. Philadelphia: Judah Dobson. 1840.)

(*q*) Blumenbach. Geschichte u. Beschreibung der Knochen, &c. Göttingen, 1807.

(*r*) Joh. Miller. Knochengerüste des Menschen, &c. Henke's Zeitschrift, 1852, 3 H.

Schürmayer states, that in general, in churchyards, the time will not exceed fifteen years. In order to show, however, how little dependence can be placed upon the uniformity of these changes, the following case will serve as an example. A skeleton was found, in digging the cellar under an old house. A question arose whether the individual to whom it belonged had died more than twenty years before. Soon afterwards, other skeletons were found near by; and finally, an investigation having been set on foot, the fact was clearly made out that the site of the old house had formerly been a burial place, and that the skeleton was at least 200 years old.(*s*)

The following general results have been obtained by Orfila, whose celebrated treatise, *Sur les Exhumations juridiques*, contains nearly all that is accurately known on this subject.

1. Putrefaction is, under equal conditions, more rapid in manure, than in water, privy soil, or the ground.

2. In privy soil it is not so rapid as in water, but more so than in the earth.

3. Water especially, when frequently renewed, accelerates decomposition next in rapidity to manure.

§ 490. Dr. Waller Lewis, who was engaged for many months in the years 1849 and 1850, in inspecting the vaults of the churches of London for the General Board of Health, states, among many other interesting facts, which are not here in place, the following, relative to the time for decomposition in vaults: "The complete decomposition of a corpse, and its resolution into its ultimate elements, is by no means accomplished in a period of ten years; nor is that description accurate which represents, that at the end of that period nothing 'but a few brittle bones are left in the else vacant shroud.' On the contrary, so extremely slow is the process, under the circumstances, that I have but rarely seen the remains in a leaden coffin, of any age, in the condition described. In a wooden coffin, the remains are found exactly in this state in a period of from two to five years. This period depends upon the quality of the wood, and the free access of the air to the coffin. But in leaden coffins, fifty, sixty, eighty, and even a hundred years, are required to accomplish this. I have opened a coffin in which the corpse had been placed for nearly a century, and the ammoniacal gas formed dense white fumes when brought into contact with hydrochloric acid gas, and was so powerful, that the head could not remain near it for more than a few seconds at a time. The putrefaction is, therefore, very much retarded by the corpse being placed in a leaden coffin." (*t*)

Putrefaction in the Fœtus.

§ 491. The fœtus dying within the uterus, undergoes a change which is different from the putrefactive process. The body is remarkably flaccid in all its parts, and if it have died previous to the fifth month, it will often, after having undergone a certain degree of maceration, wither, contract, and become hard, principally upon the surface, exactly as if it had been preserved in a weak saline solution. In the

(*s*) Miller, *ante*. (*t*) Lancet, Aug. 9, 1851.

later months, however, its tissues soften and lose their cohesion, the skin has a spotted appearance, and when the cuticle is detached, has a brownish red color. The abdomen is usually bare of the cuticle, which is, however, easily detached from all parts of the body. The head lies flat in whatever position it may be placed, and all the joints are extremely relaxed. The umbilical cord is of a brownish red color, and very flaccid. The cellular tissue is infiltrated with bloody serum, and the cavities of the body contain the same. The viscera are disorganized, easily lacerated, and very loosely connected with each other; gas is developed in the lungs and liver, and the kidneys and uterus are usually better preserved than any other parts. The lungs are of a dark brown color, and punctated with black blood. The odor is peculiar, but not that of putrefaction, unless the child has been born after a lingering labor, and air has had access to it. The child which dies immediately before birth, will not, of course, present these appearances. When the fœtus has been retained a long while in the womb, it is said that it may be converted into adipocire. This is not unfrequently the case with extra-uterine fœtuses. There is no difference in the putrefaction of children born alive, from that of adults, except in the greater rapidity of its progress. In order to determine the length of time which may have elapsed since the birth of the child, with a view to its identification when it is found in a putrid condition, recourse must be had to the same sources for an opinion as those already indicated, viz., the locality, temperature, medium, &c., to which it has been exposed, or in which it has lain.

§ 492. *Influence of lime upon the putrefactive process.* The belief is a very general one, that lime has the property of hastening the process of decomposition, and it is usually with this view that it has been thrown upon human remains which are sought to be rapidly destroyed. A few years since, upon the trial of the Mannings, in London, for the murder of O'Connor, medical evidence to this effect was given; the advanced state of putrefaction in which the body was found being attributed to the action of the lime, and, in particular, the destruction of the brain, to the fact of this substance having penetrated through the wounds of the head, and thus exercised a direct action upon it. But more attentive observations and careful experiments have shown that it does not possess the property thus attributed to it. The following conclusions were made by Mr. Taylor, from some experiments made for the purpose of ascertaining the effects of lime on animal matter:—

1. Lime neither retards nor hastens decomposition in dead bodies, whether whole or in fragments.

2. It has, however, the effect of hindering the diffusion of noxious effluvia from the dead body, from its combination with carbonic acid, sulphureted and phosphoreted hydrogen.

3. Lime is therefore one of the best, safest, and cheapest means of preventing the effluvia from dead bodies.

4. The belief, therefore, that it hastens the putrefactive process, is entirely groundless.(*u*) The experiments of Mr. John Davy(*v*) confirm

(*u*) Henke's Zeitschrift, 41, E. H. p. 294.
(*v*) Edinb. Month. Jour. Jan. 1850.

these conclusions. He placed various structures of the body of animals in wide-mouthed vessels, and covered them with a paste of freshly-prepared caustic lime. At the end of a month they were found perfectly well preserved, although somewhat softened. Even seven months afterwards, they were found nearly in the same condition. At the end of two years, certain changes had taken place. The membranous portions were soft and transparent, the muscular tissue was converted into adipocere but had no offensive smell, and the other structures were no longer recognizable. In other experiments of the same kind, it was found that the lime was destructive only to the hair, nails, and epidermis; and that, in animal tissues which were already beginning to putrefy, the immersion in fresh lime destroyed all foul smell, and brought the process to a stand still. The green color which the muscular tissue receives from contact with lime, is ascribable to a chemical action of this substance upon the coloring matter of the blood contained in them.

BOOK V.

QUESTIONS RELATIVE TO THE CAUSE OF DEATH.

PART I.—POISONING.

PART II.—OTHER FORMS OF VIOLENT DEATH.

PART I.

POISONING.

CHAPTER I.

GENERAL CONSIDERATIONS.

§ 493. Physicians generally understand by the word *Poison*, a substance having an inherent deleterious property, which renders it, when taken into the system, capable of destroying life. It is difficult however, to give a definition to the term, which will meet the signification attached to it by different classes of persons; for while in common language, poisons are understood to be those articles only which are deadly in small doses, as strychnine, prussic acid, arsenic, &c., the lawyer and the physician will unite in affixing to it a general meaning, similar to that which we have given above. Some substances are habitually classed as poisons which, according to the popular signification, would have a doubtful claim to be so called, being fatal only in large doses; and every medical practitioner is aware that very many active remedial substances may, in an over dose, produce serious and fatal effects. Moreover, questions may arise as to the applicability of the term to substances which destroy life by mechanical irritation, such as powdered glass, &c. Therefore, in order to avoid the evil of giving too wide or too restricted a meaning to the word "poison," we adopt the definition above given, which makes no reference to the quantity required to produce a poisonous result, nor to the mode in which it is introduced into the system.

§ 494. The *mode of action* of poisons, although exceedingly interesting as a physiological question, cannot here occupy our attention. Whether a poisonous substance exercises its specific deleterious action by being absorbed into the system, by entering into the blood, or by an immediate or remote action upon the nerves, is a question that must often remain undecided. Its mode of action may be conjectured by the comparative rapidity and the nature of its effects. These it is important to study, since they are the basis upon which any classification of poisons must be founded. We will therefore return to them hereafter. The poisonous effect of any article is, however, not universally the same.

There are certain peculiarities of constitution, which in one case will prevent the injurious effects of a substance which is generally poisonous, and in another will render a comparatively innocuous alimentary or medicinal article highly pernicious.

§ 495. The *idiosyncracy* which converts a harmless substance into a poisonous agent, is very frequently observed in the case of articles of food. Thus muscles, fish, pork, mushrooms, and mutton have frequently given rise to all the symptoms of irritant poisoning. It should be remembered, however, that the symptoms in these cases may result as well from the mechanical irritation of the food—too large a meal having been taken, or from the fact of its being in a condition unfit for use. The cases in which a really poisonous substance has been taken with impunity are more rare. In the majority, the immunity is only comparative, the person being affected merely in a less degree than is usual. An instance is, however, related, on the authority of Dr. Christison, in which a gentleman, unaccustomed to the use of opium, took nearly an ounce of good laudanum without any effect. Dr. Hartshorne says, that a medical friend of his had "lately seen a man in this city swallow about five grains of corrosive sublimate, and was informed by the apothecary at whose shop he witnessed the act, that the individual in question was in the habit of taking the same quantity every day."(*a*)

§ 496. The influence of *habit* in rendering the system tolerant of poisonous substances is daily seen in the increased doses rendered necessary in the continued use of certain medicinal articles. Thus the system becomes rapidly tolerant of opium and its preparations, and doses increased beyond the usual limit of safety are required in order to produce the effect originally obtained. Those who have become addicted to the vice of eating or smoking opium for the sake of creating a pleasurable excitement of the system, find it necessary to gradually augment the amount they consume, and are unable to suspend or discontinue the habit without experiencing the most distressing sensations. Accounts have been lately published, which would seem to show that the system may become tolerant even of *arsenic*, and that the dose may be gradually increased without the production of toxical effects. General medical experience is certainly not in harmony with this statement. On the contrary, a slight increase of the dose is very soon followed with a sensation of heat in the throat and stomach, inflammation of the eyes, swelling of the face, together with nausea, griping, and other alarming symptoms. The accounts alluded to are those coming from various sources relative to the practice of arsenic-eating in some of the provinces of Austria. A case, in which a person was charged with poisoning, was tried at Cilli, in Styria. The victim was an old soldier, who died suddenly, and in whose stomach arsenic was found. It is said that the Court, in submitting the case to the jury, asked the question, "Was the deceased an arsenic-eater?" To which the jury replied, "Yes, he probably was." This question had reference to the fact, it is said, that "in the provinces of Lower Austria and Styria, bordering on Hungary, it is quite common with men to chew particles of arsenic,

(*a*) Taylor's Med. Jur., Am. ed. p. 98.

mixed with their bread, very much like the Chinese chew opium. The absorption of the small quantity thus used, induces a fresh and clear complexion, and, to a certain extent, brightens the intellectual faculties; but with those who make a habit of thus eating it, there follows before long, debility, and a premature death. Females do not at all indulge in it, and the few men thus distinguished are known by the name of *eaters of poison.*"(*b*)

Dr. Tschudi states that the peasantry purchase it under the name of hedri, (*hedri, hedrich, hatter-ranch,*) from wandering herbalists or peddlers, who, on their part, obtain it from workers in Hungarian glass, from veterinary surgeons, and from charlatans. "These poison-eaters (*toxicophagi*) have a double aim; first they wish to give themselves, by this dangerous habit, a fresh and healthy appearance, and a certain degree of embonpoint. Many of the peasant girls, and even the men, have recourse to this expedient from coquetry and a desire to please; and it is remarkable what success they attain, for the young toxicophagi are distinguished by the freshness of their complexion, and by the aspect of flourishing health. The following is one of many instances. A girl who attended cows, in good health, but pale and thin, was employed at a farm in the parish of H——. Having a lover whom she wished to attract yet more by her personal charms, she had recourse to the usual method, and took arsenic several times a week. The desired result was soon attained, and after some months she became fat, chubby-cheeked, and, in short, quite to Celadon's taste. To carry the effect further, she increased the dose, and fell a victim to her coquetry—she died poisoned. The number of deaths from the abuse of arsenic is by no means inconsiderable, especially among young people. Dr. Tschudi states, that so careful are the victims of this practice to conceal it, that the secret often is revealed only on the death-bed. The second advantage gained by the toxicophagi, is that they become more free in respiration, and are able to ascend high mountains with ease. Upon every long excursion into the mountains, they take a little bit of arsenic, which they let dissolve in the mouth. The effect is surprising. They ascend without difficulty heights which would have been almost insurmountable without this practice. They commence with a piece of arsenic the size of a lentil seed, or about half a grain. They keep to this dose, which they swallow several times a week, morning and evening, for a long period, to become accustomed to it. Then they increase the quantity insensibly, but with precaution, until the desired effect is produced. A countryman, named R——, of the commune of Ag—, a sexagenarian, and in excellent health, was in the habit of daily taking four grains. He had followed the habit forty years, and had transmitted it to his son. There was no trace of arsenical cachexia in this individual, no symptoms of chronic poisoning. It is to be remarked, however, that when the practice is dropped, emaciation generally ensues from some cause, either from the withdrawal of the stimulus, or from accidental or acquired disease. The custom does not diminish the sexual passion, as is the case with the opium-eaters of the East, or with those who use the betel, in

(*b*) Journ. des Counais. Med. Chir. Dec. 1851; and Am. Jour. Med. Sci. July, 1852 p. 270.

India and in Polynesia. On the contrary the feeling becomes more strong. It may be as well to bring to mind á general use of arsenic in Vienna, among the stablemen and coachmen of the great houses. They mix a good pinch of the powder with corn, put a piece the size of a pea in a linen bag, and attach it to the bit of the horse. The saliva dissolves the poison. This produces a bright aspect of the skin, roundness and elegance of form, and foam at the mouth. The coachmen of the hills adopt the same practice before commencing a laborious journey; and horse-dealers carry with them small balls of arsenic, to be given to those animals which they are leading to the market. Should a horse thus treated pass into the hands of a master who does not employ arsenic, he gets thin, loses his freshness, becomes dull, and, in spite of abundant food, does not recover his former sleekness.(*c*) The practice of arsenic-eating, and the singular effects which are attributed to it, are wholly discredited by Drs. Pereira, Taylor, and Christison, and are irreconcilable with our positive knowledge of the action of this substance upon the human system, as well as upon animals. The detailed account just given, possesses at least some literary interest, and may, perhaps, at some future time receive that explanation of which, at present, it seems to stand so much in need. The only fact at all corroborative of this tolerance of arsenic, is that mentioned by Flandin. He states that he gave to animals doses of arsenic, commencing with 1-65th of a grain mixed with their food, and that in nine months, by progressive increase, they bore a dose of upwards of fifteen grains of arsenious acid, in powder, in twenty-four hours, without their appetite or health becoming affected."(*d*)

§ 497. *Disease* also has sometimes the effect of rendering the system tolerant of substances which in the same doses would, in a healthy state of the system, be poisonous. On the other hand, certain diseases render the body more susceptible to the influence of poisons. Examples of the fact first mentioned is seen in the tolerance of large doses of opium, or other narcotics in tetanus, mania-a-potû, and some other diseases marked by great nervous tension; and of the second, in the aggravation or the ready production of cerebral symptoms, after the use of small doses of narcotics, in those persons having a predisposition to cerebral congestion or apoplexy. The use of iodide of potassium in persons who have taken mercurial preparations, is said to favor the development of the mercurial cachexia.(*e*)

Evidence of Poisoning.

§ 498. The medical evidence in cases of suspected poisoning, is derived from several sources, to wit, *the symptoms, the post-mortem appearances, chemical analysis, and experiments upon animals;* the whole evidence being at the same time strengthened by reference to the known effects of the poison in *other* well authenticated instances.

§ 499. I. The *symptoms.* It is but rarely that some knowledge of

(*c*) Med. Times and Gaz. July, 1854, from Gaz. des Hopitaux, May 16.
(*d*) Traité des Poisons, Vol. I. p. 737.
(*e*) Trans. Coll. Phys. Philad. Vol. II. No. 8, 1855.

the symptoms preceding death is not obtained, even where the mode of their invasion has been unobserved. Occasionally, indeed, persons are found dead from the effects of poisoning, of the precise manner of whose death no information can be obtained, the suspicion of poisoning arising only in consequence of the finding of the phial from which the poison has been taken, or other circumstantial evidence of a similar character. Such are, in general, cases of self-destruction; the unfortunate victim of misfortune or excess having designedly withdrawn himself from observation, with the view of being undisturbed in his purpose. But in most cases of accidental and homicidal poisoning, some knowledge is acquired, either directly or indirectly, of the nature and progress of the symptoms. With few exceptions, medical aid is sought, and the direct testimony of the physician can thus be obtained.

With regard, therefore, to this portion of the medical evidence, it is important that the following circumstances, bearing upon the probability of poisoning, should be considered:—

1st. The mode of invasion of the symptoms. In most cases of acute poisoning, by which is meant those in which a single dose capable of destroying life is taken, the symptoms arise more or less *suddenly*. In the chapters upon the individual poisons, the length of time elapsing before the accession of the symptoms, will be given; it varies with each poison, and is influenced also by several circumstances, such as the fullness or emptiness of the stomach, the state of health and the habit of the individual. Although arising suddenly, the symptoms do not necessarily follow *immediately* the ingestion of the poison. If it have been swallowed in food or drink, the symptoms announcing the fact of poisoning may not come on for an hour or more afterwards. This fact has been frequently observed in arsenical poisoning, and is usual in poisoning by opium, belladonna, digitalis, and some other of the narcotics. But when the symptoms have begun to manifest themselves, there is then a progressive development of them, and they present (like any disease) certain features, which, combined, form a portrait by which they may be referred to some one class of the poisons, or be known to depend upon some one particular poison. It is not indeed meant that there may not be a remission of the symptoms in poisoning, due either to the influence of treatment or to the spontaneous struggles of nature; but this event, which is more apt to take place when a dose insufficient for the destruction of life has been taken, can hardly affect the value of the fact in poisoning, of the sudden accession and development of peculiar symptoms.

2d. The *duration of the symptoms* is another consideration, having important bearings. Although sudden death is not the result of the majority of poisons, or at least of such as are usually swallowed, yet death from acute poisoning is an early result. A few minutes or hours may suffice; and, on the other hand, the patient may survive for days. No general rule upon this point can be laid down; arsenic usually destroys life within twenty-four hours, opium within twelve, and prussic acid in a few minutes. Exceptions are seen to all of these general rules; and with no poison is there so wide a range in the duration of the symptoms as in arsenic, since it has been known to prove fatal in

less than two hours, and after several days. The reader will find sufficient details upon this point hereafter.

§ 500. All the importance of the evidence derived from the symptoms, depends upon the possibility of sustaining a distinction between them and a disease suddenly developed. This distinction should be sufficient, not merely to satisfy the mind of the physician, but to afford convincing proof to the jury upon the subsequent trial. This is often the most difficult and annoying duty of the physician; for while his own mind may be perfectly satisfied of the correctness of his judgment, he can rarely, with perfect conscientiousness, assert that the symptoms might not be explained upon the supposition of disease. Hence, this portion of the medical evidence cannot stand alone, but must be supported either by the positive correspondence with it of the *post mortem* appearances and chemical analysis, or by the absence of any evidence upon the autopsy confirming the notion of disease. Thus, in suspected poisoning by strychnia, the tetanic convulsions caused by this alkaloid might be readily and plausibly ascribed to other external or internal causes; upon the symptoms alone, it would be impossible to base evidence sufficiently strong to procure a conviction. Or again, should a person die under the symptoms of irritant poisoning, the physician would find it difficult to defend the position that similar phenomena might not be witnessed in an attack of cholera, or be mistaken for those of gastro-enteritis, arising from some other cause. Dr. Lee says: "During the prevalence of malignant cholera in 1832, we mistook a case of poisoning by arsenic for an attack of this disease. A lady took more than a drachm of the arsenite of potash, as we afterward ascertained, with the intention of destroying her life, which was followed by severe retching, vomiting, cramps, livid, cold, and clammy skin, and the other symptoms which usually attend a severe attack of cholera."(*f*)

Certain portions of the ordinary circumstantial evidence blend closely with that which is purely medical; hence, the medical expert should carefully distinguish in his own mind, between the evidence required of him as a physician, and that of which he is no better qualified to judge than any other good observer. One of these cases is that in which a number of persons are suddenly seized with similar symptoms of poisoning after a meal, or one or more of them remain exempt from them. This evidence will often not merely support the fact of poisoning, but also indicate its source. Not unfrequently, this circumstance has been the first to awaken suspicion, and direct inquiry in the right direction. But this portion of the evidence cannot be considered as falling exclusively within the province of the physician.

§ 501. II. *Post mortem appearances.* There is no portion of the medical evidence of poisoning which demands closer scrutiny than this. In the majority of cases, the *post mortem* appearances are *not* conclusive of poisoning; in some, there are no alterations whatever of the natural structure, and in others, what little force may lie in this portion of the evidence, may be practically lost by ingenious explanations or suggestions. With the exception of the destructive changes caused by

(*f*) Copland's Dict. (Am. ed.) Art. "Poisons."

the corrosive acids, or other caustic substances, there are perhaps none which can stand unsupported by the evidence from symptoms; so that, in the case of death in which these have been unobserved, no satisfactory conclusion can be obtained. In such cases, the reality of poisoning can be ascertained only by a resort to chemical analysis. From the prevailing want of familiarity with the usual appearances of the viscera after death, it is to be feared that many errors are daily committed; phenomena, the result of cadaveric change simply, or perhaps the effect of disease, being mistaken for the immediate and characteristic consequences of some poisonous substance. A striking illustration of this fact, will be referred to in the chapter upon "Aconite." Sometimes, however, the undissolved remains of the poison may be found in the stomach and intestines, or the presence of the substance may be discovered by its peculiar odor or color. These are enumerated in each case under the "*post mortem appearances*," and often afford valuable hints as to the nature of the poison which has been swallowed. Thus the salts of copper, for example, may be detected by their color; hydrocyanic acid, or the oil of bitter almonds, by its powerful odor; and the leaves of savine, and some other vegetable irritants, taken in substance, by their botanical characters. The physician, however, should guard himself against the error of too readily depending upon these indications, for the senses of smell and sight are both often deceived in such cases, and the odor or color supposed to be due to the presence of some poison, may really depend upon natural causes.

§ 502. Nevertheless, the value of the microscope in identifying the presence of some vegetable poisons by their botanical characters, has not received that attention which it deserves. Dr. Frazer, in the course of some judicious remarks upon this point,(*g*) says:—

"The point in such an investigation, which we require to determine in the first instance, is identically similar to the first step in deciding on the nature of a botanical specimen; if the specimen consists altogether of cellular tissue, it is to be classed as one of the 'cellulares,' and possibly may prove to be some of the poisonous fungi; should it, however, yield us distinct evidence of vascular tissue, in that case we will have, as our next duty, supposing it is a fragment of leaf which we are examining, to decide on the nature of the venation, which at once points out whether it constituted a portion of an exogenous or of an endogenous plant, the latter having the well-known parallel venation, and the former presenting an equally distinctive reticulated arrangement. Having advanced so far, we then have four other points, at least, for aiding our further identification of its source.

"1st. The presence or absence of hairs; their relative abundance on the upper or under surface of the leaf; and their shape, composition, and arrangement.

"2d. The appearance of the epiderm on the upper surface of the leaf; the form of the cells of which it is composed; the existence or non-existence of stomata; and, if they are present, their shape, size, and disposition in the epiderm.

(*g*) Monthly Jour. April, 1855.

"3d. Similar observations on the epiderm, upon the under surface of the leaf.

"4th. The disposition of the parenchyma of the leaf; the development of various crystaline matters (raphides) in this tissue, and their form, when they exist."

He suggests, that as the chemist may exhibit, in a sealed tube, his sublimates of arsenic or mercury, so the microscopic observer may produce, to corroborate his testimony, accurate drawings of the fragments of a poisonous plant, printed by solar light, as photographs, or more slowly obtained with the aid of a pencil and camera.

§ 503. III. *Chemical Analysis.* The indefatigable researches of Orfila in the domain of toxicology, and the assiduous culture of this science by other eminent chemists, have placed in our hands perhaps the least fallacious of all the means for verifying the fact of poisoning. It is of the utmost importance that the chemical analysis in cases of suspected poisoning should be entrusted to a competent chemist, capable not only of conducting it with system and accuracy, but also of meeting the numerous objections that may, at the subsequent trial, be brought against his evidence. In the majority of cases of poisoning chemical tests are applicable and yield a positive result; they may, except where the poison is of a volatile character, be employed with the certainty of valuable results, at considerable periods after death. The substance or liquid submitted to analysis may be either a portion remaining unconsumed, or the food in which the poison has been taken; it may be the matters rejected from the stomach, or the secretions by which the poison is eliminated from the system; it may be the contents of the stomach as found after death; or, finally, the viscera themselves or the blood where it has arrived by absorption. The fallacies attending chemical analysis, when conducted by an expert chemist, are few; they arise chiefly from the fact of the possible accidental impregnation of the reagents or of the substance to be examined, with the same mineral poison as that which it is the object of the analyst to detect, or its existence as a natural constituent of either; other objections that may be raised are due to the faulty manner of conducting the investigation, or to an over-hasty inference from too limited a number of tests. With regard to the possibility of poison being surreptitiously introduced into the stomach *after* death with a view of casting suspicion upon others, we may safely say that its consideration is not required until some authentic instance of the fact can be produced. This is one of the *chimeræ* of medical jurisprudence, which the ingenuity of authors has evoked, but whose existence is fabulous if not absurd.

§ 504. IV. *Experiments upon Animals.* In the succeeding pages it will be found that little allusion is made to these, in proof of the mode of action of poisons. It appears to us that well authenticated instances of poisoning in the human subject are far better adapted to advance our knowledge of toxicological agents than are experiments upon the lower orders of animals. The frequent variation in the effect of poisons upon these creatures, the immunity enjoyed by some of them against poisons which are virulent in their action upon man, and the difficulty of accurately distinguishing the symptoms which are the result of the operation often required for the introduction of the poison

into the animal's stomach, from those which are due to it alone, are the principal grounds on which we are disposed to rest our exclusion of this kind of evidence. We can better afford to dispense with evidence of such doubtful and fallacious character, when it is remembered that practically an appeal to such experiments is rarely received with favor. The only case in which the effect of poison upon animals practically becomes a question, is in those not uncommon instances in which some one or more of the domestic animals have sickened and died in consequence of eating portions of the suspected food which has been thrown out, or where, for sake of experiment, it has been given to them. But here the mere fact of their dying suddenly after eating of the suspected food, is in itself important enough to direct inquiry into the case. The peculiar symptoms manifested by them cannot be a matter of much interest, although it may occasionally be necessary to make a chemical analysis of the contents of the digestive organs for the purpose of ascertaining the nature of the poison contained in the food. This course has frequently been resorted to and much light thereby thrown upon cases which might otherwise have remained doubtful.

Differential Diagnosis of Poisoning.

§ 505. The physician is often at a loss, upon the first view of a case of poisoning, to determine whether the symptoms presented by the patient may not be really due to disease. The aspect of a case of irritant poisoning presents a certain resemblance to cholera or to gastro-enteric disturbance, and most of the phenomena of narcotic poisoning are found in acute diseases affecting the brain or spinal marrow. Should he content himself with remaining a silent spectator of the case, he may remain in doubt until its close; but if, on the contrary, he has witnessed or been made aware of the time and circumstances under which the symptoms came on, and their mode of invasion, he will be less embarrassed, and if an autopsy is obtained, can seldom be at a loss to give a decisive opinion. The diagnosis must always remain incomplete without a *post-mortem* examination, and hence, for practical ends, the consideration of those forms of disease which leave but few traces behind them, is, in consequence always of the less demonstrative character of symptoms, of primary importance.

The diseases most apt to be mistaken for *irritant* poisoning are:—

§ 506. 1st. *Cholera.* This disease in its *malignant* form, as is well known, is often rapidly fatal; it may supervene shortly after a meal or a draught of liquid; its onset is sometimes sudden although usually preceded by diarrhœa; there is great thirst, vomiting, and purging without effort, of a thin and slightly turbid liquid; the surface is cold and shriveled, the features collapsed, the voice almost extinct, the pulse feeble or imperceptible, and the intellect undisturbed; the lesions discovered after death are not sufficiently characteristic to be used in evidence, the most uniform, perhaps, being an increased development of the glands of Brunner in the small intestine. In most of the symptoms enumerated it may resemble very closely a case of poisoning by arsenic or other irritant, but there are, nevertheless, sufficient means of distinction. In poisoning by the irritants, a burning sensation in the throat

and stomach, and pain and distress in the whole abdomen, but chiefly over the stomach, precede or are simultaneous in their occurrence with the vomiting. They are the most prominent and constant symptoms during the continuance of the case. The matters passed from the stomach and bowels, after their previous contents have been evacuated, are mucous, and bloody, and are not spouted forth as in cholera, but rejected with great distress and effort. The anus is indeed often excoriated by their irritating properties. Furthermore, it may be observed, that those who have once witnessed a case of malignant cholera, will most probably have the peculiar, but indescribable features of this disease so impressed upon their memory, that they will not readily mistake for it any case of irritant poisoning. Finally, the epidemic prevalence of the disease or the fact that about the same time other cases resembling Asiatic cholera have occurred, will materially assist the physician in giving a positive opinion as to the nature of the attack.

§ 507. 2nd. *Bilious cholera*, or *cholera morbus*, as it is usually termed, is a disease which has more points of resemblance to the effect of poison, than has that which has just been mentioned. In it, both the extreme collapse and the peculiar rice-water discharges are not seen; but, on the other hand, the vomiting and purging is of a bilious character, and there is excessive pain in the abdomen. The progress of the case is, however, different. The pain in cholera morbus is remittent, coming on in spasms; and in proportion as the offending matters are discharged the vomiting is less frequent and painful. In irritant poisoning, on the contrary, the pain is constant and there is usually also tenderness upon pressure; the vomiting is of mucus and blood, and the discharges from the bowels are of a similar character. The tendency in the latter is to death, in the former to recovery. Cholera morbus is seldom fatal, and when it is, death does not in general take place for several days. The contrary is the rule in poisoning by the irritants. Such are the distinctions usually advanced by authors; and while they are, as a general rule, undoubtedly correct, it should not be forgotten that distinctions valid in medicine, may not be so in their application to criminal cases. While in the science of medicine, diagnosis is founded upon a careful investigation of the prevailing and general characters of diseases, the most delicate questions in medical jurisprudence are, on the other hand, determined by exceptional cases. Now as experience shows, that persons may not die from the effect of the poisonous irritants until several days have elapsed, or, indeed, that they may not die at all, we are at a loss to perceive how, in such cases, it will be possible in the absence of circumstantial and moral evidence to decide that the symptoms were due to attempted poisoning rather than to the disease in question; for although there may be some points of distinction, as, for example, the early occurrence of a burning sensation in the throat, the unremitting character of the pain and the sanguinolent discharges, yet these may be absent in mild cases of poisoning and where life is not destroyed. On the whole we consider the assertion hazardous and untrue, that in every case the symptoms of irritant poisoning can be distinguished from those of bilious cholera.

The corrosive poisons leave traces behind them sufficiently distinct to prevent any likelihood of mistaking their effects for those of disease.

There are certain diseases or sudden accidents partially resembling in their symptoms those of the irritant poisons which are so readily recognized on post-mortem examination, that it is needless to enlarge upon the modes of distinction. These are rupture of the stomach, intestine, biliary ducts, and uterus, and no one will contend that such lesions can be produced by poisoning.

§ 508. *Perforation of the stomach* may, however, give rise to embarrassment; not, indeed, so much from the symptoms of the malady, when considered alone, but from their offering perhaps sufficient resemblance to those of poisoning to support the opinion that the lesion referred to may be due to this cause. While it is true that in this disease, the seizure is sudden and the pain in the abdomen acute, it is not preceded by the sensation of burning in the throat and stomach, nor is the vomiting urgent unless upon the ingestion of the liquids. There is again no diarrhœa; the main symptoms are acute diffused pain all over the abdomen arising from peritonitis, and the patient is collapsed from the first. But in a case of this kind which has not been closely observed, the discovery after death of the perforation in the stomach will naturally awaken the suspicion of poisoning. If we now inquire under what circumstances this lesion is produced in cases of poisoning, we will find that with the exception of the corrosive acids it is seldom occasioned by any kind of poison. Perforation from arsenic, which poison is the one to which it will most probably be attributed, is so rare an event that but three cases are said to be on record, and the fact of the perforation being so unusual in a form of poisoning so exceedingly common, renders it highly probable that in these instances it was due to an already diseased state of the coats of the stomach. But the corrosive poisons, which undoubtedly produce, in many instances, a perforation of the stomach, leave in addition such manifest traces of their action upon the throat, œsophagus, and stomach, not to mention the corrosion of the mouth and lips, that it seems to be inexplicable how the single fact of the perforation should leave any doubt in the mind of the examiner or of the jury. Moreover, the character of the perforation alone affords a sufficient ground of distinction. The stomach in such cases is blackened and extensively destroyed; the aperture is large, its edges rough and irregular, and the coats are easily lacerated. Further, the poison escapes into the cavity of the abdomen, where it may be easily discovered by chemical analysis. In perforation from disease, on the other hand, if the affection be of a cancerous nature there will be no difficulty in distinguishing the cause, and if it be simple ulceration, such as occurs sometimes in persons in the enjoyment of apparently good health, the opening is also characteristic in its nature. "The aperture is usually of an oval or rounded form, about half an inch in diameter, situated in or near the lesser curvature of the stomach, and the edges are smooth. Indeed it has not unfrequently the appearance of having been 'punched out.' The outer margin of the aperture is often blackened, and the aperture itself is funnel-shaped from within outwards,—*i. e.*, the mucous coat is the most removed, and the outer or peritoneal coat the least. The coats of the stomach, round the edge of the aperture, are usually thickened for some distance; and when cut they have almost a cartilaginous hardness."

(Taylor.) Death takes place from peritonitis, the contents of the stomach being effused into the cavity of the abdomen.

§ 509. There is still another form of perforation, which is due to a solution of the coats of the stomach by its contents after death. It cannot give rise to a suspicion of poisoning, unless in the absence of any knowledge of the symptoms preceding death. It is purely a cadaveric phenomenon, and may occur in the stomach of persons dying from any cause, provided the peculiar fermentative process necessary for its production exist.(*h*) It is formed only in the larger end of the stomach, the opening is large and irregular, with ragged and pulpy edges and no surrounding inflammation. The edges may be discolored and black, as the result of a chemical action of the intestinal gases upon the coloring matter of the blood. There is no peritoneal inflammation, but the spleen, diaphragm or other subjacent viscus may be also softened by the same cause. The absence of any disorganization of the pharynx and œsophagus, and of peritoneal inflammation, is sufficient to distinguish this post-mortem perforation from that caused by corrosive poison, with which alone it is possible to confound it. Dr. Budd has found, naturally enough, that this post-mortem softening of the coats of the stomach is more common in hot weather. He says, "During the past summer, which was a very hot one, my attention was casually drawn to this subject, and from the middle of May to the middle of August, I carefully examined the stomach in all the bodies that were opened in the King's College Hospital. In several instances the mucous membrane of the stomach, in the greater curvature, was completely destroyed, and in a very large proportion, it had been clearly acted upon more or less by the gastric juice. I renewed my observations in October, but the change, in a striking degree at least, was then much less frequent."(*i*)

Should the rules thus laid down for the discrimination of the source of these perforations not prove sufficient, a resort to chemical analysis will render the demonstration complete. If any poison has been taken in so large a dose, or is possessed of such violent properties as to cause the lesion thus referred to, it will readily be found by these means. It has been said that a person may die with the symptoms of irritant poisoning, and after death, perforation, the result of cadaveric change, be found, and that hence the knowledge of the true cause of the perforation does not exclude the idea of poisoning. It is true that such a rare coincidence may happen, but the want of connection between the poison and the perforation merely renders it necessary to support the charge upon other evidence. The case of Miss Burns, for the murder of whom by poison, a Mr. Angus of Liverpool, was tried in 1808, is one in which this doubt arose. The charge of poisoning was not sus-

(*h*) See Med. Times and Gaz. (No. 246, p. 268,) for a case in which the stomach of a child (which had been asphyxiated by its intoxicated mother hugging it too closely,) presented the following appearances. Nearly the whole of the great *cul de sac* had disappeared; the edges of the aperture were thin, jagged and flocculent; another similar but smaller opening existed lower down and abutted upon a corresponding aperture in the transverse colon. No unnatural adhesions or other morbid appearances existed, and a quantity of milk was found in the stomach and in the cavity of the abdomen.

(*i*) Lancet, 1847, p. 593.

tained by chemical or pathological evidence, and the prisoner was acquitted.

§ 510. *Perforation of the intestines* is also occasionally met with, but as it is not the result of poisoning, except in circumstances where this can be readily known, it is unnecessary to dwell upon it.

§ 511. *Gastritis, Gastro-enteritis, and Peritonitis.* It is the natural effect of the poisonous irritants to produce one or more of these diseases, but as they may arise from other causes, a distinction is in practice necessary. Gastritis is rarely, if ever, primary or idiopathic, and with the other two affections has a more protracted course than is usual in irritant poisoning. Diarrhœa, so universal a symptom of irritant poisoning, is not always present in these diseases, and there is in them an intense febrile condition which is not seen in poisoning. However satisfactory these distinctions may be to a physician, it is apparent that they may have little weight with others; hence, practically it is important to examine them closely, for the accusation in such cases will have to depend upon the results of the chemical investigation.

Strangulation of the intestines has been enumerated among the diseases likely to awaken suspicion of poisoning, but with little justice, for if the symptoms are not sufficient to distinguish it, most certainly it cannot fail to be detected upon the post-mortem examination.

§ 512. The symptoms produced by *narcotic poisoning* may be closely imitated by those of natural diseases, such as apoplexy, epilepsy, congestion of the brain, and tetanus. Indeed, occasionally the similarity is so great, that, upon the medical evidence alone, it may be impossible to acquire a certainty of the cause of death. Many distinctions have been drawn by writers upon toxicology, between the effects of narcotic poisons and those of diseases of the brain and spinal marrow, but they serve only to show the very close analogy between them. When, moreover, it is remembered that the most important of these poisonous agents leave no distinct traces in the dead body of their action, it will be perceived that the differential diagnosis must come to depend mainly upon the results of chemical investigation, and the moral or circumstantial evidence in the case.

Apoplexy, it is said, may be distinguished from opium poisoning by the following considerations, viz: that it does not usually occur under the age of thirty, nor come on without warning symptoms, and that the time of seizure is irrespective of the taking of food or drink; but these distinctions are futile, even when, as is rarely the case, an accurate account of the whole history of the sickness can be obtained. More reliable are the facts that in poisoning by opium the symptoms are gradual in their accession, and that the more confirmed effects are preceded by drowsiness, and that the patient, until an advanced period of the stupor, can be temporarily aroused from it. The pupils also, in general are strongly contracted, and there is no contortion of the face or paralysis of the limbs. In the majority of fatal cases of apoplexy, the attack is sudden, although indistinct warning symptoms may have been present; the patient cannot be roused, the pupils are dilated and insensible, and the face is slightly contorted, indicating a paralytic condition of one side of the body. Yet, let us hasten to say, there

are numerous exceptions to these rules, a fact which is easily understood, when we reflect that opium in addition to its specific narcotic properties produces the very same pathological condition, with the exception of effusion of blood into the substance of the brain, which it is our effort to distinguish it from.

The same remark is applicable to the resemblance between the convulsions of *tetanus* and those produced by strychnia. It is needless, therefore, for us to draw a parallel between the diseases referred to and the symptoms so closely imitating them, produced by the poisonous narcotics. Where the success of either prosecution or defence comes to stand upon such vacillating ground as this, other sources of evidence failing, it would be better that the most approved works on pathology should be consulted and the descriptions of disease there given be compared with the symptoms enumerated under the narcotic poisons, than that the reader should draw an unwarranted conclusion from such an imperfect abstract as it would be proper for us to give in this place.

§ 513. Finally, all cases of *sudden death* may awaken suspicion of poisoning. If, as may well be the case, the post mortem alterations do not clearly indicate the seat and nature of the affection, a review of the manner of dying, and the absence of any positive result from chemical investigation, must at once negative the presumption of poison having been taken. Thus, certain diseases of the heart, over-distension of the stomach, fatal syncope, and some other obscure diseases, may not be recognized at the autopsy, but the mode of death in them is entirely different from that in any form of poisoning, except, perhaps, by prussic acid, in which the odor or chemical tests will disclose the cause of death. The importance of a careful collection and comparison of *all* the medical evidence in every case, cannot be too strongly insisted upon; for upon this combination of proof it is that a correct knowledge of the true cause of death must depend.

§ 514. Having thus shown the chief means of distinction between the effects of poison and of the natural diseases to which the human frame is subject, it only remains for us to point out some sources of error which the natural changes taking place in the body *after* death may give rise to. This important subject is one which has received but little attention at the hands of medical jurists, but there can be no doubt that the *natural* appearances of those parts of the body usually inspected after death, where poisoning has been attempted or is alleged, are often mistaken for pathological changes induced by the administration of poison. Nothing is more common than to meet with the expressions that "the stomach and intestines were red and inflamed," "the mucous coat corrugated," "the brain was highly congested," "the blood of a dark color, and fluid," &c.,—statements which are objectionable not only on account of their want of precision, but because they may be predicated of conditions perfectly natural and healthy. Dr. Yelloly's observations, though often quoted, are deserving of repetition here. He states,

1st. That vascular fullness of the lining membrane of the stomach, whether florid or dark colored, is not a special mark of disease, because it is not inconsistent with a previous state of perfect health.

2d. That the effects of putrefaction and spontaneous changes, induced by the loss of vitality, are sometimes attributed to the action of poisons.

3d. That the vascularity in question is entirely venous,—the florid state of the vessels arising from the arterial character of the blood remaining for some time in the veins after its transmission from the arterial capillaries at the close of life; the appearance, however, is sometimes due to transudation only.

4th. That the fact of inflammation having existed previously to death cannot be inferred merely from the aspect of vessels in a dead part,—there must, at least, have been symptoms during life.(*j*)

In the examination of the *stomach* it will be found that it presents variable appearances, according as it is inspected during or after the process of digestion, or after long fasting; whether it is empty or full, distended or contracted; and whether the distension is due to liquid or to air.

During, and immediately after *digestion*, the stomach is filled with gas and the remains of the food, and is, therefore, moderately distended, and its mucous membrane appears thin and does not lie in folds. Its color is of a pale rose, uniformly spread over the surface, or if the stomach is unusually distended, is gray or dirty white. On the other hand, in the *fasting* condition, it is strongly contracted, and the mucous membrane is corrugated and thick. Its color is of an ashen gray when it is covered with mucus, but when this is not the case, is of a reddish brown. It may be partly contracted and partly distended, in which event, the differences referred to will be visible at the same time in the pyloric and cardiac portion. Moreover, the cadaveric hypostasis, or settling of blood, will be seen on the folds of the mucous membrane, or in those portions of the organ which are the least distended. After the process of digestion is entirely completed, the abdominal system of veins is loaded with blood, and the same engorgement occurs in certain diseases of the heart and lungs; should death take place at such a time, the mucous membrane of the stomach is found highly injected, and, in consequence of the transudation of liquids taking place in the dead body, ecchymoses are formed which often have the appearance of submucous extravasations; they often occupy the entire half of the stomach and both curvatures, and have a blueish slate color. This injection may also occur in streaks, and thus give rise to an unfounded opinion that death was due to some irritant. This is especially the case where powdered substances, such as arsenic, are found near them, but is a mere coincidence, since the existence of folds or rugæ is a sufficient explanation of the adhesion of the powder to these places.(*k*)

§ 515. The redness due to inflammation may be known not only by its dirty red hue, but by the softening of the mucous coat. This is a pathological change which is of very frequent occurrence, especially in persons of intemperate habits,—a fact which should not be overlooked in questions of poisoning. The softening of the mucous coat after death has been already referred to, when speaking of perforation of the stomach; it is of course seen in lesser degrees, and most probably, when not equally distributed over the whole stomach, is purely a cadaveric change depending upon the solvent powers of the liquids contained in

(*j*) Med. Gaz. Vol. XVII. p. 309.

(*k*) Darstellung der Leichenerscheinungen, &c., von Dr. Josef. Engel, Professor an der Universität zu Prag. Wien. 1854, 8vo.

the stomach. When the mucous coat is found apparently thickened, this condition is often due merely to the stomach being in a contracted state; and, on the other hand, it may appear to be very thin when the appearance is solely due to its distension. Similar sources of error to those we have thus cursorily noticed, are found in the inspection of the brain, heart, and other organs. The physician should be upon his guard against them, and carefully distinguish the changes produced by disease from those which are brought about in the moment of dying, or after death, by the position of the body and the transudation of liquids. If familiarity with the ordinary post mortem appearances does not enable him to form a positive opinion as to the causes of death, it is far better that he should have the candour to say so, than, by giving an unwarranted opinion, incur the risk of causing the innocent to suffer. But in every case it is proper that precise and accurate language should be used in the description of post mortem appearances, and that such expressions as inflammation, gangrene, &c., which imply the manner in which the morbid change has resulted, should not be used, but rather, instead, such terms as will simply express the *physical* condition of the part, in reference to its size, color, consistence, &c.

§ 516. From the foregoing remarks it is, we think, apparent that the most perfect evidence of poisoning is derived from the combined results of the investigation of the symptoms, post-mortem appearances and chemical proof; should any portion of this evidence be wanting, the effect is thereby weakened, but not necessarily always to an equal degree; since a chemical analysis affording positive results, or a decided and characteristic post-mortem change, or a well marked set of symptoms, may each in certain cases afford high probability, if not conclusive demonstration of the fact of poisoning. On the other hand, the failure of the chemist to discover poison in the dead body, does not always destroy the value of other evidence sustaining the fact of its having been taken, since the whole of it may have been removed by vomiting and purging, or if the patient have lived long enough, been absorbed into the system, and then eliminated from it principally by the urine. Indeed, in the case of the vegetable poisons, the chemical analysis is often fruitless, they having been rapidly volatilized, decomposed or absorbed, but here, on the other hand, the symptoms are less likely to be taken for the effects of disease, or if they are, the fallacy of the assumption is demonstrated by the autopsy.

§ 517. For this reason also the demonstration of the presence of a poison in the body is generally sufficient to establish the fact of poisoning; the amount detected may bear but a small proportion to that which was taken, but is as conclusive as if the whole were discovered. If, for example, the contents of the stomach contain sufficient arsenic, to form the metallic ring or spot, by Marsh's process, the evidence is quite as good as if a more ponderable quantity had been found. As, in every case, the opinion of the expert may be strengthened by the perfect combination and correspondence of all the medical evidence, no portion of it should be neglected, since however strong it may appear to be, in a medical point of view, it is far from certain that subsequent inquiry may not evoke some doubts, which a more perfect examination might have obviated.

Classification of Poisons.

§ 518. We have followed in this treatise the classification usually adopted, viz: into IRRITANT, NARCOTIC, AND NARCOTICO-IRRITANT poisons. This division cannot be rigorously maintained except for the end of convenient reference; since there are poisons usually classed under irritants, which are likewise sometimes narcotic in their action, as, for example, arsenic and oxalic acid; and, on the other hand, some of the pure narcotics, especially opium, occasionally produce the symptoms of irritant poisoning. This classification is, however, sanctioned by the use of the most eminent toxicologists, and in the present imperfect state of our knowledge of the mode of action of poisons, has fewer objections against it than can be urged against any other.

The symptoms produced by each class of poisons are sufficiently indicated by their name. Thus, the irritants produce vomiting and purging, intense abdominal pain, and fatal exhaustion. Their primary action is expended upon the intestinal tube, causing inflammation or corrosion, and the effect upon the nervous system is secondary. The narcotics produce fullness of the head, vertigo, dimness of vision, delirium, coma, paralysis, and sometimes tetanic convulsions. The narcotico-acrid poisons, produce both stupor, delirium and convulsions, and also irritate the stomach and bowels, causing vomiting and purging. Both these and the irritant poisons commonly are known by their taste, which is hot and acrid, metallic, nauseous, or bitter; arsenic is the chief exception to this rule, as its taste may be either unperceived or be only distinguished as rough or sweetish. The corrosive poisons, such as the mineral acids or other caustics, have so violent an effect upon the mouth and throat, that the mere fact of their having been taken, affords a good presumption, in this country, at least, (from the readiness with which any kind of poison can be obtained,) against their having been voluntarily swallowed. The pure narcotics have only a slightly disagreeable taste. This class is, however, but a small one compared with the others, and, with the exception of opium, rarely gives rise to judicial investigations.

IRRITANT POISONS.

ACIDS.

CHAPTER I.

Sulphuric Acid. (Oil of Vitriol.)

§ 519. Concentrated sulphuric acid, is a dense oily liquid, generally of a light brown color, with an energetic attraction for water. When diluted with water, heat is evolved by the mixture. It rapidly destroys and carbonizes organic matter, the extent of the destruction depending, of course, upon the degree of concentration of the acid, and the length of time it remains in contact with the organic structure. It is more frequently taken and given by mistake than by design, at

least in our country, although cases are not wanting, in which it has been criminally given to young children. An interesting case is related in Henke's Zeitschrift, where it was administered and taken with the hope of inducing abortion. From the ease with which it can be procured, without awakening suspicion, it is sometimes made the means of self destruction, and of late years, in England, numerous cases have occurred where it has been used for the purpose of disfiguring the person, by being clandestinely thrown upon the face or neck.

§ 520. The *symptoms* which follow the ingestion of this acid depend for their intensity upon its degree of concentration, and the quantity taken. Where the strong acid has been taken, violent symptoms at once arise. The lining membrane of the mouth, throat, œsophagus and stomach, being instantaneously corroded by it, extreme agony is felt in these parts, violent efforts to vomit are made, and dark and bloody masses of mucus and detached and altered membrane are discharged. Death takes place in extreme suffering, generally within twenty-four hours. In a case observed by Mr. Traill, death occurred in one hour, and in another related by Casper, where an adult took by mistake a mouthful of crude sulphuric acid, death took place in two hours. In most instances it will be found that the early administration of antidotes has mitigated the symptoms and prolonged existence for a short time. The last named author mentions the case of a child, only seven weeks old, which lived eight days after it had been given concentrated sulphuric acid by its mother. Here the child was made to take carbonate of magnesia shortly after the poison had been given to it.

When the diluted acid has been taken, the symptoms are less violent and the case is more protracted. The presence of food in the stomach has an important influence upon the fatality of the dose, since much of the corrosive or carbonizing action of the acid may be expended upon this, and the mucous membrane of the stomach be thereby shielded. Cases are reported in which persons have survived for a long time. Thus, the case of a young woman is referred to by Mayo, who lived eleven months after swallowing a table-spoonful of sulphuric acid, dying then from marasmus, in consequence of imperfect nutrition.

§ 521. The smallest *quantity* which has been taken, with rapidly fatal results, appears to be that which was given in a case quoted by Taylor. In it, the quantity is said not to have exceeded forty drops. But the patient was a child only a year old, and antidotes were administered about half an hour after it had taken the acid. The symptoms, however, came on immediately and the child died in twenty-four hours. Dr. Christison says, that one drachm proved fatal to a young man in seven days. It is always difficult, however, to ascertain the exact quantity which has been swallowed, since the immediate impression made upon the mouth by the contact of so corrosive a liquid, naturally incites an instantaneous effort to get rid of it. The amount actually swallowed, forms usually, therefore, but a small portion of that taken into the mouth. It may indeed not reach the stomach at all, its action being expended upon the throat and œsophagus, proving fatal by the inflammation and disorganization there produced.(*j*) Occasionally,

(*j*) This happened in a case reported by Dr. W. Hull, in the Lond. Med. Gaz. June, 1850.

also, it enters the air passages. A case of recovery after an injection of sulphuric acid, given in mistake for castor oil, is reported.(*k*)

§ 522. *Post-mortem appearances.* The following case will illustrate the effects of this poison, when concentrated and fairly swallowed. A man, thirty years of age, went to his closet in the dark and drank a "good mouthful" of commercial sulphuric acid. He was bled shortly after, and the blood is described as being of a syrupy consistence. Milk and soap-suds were given to him, and brought on vomiting but he died in two hours. The whole tongue was white and sphacelated, and the mucous membrane here and there detached. The fauces and œsophagus were of a greyish black color; the stomach was perfectly black on both surfaces, and of a soft and pulpy consistence. The omentum majus was likewise partly carbonized, in consequence of the escape of the acid into the abdominal cavity. The upper portion of the small intestine was of a blackish color, and the mucous membrane swollen and indurated. The contents of the stomach yielded, on chemical examination, one drachm and seventeen and a quarter grains of free sulphuric acid.(*l*) In Mr. Traill's case, a washerwoman took a wine-glassful of crude commercial acid of the specific gravity of 1.833, in mistake for ale. Although the proper antidotes were very soon administered, she died in one hour. A hole with ragged edges was found at the fundus of the stomach, and the adjacent tissue tore with the slightest touch. The rest of the mucous membrane was mottled with dark brown patches. There was also great inflammation of the peritoneum, from the escape of the acid.(*m*)

In general, the eroded and inflamed appearance of the mouth and throat, is found to co-exist with the blackened and disorganized condition of the stomach. But sometimes the poison does not reach the stomach, and when this is the case in young children, death may take place from the local action on the fauces alone. In Dr. Hill's case, already referred to, it reached the lungs. The epiglottis was partially destroyed, the vocal chords and the mucous membrane of the trachea were softened, the left pleura was perforated, and a crust of sulphate of lime formed upon the ribs. There was no trace of the acid either in the œsophagus or stomach. The person was an adult female. It is probable, in such cases, that death takes place by suffocation, the glottis being closed by the tumefaction of the mucous membrane. In most cases of poisoning with sulphuric acid, there are also traces of its action left upon the skin, near the mouth, either from a portion escaping when swallowed, or from the corrosion of the vomited liquids. The marks thus left upon the skin are of a dark brown color, and of a leathery consistence. Where, however, the acid has been given in a spoon, the anterior portion of the mouth may escape entirely. In a case referred to by Dr. Taylor, the fauces, œsophagus, and stomach of an infant ten days old, were much corroded by sulphuric acid, but there was no appearance of injury to the mouth. This was probably owing to a spoon having been used, and the poison having been poured down the throat slowly, as the mucous membrane was extensively cor-

(*k*) Ed. Month. Jour. April, 1850. (*l*) Casper Gericht. Leichenöff. 1 H. p. 117.
(*m*) Month. Jour. Aug. 1854.

roded at the back part. A case is reported in which, although the acid was taken from a tea-cup to the amount of fifteen and a half drachms, there was not the slightest vestige of a stain on the outside of the lips, angles of the mouth, cheeks, neck, or hands, nor upon the clothing.(*n*)

§ 523. On the other hand, a case occurred in France, in which, although no corrosion, nor any indication of the use of an acid, was seen in the mouth, fauces, œsophagus, or stomach, and the appearances in this latter organ were not very striking, yet several eminent men, among whom were Devergie and Lesueur, gave their opinion that death was caused by sulphuric acid. No trace of this acid was discovered in the viscera, and the only ground for the opinion seems to have been the presence of stains of sulphuric acid upon the clothing of the child, and a slight pathological alteration in the stomach. In children especially, such an opinion can hardly be justifiable on so slender grounds.

We find a case of gelatiniform softening of the stomach with perforation of the fundus, and effusion of a brownish liquid into the peritoneal cavity, reported by Dr. Casper. In this case, there had existed suspicion of poisoning, which his opinion of the result of the examination set at rest; and it is by no means impossible that the preceding case may have been a similar one. Were it admitted, in the absence of direct proof by chemical analysis of the contents of the stomach, that an inflammatory condition, a softening or ulceration of the stomach, could be regarded, apart from any corrosion of the mouth or fauces, as presumptive evidence of poisoning, we would be led undoubtedly into many grave mistakes.(*o*) Spontaneous softening of the stomach in infants, or ulceration and perforation of this organ in adults, are not rare events, but their characters are far different from the charring and disorganization produced by sulphuric acid. We think that in no case is an opinion warranted that sulphuric acid has been swallowed, unless it can be clearly traced by its effects from the mouth, or fauces to the stomach.

§ 524. This acid has been given by mistake in enema, and in one case death was produced thereby. It has also been thrown into the vagina with the view of procuring abortion. In cases such as these, the black and disorganized appearance of the parts, and the evidence of the presence of the acid on chemical analysis, will form the grounds of an opinion as to the cause of death.

§ 525. *Poisoning by ink.* A drunken soldier had given to him a large glass of ink, under the pretence that it was porter. He drank it, and after sleeping for an hour, awoke in the most violent pain. He suffered extreme weakness, headache, and painful cramps in the thighs. After four or five hours, he commenced vomiting a pasty mass mixed with ink, which gave strong indications of sulphuric acid. Mucilaginous and saccharine beverages were given him, and after a short time he improved. He was convalescent on the third day, but still complained of weakness, trembling, and an oppressive pain in the back of the head.(*p*) Ink, we may observe, does not usually contain this acid.

(*n*) Dr. Walker, Ed. Month: Jour. June, 1850. (*o*) See *ante*, § 508, 509.
(*p*) Am. Jour. Med. Sci. April, 1854, from Pharmaceutical Journal, Oct. 1853.

§ 526. *Chemical examination.* Concentrated sulphuric acid is known by its oleaginous appearance, great specific gravity, its property of setting free the carbon of organic substances (thus charring them), and by the evolution of heat on being mixed with water. When *diluted*, the best evidence of its presence is obtained by the addition of any of the soluble salts of baryta, the sulphate of baryta being immediately precipitated in the form of a heavy white powder. The precipitate is insoluble in nitric or hydrochloric acids. Further proof of its presence may be obtained by igniting the precipitate with carbonate of soda or with charcoal, by which the sulphate is reduced to a sulphuret, which may be shown by its blackening a bright silver surface on being moistened with water. In testing a solution for sulphuric acid by means of a salt of baryta, care should be taken that the liquid does not contain too much nitric or hydrochloric acids, as salts of baryta, which readily dissolve in water, are almost insoluble in these acids. The liquid containing the precipitate may be diluted with distilled water, which will re-dissolve all the other salts but the sulphate. In order to ascertain whether the sulphuric acid exists in a free state, a portion of the liquid may be evaporated to dryness, when, if uncombined sulphuric acid be present, it will be entirely driven off in dense white fumes.

§ 527. When the liquid to be examined is mixed with *organic matters*, it must be filtered; or, if turbid and thick, it should be first boiled with distilled water and then filtered, before the tests, as above, are applied. In most cases of poisoning by this agent, antidotes have been used, which may have completely neutralized the acid. Hence, although it be not found in a free condition, the presence, for example, in any considerable quantity, of the sulphate of lime, when corroborated by the corrosive effects proper to the acid, will leave but little doubt of its having been used. It should be remembered also, that if life have been at all protracted, the poison may have been eliminated in various ways. A case has been reported by Mr. Letheby, in which, during the first four days after an ounce of concentrated sulphuric acid had been swallowed, a large quantity was passed in the urine. The same fact has been established by Orfila, in experiments upon dogs.

§ 528. *Stains on clothing.* The stains on blue and black cloth made by sulphuric acid, are at first red and afterwards brown, and the stuff is corroded. The color of leather is not altered, but the substance is partially destroyed. The stains on all textile fabrics remain moist for a considerable time if the acid have been strong, and they have an unctuous feel. The acid may be detected in these stains after the lapse of many years. Mr. Taylor has detected it in spots made upon a black cloth dress *sixteen* years previously. The stain should be cut out, digested in distilled water, and then the liquid, after filtration, be tested by the reagents already mentioned. An unstained portion of the cloth should be submitted to the same test, since many articles of clothing yield slight traces of sulphates when boiled in water. Mr. Taylor has suggested a delicate test for sulphuric acid, founded upon its ready decomposition by organic matter when submitted to heat. About half a grain of the stained dress (cotton) is put into a small test tube, and gently heated: a piece of paper saturated with starch, and moistened with a drop of iodic acid, being held

at the mouth of the tube, the blue iodide of farina is immediately produced by the sulphurous acid generated.(q) The only source of fallacy is the occasional presence of sulphur, as where mucus, serum, or blood may be mixed with the stain. Thus the test is inapplicable, for this reason, to woollen stuffs.

Aromatic sulphuric acid (elixir of vitriol.) Besides sulphuric acid, this preparation contains alcohol and aromatics. The proportion of the acid to the alcohol is as 1 : 4.15 by weight (U.S.P.) In an overdose, it produces the same effects as sulphuric acid.

§ 529. *Sulphate of indigo.* This is a solution of indigo in Nordhausen, or fuming sulphuric acid. In addition to the other symptoms of poisoning by a corrosive liquid, the deep blue color of the vomited matters will at once betray the agent that has been used.

CHAPTER II.

Nitric Acid. (Aqua Fortis.)

§ 530. Concentrated nitric acid, as met with in commerce, varies in color from a light yellow to a deep orange red, owing to the presence of nitrous or hyponitrous acid, but the pure acid is colorless. Red fumes of nitrous acid gas are given off, when a few copper filings are placed in it. It stains organic matter yellow or brown.

§ 531. The *symptoms* produced by the swallowing of strong nitric acid, do not differ essentially from those which have been already mentioned as caused by sulphuric acid. There is the same intense burning pain in mouth, throat, and stomach, the same violent efforts to vomit, and urgent constitutional symptoms. The soreness and swelling of the mouth and throat, the difficulty of swallowing and of respiration, the thirst and salivation, and the excessive pain and distress, are the prominent symptoms. If the person survive long enough, large portions of the lining membrane of the fauces and œsophagus become detached and are thrown up, together with altered blood and shreds of mucus. Similar matters may be discharged by stool. The *diluted acid* occasions the same symptoms in a more moderate degree. Although the immediate corrosive effects of the acid may be recovered from, death may occur subsequently from exhaustion and the injury done to the digestive powers. Dr. Black referred, in some remarks before the Royal Med. and Chir. Soc. of London, to the case of a girl who, "in a fit of despondency, swallowed some strong nitric acid. She left the hospital, but died many months afterwards, but so altered in appearance, that she resembled a woman eighty years of age. She was kept alive for seven weeks entirely by spring water." The œsophagus was nearly closed by the strictures which had resulted from the healing of the ulcerations produced by the acid.(r) The period at which this poison proves fatal, varies therefore, according to its dilution, from a

(q) Taylor on Poisons, (Am. ed.) p. 180. (r) Lancet, 1850.

few hours to several months. The quantity required to destroy life cannot be certainly known, since, in many cases, it is impossible to ascertain correctly the amount really swallowed. Two drachms, if fairly swallowed, are probably sufficient. This was nearly the quantity swallowed, in a case reported by Dr. J. M. Warren. Death ensued on the fourteenth day. (It is stated that three drachms were taken into the mouth, but most of it was spit out.) Mr. Taylor refers to the case of a boy who died in thirty-six hours after taking *two* drachms of this acid. An instance, in which it was poured into the ear of a sleeping person, and caused death after some time, is related by Dr. Morrison.(*s*)

§ 532. *Post mortem appearances.*—The stains made by nitric acid upon the mouth and lips are usually of a deep yellow color; as these consist of a sphacelation of the lining membrane, they are easily detached and the subjacent surface is found even and glistening. If the person have survived several days, they may have been already cast off. The same appearance is found in the fauces, and more or less of it in the œsophagus. The texture of the stomach is softened, sometimes perforated, its internal surface is of a greenish yellow but sometimes of a black color, owing to the erosion of vessels and the effusion of blood, and the mucous membrane is ulcerated or destroyed. In Dr. Warren's case, the patient was a negress, who swallowed the poison with the hope of destroying her child, supposing that she was pregnant. She died on the fourteenth day. On dissection, there was observed great rigidity; upon the middle of the tongue, a large, yellowish, smooth patch; some redness of epiglottis; the œsophagus was healthy for the first two inches, but below this it was found exceedingly soft, of a greenish color internally, purple externally, and full of coagulated blood. The stomach was in a similar though much worse state; externally, it had the same purple color, and was universally adherent to the neighboring parts by recent lymph, except at the left extremity, where there were old and close adhesions to the spleen; internally, it was of a greenish yellow color, emphysematous, and so perfectly softened and pliable, that it could not be separated from the surrounding parts without giving way in every direction; the anterior face became detached from the rest of the organ to a great extent when the abdominal parieties were raised; its cavity was filled with recent, coagulated blood, and the open orifices of several vessels were distinctly seen on the inner surface. The intestine contained blood throughout the first two or three feet, but was otherwise uninjured.(*t*) In a case observed at the Hotel Dieu at Lyons, the stomach was distended with gas, and perforated in the cul de sac; the opening, however, was partially plugged by the spleen, which had become adherent over it, but which itself was much corroded. In the small intestine, there were numerous sloughs.(*u*) In another case, where the person survived the poisoning fifty-four days, the stomach was converted into a vast abscess, with fungous walls made by adhesions

(*s*) Dublin Journal, Vol. IX. p. 98.

(*t*) Extracts from Boston Soc. for Med. Improvement, Am. Jour. Med. Sci., July, 1850 p. 36.

(*u*) Ch. Jantet. Gaz. Med. de Lyon, p. 82, 1852.

among the adjacent viscera. The natural shape and structure of the organ could no longer be distinguished.(*v*)

§ 533. *Chemical Examination.*—Nitric acid may be readily known by its physical properties already mentioned, and by the fumes of nitrous acid which are given off when it is poured upon copper, tin, or mercury.

The *diluted acid* is not so readily detected as many other acids. Its compounds being very soluble, no precipitant can be found for it. Hence it may be distinguished from muriatic and sulphuric acids by the absence of any reaction with the nitrates of baryta or silver. In order, however, to be able to affirm its presence, the following tests are recommended: The liquid should be neutralized with carbonate of potash, and then slowly evaporated. The crystals thus obtained are nitrate of potash, and are prisms with dihedral summits, permanent in the air. These should be powdered and mixed with *copper* turnings. If heat is now applied, and moderately dilute sulphuric acid added, the red fumes of nitrous acid become visible, which can easily be recognized by their odor. By this test so small a quantity of nitrate of potash as one-tenth of a grain, and, consequently, one-twentieth of a grain of nitric acid may be detected. This test is therefore quite satisfactory, and others which are less perfect are rendered thereby unnecessary.

§ 534. It may not, however, succeed where the liquid to be examined contains the *organic matters* resulting from the presence of food or detached portions of mucous membrane. In this case, therefore, the liquid must be filtered, to get rid of all insoluble substances, boiled with animal charcoal and filtered a second time, or until it becomes tolerably clear. It should then be slowly concentrated by evaporation, and neutralized as before. As in the case of sulphuric acid, this acid may form other combinations in the stomach with the substances which have been administered as antidotes, and thus the difficulty of isolating it be increased. Or, again, the whole of it may have been vomited, or eliminated in other ways from the system. Fortunately, however, for the ends of legal medicine, if nitric acid prove fatal, the appearances upon dissection are so unequivocal as to render a chemical analysis hardly necessary.

§ 535. *Stains on Cloth.*—The spots made upon colored cloth by nitric acid are more or less yellow, but become brown after a time, the texture of the cloth is destroyed, and the spot, unlike that made by sulphuric acid, soon becomes dry. To determine the presence of nitric acid, the stain may be cut out and digested in distilled water. If the liquid have an acid reaction, it should be then neutralized with potash and allowed to crystalize. The crystals may be examined as before, by heating with copper-turnings and moistening with sulphuric acid. An unstained portion of the cloth should be examined in the same manner. Stains made by nitric acid will not furnish evidence of its presence after a few weeks have elapsed, the acid being much less permanent than the sulphuric. Hence the necessity of proceeding at as early a period as possible to the examination of any suspicious stains upon a dress. Dr. Christison, however, has obtained evidence of the presence of the acid

(*v*) Dr. Delaharpe. Canstatt's Jahresbericht, fur 1852, Bd. V. p. 101.

in stains on cloth made seven weeks before, and Dr. O'Shaugnessey after an interval of some months.(*w*)

Hydrochloric Acid—(Spirit of salt.)

§ 536. The reported cases of poisoning with this acid are few in number; but these present a strong analogy in their *symptoms and post mortem appearances* with the observations of sulphuric acid poisoning. Immediately upon swallowing it there is a burning sensation from the mouth to the stomach, but especially in the throat, attended with a feeling of suffocation and followed by uncontrollable vomiting. Deglutition is almost impossible, all efforts to swallow bringing on vomiting; the voice is low and the respiration frequent and labored. The tongue and fauces are usually covered at first with a whitish pellicle, which afterwards becomes detached, exhibiting corroded spots underneath. In a case observed by M. Guérard,(*x*) a woman aged 24 years, who had swallowed about fifty-three grains of concentrated hydrochloric acid, presented the above symptoms. She however survived a considerable time. The matters vomited on the second night did not present any acid reaction, although no chemical antidote appears to have been administered. Death took place two months after the poison had been swallowed; and some time previous, portions of corroded mucous membrane had been passed both by vomiting and by stool. Profuse salivation also was observed in this case, and in the beginning, white vapors were exhaled from the mouth. The same symptoms and the same prolongation of life were noticed in a case which became the subject of judicial investigation in Belgium, and which is commented upon by Orfila.(*y*) In two cases referred to by Dr. Christison, and in another, of a child, by Orfila,(*z*) death took place within twenty four hours. In this latter instance, the acid was poured down the child's throat by its stepmother, as confessed by her after her condemnation. A case of recovery after swallowing an ounce of strong hydrochloric acid, is reported in the Lancet for 1850. In this case the stomach pump was used, contrary to the usual caution enjoined in poisoning by mineral acids.

§ 537. *Post mortem appearances.*—These vary according to the length of time the person has survived, but bear a general resemblance to the effects produced by the other strong mineral acids. The digestive mucous membrane is covered with whitish superficial sloughs, which subsequently become of a darker color and are found in all stages, lying loose or partly detached, and the mucous membrane inflamed, softened, or corroded. In some of the above cases, all the coats of the stomach were destroyed in spots, and perforations resulted. In Guérard's case, there was slight peritonitis. It is important, however, to note that the peritonitis, resulting from perforations of the stomach, only occurred in those cases which survived a long time.

§ 538. *Chemical examination.*—If any of the liquid which has been taken, remain, it will be easy, if it is hydrochloric acid, to detect its nature, since the physical character and chemical reactions of this agent are very striking. It throws down, if sufficiently dilute, with nitrate

(*w*) Guy's For. Med. (*x*) Ann. d'Hygiene, Tome 48, p. 415.
(*y*) Ibid. Tome 40, p. 35. (*z*) Ibid.

of silver, a dense, white, curdy precipitate of the chloride of silver, which assumes a violet color when exposed to light, and is completely insoluble in nitric acid, but dissolves readily in ammonia. Its detection, when mixed with organic matters, is not easy, owing to its tendency to adhere closely to them; but in medico-legal researches we are further exposed to the error arising from the presence, *normally*, of free hydrochloric acid in the stomach. As the quantity of this natural constituent of the body is subject to many variations, and since as much as four or five grains of the pure acid have been obtained from a pint of the fluid of water-brash, it is evident not only that the detection of free hydrochloric acid in a case of supposed poisoning is no evidence that it has been swallowed, but that it is extremely uncertain what quantity it would be necessary to demonstrate before we could feel satisfied that it was not normally present. In the Belgian case, before referred to, it was supposed by the chemists that they had established the fact of poisoning by this acid, although the person had survived two months; a subsequent analysis, however, of the stomach of a person of the same age, who had died of phthisis pulmonalis, gave precisely the same result. Moreover, if the mixture be neutral, it becomes necessary to use sulphuric acid to decompose the chloride which has been formed. But as chloride of sodium (common salt) is almost invariably present in the stomach, and is, indeed, a natural constituent of some of the secretions, the detection of hydrochloric acid will afford no indication of the manner in which it was introduced.

§ 539. For these reasons, the chief evidence of poisoning must be obtained rather from the symptoms during life, and the post-mortem investigation, than from a chemical analysis. We merely subjoin, to complete the subject, the following process when the matter to be examined is acid, taken from Dr. Christison's work on Poisons: "Boil it with water, if necessary, filter and distill it with a gentle heat till the residue acquire the consistence of a very thin syrup. Subject the distilled liquors to the tests for diluted hydrochloric acid. It will seldom be found there, however, because it is apt to be retained by the coexistence of organic matter. If it be not found, add to the thin extract in the retort a slight excess of a strong solution of tannin, filter and distill the filtered liquid by means of a hot bath of solution of chloride of calcium, (consisting of two parts of crystallized salt and one of water,) taking care that the temperature of the bath never exceeds 240°, and stop the distillation just before the residuum becomes dry. Examine now the distilled liquor with the tests for diluted hydrochloric acid."

CHAPTER III.

Oxalic Acid.

§ 540. Oxalic acid is one of the most rapid and certain of ordinary poisons. Its intensely sour taste prevents its administration with homicidal intentions, but is not always an obstacle to its being taken accidentally or for the purpose of suicide. Most of the accidents resulting from it have been occasioned by its being mistaken for Epsom salts.

§ 541. *Symptoms.*—Vomiting is usually the first symptom, and is attended with burning pain in the stomach, although it does not always occur, and in some cases the pain is absent. The vomited matters are dark colored, and contain blood and sometimes membranous shreds. When the pain is severe, symptoms of collapse come on rapidly, the extremities become benumbed and are drawn up, the surface is cold, and the pulse irregular or imperceptible. The urgency of the symptoms depends upon the degree of dilution in which the salt is taken. In a case quoted by Dr. Christison, no vomiting occurred for seven hours, except when emetics were administered. The person had taken half an ounce dissolved in ten parts of water, and diluted immediately afterwards with copious draughts of water. In another case, a man who had swallowed an ounce, and had immediately taken warm water, was not seen until fourteen hours after he had taken the poison, and in the meantime had travelled a distance of ten miles.(*a*)

§ 542. The rapidity with which a fatal result ensues, varies a great deal. In some cases the action of the poison is extremely rapid. Mr. Iliff reports a case in which death appeared to have been immediate. The wife of a chemist drank a saturated solution of oxalic acid in her husband's shop, she was found dead by the side of the counter, where she had probably fallen and died without a struggle.(*b*)

Dr. Christison quotes a case in which a young man survived hardly *ten minutes;* another, in which a woman, who swallowed two ounces, died in *twenty minutes;* and Dr. Taylor refers to a case where death ensued in *three minutes.* The quantity taken in this last case could not be ascertained. Dr. Pereira also mentions a case which he examined, in which a man died in twenty minutes after swallowing oxalic acid in mistake for Epsom salts. Although death usually occurs within a few hours, cases are mentioned in which it was postponed for several days. Dr. Jackson reports one in which the poison did not prove fatal until the tenth day;(*c*) and in a case described by Dr. Frazer, death occurred from its secondary effects upon the twenty-third day. Some instances of recovery are reported. An interesting one was observed by Dr. Didama, in which a woman dissolved two large tablespoonfuls of oxalic acid in mistake for Epsom salts, in a small quantity of water, and took it on an empty stomach. Some twenty minutes afterwards she vomited, at first the solution she had taken, and then a dark-colored, bloody-looking fluid, in which were numerous white membranous patches. Ipecacuanha and afterwards prepared chalk were administered to her, and in about an hour she was found quiet and nearly free from the intense burning pain in her stomach and throat. She subsequently vomited again, and discharged from her a large amount of matter resembling that she had vomited. She soon recovered entirely, and returned to her work. A similar case, in which an ounce was taken, and the patient recovered in eighteen days, is reported in the Lancet;(*d*) and a few others are referred to by Dr. Taylor.

§ 543. The only manner in which the *quantity capable of destroying life* can be approximately ascertained, is by reference to such cases as

(*a*) Lancet, Sept. 1845, p. 293.
(*b*) Ibid. Oct. 1845.
(*c*) Bost. Med. & Surg. Jour. Vol. XXX. p. 17.
(*d*) July, 1846, p. 39.

have proved fatal in the absence of medical assistance. The smallest quantity which has proved fatal under these circumstances is stated by most writers at half an ounce. It is, however, by no means certain that a smaller quantity might not be attended with a fatal result, since some persons appear to have been far more seriously affected than others by equal amounts of this poison.

The *binoxalate of potash*, or salt of sorrel, produces the same symptoms as oxalic acid, and destroys life as readily. An instance is reported by Chevallier, in which death took place in *ten minutes*.(*e*) In another case, a third dose of a drachm and a-half proved fatal in an hour.(*f*)

§ 544. *Post mortem appearances.*—It is stated that death may ensue from oxalic acid, and yet no traces of its action on the alimentary canal be observable on dissection; this occurred in a case where an ounce had been taken.(*g*) This is certainly not the ordinary result. According to Dr. Geoghegan, who examined the stomachs of three persons poisoned with this acid, the mucous membrane of the stomach was softened, with various shades of brown coloration, and erosion or gelatinization; there was a brownish-black ramiform vascularity of the submucous tissue, and the contents of the stomach were of the color of coffee-grounds, owing to action of the acid upon the mucus and coloring matter of the blood. In Dr. Jackson's case small ulcerations and thickening of the mucous membrane were observed, together with permanent redness. Hence the action of the acid is chiefly expended upon the mucous coat of the stomach, no actual corrosion being observed. In an instance reported by Mr. Letheby, the coats of the stomach were so softened that it could scarcely be handled without lacerating it, and in another referred to by Dr. Christison, it is said that this organ was perforated.(*h*) In all of these cases, however, it is evident that the conditions spoken of may have resulted from the long contact of the acid with the coats of the stomach after death, since even so feeble an acid as that naturally contained in the stomach is capable of producing a similar result. It is certainly not the ordinary effect of oxalic acid. The œsophagus is also in many cases found altered, having a scalded or boiled appearance. It is pale, brittle, corrugated and abraded in some places.

More recently a case has been reported by Dr. A. Wood, in which the stomach presented a large irregular aperture. As sufficient details of the dissection are not given, and the viscera do not appear to have been examined *in situ*, it is possible that this hole may have been artificially produced. The autopsy was made thirty-five hours after death.(*i*)

§ 545. *Chemical Examination.* The crystals of oxalic acid resemble at first sight those of sulphate of magnesia (Epsom salts,) and the former substance has hence often been taken in mistake for the latter. They are permanent, flattened, transparent, six-sided prisms, soluble in water and alcohol. They are also entirely volatilized by heat, which is not the case with the sulphate of magnesia. The usual tests for

(*e*) Ann. d'Hyg. 1850. Vol. I. (*f*) Ibid. 1842.
(*g*) Lond. Med. Repos. Vol. III. p. 380.
(*h*) Med. Gaz. Vol. XXXV. p. 49; Lond. Med. Repos. Vol. XI. p. 20.
(*i*) Edinb. Monthly Jour. March, 1852.

oxalic acid are *lime water* and the soluble salts of lime, and *nitrate of silver*. With lime water or even with a solution of the sulphate of lime, a white precipitate is obtained, nearly insoluble in an excess of oxalic acid, or in acetic acid, but readily dissolved by nitric acid. With the nitrate of silver a copious white precipitate of the oxalate of silver is obtained, soluble in nitric acid or in ammonia. If the precipitate be dried and heated on the point of a knife over the flame of a spirit lamp it becomes brown on the edge, detonates feebly, and is entirely dissipated in a white vapour. In this manner it is distinguished from other white salts of silver, which give off white fumes but leave a residue.

§ 546. In *liquids containing organic matter*, as in matters vomited or in the contents of the stomach, the preliminary steps of diluting, filtering, and concentrating are required. If the liquid have an acid reaction, the acetate of lead should be added till the precipitate is no longer formed, for the purpose of separating the oxalic acid. If the resulting oxalate of lead be now diffused through distilled water, and a current of sulphuretted hydrogen be passed through the liquid for some time, a sulphuret of lead will be formed and the acid remain in solution. It can then be examined by the tests already mentioned. If, however, antidotes have been administered, such as chalk or magnesia, the supernatant liquid after standing some time, may, if not acid, be thrown away, and the inorganic residue after being suspended in distilled water, be mixed with a twentieth part of carbonate of potash and boiled for two hours. Thus oxalate of potash will be formed which should be filtered and then neutralized with nitric acid. Add the solution of acetate of lead as long as any precipitate falls. Separate the oxalic acid as before, by means of sulphuretted hydrogen passed through the mixture of oxalate of lead, and test its presence as before. If the acid have not been entirely neutralized by the antidotes administered, both the supernatant liquid and the insoluble residue must be separately examined.(*j*)

§ 547. The tests for *binoxalate of potash* in solution are the same as for oxalic acid. The crystals differ from those of oxalic acid in having a feathery appearance. They may be distinguished also by the action of heat, not being entirely dissipated like those of oxalic acid, but leaving an ash of carbonate of potash. Both the quadroxalate and the binoxalate of potassa are kept in the shops under the names of salt of sorrel and essential salt of lemons, and are employed for removing iron mould and ink stains from linen.

Tartaric Acid.

§ 548. The only case in which this substance incontestably proved poisonous, is related in the Lancet, Jan. 2, 1845. A man took, by mistake for Epsom salts, an ounce of tartaric acid dissolved in half a pint of warm water. He immediately exclaimed that he was poisoned, and complained of a violent burning pain in his throat and stomach. Obstinate vomiting continued for nine days, when he died. Nearly the

(*j*) For some remarks on the facility of detecting oxalic acid by means of the *microscope*, see report of a lecture on the Application of the Microscope to Toxicology. By Geo. W. Birkett, M. D. Med. Times and Gaz. April, 1855.

whole of the alimentary canal was found highly inflamed. Tartaric acid was found in the dregs of the cup, and the druggist admitted that he had made a mistake. Another case is reported by Devergie, but the accuracy of his opinion and analysis is contested by Orfila. Dr. Christison mentions an instance in which six drachms of tartaric acid were taken in twenty-four hours, without the least inconvenience, and both he and Dr. Coindet had administered it to cats without observing any injurious effect. An instance is on record in which the *bi-tartrate of potash* proved fatal by excessive purging, but the quantity swallowed or rather *eaten* is said to have been more than a quarter of a pound.(*k*)

Acetic Acid.

§ 549. This acid in a concentrated form is highly irritant and corrosive. Only one fatal case of poisoning by it is reported. The liquid was swallowed by a young girl, and in a few hours afterwards she died in great agony. The post-mortem appearances resembled somewhat those produced by sulphuric acid, the surface of the tongue being brown and leathery, the mucous membrane of the œsophagus of a blackish brown color, and large black elevations upon the lining membrane of the stomach, the rest of the organs appearing inflamed. Eight ounces of a thick, blackish fluid were found in the stomach. In case of an investigation to detect this acid in the contents of the stomach, it must be remembered, that it is contained in the natural secretions of this organ, hence to be of any value, the chemical evidence must detect a considerable quantity of it. Also, as Dr. Christison suggests, vinegar is a common remedy with the vulgar for many diseases, and especially for poisoning.

§ 550. *Vinegar.* Dr. David of Montreal, met with an instance in which a woman endeavored to destroy herself by drinking a quantity of common vinegar. When seen three hours afterwards, her countenance was wild and the pupils dilated, the body was covered with a cold perspiration, and the breathing was laborious and hurried. Her tongue was dry and cold, the abdomen distended, and she had acute pain in the epigastrium, which was increased by pressure. She was, moreover, delirious. She soon recovered after the administration of an emetic of sulphate of zinc.(*l*)

IRRITANT POISONS.

ALKALINE.

CHAPTER IV.

Potash, Soda, &c.

§ 551. These two alkalies may be treated of together since their poisonous effects are similar. Our notice of them will be brief, as they

(*k*) Lond. Med. Gaz. 1837–38. I. 177.
(*l*) Am. Jour. Med. Sci. Oct. 1848. p. 302.

seldom are the cause of poisoning, and when they are, it is almost necessarily accidental and the cause readily known. They may prove fatal either by their immediate action or by the remote influence of this upon the system. When swallowed in large quantity and in a concentrated solution, the taste is exceeding nauseous and acrid, and a sensation of burning heat in the throat, œsophagus, and stomach is excited. There is great pain and tenderness in the abdomen, vomiting of mucus and altered blood, copious diarrhœa, and general collapse. If the patient survive a few days, the inside of the mouth is seen to be greatly inflamed, sloughs become detached from the throat, vomiting continues, there is a dysenteric condition of the bowels, and the patient dies from marasmus.

Life may be prolonged even for months and years, and the person finally die from the impairment of his digestive powers and from the stricture of the œsophagus which prevents the swallowing of food in sufficient quantity to sustain life. A case is related by Dr. Barham, in which a caustic solution of impure carbonate of soda (soap lees) was swallowed by mistake, and the patient died two years and three months afterwards of stricture of the œsophagus caused by it.(*m*) Several other instances of a similar kind are recorded, and Sir Charles Bell relates one in which death did not take place until twenty years after the accident.

Nitrate of Potassa.

"A German, who spoke English imperfectly, went into a store, and asked for 'bitter salt,' meaning sulphate of magnesia. The attendant supposed he meant saltpetre, and gave him half-a-pound. The man took three ounces and a half at one dose. His bowels were opened three times within three or four hours. He complained of a slight sense of heat in the epigastrium, and drank a good deal of water. About five hours after having taken the saltpetre, he suddenly fell out of his chair and died.

"The marked peculiarity, in this case, was the absence of the painful symptoms which usually follow the ingestion of irritant poisons; and the question arises, how was death produced? Certainly not by inflammation of the stomach, for he complained of nothing but a slight sense of heat in the stomach. The poison must have acted by destroying the vitality of the blood. There was no *post-mortem* examination. The rigor mortis was very imperfect, the lips of almost a natural pink hue, and the appearance of the countenance so life-like, that some persons who were present doubted the propriety of interment on the third day."(*n*)

§ 552. *Post-mortem appearances.* The mucous membrane from the mouth or throat to the stomach, will, in recent cases, be found more or less acted upon by the caustic effect of the alkali. Thus it may be seen in some parts inflamed, and in others covered with brown sloughs of partially detached membrane. Perforation has not yet been observed. In chronic cases, the smooth and condensed structure peculiar to the cicatrization of mucous membranes will be easily recognized. Half an ounce of carbonate of potash has proved fatal to an adult.

(*m*) Lancet, 1850. Vol. II. (*n*) New Jersey Medical Reporter. Jan. 1855.

§ 553. *Chemical Examination.* Potash and its salts may be known by giving an orange-yellow precipitate with *bi-chloride of platinum;* tartaric acid also gives a white crystalline precipitate, appearing sooner or later according to the degree of concentration of the liquid. In this way they may be distinguished from soda, which, on account of its generally forming soluble compounds with acids, has no very satisfactory test except that of communicating an intense yellow color to the outer flame of the blow-pipe. The crystals of nitrate of soda are rhombic, those of nitrate of potash are long, fluted prisms.

§ 554. *Ammonia and Sesqui-carbonate of Ammonia.* This alkali has occasionally been used with homicidal purpose, but, in general, cases of poisoning by it are the result of accident. The vapor of strong ammonia has destroyed life, when respired too long a time by a person in a state of temporary insensibility. The effects produced by swallowing a strong solution of ammonia are somewhat similar, though more intense, than those of the other alkalies. A little boy, two years of age, took about half an ounce of very pungent spirits of hartshorn from a bottle. He immediately screamed and was very sick, bringing up at first stringy mucus of a light color, and then some more which was dark. The lips were swollen, the breathing was harsh, hurried, and somewhat obstructed; and afterwards became somewhat croupy. There was no insensibility nor any diarrhœa. He recovered.(*o*) In another case, reported in the same journal, an ounce was taken in milk, by a man who supposed it to be castor oil, having poured it out in the dark. He took immediately copious draughts of warm water, and vomited a quantity of matter like soap suds. The inside of the mouth, upper lip, tongue, and fauces were white, and other parts excoriated, there was great difficulty in swallowing. He said he felt as if he was on fire from his stomach to his mouth; his voice was husky, pulse small and frequent, and the surface cold. He was ordered dilute acetic acid and demulcent remedies, under which he soon recovered. There was no diarrhœa throughout the case.(*p*)

Chevallier relates an instance of an attempt to poison with ammonia. A mistress of an officer, he being desirous of breaking up the connection, at their last proposed interview, attempted to make him swallow a quantity of ammonia. A physician was sent for immediately. He found the lips excoriated with plyhctenæ, and the tongue swollen and deprived of its epithelium, and the mouth and palate abraded. The throat was so painful as to prevent swallowing, and pressure on this and the region of the œsophagus was very painful.(*q*)

§ 555. *Post-mortem appearances.* The only instance we have seen in which these have been observed, is in a case related by Nysten, where a man died from the inhalation of the vapor while insensible. The nostrils were blocked up with an albuminous membrane. The whole mucous coat of the air passages was mottled with patches of lymph. There was a black eschar on the tongue and another on the lower ilp.

§ 556. *Chemical examination.* Ammonia gives with bi-chloride of platinum, and with tartaric acid, the same reactions as potassa; the

(*o*) Iliff. Lancet, 1850. Vol. I. 337. Am. ed. (*p*) Ibid. 1852. I. p. 374.
(*q*) Am. Jour. Med. Sci. April, 1854. From Gaz. des Hopitaux.

precipitates have also a similar composition. Ammonia is recognized with ease and certainty, even in the presence of all the other bases, by its being set free in a gaseous state by the action of the caustic alkalies, or the alkaline earths, upon its compounds. For this purpose it is best to use *hydrate of lime*. Ammonia in the state of gas is distinguished by its peculiar smell, and by the white clouds which are formed, when a glass rod moistened with hydrochloric acid, is brought near the liquid to be examined. This appearance is owing to the formation of chloride of ammonium.(*r*)

Glauber's salt, *nitre* and even *common salt*, have proved fatal in very large doses by the excessive purging which they occasion. The consideration of them in a toxicological point of view, is, however, of very subordinate importance. In the detailed treatises on poisons, the reader will find recorded all that is known respecting them.

Baryta.

§ 557. The only two preparations of baryta which have proved fatal are the chloride and the carbonate.

Chloride of Barium. A student of medicine took three tea-spoonfuls of this salt in mistake for sulphate of magnesia. He was seized with tormina and vomiting, his extremities became cold, pulse irregular and feeble, and his hands and feet paralyzed. He recovered gradually in three days.(*s*) Two other cases are referred to in which it proved fatal.(*t*) This salt seems to have a decided action in some cases upon the brain, producing vertigo, headache, deafness, and convulsions.

§ 558. *Carbonate of Baryta.* This salt is also said to have destroyed life in two cases.(*u*) In a case observed by Dr. Wilson of London, the quantity taken was half a tea-cup full, but emetics were given and operated before any symptoms showed themselves. In two hours the patient complained of dimness of sight, double vision, headache, tinnitus, and cramps, with occasional vomiting and purging next day. Recovery, however, took place.

§ 559. *Post-mortem appearances.* In one of the cases of poisoning by chloride of barium before referred to, the stomach presented an uniform red appearance, with clots of blood and bloody mucus scattered over it; near the cardiac end was a perforation about half-an-inch in diameter within, and half as wide outside, the edges swollen and the mucous coat thickened. The small intestines exhibited also signs of inflammation. Without doubt, as is remarked by Dr. Christison, the perforation was, in this instance, an accidental occurrence, not due to the chloride of barium.

§ 560. *Tests.* Baryta is thrown down completely in the form of sulphate from all its salts, as well those soluble in water as those in acids, either by free sulphuric acid or by any of the soluble sulphates. Most of the baryta-salts impart a yellowish-green color to the flame of alcohol. The acids in combination may be determined by their appropriate tests; hydrochloric by the nitrate of silver, nitric by sulphate of potash,

(*r*) Will's Chem. Analysis.
(*s*) Am. Jour. Med. Sci. Jan., 1852. From *Casper's Wochenschrift.*
(*t*) Taylor on Poisons.
(*u*) Parke's Chemical Essays. II. 219.

and acetic by the odour disengaged on the addition of dilute sulphuric acid. In order to separate the chloride of barium from an *organic* liquid, Dr. Christison says, that the most convenient method is to dissolve any carbonate of baryta that may have been formed, by a little nitric acid, to filter, and then throw down all in the form of sulphate by the sulphate of soda, and then calcine the precipitate with charcoal. A sulphuret of baryta will thus be procured, which is to be dissolved out by boiling water, and decomposed after filtration by muriatic acid. A pure solution, he says, is thus easily obtained. The chloride of barium, which is the salt most frequently taken, is soluble in water and has an acrid, irritating taste.

IRRITANT POISONS.

METALLOIDAL.

CHAPTER V.

Phosphorus.

§ 561. This poisonous substance deserves more attention than is usually given to it, for quite a large number of cases of poisoning by it have occurred; its use for the preparation of friction-matches and for the destruction of vermin is everywhere common, and its detection by chemical means is sometimes attended with difficulty. In Germany it has been frequently given with homicidal intentions, and everywhere accidents are liable to arise from its employment for the purposes mentioned.

§ 562. *Symptoms.*—These arise suddenly, but in most cases not until some time after the poison has been swallowed. Thus in two fatal cases given below, they did not appear till seven and twelve hours afterwards. They commence, as is usual with this class of poisons, with a burning heat in the stomach and painful retching. There is great restlessness, thirst, anxiety, and distress, with small, irregular pulse, cool extremities, convulsions, and hippocratic countenance. The vomited matters have the odor of phosphorus, which is like that of garlic, and this odor may also be perceived upon the breath.

The *quantity* required to destroy life is very small. A young man died on the 12th day from the effects of a grain and a-half.(*v*) Martin-Solon relates the case of a patient who died in two days from less than a grain in the form of emulsion.(*w*) An apothecary named Doffenbach, in experimenting upon the effects of this substance, took one grain, the next day two, and the following day three grains; three days after the last dose he was seized with violent vomiting, and died on the seventh day.(*x*) A child two years and a-half old, died after swallowing the phosphorus on eight friction matches.(*y*)

A seller of matches, aged 22, half an idiot, accused of theft, was so much affected by the charge that he determined to poison himself.

(*v*) Worbe. Med. Chir. Zeit. 1826. Bd. 4, p. 183. (*w*) Christison, p. 151
(*x*) Froriep. Notiz. Nr. 493.
(*y*) Schmidt's Jahrbücher, 1844. No. 6, Bd. XLII.

From want of other means he took about two thousand matches, placed them in a pot filled with water, and boiled them. He swallowed this extraordinary decoction. In about twelve hours he was seized with vomiting, and brought up bilious and greenish matters, containing portions of the matches. When seen two hours later, his countenance was much altered, his body cold, and the pulse small and slow. The vomiting continued, and there was violent abdominal pain. The day after, the abdomen was swollen and fatal fainting fits occurred.(*z*) The matches used were of two kinds, one united with chlorate of potash, and the other with nitre and peroxides of lead and manganese. It is probable that, in boiling, the phosphorus was converted into phosphoric acid at the expense of the chlorate or the nitre. In another case a drunkard took half a cupfull of phosphorus-paste, part of it being spread upon bread. Between seven and eight hours after this fatal breakfast, he had violent thirst, and a feeling of heat in the throat and stomach, which were soon followed by violent pain and continual vomiting. He died on the third day in horrible agony.(*a*)

§ 563. *Post mortem appearances.*—In the last mentioned case, the mucous membrane of the stomach was of a crimson color, softened in many places, and easily detached; near the pylorus was an ulceration of the size of a quarter dollar, with brown everted edges, and the muscular coat under it bare. Another similar ulceration was found in the greater curvature. The whole of the small intestine exhibited signs of violent inflammation, but the large intestine was free from it, except in the rectum. In the case quoted before this, the mucous coat of the stomach and duodenum was so softened that the handle of a knife, passed behind it, readily detached it in a dissolved condition. Similar conditions have been found in other cases. Nothing remarkable is seen in the other organs. The morbid alterations, therefore, resemble those of gastro-enteritis, arising from other causes. The agency of phosphorus in producing these changes must be ascertained not only from the history of the case, but also from its detection by the senses, and by chemical examination.

The contents of the stomach or the matters vomited, may give a white inflammable vapour, and be luminous in the dark. They may also exhale a phosphoric odor. Flachsland reported a case in which the dejections obtained by enemata were luminous in the dark, and pieces of phosphorus were found in them.(*b*) It is said that the intestines, and even the flesh of animals poisoned by phosphorus, have the odor of garlic, and appear luminous in the dark. In a woman who died while taking phosphorus medicinally, it was remarked that the whole of the viscera of the body were luminous; thus indicating the extensive diffusion of the poison.(*c*) Brera observed also, in opening the body of a woman to whom he had administered phosphorus both by the mouth and rectum, that a white vapour, having an alliaceous odor, and taking fire at the approach of a flame, arose from the stomach.(*d*) Another case is interesting from the fact that, although the body had been buried *four-*

(*z*) Am. Journ. Med. Sci. Jan. 1854, from Gaz. des Hopitaux.
(*a*) Canstatt. Jahresbericht für 1851. Bd. IV. p. 264.
(*b*) Med. Chir. Zeit. 1826. IV. p. 183. (*c*) Taylor on Poisons, p. 244.
(*d*) Riflissioni Med. Pract. sul'uso interno del fosforo, &c. Pavia, 1778, p. 8.

teen days, phosphorus was discovered by means of its physical properties, in the stomach.(*e*)

§ 564. *Chemical examination.*—The appearance of phosphorus is familiar to every one. It is insoluble in water, but soluble in ether, alcohol, and the oils. It melts at 110°, and takes fire at a temperature a little above this. Sometimes it may be separated mechanically from the contents of the stomach, or from this organ itself. In a recent case of homicidal poisoning of a young actress in Berlin, the stomach was empty, there was no unusual smell, and only a few suspicious yellowish spots in the stomach, but no inflammation. In consequence of suspicions of the cause of death being aroused by the fact of the husband of the deceased having shortly before purchased phosphorus paste, (under a special permit,) the stomach was submitted to a chemical examination. Cut into pieces and warmed in a dark place over a spirit-lamp, several shining points were observed in it, and afterwards, by directing a fine stream upon pieces of the stomach, removing fatty matters by boiling, and afterwards quickly cooling, the phosphorus was obtained in a globule of the size of the head of a pin.(*f*)

In another case of attempted poisoning, a woman prepared a soup for her husband. After he had taken a few spoonsfull he was seized with pain in the stomach. In the evening his wife again pressed him to eat some more of it, but his suspicions were awakened, when, on taking it out of the warm and dark oven in which it had been put away, he observed that it was luminous. The bowl was therefore sent to the magistrate. On uncovering it, white vapours with a penetrating odor proceeded from it. When the contents were poured out on an evaporating dish, a transparent, shining globule was observed at the bottom, and afterwards several more, which, when rubbed between the fingers became luminous, and gave off white vapours. On boiling the soup over a spirit-lamp, bubbles rose to the surface, which inflamed spontaneously.(*g*)

The detection of phosphorus is, however, seldom so easy. Being mostly taken finely divided in the form of paste, and being not always rapidly fatal, it may have been either removed by vomiting, or in too small quantity to be recognized with certainty. Nevertheless, as we have before stated, it has been detected in the body fourteen days after death. In another case it was found ten days after death.(*h*) And it is probable that in competent hands it may always be recognized if really present.

§ 565. Various processes have been recommended for the detection of phosphorus in *organic mixtures.* The simplest plan is to evaporate partly the organic mass, and then place portions of it upon a heated iron plate. The phosphorus will then take fire and burn with a yellow light and white smoke. If the quantity of phosphorus be very minute, this trial will still detect it, since, according to Orfila, it is applicable even when the phosphorus forms but one-thousandth part of the mixture. Schacht recommends its separation by sulphuric ether; the details of his process will be found appended to the case above reported by him.

(*e*) Schäffer, quoted in Henke, Zeitschrift. 1851, E. H. 43, p. 215.
(*f*) Schacht. Casper's V. Jahrschrift, 1852 April.
(*g*) Henke's Zeitschrift, E. H. Bd. XXVI. S. 173. (*h*) Vid. Henke, loc cit.

The usual mode is to convert the phosphorus into phosphoric acid by boiling in nitric acid. After evaporating to dryness over a water-bath, and slight dilution of the residue with water, a solution of nitrate of silver will produce in it, if previously neutralized with ammonia, a yellow precipitate. Another portion may be converted into the hydrated phosphoric acid, by heating the residue, after evaporation, to redness. This, when cooled, may be dissolved in a little water, and will give, after being previously neutralized with ammonia, a white precipitate with the nitrate of silver.

CHAPTER VI.

BROMINE. IODINE. CHLORINE.

§ 566. From the constant use of *Bromine* in Daguerreotyping, accidents may readily arise from it. It is a dark-red liquid, of a strong and unpleasant odor, and acid taste. Its vapours, which are given off at ordinary temperatures, are exceedingly injurious both to the eyes and to the lungs. According to Mr. Wurtz, it is highly destructive to organic matter. He placed a human stomach, with its contents, into a porcelain dish covered with water, and poured upon it an ounce of bromine. By the aid of a gentle heat, and occasional stirring with a glass rod, the stomach had entirely disappeared in *less than half an hour*.(*i*) Its corrosive properties have been heretofore observed only in animals.

The only case on record of fatal poisoning by bromine in man, has been lately reported by Dr. Sayre, of New York. A. H., aged twenty-four, of good health, and temperate habits, a Daguerreotypist by profession, residing in Williamsburgh, near New York, swallowed one ounce, by weight, of bromine, for the purpose of destroying himself. The immediate symptoms, as reported by his medical attendants, were spasmodic action of the muscles of the pharynx and larynx, and great difficulty of respiration. This was soon followed by intense burning heat in the stomach, with great anxiety, restlessness, and trembling of the hands. The pulse was rapid, tense, and corded, and the respiration greatly hurried. The stomach was entirely empty at the time of taking the bromine. Various means were used unsuccessfully for his relief, the symptoms above described increased in intensity; the hands and feet became cold, with failure of the pulse, &c., until 2 P. M., when he died, *seven and a half hours* after taking the poison.

The post mortem examination was made seventeen hours after death. On opening the abdomen the external surface of the stomach was found vividly injected, as was also the peritoneal coat of the duodenum and of the mesentery. A portion of the latter nearest the stomach was stained of a deep yellow color, as were also other parts lying immediately beneath the stomach. A softened ecchymosed spot, an inch and a half in diameter, and several others of a smaller size were also found upon the peritoneal coat of the stomach. The stomach contained about four ounces

(*i*) Silliman's Journal N. S. Vol. VI. p. 405.

of thick fluid, resembling port-wine dregs, and exhaling faintly the odor of bromine. Its whole internal surface was covered with a thick black layer, resembling coarse tanned leather. The mucous membrane was very thin, and there was intense submucous injection.(*j*)

Bromine may be separated from *organic mixtures* by agitation with ether, which dissolves it. If a bromide has been formed, a few drops of a solution of chlorine should be added, to set the bromine free.

Iodine.

§ 567. This substance is capable of acting in a deleterious manner upon the system, under two circumstances, viz., by the long-continued use of small doses, or the administration at once of a large quantity. The symptoms which it occasions, after a too prolonged use of the remedy, are incessant vomiting and purging, pain in the abdomen, heat and dryness of the throat, headache, rapid emaciation, violent cramps, and general febrile condition. A patient of Zink, a Swiss physician, after taking too large doses of iodine for about a month, became restless, had burning heat of skin, tremors, palpitation, very frequent pulse, violent priapism, copious diarrhœa, excessive thirst, emaciation, and occasional syncope. He died, after an illness of six weeks. Salivation is also an occasional result of the prolonged use of iodine. A case is related in which one drachm of the tincture of iodine, in about an ounce of spirit, is said to have proved fatal.(*k*) Very often, however, large doses of this substance are productive of no evil effects, nor are unpleasant results generally experienced from its prolonged administration. Dr. Christison quotes a case, in which a child, three years old, took three drachms of the tincture, and suffered only from thirst and slight vomiting. Dr. Kennedy, of Glasgow, gave to a girl 953 grains of iodine, in the form of tincture, during eighty days, without any effects upon the health; and Mr. Delisser gave thirty grains a day to a patient, without any injury resulting.

§ 568. *Post mortem appearances.* In the case related by Zink, redness of the intestines, in some places approaching to gangrenous discoloration, were the chief morbid alterations observed.

§ 569. *Chemical tests.* Iodine is usually met with in the form of soft micaceous scales of a grayish black color, metallic lustre, acrid hot taste, and disagreeable odor. It is sparingly soluble in water, but readily dissolved by alcohol or ether. The best test for it in a free state is starch, as a very minute proportion of this substance will give a blue color to a solution of iodine. This blue color is destroyed by heat; hence in testing, the liquids employed should be cold. If iodine is combined with a base, it must be first set free by nitric or sulphuric acid. It may be detected in the blood and secretions of a patient under its use.

Iodine of potassium, although milder in its effects, is otherwise similar to iodine in its operation upon the system, and is usually preferred as a medicinal agent.

(*j*) New York Jour. Med. Nov. 1850.
(*k*) Prov. Jour. June, 1847, p. 356.

Chlorine.

§ 570. Orfila has shown, by experiments upon animals, that a saturated solution of chlorine in water produces effects similar to those of the mineral acids. No instances of its poisonous effects upon the human subject are recorded.

IRRITANT POISONS.

METALLIC.

CHAPTER VII.

Metallic Arsenic.

§ 571. Metallic arsenic is known under the name of mineral cobalt, fly poison, and fly stone. It has a blueish gray fracture and metallic lustre, and, by exposure to the air, becomes gradually black, and loses its lustre. It is easily pulverized, and has neither taste nor smell. Exposed to heat, it gives out an alliaceous odor, and in the atmospheric air its vapors are changed into the white vapor of arsenious acid. It is readily oxydized by mineral and vegetable acids; it thus acquires poisonous properties. Accidental death is not uncommon from its use. A case is mentioned (Bost. Med. and Surg. Journ. vol. XXX. p. 17) in which a child, two years of age, died in consequence of taking it by mistake.

Very recently, a highly interesting case of homicidal poisoning with it, has been reported.(*l*) It is, we believe, with one exception, the only one on record.(*m*) The wife of a barber, named Dombrowsky, was suddenly attacked on the morning of the 11th of April, with violent vomiting and purging, with pain and heat in the epigastrium, and excessive thirst. A physician was called to visit her in the evening, but being ignorant of the cause of the attack, prescribed simple remedies. She had no fever, her pulse was slow and soft, and the abdomen was not tender upon pressure. The vomiting, and especially the purging, still continued; and although they afterwards abated, her strength sank rapidly, and she died on the sixth day. On the third day after death, a *post mortem* examination was made. There was not found any natural cause of death in any of the organs. But on opening the stomach, it was found to have no putrefactive smell; it was red in streaks, and the mucous membrane softened. There were also several hemorrhagic erosions, especially in the neighborhood of the cardiac orifice. Some small black particles, having a metallic lustre, were seen upon it. These were carefully detached, washed with distilled water in a porcelain capsule, and then reduced on charcoal by means of the blowpipe. They gave out the well-known garlicky odor. The same odor was perceived when some were put in a reduction tube and exposed to heat, and both an arsenical crust and the small white octahedral crystals of

(*l*) Casper's Vierteljahrschrift, Oct. 1854, Dr. Schütte.
(*m*) Briand, Med. Leg. 452.

arsenious acid, were obtained. Evidence of the presence of arsenic was also obtained by the usual liquid tests. By Marsh's apparatus, arsenic was detected in the fluids contained in the stomach, and the amount obtained from this, and from the subsequent analysis of the stomach itself, was computed at nineteen grains. Additional evidence, which fixed, with the moral proof, the crime upon the husband, was derived from the examination of a few particles of a shining black powder found in the extreme end of his pocket, and also from the analysis of the dried spilled contents of a cup of sago, which, intending to give to the deceased, he had placed in the stove to warm, but which had cracked by the heat. It was also proved conclusively that he had himself purchased, at several times, portions of arsenic and of cobalt, which were found in the house. This fact, it may be remarked, was clearly brought home to him by the commendable provision of the Prussian code, which requires that a person purchasing poison shall give a receipt therefor to the apothecary, containing his name, address, the date, and also the alleged purpose for which it is required. These receipts were produced upon the trial. The prisoner was convicted chiefly upon this and the admirable and minute chemical investigation, and sentenced to be beheaded.

Arsenious Acid. (*Arsenic.*)

§ 572. The poison which is generally known under the name of arsenic, or white arsenic, is an oxide of the metal and has a slight acid reaction, whence it is called arsenious acid. It is met with in one of two forms, either as a white, vitreous, crystalline substance, or as a white opaque and granular powder. It is sparingly soluble in cold water, (about one in fifty parts,) but more freely dissolved by boiling water, which takes up the acid in about the proportion of one of the acid to ten or twelve of water(*n*) Dr. Taylor found by numerous experiments that a fluid ounce of hot water took up, in cooling from the boiling point, nearly one grain and a quarter of white arsenic, but that if boiled for an hour on the poison and allowed to cool, the water held dissolved about twelve grains to the ounce. In some experiments made by Schroff upon the solubility of arsenious acid, he found that one part of the acid dissolved in 480 of water, and the liquid being frequently shaken, was not fully dissolved in fourteen days. He boiled one part of arsenic with 100 of water, and found that complete solution took place after fifteen minutes boiling.(*o*) It is even less soluble in liquids containing organic matter. The different statements with regard to its solubility probably depend upon the difference in this respect, between the crystalline and the opaque powder. Its *taste* is not, as was formerly represented, acid, but on the contrary, is when at all perceptible rather sweetish. It is sometimes described as bitter, unusually rough, &c. As a general rule, it may be stated that it is without taste, except when in solution, when the taste perceived may be faint and sweetish. The sparing solubility of this substance is the cause of the absence of taste in it, and also explains the fact why, in the majority of cases of poisoning by it, in substance, it is found in

(*n*) Will's Analysis. (*o*) Canstatt's Jahresbericht for 1853. Bd. V. p. 52

larger or smaller quantity in the matters vomited, or adhering to the mucous coat of the stomach. Its solubility is increased by the presence of an alkali or alkaline carbonate.

§ 573. *Symptoms.* The symptoms occasioned by poisoning with arsenic do not always manifest themselves immediately upon its ingestion, and this is particularly the case when the poison has been introduced into some article of food or drink, and taken at a meal. Still they may occur immediately. A child, three years old, drank from a saucer some of a solution of arsenious acid mixed with milk. It was seized *immediately* with pain, vomiting and diarrhœa.(*p*) In a case referred to by Dr. Taylor, the symptoms were proved to have attacked the deceased, while he was in the act of eating the cake in which the poison was administered. In the case of Sager, tried in the State of Maine, in 1834, quoted by Beck, p. 546, vol. ii., extreme distress was *immediately* experienced after taking the poison.

§ 574. Generally the symptoms are not perceived until a later period which is usually stated at from half an hour to an hour after the poison has been swallowed. On the other hand, they have been in some cases of poisoning with arsenic, delayed in an unaccountable manner. In a case related by Dr. Ryan, where half an ounce of arsenic was taken in porter, the first symptom, which was vomiting, did not occur until nine hours afterwards. Mr. Clegg was called to see a girl who had taken a tea-spoonful of arsenic, but who was supposed also to be addicted to the use of opium. Seven hours after she had taken it, she appeared stupid, as if intoxicated, but no further symptoms of irritation occurred until near noon of the following day, when, although she had been cheerful all the morning and was engaged in preparing dinner, she was suddenly seized with excruciating pain in the stomach, and died in half an hour, about twenty-four hours after taking the poison.(*q*)

§ 575. Authentic instances are on record in which there has been also an intermission in the regular progress of the symptoms. Thus, in the case of the girl Davidson, reported by Dr. Maclagan, the vomiting diminished on the fourth day, was trifling on the fifth, was absent on the sixth, but returned accompanied by purging on the night of the seventh. It is stated that there could not have been repetition of the dose. So also in the case of McVey, by the same author, the man was taken ill with the symptoms of irritant poisoning about half an hour after eating an oat "bannock." Although he appeared to be very ill in the mean time, he was not again seized with vomiting until the morning of the fourth day, and died three days thereafter. "It did not appear that anything had been given him which would have contained a fresh dose of the poison."(*r*) Dr. Christison says, "A short remission, or even a total intermission of all the distressing

(*p*) Henke's Zeitschrift. E. H. 43, p. 150.

(*q*) Lancet, Vol. IX. p. 31. A case is also related by Belloc, in which *ten hours* elapsed after the taking of the poison, before any symptoms showed themselves; the vomiting was then slight, as also the pain in the abdomen, and no mention is made of the occurrence of diarrhœa. She died as from the effects of a narcotic poison. Cours de Méd. Lég. p. 122.

(*r*) Ed. Monthly Jour. Jan. 1853.

symptoms has been witnessed, particularly when death is retarded to the close of the second or third day. This remission, which is accompanied with dozing stupor, is most generally observed about the beginning of the second day. It is merely temporary, the symptoms speedily returning with equal or increased violence."

§ 576. The symptoms usually begin with a sensation of sickness, and of a burning heat in the stomach. There is also a sense of constriction and heat in the throat, with great thirst, and violent efforts at vomiting soon take place. The substances vomited have no peculiar color, as this depends both upon the matters that happen to be present in the stomach, the antidotes administered, and the length of time the vomiting continues. When the stomach is empty, mucus streaked with blood, and yellow or greenish bile will communicate a color to the contents of the basin. If powdered arsenic have been swallowed, it may be sometimes recognized in the ejected matters by its white and flaky appearance. The irritation of the poison being communicated to the lower bowels, diarrhœa usually supervenes and is frequently thin and bloody and attended with much straining and distress. When these latter symptoms are urgent, they are usually attended with an inability to pass the urine. These symptoms all increase in gravity till near the close of life. The general system also sympathizes with the disturbance of the digestive organs; the countenance is collapsed and anxious, the extremities and the surface generally ice-cold, the pulse almost imperceptible, the respiration accelerated, the voice oppressed, and convulsions, delirium and stupor not unfrequently usher in the closing scene. Such is a picture of the ordinary train of symptoms in a case of poisoning by arsenic.

§ 577. It should be understood, however, that they are liable to many variations, and many authentic cases are related in which the symptoms resembled, to a certain extent, those of narcotic poisoning. The system appears in such cases to be completely overpowered by the toxical effects of this substance, and the most extreme faintness and depression is the most prominent symptom. The pain in the abdomen and the vomiting are occasionally not urgent, except towards the close of life. These variations, when occurring in persons addicted to the use of opium or of ardent spirits, may be partially accounted for, but often they must remain unexplained, except by reference to idiosyncrasy.(*s*)

§ 578. When, however, instead of one dose sufficient to destroy life, or several doses at short intervals capable of producing this effect, the poison is given in small portions at comparatively distant intervals, the symptoms are not so marked in their succession and are attended with phenomena different from those already described. The following may serve as an example. "A woman put daily into the soup of her fellow

(*s*) For cases illustrating these points, vid. Christison on Poisons. Also an interesting case by Dr. Ogston. (Med. Gaz. 1851.) In this there was headache, stupor, feeble pulse, cold extremities, nausea, and tonic and clonic spasms. Vomiting did not occur until several emetic doses of sulphate of zinc had been given, and then only two hours and forty minutes after the arsenic, amounting to three drachms, had been swallowed. The poison was discovered in the blood, liver, and contents of the stomach, the patient having lived six days.

servant a very small quantity of arsenious acid in powder. Shortly after dinner, this person was seized with vomiting, which led to the rejection of the food and poison before the latter had caused any serious mischief. As this practice was continued for about six weeks, the stomach became exceedingly irritable, there was pain in the bowels, and the woman became much emaciated. There was also spitting of blood, with such a degree of nervous irritability, that a current of air caused an attack of spasms and convulsions. When the patient found that she could not bear anything on her stomach, she left the place and passed two months in the country. Her health became gradually restored there, and she returned to resume her usual occupations. The prisoner however renewed her attempts; and to make sure of destroying her life, gave her one morning, in coffee, a strong dose of arsenious acid in powder; violent vomiting ensued, and the poison was expelled with the breakfast. Arsenic was detected in the vomited matter, and the explanation of the cause of the long previous illness became clear. Under proper treatment, the patient recovered."(*t*) Dr. Christison relates a case somewhat similar, which, however, was not so protracted, and which terminated fatally.(*u*) It was by this means probably that the crime of secret poisoning was carried in the seventeenth century to such a fearful extent. The miserable woman who vended the liquid called after her the *Aqua Tofana*, confessed at her death that she had destroyed by it no less than six hundred persons. It is generally supposed that its active ingredient was arsenious acid.

§ 579. Those who have partially recovered from the immediate effects of arsenical poisoning, are, moreover, liable to the secondary effects, above referred to: salivation, chronic intestinal disorder, palsy, dropsy, and an irritative fever soon prostrate the vital powers, and the fatal termination although sometimes slowly attained is, in the majority of cases, none the less certain. The period at which death supervenes cannot be definitely stated with reference either to these cases or to those of acute poisoning. In the latter it usually takes place within twenty-four hours, it may be postponed for several weeks or months. The average period in twenty-two cases reported by Dr. Geoghegan, was seventy-seven hours and half, the shortest was five and a half hours.(*v*) Cases are however known, in which death has taken place within two hours.(*w*)

§ 580. Arsenic is equally noxious when *inhaled* in the form of vapor, or applied *externally* to a denuded surface, or upon the mucous membrane of the *vagina* or *rectum*.(*x*) Its effects are extremely rapid when it is inhaled, but when it is absorbed from a wounded surface the symptoms usually do not occur so soon as when it is swallowed.

(*t*) Taylor on Poisons, from Flandin, p. 257. (*u*) Loc. cit. p. 250. Am. ed.

(*v*) Dublin Quarterly Jour. Feb. 1851.

(*w*) The following case will be found in the Lancet, Oct. 1845, by Mr. Iliff. "E. D——, the servant in a family, after placing the dinner on the table, retired to her chamber, and drank a glass of water, in which she had mingled as much arsenic as it would dissolve; *she fell directly and died instantly;* no struggling whatever took place. I saw these two cases, (referring to another published at the same time,) almost immediately after the poison was taken."

(*x*) Vid. Christison on Poisons.

Being an ingredient in most of the pastes used by cancer-curers in the extirpation of scirrhous breasts, it is by this means not unfrequently introduced into the system, and has thus produced death with all the symptoms of arsenical poisoning. Even the small proportion of arsenic which is contained in the stearine of some candles, has, when the latter has been used for the purpose of dressing a blistered surface, produced nausea, pain in the stomach, thirst, redness of the tongue, spasms of the muscles, weakness and irregularity of the pulse, and death within twenty-four hours.(*y*)

Several cases are quoted by Dr. Christison from Foderé and others, where arsenic given by injection into the rectum proved fatal, and introduced into the vagina caused death in less than twenty-four hours. It is said, moreover, to have produced violent symptoms when applied to the unbroken skin, as when used as a depilatory.

§ 581. A case of death from the external application of arsenic to the head of a child two years of age, affected with porrigo favosa, is related by Dr. McCready, of New York. A woman obtained about half an ounce of arsenic, and mixing it with gin, rubbed it well into the heads of several of her children affected with this disease. It was followed by redness and swelling of the face; in the child alluded to, however, it produced diarrhœa and tenesmus, with paralysis of the lower extremities, but no signs of local inflammation. The mother stated that she had on one previous occasion applied the arsenic, and though the application was followed by some swelling, this soon subsided, and the head seemed much better.(*z*)

582. *Post mortem appearances.* The only reliable and tolerably constant changes produced by arsenic in the healthy appearance of the viscera, are found in the stomach and intestines. The mucous membrane of the stomach is usually of a uniform deep brownish red color, sometimes it is ecchymosed in patches, and at others there are spots or streaks of effused blood. These often have the appearance of crusts, and being of a blackish color, are not infrequently mistaken for gangrenous patches, and the slight depression under them for ulceration. But neither ulceration nor gangrene is an ordinary result of simple arsenical poisoning; if found, these are probably merely concomitant lesions, dependent upon other causes.(*a*) Perforation is exceedingly rare. Orfila says that he has never observed it.(*b*) The mucous membrane is also frequently swelled and thickened, possessing in some parts a fungoid appearance, and its structure is more frequently condensed than softened, owing possibly to a chemical union between the arsenic and the albumen. The powder, if the poison have been taken in this form, is often found imbedded between the folds of the mucous membrane, and closely adherent to it in brilliant points, or in white and flaky patches. The matters contained in the stomach are evidently

(*y*) Med. Gaz. 1842–43. p. 351. (*z*) Am. Jour. Med. Sci. July, 1851, p. 259,

(*a*) In the Lancet for Sept. 1843, it is reported that the body of a man poisoned by arsenic was disinterred 141 days after death. The stomach and intestines were in perfect preservation. About the middle of the small intestine was found a small ulcerated opening, through which some of the white powder was detected, similar to what was found in the stomach, and which proved to be arsenic.

(*b*) Med. Leg. Vol. III. 330.

too variable in character to be enumerated, since the ingestion of different liquids, and of the many so-called antidotes which have been given in most cases, naturally destroys the possibility of drawing any useful inference.

§ 583. The period of time requisite to develop the inflammatory condition of the stomach, is altogether a matter of conjecture, since the mucous coat of the stomach has been found inflamed when death has followed the poisoning at only the short interval of two or three hours; and, on the other hand, where the quantity swallowed and the duration of life has been such as to lead to the natural belief that inflammation would be discovered, the stomach has been found nearly or entirely free of any such morbid change. Indeed, in a few cases, the arsenic has been observed in immediate contact with the gastric mucous membrane, without any signs of inflammation. Nevertheless, as a general rule, the inflammatory appearances will be found developed in proportion to the protraction of the case. In a case reported by Dr. Letheby, the stomach was of a pale color. Ettmüller reports the case of a girl in whose stomach arsenic was found, and yet, neither in it nor in the intestines was there a trace of inflammation.(*c*) Orfila, in his work upon Legal Medicine, says: "The existence or non-existence of cadaveric lesions, the extent and seat of these alterations, can never enable us to affirm that poisoning has taken place, but can only serve to corroborate the conclusions drawn from the symptoms and the chemical examination of the suspected matters." These remarks are confirmed by observations of Marc and Chaussier.(*d*) The inflammatory appearances seldom extend further than the duodenum, although sometimes the small intestine and the rectum exhibit evidence of inflammation. In general, there are no other post mortem charges at all characteristic of this mode of death. The blood is said to be often syrupy in consistence.

§ 584. The introduction of arsenic into the system by external application, is usually followed by the same alterations in the stomach and intestines as when it has been brought into direct contact with the mucous membrane of these viscera.

§ 585. The *quantity* of arsenic capable of destroying life in an adult is not precisely determined, but Dr. Taylor states, from the evidence of some cases which have come under his observation, that there is good reason to believe that between three and four grains have proved fatal, and that "we are certainly warranted in asserting that a dose of three grains is very likely to prove fatal to an adult." Dr. Letheby has reported a case in which two and a half grains proved fatal to a robust girl. More recently, a case occurred in which two grains killed a woman.(*e*) Dr. Christison quotes the case of a child who died in six hours, after swallowing *four grains and a half* in solution.

But it is well known that smaller doses than these will produce alarming symptoms; and although no cases of death from a smaller quantity are recorded, it remains a question whether, without the in-

(*c*) Encyclopæd. der gesammt Med. von *Schmidt*, 1848; Arsenik-Vergiftung, S. 166.
(*d*) Orfila, Méd. Lég. Vol. III. p. 329; also Toxicologie, Vol. I. p. 316.
(*e*) Pereira, Mat. Med. Vol. I. p. 633.

tervention of medical aid, some of them might not have terminated fatally.

§ 586. It is evident that when large doses in the form of powder, or merely diffused through water, are taken, the poison, from its insoluble nature is not readily absorbed; it is therefore probable from this fact, and from the circumstance that as, even in fatal cases, a great deal of the arsenic is vomited, or is found after death in the stomach, the poisonous dose may be really trifling in amount, life being destroyed by that portion only which has been absorbed. In medicinal doses, the solution of the oxide of arsenic produces sometimes serious symptoms, and cannot be increased without at once causing symptoms of poisoning. The medicinal dose is from one-sixteenth to one-twelfth of a grain, and half a grain is sufficient to produce very alarming symptoms. Physicians are accustomed to watch the accession of conjunctivitis, swelling of the face, gastrodynia, and general depression, as indications of the dose being too great or too frequently repeated.

§ 587. The facts relative to the effect of *arsenic upon the putrefactive process* are of a very contradictory character. A number of cases are quoted by Dr. Christison, which appear to prove a remarkable antiseptic property in arsenic, by which not only the digestive organs, but the whole body, has been preserved from the ordinary changes of putrefaction. There is no doubt of the preservative quality of an arsenical solution over organic textures placed and kept in it, and the experiments made by Klenck upon dogs, seem to show that in cases of poisoning also, this property may be witnessed. This physician poisoned dogs with arsenic, and left them for two months, sometimes buried in a damp cellar, sometimes unburied in the same place, and the flesh and alimentary canal were red and fresh, as if pickled, at the end of this time. Dr. Kelch, of Königsberg, buried the internal organs of a man who had died of arsenic, and whose body had remained without burial till the external parts had begun to decay, and on examining the stomach and intestines five months after, he found that the hamper in which they were contained was very rotten, but that they had a peculiar smell, quite different from that of putrid bowels, were not yet acted on by putrefaction, but as fresh as when first taken from the body, and might have served for the purpose of anatomical specimens. The body of Chapman, supposed to have been poisoned by Mina, was disinterred two months after death. The face was livid and putrid, but the odor of the corpse was not offensive. The abdomen was of a pale, white color; and Dr. Hopkinson, on cutting into it, was struck with its firmness and resistance. When the stomach was opened, a very peculiar smell was perceived, which he compares to that of pickled herring. The same remark was made by other medical witnesses.(*f*) The intestines were entirely empty, of a pale color, and apparently rather disposed to dry than to putrefy. In a case communicated by Dr. Traill to Dr. Christison, the body of a captain of a vessel was disinterred five months after death. The face and neck was swollen black and de-

(*f*) In two cases of poisoning by arsenic, observed by Dr. Sanborn, of New Hampshire, the same peculiar odor was distinctly observed. Bost. Med. and Surg. Journ. Vol. XXXVII.

cayed, but the rest of the body was quite free from the usual signs of putrefaction. The skin was white and firm, the muscles fresh, the lungs crepitating, the liver and spleen much shriveled, the stomach and intestines entire throughout their whole tissues, and capable of being handled freely without injury. In this instance, the coffin contained water, owing to its having laid in a sandy soil resting on clay. The remarkable preservation of the body of a woman supposed to have been poisoned by arsenic, for nearly *fourteen* years after her death, led to its disinterment, the indictment and trial of her husband. Arsenic was found in the body.(*g*)

§ 588. On the other hand, Dr. Geoghegan has observed examples both of very tardy and of very rapid decomposition in cases of arsenical poisoning.(*h*) It would not be difficult also to find many cases in which, although death has resulted from other causes, the body has been as remarkably preserved as in those where arsenic was the cause of it. We have elsewhere enumerated the various causes which will retard putrefaction, as the dryness of the soil, and the depth at which the body has been interred, as well as individual peculiarities, which do not always admit of explanation. We may quote here an observation which will show, that even under the most favorable circumstances for decomposition, this process may proceed very slowly. This is a case communicated by Dr. Routier, of Amiens, to Orfila, in which an old woman was destroyed by a blow upon the head with an axe. This was in the middle of summer. The body lay buried in the clayey soil of a cellar between eight and nine months. At the end of this time, a judicial inquest was held. The skin was perfect, the muscles firm, red and distinct, the cerebrum was like that of a fresh corpse, and possessed its natural firmness and proper odor. The viscera of the chest and abdomen were perfectly well preserved; and in the stomach, which presented no sign of inflammation or other disease, a thick fluid was found in which the remains of articles of food were distinctly recognized.(*i*) The fact of the remarkable preservation of the brain in this case, is also of some importance, for it is well known that usually it putrefies rapidly, and because also in a case lately reported by M. Dieu, where the body of a man poisoned by *arsenic* was disinterred after the lapse of two years and a half, the comparative integrity of the brain was attributed to the preservative powers of this substance.(*j*)

§ 589. Hence the medical witness cannot be authorized to assert that, because the body has resisted more or less completely the progress of putrefaction, this preservation is due to arsenic, since it may be really attributable to other causes. One cause of the discrepancy in the observations upon this point, undoubtedly lies in the variable time occupied by the poison in producing its fatal effect, and the nature of some of the symptoms. It is reasonable to suppose, and observation also has shown, that if death have resulted from the ingestion of the poison at repeated intervals, in small doses, or not until several days

(*g*) Webster, Bost. Med. and Surg. Journ. Vol. XXXIX. p. 489.
(*h*) Dub. Quart. Journ. Feb. 1851.
(*i*) Orfila, Traité de Méd. Lég. 4me. ed. Vol. II. p. 93.
(*j*) Ann. d'Hyg. Jan. 1854.

have elapsed, that the arsenic has become disseminated through the system, and may thus exercise a more complete antiseptic influence in the dead body. If, again, the person has died within a short period after taking the poison, and after abundant and repeated vomiting and purging, we may be right in anticipating, that although the violent action of the poison has been the cause of death, little or none will have remained in the body. Hence, in the latter case, putrefaction will probably pursue its ordinary course.

§ 590. It is fortunate for the ends of justice, that arsenic may be discovered either in the stomach or extracted from the viscera, at a long period after death. It was found by MM. Ozanam and Idt, after the long interval of seven years. In a still more recent case, it was discovered after ten years. A man named Eichel fell sick on the 15th of February, 1842, after eating his supper, and died on the evening of the 17th. Ten years and four months afterwards, in consequence of some testimony respecting the mode of his death, the body was disinterred, and a chemical analysis instituted. The body was reduced nearly to the bones, although the brown and curly hair was still present. The bones were covered with a greasy, gluey substance, on which were numerous pasty spots of a yellowish white color. The body gave out no smell. The ligaments no longer held the bones together, and the ribs and clavicles had fallen in. A dark greasy mass indicated the remains of the viscera, and in the abdominal organs as much as *ten* grains of arsenic were detected by chemical examination. The wife of the deceased was condemned to death at Magdeburg, in 1853.(*k*) Dr. Webster, of Boston, succeeded in finding four grains of arsenic by chemical analysis, in the body of a woman alleged to have been poisoned by this substance *fourteen* years previously. The case was tried in Boston in 1848, the husband of the deceased being the accused party. (*l*)

§ 591. When arsenic in substance has been taken, it does not always remain in the condition of the white oxide, but frequently becomes converted, by the sulphuretted hydrogen developed during decomposition, into the sesquisulphuret, which is of a yellow color. It may undergo this change in a short time after death. Dr. Taylor has found it as early as twenty-eight days after death. In the language of Dr. Christison, "it is the effect of a chemical test applied to the poison by nature."

§ 592. *Chemical examination.*—Arsenious acid in its chemical relations, must be considered, 1st. as a solid, 2nd. in solution, 3rd. mixed with organic matter.

1st. *As a solid.* It is entirely volatilized by heat. Thrown upon ignited charcoal, it gives off an alliaceous odor, which is due to the reduction of arsenious acid to the sub-oxide, the arsenious acid having in itself no odor when heated; the smell of garlic is only perceived when

(*k*) Casper, Vierteljahrsch. 1854–2. The case in detail is found in Bley's Archiv. für Pharmacie (II. Bd. LXXV. Hft. 2, Hanover, 1853). See also the same Journal (April, 1855) for an interesting report of a case in which a woman was accused of poisoning her father, brother, and sister, and in which arsenic was found in the remains of the three murdered persons after a lapse of eight weeks, and *seven* and *eight* years respectively. Hardly anything but the bones remained in the two last mentioned. The accused made a full confession some time after her sentence.

(*l*) Boston Med. and Surg. Journ. Vol. XXXIX. p. 489.

it is deoxidized. This odor, although striking, is not a positive proof of the presence of arsenic, as a similar one may be given off by several other substances. If, however, we heat arsenious acid with dry acetate of potash, oxide of kakodyl is disengaged, by the peculiar insupportable smell of which compound, even very minute traces of arsenious acid may be detected. This experiment may be conveniently performed by rubbing the substances together in a little mortar, and then heating them together in a test tube, allowing the vapor, which is excessively poisonous, to be carried away by a current of air.

§ 593. Heated in a narrow test tube, or in the reduction tube of Berzelius, with some freshly ignited (cold) charcoal, the same phenomena of deoxidation and evolution of odor occur as when it is placed on red hot cinders in the open air; but in this case metallic arsenic is condensed by sublimation upon a cool portion of the tube, in the form of a metallic crust or ring, of an iron gray color, brilliant and lustrous upon the outer surface, and crystalline upon the inner when seen under a low magnifying power. There are usually two crusts deposited, one of metallic arsenic and the other of a browner color, which is a mixture of the metal and its oxide.

§ 594. The arsenical nature of the ring, may be further proved by volatilizing it by heat, in an open tube, by means of the flame of a spirit lamp; it is thus converted into arsenious acid which sublimes upon the tube in the form of octahedral crystals, which may be dissolved in distilled water and subjected to the liquid tests; or by dissolving them by means of nitric acid, and evaporating the solution to dryness, *arsenic* acid is formed, which is known by its giving a brownish red precipitate with nitrate of silver. When the quantity of arsenic is considerable, it is better to use a flux composed of the residue left by tartrate and acetate of soda, after incineration in a covered platina crucible, as recommended by Dr. Taylor. The volatilization of the crust may be accomplished either by applying heat directly to it, and chasing it up and down in the tube until it is all oxydized, or by carefully filing off that part of the tube in which it is contained, powdering it, and then introducing it into the end of another tube, which should in turn be subjected to heat.

The metallic crust of arsenic may moreover, be distinguished from the discoloration produced by *charcoal*, by the absence, in the dark stain of the latter, of any metallic appearance; the inner surface of the charcoal discoloration being powdery, black and dull. The possibility of error should however be guarded against, by the careful introduction of the charcoal into the tube through a funnel with a long stem.

§ 595. The sublimate obtained by the reduction of the *compounds of mercury*, as calomel or corrosive sublimate, has indeed a metallic appearance, but may be distinguished, without using the liquid tests, by an inspection with a common lens, or even with the eye: the minute globules of metallic mercury can thus be readily seen, and by the point of a knife made to run together. The objections that have sometimes been made to the reduction process, on the grounds that *glass* contains arsenic or lead, are theoretical only. Glass does not contain arsenic, for although used in its manufacture, it is entirely volatilized by the heat required in the process, and when the glass does really contain lead,

(which ought not to be the case in suitable chemical implements,) the mere loss of transparency caused thereby upon the application of heat, is evidently in the substance of the glass itself, and cannot with the slightest attention, be mistaken for the arsenical crust.

§ 596. Moreover the discoloration caused by the reduction of lead will be in the part of the tube to which the flame is applied. A crust weighing only a three-hundredth of a grain, a tenth of an inch broad, and four times as long, may show characteristically all the physical characters of an arsenical sublimate a hundred times larger. It may therefore be safely laid down, that the appearances exhibited by a well formed arsenical crust contained in the minute quantity of the three-hundredth of a grain, are imitated by no substance in nature, which can be sublimed by the process for the reduction of arsenic.(*m*)

Liquid tests.—The liquid tests for the detection of arsenic in solution are three in number. They are applied to clear solutions of arsenious acid free from organic matter, and are extremely useful in corroboration of the tests by which it is obtained in a metallic state; the arsenical deposit having been first converted into arsenious acid by sublimation in an open tube.

§ 597. 1st. *Hydro-sulphuric acid.*—In the presence of free acid, (hydrochloric) hydro-sulphuric acid throws down the ter-sulphuret of arsenic, which is of a *lemon yellow* color. This precipitate is soluble in ammonia. Dried, and heated with carbonate of soda in a reduction tube, a metallic sublimate of arsenic may be obtained.

§ 598. 2d. *Ammonio-nitrate of silver.*—This test should be carefully prepared. (To a strong solution of nitrate of silver add a solution of ammonia, until the brown oxide of silver which is thrown down, is nearly, but not entirely re-dissolved. When properly prepared there should be no free ammonia given off.) The *arsenite* of silver, which is precipitated by this re-agent, is of a *lemon yellow color.*

§ 599. 3d. *Ammonio-sulphate of copper.*—(This test is prepared in the same manner as the foregoing. No more than is actually necessary for precipitation should be used, as its intense blue color is very apt to mask the proper color of the precipitate. If, however, this has occurred, filtration will separate the *green arsenite of copper* from the uncombined portion of the liquid.) The color of the precipitate is a *chrome green.* When dried and heated in a test tube, arsenious acid is disengaged, and sublimes on the sides of the tube in the characteristic crystals, leaving a residue of the oxide of copper. Their nature may further be proved by dissolving them in distilled water and submitting them to any other of the tests which may be desired.

§ 600. The fallacies to which these tests are exposed are the following. Phosphoric acid gives a yellow precipitate with ammonio-nitrate of silver exactly like arsenious acid; several organic acids cause a green precipitate with the copper test, and the soluble salts of cadmium yield with sulphuretted hydrogen, or hydro-sulphuric acid, a yellow precipitate, similar in appearance to the sulphuret of arsenic. But doubts arising from these sources as to the true character of the precipitate, may be corrected by a comparison of the tests and the production of a

(*m*) Christison.

metallic or crystalline sublimate. Thus phosphoric acid gives only a pale blue precipitate with the copper test, and is not affected by sulphuretted hydrogen; and the pseudo-arsenical precipitate obtained by cadmium with sulphuretted hydrogen, or by organic acids with the copper test, when dried and heated in a reduction tube, give neither the metallic deposit, such as is obtained from the sulphuret of arsenic, nor the crystalline sublimate as obtained from the arsenite of copper.

It is obvious that other additional correctives may be employed by the use of Marsh's or Reinsch's process, but the above are sufficient when the proper precautions as to the purity of the materials used are observed in the beginning of the analysis.

§ 601. It should be remembered that the liquid tests are not applicable directly to liquids containing *organic matter*. The same colors which have been mentioned as indicating with probability the presence of arsenic may be obtained in liquids used as articles of food, containing common salt or various colorless organic acids. Hence, unless the precipitate obtained can be made to yield arsenic by the other tests, there can be in an organic liquid no demonstration of its presence; the only method, therefore, free from objection, is to use the liquid tests in *aid* of the other processes of Marsh and Reinsch, or in liquids not contaminated by the various organic matters which may be present in the stomach or remaining from the poisonous drink administered.

We have been favored, by Dr. Jackson, of Northumberland, with a reference to a case(*n*) in which chemical evidence of this kind would have procured the indictment of a faithful and exemplary wife, for the murder of her husband, by poisoning with arsenic, had it not been for his interposition; he showed not only that the man did not die with the symptoms of arsenical poisoning, but that the chemical investigation was both imperfect and fallacious.

The following is an extract from the minutes of one of the examiners: "The contents of the stomach, about 16 oz., and principally fluid, were thoroughly mixed by agitation and stirring, and successive portions submitted to the following tests: A small portion was put into a clean Florence flask, to which about four ounces of *common* water and a few grains of sub-carbonate of potash were added; this was submitted to the heat of a spirit lamp until boiling commenced. Portions of it were poured into two clean wine glasses, to one of which a small quantity of sulphas. cupri was added; this had the effect of changing the fluid, which had been of a light hazel (owing to the color of the contents of the stomach), to a light green color, resembling that of Scheele. The surface of the other glass a stick of lunar caustic was applied to; the effect was an immediate *white cloudy* appearance, which soon changed into a reddish yellow or orange color, and after standing a few hours, resolved itself into a reddish brown. * * * The next day, the remaining contents of the stomach having been dried, half an ounce of the suspected matter was boiled with snow water, in a flask, until it rose to the top of the vessel; the fluid was suffered to cool, when a stream of sulphuretted hydrogen gas was passed through it; this immediately changed the solution to a beautiful light golden-colored liquid; after which a solution of arsenious acid was submitted to the same, and the result was precisely

(*n*) Am. Jour. Med. Sci., Nov. 1829, p. 243.

similar," &c. Such rough and imperfect processes as these authorized, in the opinion of the examiners, the statement that the chemical analysis "clearly indicated the presence of arsenic." They were equally unfortunate in their deductions from the state of the stomach, which, from the description, appears to have presented that appearance not unusual in an habitually intemperate person, as was the subject of the examination, but which they looked upon also as "clearly indicating that the patient had died in consequence of poison from arsenic."

§ 602. *Marsh's process.*—This process for obtaining arsenic from simple or compound mixtures, by which it may be afterwards tried by any or all of the tests above mentioned, is exceedingly delicate. According to Dr. Christison, a solution containing only the millionth part of white oxide of arsenic, will part with it readily in the form of arseniureted hydrogen, and the slightest trace of that gas in the hydrogen is indicated by this method. The process consists, essentially, in the disengagement of hydrogen gas by the action of sulphuric acid on zinc, in the presence of arsenious acid, the consequent evolution of arseniureted hydrogen, and the deposition of metallic arsenic upon a porcelain plate held in the flame resulting from the combustion of the gas.

§ 603. The various modifications of the simple apparatus of Marsh require no particular description here. The simplest form consists of a wide-mouthed bottle with a closely fitting cork perforated for two tubes, of which, the one furnished with a funnel dips beneath the liquid, and the other, bent nearly at right angles but sloping slightly towards the bottle, descends but a short distance into the vessel. This tube is furnished with a cork for the reception of a detached horizontal tube of glass, free from lead, and drawn out at its extremity into a point with a small aperture. In this apparatus, hydrogen is generated by pure zinc and dilute sulphuric acid, and the action is continued until the atmospheric air is completely expelled, and all risk of an explosion is thereby avoided. The freedom from arsenic of the materials employed, should be ascertained by holding a porcelain plate against the lighted hydrogen gas,—nothing but water will be deposited in case the gas is pure. When thus satisfied that the materials are pure, a portion of the suspected liquid may be poured into the funneled tube, and the spirit lamp be immediately applied to the horizontal tube, in order to obtain a metallic ring or incrustation, which, if arsenious acid is present, will be deposited at the distance of about half an inch from the part to which the flame is applied. Having procured this, the gas, as it issues from the fine end of the tube, should be inflamed, and deposits obtained on porcelain or glass. The two processes may be continued until a metallic deposit is no longer obtained.

§ 604. The *fallacies* to which Marsh's process may give rise, proceed from the contamination of the zinc or sulphuric acid with arsenic, the presence of antimony in the suspected liquid, or of imperfectly charred organic matter. The mode of guarding against the first has already been noticed. Antimoniureted hydrogen burns with a pale, bluish green flame, and deposits upon a porcelain plate held in it, a black stain.

The antimonial is distinguished from the arsenical crust by the following characters:—

First, the dark stain is less bright and metallic than the arsenical one, and when viewed by transmitted light is smoky black, whereas that of arsenic is hair brown.

Secondly, if the flame be allowed to play on a solution of ammonio-nitrate of silver, placed on the under surface of a plate of mica, no yellow arsenite of silver is obtained.

Thirdly, the greater volatility of arsenic and its conversion into octahedral crystals of arsenious acid, may serve, where the crust is in an open tube, to distinguish it from antimony. This may be best affected by a bath of olive oil; this liquid does not begin to boil until the heat rises above 600°. Arsenic is completely sublimated under 500°, and the process begins at a much lower temperature; but antimony is not at all affected by the heat required to boil olive oil. Hence, whether the stains of the two metals are mixed or not, their true nature can thus be readily ascertained. Dr. Maclagan says, that in his hands the process has proved "so simple and easy of execution, so delicate in the results obtained by it, so advantageous in excluding the necessity of any chemical reagent whatever," and "also in affording, when tubes of equal size are used, so easy a method of determining approximately the proportion of arsenic in different articles examined, that in operating on small quantities of material, or where little arsenic is present, I have of late always, in practice, adopted it in preference to any other."(*o*)

Fourthly, the comparative solubility of arsenious acid, and the reaction of the before mentioned liquid tests on the solution, will distinguish it from oxide of antimony, which is insoluble.

Fifthly, the metallic crust obtained by submitting a current of the gas to heat, presents some distinguishing characters;—the arsenical crust is always deposited in the more distant or anterior part of the tube, whereas the antimonial one is first deposited on the *heated* part of the tube.(*p*)

Lastly, Arsenical spots on porcelain may also be readily distinguished from those of antimony by the more rapid solution of the former in hypochlorite of soda. They are rapidly dissolved by it, and the porcelain becomes perfectly clean. If they are shining and thick, the process is somewhat longer, but does not occupy more than a few seconds. Antimonial spots, on the contrary, completely resist the action of the hypochlorite of soda, unless they are quite faint and of a dull appearance. Furthermore, if any fluid containing *both* arsenic and antimony be introduced into the apparatus, the spots on the porcelain at first contain principally only arsenic, apparently in consequence of the antimony being less volatile; but if shining spots be produced upon the porcelain, which contain more antimony, these resist, more or less, the action of the hypochlorite of soda, and are often eaten away only around the edges. While, therefore, by this reagent, a slight trace of antimony cannot be distinguished in spots of an arsenical nature, arsenic, on the other hand, can by it be detected in antimonial stains.(*q*)

Of all these tests, we think the last is the most uniformly successful; the rapidity with which the metallic arsenic disappears under its action

(*o*) Month. Jour., Jan. 1853. (*p*) Pereira.
(*q*) Wackenroder, Chem. Gaz., Aug. 2, 1852. This test was in use by Bunsen in 1844.

is astonishing, and offers a striking contrast to the absence of all effect in the case of antimony.

§ 605. The crusts resulting from the presence of imperfectly *charred organic matter* in the suspected liquid are not so readily soluble in nitric acid as are the arsenical crusts, and do not, like the latter when so dissolved, yield a brownish red precipitate with nitrate of silver.

§ 606. *Reinsch's process.* This method of separating arsenic is exceedingly simple and efficacious. A solution supposed to contain arsenic should be acidulated with hydrochloric acid and heated to the boiling point. A thin leaf of copper, or fine copper gauze or wire, bright and clean, should then be introduced, and if arsenic exists in the liquid it will be deposited in an iron grey film of the metal upon the copper. The copper being removed after the deposit is formed, must be washed in distilled water, dried, and introduced into a reduction tube. On the slow application of heat, arsenious acid will be sublimed and deposited on the sides of the tube in the form of minute octahedral crystals. These may be examined by a lens, and then dissolved in water and subjected to the liquid tests. These supplementary tests are requisite, since solutions of various metals give a coating not unlike that of metallic arsenic, and if the copper is put into the acidulated fluid before it is duly heated, a stain will almost always occur in the presence of organic matters. In proof of the delicacy of this test, Prof. Rainey of Glasgow says, that "in repeated experiments" he has "found that one-thousandth of a grain of arsenious acid in one-million times its weight of fluid, could be separated as a distinct deposit on copper. The copper thus coated when heated gently in a small tube, yielded a slight but distinct sublimate, most obvious on a black ground, and which, with a magnifying power of ten to twenty diameters, was found to consist of crystals with triangular facettes, and which when dissolved in water yielded orpiment and the red arseniate of silver when treated with the appropriate reagents."

§ 607. *Arsenic in organic mixtures.* Before the contents of the stomach, or the several organs containing arsenic by means of absorption during life, can be submitted either to the process of Reinsch or of Marsh, it is necessary to obtain a solution as free as possible from organic matter. Various means have been recommended for this purpose, those which are the least open to objection are the following.

If it be intended to separate metallic arsenic by means of Reinsch's process, all the soft solids should be cut into small fragments, distilled water, if necessary, added, and also hydrochloric acid in slight excess. This mixture should be boiled gently for an hour until all soft solids are either dissolved or broken down into fine flakes or grains. Filter through wet muslin, heat the filtered liquid again to the boiling point, and then introduce a slip of copper as before described.

§ 608. If, however, the apparatus of Marsh is to be used, the following process is recommended by MM. Danger and Flandin. Add to the organic matter contained in a porcelain capsule one-sixth of its weight of sulphuric acid, and heat until vapours of sulphurous acid appear. The matter is first dissolved, but during the concentration it is charred. The liquor is to be constantly stirred with a glass rod. The carbonization is effected without any swelling or frothing, and is to

be continued until the charcoal is friable and almost dry. A small quantity of nitric or of nitro-muriatic acid is to be added by means of a pipette when the capsule is cold. This converts the arsenious acid into the more soluble arsenic acid. The mixture is then to be evaporated to dryness, treated with boiling water, and the limpid liquor introduced into Marsh's apparatus, in which it never froths.

The following excellent process is described by Dr. Will, and is used in the laboratory of Giessen. Before the chemical examination, it is proper to examine carefully the contents of the stomach and intestines, for the purpose of obtaining if possible any undissolved portions of arsenic. This is best accomplished by spreading out the mixture in porcelain vessels and diluting it with distilled water. If the white grains of arsenious acid should thus be discovered, they should be reduced on charcoal or tested by means of Marsh's apparatus. If, however, the arsenic can no longer be separated by mechanical means, the masses of organic matter, *e. g.*, the stomach and duodenum with their contents, must be treated in the following manner. The liquid contents should be saturated at a gentle heat with chlorine gas, and then heated nearly to the boiling point to drive off the excess of chlorine, and filtered through paper free from smalt. The stomach and other viscera should be cut into small pieces and dissolved by the aid of heat in as small a quantity as possible of caustic potash, then saturated with dilute sulphuric acid and the coagulated mass treated with chlorine. Or, the mass may be heated in a water bath and treated with hydrochloric acid, being stirred all the while, and then gradually small quantities of pure chlorate of potash added, until the liquid becomes thin and acquires a clear yellow color. The heat should now be continued for some time, after which the liquid may be allowed to cool and then be filtered. The undissolved matter upon the filter should be washed with boiling water. The filtered liquid should be concentrated to about a pound. Saturate it with hydrosulphuric acid by the aid of heat. The precipitate of sulphuret of arsenic which is now obtained after driving off the excess of sulphuretted hydrogen, is of a dirty brown color owing to the admixture of organic matter. This should be washed and dissolved in caustic potash. This solution may be deprived of its sulphur by the oxide of bismuth and heat, and the filtered liquid after saturation with dilute sulphuric acid introduced into Marsh's apparatus.

§ 609. It is hardly necessary to state that whichever of these processes is preferred, the previous examination of all the chemical reagents is necessary to provide against the accidental presence of arsenic. The necessity of these precautions is obvious, but the means of providing against them are equally so.

§ 610. It was at one time supposed, upon the authority of Orfila, that arsenic was *a natural constituent of the human body*, but his own admission of his error and repeated subsequent trials have proved that this is not the case,(*r*) that it exists neither in the bones nor in the soft parts. It has been found in the soil of cemeteries, but in an insoluble form, being separable only by concentrated sulphuric acid; the objection, therefore, that, if detected in the body, it may have been derived

(*r*) Vid. Lehmann's Physiol. Chemistry. Vol. I. p. 449. Translated by George E. Day.

from this source, is not applicable unless the coffin have been broken and the soil become mingled with those portions of the body subjected to analysis. In this case a portion of the soil taken from the adjacent earth may be examined for the purpose of ascertaining whether the arsenic is really derived from it. Where the coffin has become entirely disintegrated and the earth is thus undistinguishable from the human remains contained in it, a chemical analysis can hardly be demanded. But when, on the contrary, the body is in a tolerable state of preservation and the earth has gained access to it only through crevices in the coffin, without coming in contact with the stomach and other viscera, it is evidently an unwarranted and fanciful idea to attribute the origin of arsenic found therein to the minute trace which may possibly exist in the surrounding soil.(*s*)

Nevertheless, in the following case a competent chemist thought that there was good reason for supposing that arsenic must have been administered. A verdict of wilful murder having been returned by a coroner's jury against a woman named Rebecca Smith for causing the death of her infant child by poison, the bodies of two of her other children who had also died in infancy, were disinterred and sent to Mr. Herapath of Bristol for examination. The soft parts of the bodies were entirely gone and the bones were all separated from each other. The coffins were decomposed and penetrated in all directions by the roots of a tree. The roots of trees as large as the little finger had passed through the head and skeleton and had followed the bones in all directions. He found arsenic in the bones, in the black mould under the head, and a greater quantity in the black mould under the ribs. One of the bodies had been interred five and the other eight years. In his testimony before the coroner, Mr. Herapath said, "I have never found arsenic in a body which was in its natural state." "I have made experiments on hundreds of bodies of human beings and brutes, but have never discovered arsenic, unless it had been administered medicinally or for a criminal purpose. I have also made experiments upon soils and I believe the statement of Orfila to be a mistaken one. My opinion is, that arsenic was administered to both these children during life and that it was the cause of death; it existed in too great quantity to have been administered for a medicinal purpose." The jury without hesitation returned a verdict, "That the deceased children died from the effects of arsenic, but how or by whom administered there is no evidence to show."(*t*) In the absence, however, of any statement of the process by which the arsenic was obtained from the bones and the mould, this case cannot be considered of great importance.

§ 611. The experiments of Orfila, in 1839, have since been confirmed by numerous observations, and the fact is well established that arsenic in the combination in which it exists in the soil is completely *insoluble* and consequently cannot be carried by the percolation of rain into the organs of the body. Boiling water does not dissolve the slightest trace

(*s*) Walchner has discovered arsenic in many ferruginous earths and the deposits of certain mineral springs. Will and Scherer and others have made the same observations. Becker examined the soil of a churchyard and found that every part of it contained arsenic.—*Canstatt's Jahresbericht.* 1846, 1847. Bd. V.

(*t*) Lancet, 1849. p. 253. Am. ed.

of it, and it is only by the prolonged action of boiling sulphuric acid that it can be separated from the earth containing it. In illustration of these remarks we append the following: In 1844, Nicolas Noble and a woman named Jerome, both of whom died with the symptoms of poisoning, were buried in the cemetery of Epinal, the earth of which contains arsenic. Their graves were two yards apart. The bodies were ordered to be disinterred; in the woman there was not found the slightest trace of arsenic, but it was discovered in the stomach and intestines of Nicolas. Six months later the bodies were again exhumed; the *result was the same*, although the body of the woman had been, after the first examination, immediately replaced in the grave without any coffin, and covered with the soil which had been thoroughly soaked by an abundant rain. There were reunited here all the conditions of putrefaction and moisture supposed by some to be most favorable for the formation of an arsenite or arseniate of ammonia and the imbibition of the body by it; nevertheless the soil treated with boiling water did not give up a trace of any arsenical salt, and no arsenic was found in the woman's body. In that of the man, on the contrary, it was found in the liver, after it had been carefully washed. The correctness of the inferences from the chemical analysis was soon fully established by the confession of the criminal.

Another case, occurring in the year 1851 in France, is not less remarkable. On that occasion, M. Barse, a distinguished chemist, gave the following opinion when called upon by the government. "Arsenic exists in the soil only in an insoluble state; hence it cannot be communicated by means of infiltration to the bodies contained in such soils; and therefore if arsenic is found in such bodies, it must have been derived from other sources." He examined other bodies contained in the same cemetery, and found that in none of them was there a trace of arsenic, although it existed in the soil.(*u*)

Suboxide of Arsenic. (Fly powder.)

§ 612. This substance, which is often sold under the name of cobalt, has been the source of many cases of accidental poisoning upon the continent of Europe. The symptoms and effects are precisely similar to those of arsenious acid. In this and other countries, paper soaked in a sweetened solution of this or some equivalent compound of arsenic is in use for destroying flies.

§ 613. *Arsenic Acid* is seldom met with out of the chemical laboratory; it has been proved by experiments upon animals to be poisonous, and may be recognized by the brownish red precipitate it gives with nitrate of silver, its solubility in water, and in yielding a metallic crust or deposit, by the apparatus of Marsh or Reinsch.

Arseniate of potash.—Dr. Christison is the only author who refers to cases of poisoning by this article. He quotes two cases of accidental poisoning by it.

§ 614. *Arseniate of soda.*—The only instances reported of poisoning by this preparation are quite recent. Two young men sent to a chemist

(*u*) Vid. Briand, Méd. Lég. p. 520.

for doses of tartrate of soda, in place of which the arseniate of soda was sent by mistake and taken. In about five minutes they were attacked with violent cramps in the stomach, which speedily became very intense. One died in consequence, and the other remained in a dangerous state.(*v*)

Sulphurets of Arsenic.

§ 615. There are several of these compounds known in commerce as *realgar* of an orange-red color, orpiment which is yellow, and (it is said also) another preparation, bearing the same name, which is a compound of a pure sulphuret and arsenious acid. The pigment known as King's yellow, contains a sulphuret of arsenic and a considerable proportion of lime and sulphurets. Cases of intentional and accidental poisoning with orpiment are known. A female was poisoned with it in England in 1835, and the poison found in considerable quantity in the stomach of the deceased fourteen months after death. Its character was satisfactorily proved by chemical analysis, and led to the apprehension and conviction of the murderess, who was afterwards executed.(*w*) Another case, in which it was mixed in porridge, in mistake for turmeric, is related by Dr. Jochner. An old man and his nephew, both partook of the food without immediately discovering the mistake. The prominent symptoms were continual vomiting, burning pain in the stomach, and gradual collapse. The old man died in twenty-two hours; the boy escaped. Evidence of violent inflammation was found in the œsophagus and stomach, the mucous coat of the latter being softened and thickened. There was a sphacelated spot, one inch in diameter, in the œsophagus, and another in the stomach of three inches in extent.(*x*)

The sulphurets of arsenic may be analyzed either by the sublimation of metallic arsenic from them in the reduction tube with an appropriate flux, or by testing with Reinsch's or Marsh's apparatus. They may be separated from *organic mixtures*, by adding caustic ammonia to dissolve them, and then precipitating them by hydrochloric acid, or they may be separated mechanically by mere subsidence filtration and drying.

Arseniuretted Hydrogen.

§ 616. This gas is colourless, has the smell of garlic, and is exceedingly poisonous. Several cases are related in which chemists, in experimenting with it, have perished in consequence of accidentally inhaling it. The symptoms were similar to those usually seen in poisoning with arsenious acid, viz., giddiness, vomiting, pain in the stomach, and collapse. In the case related by Dr. O'Reilly, death ensued on the sixth day, and Gehlen, the German chemist, died in nine days.(*y*)

(*v*) Am. Jour. Med. Sci. Oct. 1852, p. 553, from the Jour. de Méd. and Chirurgie. June, 1852.

(*w*) See the case quoted in Beck. Vol. II. p. 560.

(*x*) Henke's Zeitsch. Erg. H. 43. p. 162.

(*y*) Dublin Jour. Vol. XX. p. 422; Buchner's Toxicologie, p. 476.

The gas inhaled was, in the first of these cases, supposed to be pure hydrogen, but was contaminated with arsenic, owing to the impurity of the sulphuric acid used in generating it. The mode of obtaining it and of testing its properties has been already described.

Arsenite of Potash.

§ 617. These and other compounds of arsenious acid with alkaline bases are poisonous. The solution of Arsenite of Potash, is of much use in medicine, especially in the treatment of chronic skin diseases and intermittent fever. It receives its taste and color from the spirit of lavender, as officinally prepared, and contains four grains of arsenious acid to the fluid ounce, the usual dose of which is, for an adult, ten drops, three times a day. From the occasional adulteration of arsenic with the sulphate of lime, this preparation is no doubt sometimes weaker than the officinal strength. Two cases of fatal poisoning by this solution have been before referred to. In one of them the dose did not amount to more than two grains in five days. In the other the amount swallowed was not ascertained. This liquid may be tested after acidulation with hydrochloric acid, by means of hydrosulphuric acid, which will precipitate a brownish-yellow sulphuret, or it may be tested by Reinsch's method and the liquid tests.

Arsenite of Copper. (Scheele's Green.)

§ 618. As this article owes its poisonous properties rather to the arsenic contained in it than to the oxide of copper, we have ranged it under the arsenical compounds. It has frequently occasioned accidents in England and on the Continent from its use as a coloring ingredient in confectionery. In 1850, Dr. Letheby reported three cases of poisoning by Scheele's Green, which came under his notice; and he states that between thirty and forty children were poisoned at the same time by sweetmeats sold to them by a confectioner in Petticoat Lane. He stated, moreover, that as many as seventy cases of poisoning had been traced to a similar source within three years.(*z*)

A child was given a green card to play with, and soon afterwards was seized with the symptoms of arsenical poisoning. It was found that the glazing of the card, which contained lead, was colored with Scheele's Green.(*a*)

The symptoms produced in the cases reported, have been violent colic, vomiting, and diarrhœa, intense thirst, and retraction of the abdominal parietes. In some cases jaundice has occurred.

Emanations from walls painted with this green color, or from paper stained with it in damp rooms are capable of producing unpleasant symptoms.

§ 619. The process for obtaining this salt from organic mixtures is the following, as described by Dr. Christison. The arsenite should be dissolved by heating the mixture with a little hydrochloric acid, and

(*z*) Brit. and For. Med. Chirurg. Rev. July, 1851.
(*a*) Bost. Med. and Surg. Jour. Vol. XXXVII. p. 107.

then stirring it. After being allowed to cool, it should be filtered. A stream of hydrosulphuric acid gas will now cause a dark-brown muddiness or precipitate, which is a mixture of sulphuret of copper and sulphuret of arsenic. The precipitate being separated after boiling, and properly cleansed by the process of subsidence and affusion, or if it is large, by washing on a filter, the two sulphurets are to be separated by ammonia, which dissolves sulphuret of arsenic, but leaves the sulphuret of copper; and the sulphuret of arsenic may be recovered from the filtered fluid by expelling the ammonia with heat. Being thus separated, each salt may be tried by the appropriate tests enumerated under the heads respectively of *Arsenic* and *Copper*.

CHAPTER VIII.

Corrosive Sublimate. (Bi-chloride of Mercury.)

§ 620. The corrosive chloride of mercury is white and crystalline in appearance, and has an exceedingly acrid, styptic, metallic and durable taste. It dissolves in a little less than twenty parts of cold water, and in three of boiling water. It is soluble also in alcohol. (*Wood & Bache.*) The very poisonous nature of this substance is familiar to every one. It is seldom if ever taken in large doses, except by mistake, or with suicidal intentions.

§ 621. The *symptoms* which it produces are of the most urgent and alarming character, and generally supervene very soon after it is swallowed. At the moment of being swallowed, there is usually an involuntary constriction of the throat, which has in many cases prevented the whole of the draught from being taken. Vomiting of a bloody and frothy liquid soon occurs, and continues throughout the case, attended with violent purging, but this latter symptom is sometimes absent. There is excessive pain in the abdomen, not always increased upon pressure, and also burning and smarting in the throat. The general symptoms are at first those of febrile excitement, with great thirst, and followed by exhaustion and collapse, a cold and clammy skin, small and frequent pulse, and difficult respiration. In most cases the urine is either entirely suppressed, or very scant and difficult to void.

The duration of the case is very variable, sometimes terminating in a few hours and in others being prolonged beyond a week. In a case reported by Dr. Coale, death took place on the 11th day, and in another, by Dr. Jackson, on the 13th day.(*b*) Death may not occur until later, from its consecutive effects. Such was the case in an instance reported by Dr. Ware, where the patient died of dysentery on the fifteenth day.(*c*)

The *smallest quantity* capable of destroying life is not ascertained with precision; children have been killed by three grains; and Dr. Taylor considers that the average fatal dose may not differ widely from that of arsenic, *i. e.* two to three grains.

In Dr. Coale's case, less than ten grains were swallowed. Dr.

(*b*) Am. Jour. Med. Sci. Jan. 1851. (*c*) Ibid.

Frisselle reports a case which is remarkable for the indifference to the symptoms upon the part of the patient. A woman took a drachm of corrosive sublimate in solution. She was immediately seized with a burning sensation in the throat, and copious vomiting of a dark frothy substance, which was followed in about an hour by purging, which continued till the next day. She still however attended to her domestic duties, and no remedies were given internally until thirty-six hours afterwards. She died on the sixth day, with vomiting of a dark grumous matter.(*d*)

§ 622. *Post mortem appearances.*—In the case just mentioned there was no appreciable lesion discovered. In one reported by Dr. Williams,(*e*) the stomach, which was contracted in the shape of a dumb-bell, presented patches of dotted injection, of a bright crimson tint. There was no ulceration, nor ecchymosis, but the mucous membrane was a little softened in the neighborhood of the most vivid red patches. Similar patches were seen throughout the small intestine. The bladder was contracted, and contained about a drachm of turbid urine. The other organs were healthy. The dose in this case was thirty grains, and the patient lived two days. In an instance reported by Dr. Herepath, the stomach seemed to have escaped the action of the poison, but the cœcum was of a deep black-red color, and portions of it were in a sphacelated condition.(*f*) The mucous membrane of the mouth and fauces usually exhibits traces of the action of this corrosive poison, being changed to an ashy blue color; but in the two first cases here noted, and the following one, in which a drachm was taken, the mucous membrane of the mouth and œsophagus was perfectly healthy. The principal effects of the poison were observed in the stomach, its mucous and muscular tissues, commencing at the cardia, to the extent of three inches and a half, and about the same in breadth, were converted into a gangrenous mass, having a corroded, ragged appearance, of a dusky brown color, approaching to black. The mucous coat to some extent around this gangrenous portion, was of a brownish-red, but the lining membrane of the pyloric half of the stomach, except a few slightly red patches, was quite healthy. The bladder contained only half an ounce of urine, although none had been passed for twenty-four hours before death. The lungs were extremely congested.(*g*)

Other cases are mentioned similar to those of Drs. Coale and Williams, in which, although the quantity taken has been large, the signs of intense suffering in the stomach and the general symptoms present the most violent character, the traces of a corrosive poison have been comparatively insignificant.(*h*) The period of survivance seems to make little difference in the aspect of the alterations found post mortem. Dr. Coale's patient lived eleven days, and the two reported by Taylor between four and five days.

§ 623. A few cases of death from the *external application* of corrosive sublimate are on record. In one, the subject was a child, and the severest constitutional effects were produced. It died in about a week.(*i*)

(*d*) Boston Med. and Surg. Journal, 1850. p. 279. (*e*) Ibid.
(*f*) Lancet, Dec. 1845. (*g*) Wade.—Lancet, June, 1848. p. 498.
(*h*) Vid. Taylor on Poisons, and a case by Dr. Hodges. Am. Jour. Jan. 1855.
(*i*) Am. Jour. Med. Sci., July, 1844. p. 259.

In two others, also children, of seven and eleven years respectively, an ointment composed of two drachms of corrosive sublimate to an ounce of tallow, was rubbed into the scalp. The children were affected with *porrigo favosa*. Excessive suffering was the almost immediate consequence, and in forty minutes they were completely delirious. They vomited continually a green colored matter; had great pain in the bowels, with diarrhœa and bloody stools. In the youngest there was complete suppression of urine. Death occurred in one on the seventh, in the other on the ninth day. There was no *ptyalism*.(*k*)

We take the following lucid exposition of the chemical analysis for corrosive sublimate from Dr. Guy's work on Medical Jurisprudence.

"*Tests*.—We may have to examine the poison in the solid form, in solution, and in organic liquids.

§ 624. "1. *Corrosive sublimate in the solid form*.—On the supposition that we are ignorant of the nature of the substance submitted to analysis, we first heat a small quantity on platinum foil. It is completely volatilized. It may therefore be arsenic, corrosive sublimate, or calomel. The great solubility of corrosive sublimate in water distinguishes it at once from the other two substances. The addition of a few drops of liquor potassæ places the nature of the substance beyond a doubt. Corrosive sublimate is changed to a yellow color, while arsenic undergoes no change, and calomel is turned black. We may obtain still further assurance by the following tests: 1. Hydro-sulphuret of ammonia changes the powder to a black. 2. A solution of iodide of potastium turns it to a bright scarlet. 3. Moisten a clean rag with dilute muriatic acid (one part of the acid to two of water), sprinkle upon it a small quantity of the powder, and rub it on a clean plate of copper. A silvery stain is formed, which is readily volatilized by heat. 4. Mix one part of the poison with three or four parts of calcined carbonate of soda; place the mixture in a reduction tube and apply the heat of a spirit lamp, having previously dried the upper part of the tube. A ring of globules will be formed on the cool sides of the tube.(*l*)

§ 625. "2. *Corrosive sublimate in solution in water*.—On the supposition that we are ignorant of the contents of a liquid submitted to analysis, we test for a base by sulphuretted hydrogen. Corrosive sublimate is one of those which yields a black precipitate, first giving a milky white appearance to the liquid. With liquor ammoniæ it gives in common with lead and bismuth, a white precipitate, but with liquor potassæ, a yellow (the hydrated peroxide). By this we recognize a per-salt of mercury. The supernatant liquor contains chloride of potas-

(*k*) De Ricci.—Dub. Quart. Jour., Aug. 1854.

(*l*) Dr. Arthur Morgan proposes a new and exceedingly convenient test for mercury. Add a strong solution of iodide of potassa to a minute portion of any of the salts of mercury on a clear bright plate of copper, and the mercury is immediately deposited in the metallic state, appearing as a silvery spot, which cannot be mistaken for anything else. Corrosive sublimate may be detected in this way in a drop of solution. The disadvantage is that although it allows the detection of minute portions of mercury, it requires that it should be concentrated. It will detect the 1-1000 of a grain of corrosive sublimate in a drop, but not in a dram, but this may be remedied by evaporation. The explanation is, that the iodide forms a soluble and easily decomposed salt with various salts of mercury, that is an iodide soluble in excess of iodide of potass.—Chemical Gazette, June, 1852. See § 626.

sium, and if we add to it nitrate of silver, we obtain the white chloride of silver, which proves that the salt of mercury is a chloride. This precipitate being collected, washed, and dried, and heated in a reduction tube, gives a well defined ring of mercury." By using the other precipitates in the same way a similar result will be procured. The following are additional tests.

"1. Proto-chloride of tin.—A solution of this substance throws down a white precipitate, turning rapidly to gray, and from gray to black. This consists of minutely divided mercury, from which the supernatant liquor may be decanted, or separated by filtration. On introducing into the tube containing this precipitate a plug of blotting paper, and pressing it firmly against the bottom of the tube, the globules are made to coalesce, so as to form a mirror of mercury.

"2. Metallic test.—Acidulate the liquid with a few drops of muriatic acid, and introduce a narrow slip of clean copper. A gray film will be formed on the surface of the metal. This being carefully dried may be introduced into a reduction tube, and heated with the flame of a spirit lamp. A ring of metallic globules will be deposited on the upper part of the tube. Pure tin, zinc, or silver may be substituted for copper. The latter is to be preferred to any other metal.

"3. Galvanic test.—Take a narrow strip of sheet zinc of a size convenient for introduction into a reduction tube; moisten it, and take up as much gold leaf as will adhere to it. Introduce this into the solution slightly acidulated with muriatic acid; the gold will soon be covered with a gray film. Remove it from the solution and dry it carefully in the heated air above the flame of a spirit lamp. Introduce the dried metal into a reduction tube, and apply the flame of a spirit lamp. A ring of metallic globules will be formed. This test is one of extreme delicacy, and will give a characteristic result, when all other tests fail. It is that which should be preferred for the discovery of very minute quantities of the poison. The metallic deposit may be readily obtained by placing a drop of the acidulated solution on a surface of clean copper or gold, and touching the moistened metal with a fragment of zinc or iron. Dr. Wollaston once employed a key and a sovereign for this purpose. The acid in combination with the mercury may be shown to be the hydrochloric, by testing the fluid from which the mercury has, by any of the foregoing methods, been precipitated. On the addition of the nitrate of silver, we obtain a white precipitate, the chloride of silver, which is insoluble in nitric acid.

§ 626. "*Corrosive sublimate in organic liquids.*—As the poison is very soluble, it is rare to meet with it in a solid form. But when it has been taken in the mass, it may sometimes be separated, by merely stirring the liquid, at the same time adding, if it be very viscid, distilled water. The corrosive sublimate, from its great weight, will subside, and may be collected. As the poison is decomposed by the secretions of the body, by the mucous membrane, and by several articles of food, it might not be found in solution in the stomach, even though no antidote had been given. We must, therefore, expect to find it in one of two states; in solution, or in combination with the solid contents of the stomach. In the former case we procure a clear liquid by diluting with distilled water, boiling if necessary, and filtering. In the latter

case, one of two processes may be adopted. We may boil the solid matters in distilled water, and in this way bring the soluble salt of mercury into solution; or, if the solid matters treated in this way yield no trace of mercury, in consequence of the soluble salt having been decomposed, evaporate to dryness, and digest the dried residue in warm nitro-muriatic acid. The insoluble compound of mercury is thus reconverted into the soluble bi-chloride. This acid liquor must be evaporated to dryness, and the residue be dissolved in distilled water, and filtered." The corrosive sublimate may now either be dissolved out by ether, or at once tested by the proto-chloride of tin, or by the galvanic test.

§ 627. A *new* test has been proposed. If a strong solution of iodide of potassium be added to a minute portion of any of the salts of mercury, placed on a clean bright plate of copper, the mercury is immediately deposited in the metallic state, appearing as a silvery stain on the copper, which cannot be mistaken, as no other metal is deposited by the same means. By this method, it is said, corrosive sublimate may be detected in a drop of solution, unaffected either by caustic potash or iodide of potassium. In a mixture of calomel and sugar, in the proportion of one grain to two hundred, a distinct metallic stain will be obtained with one grain, which contains 1-200th of a grain of calomel; in like manner, 1-400th of a grain of peroxide of mercury may be detected, although the mixture of sugar is not in the least colored by it.

With the preparations of mercury in the undiluted state, this process acts with remarkable accuracy; the smallest possible quantity of calomel or peroxide of mercury, such as would almost require a magnifying glass to perceive, placed on copper treated with iodide of potassium, will give a distinct metallic stain. The only precaution which this process seems to require is, that the liquid to be examined should be concentrated by evaporation.(*m*)

§ 628. Where corrosive sublimate has undoubtedly been the cause of death, it has not always been found in the body of the deceased. Thus, in a case reported by Dr. Wegeler, of a young man who poisoned himself with three drachms of this substance, and died on the sixth day thereafter, none of the poison could be detected in the stomach or intestines.(*n*) In another, by Dr. Taylor, where two drachms were swallowed, and the man died in four days, no mercury was detected in the stomach or tissues.(*o*)

§ 629. Orfila (the nephew of the distinguished toxicologist) undertook numerous experiments for the purpose of ascertaining what length of time was required for the disappearance of certain poisons from the system. With respect to corrosive sublimate, he states, that when it has been administered for some time, it will generally disappear from the organs in eight or ten days, and he found it but once on the eighteenth day, after its discontinuance. An individual had undergone a course of treatment with corrosive sublimate, and died four months after ceasing the course. He was poisoned with a mercurial preparation. On analysis, mercury was found in his organs. Hence, according to this

(*m*) Pharm. Jour. Feb. 1852.
(*n*) Canstatt's Jahresbericht für 1846, Bd. V. p. 81. (*o*) Ibid. p. 322.

author, the mercury could not have been derived from the preparations taken four months before death. He also says, that if a man survives fifteen days after being poisoned with corrosive sublimate, it is quite probable that the experts will find no trace of mercury. They will, however, commit a gross error, if they conclude from this, that there has been no poisoning.(*p*)

Nitrate of Mercury.

§ 630. A case of homicidal poisoning, attributed to the administration of a portion of this salt in a pudding, is related in Henke's Zeitschrift for 1849. The symptoms were very similar to those of poisoning by corrosive sublimate; the man survived five days in great agony, and the post mortem inspection revealed softening and inflammation of the mucous coat of the intestines and stomach. The most curious feature of this case was, that mercury was found in the metallic state in the stomach and intestinal canal, and had been voided also with the discharges during life. This circumstance was attributed by the examiners to the readiness with which the acid, in this combination, is separable from the base, especially under an elevated temperature. A case of suicide by the acid pernitrate, is reported by Mr. Bigsley, in the London Medical Gazette.(*q*)

The concentrated salt is used as a local caustic in surgery, and is exceedingly active. It is stated that symptoms of mercurial poisoning have arisen from its use in this form.

§ 631. Other salts of mercury, such as the white and red precipitates, cinnabar, the bicyanide, and turpeth mineral, are all poisonous, but it is not necessary to enlarge upon them in this place. They act as irritants or corrosives, and the post mortem appearances in the cases reported are not unlike those found in poisoning by corrosive sublimate.

The presence of mercury may be detected as already mentioned, or by the use of Smithson's battery, which consists of a plate of tin lined with one of gold, in the form of a spiral; or, as has been recommended by Mr. Morgan, of Dublin, by the silvery stain which will immediately appear on a bright plate of copper, when touched with a strong solution of iodide of potassium, if mercury be present, either in solution or in the solid form.(*r*)

CHAPTER IX.

DELETERIOUS EFFECT OF MERCURIAL PREPARATIONS.

§ 632. The subject of chronic poisoning by mercurial preparations, and the discussion of questions arising out of the specific effects of them upon the system, involves too many considerations to be profitably

(*p*) Am. Jour. Med. Sci., from Comptes Rendus, Jan. 15, 1852.
(*q*) Vol. VI. 329. (*r*) See note to § 624.

introduced here. We therefore refer the reader for information on these points, to Dr. Christison's treatise, and to the standard works on Pathology and the Practice of Medicine.

We cannot forbear, however, to call the reader's attention more particularly to those forms of disease known under the name of *cancrum oris*, *gangrænopsis*, and *mercurial sore mouth*, especially in reference to children.

§ 633. That death may occasionally result from the action of mercury upon the mouth, there can be no doubt. It is extremely important, however, to know, if this can be distinguished from those forms of inflammation and gangrene of some portion of the buccal cavity, which are the result of certain depressed and diseased conditions of the system, independent of the action of mercury; and also, whether mercury given to a patient whose vital force is thus reduced, and whose blood is already depraved, may not be the *exciting* cause by which the tendency to gangrenous ulceration becomes developed. It is much to be feared that the inappropriate administration of this drug, has in some cases been followed by serious, and even fatal, disorganization of the mouth; while, on the other hand, physicians may be unjustly blamed for consequences which were really not the result of their imprudence, but of other causes which they were unable to control.

We purpose first, by a few cases, to contrast the appearances presented by the effects of mercury on the mouth, with those which are due to disease.

A boy about ten years old, supposed to be suffering under bilious colic, was given twenty grains of calomel, which purged him in four hours; he took, in twenty-four hours, ten grains more with the same effect, but without much relief. On the morning of the fourth day (medical treatment having been continued, but no calomel or any of the acids used) all the symptoms of the early stage of ptyalism set in; the inflammation and swelling of the salivary glands rapidly increased, so that by the day following, there was a general swelling of all the soft parts of the face usually affected by severe ptyalism. On the next morning, a small gangrenous spot, of a dark brown color, was discovered on the middle and inner surface of the lower lip, which rapidly spread until the seventh day; at this time, the entire lower lip, the inside of both cheeks, and surface of the tongue, were completely gangrenous, the lower lip and tip of the tongue were wanting, having been destroyed by mortification. The ptyalism increased, a stream of viscid saliva was constantly running out of the mouth, and the patient presented a most piteous spectacle. The breath was very fœtid and offensive. Death occurred on the twelfth day. In another case, a little girl, ten years old, who received a fracture of the head from a fall, was given some calomel for the purpose of opening the bowels, but it did not operate. Her mouth became sore, and got rapidly worse, notwithstanding every effort was made to relieve it. The throat and face became immensely swollen, the teeth became loose and several came out, and the whole inside of the mouth, tongue and all, had a very black appearance, emitting a constant flow of a dark putrid saliva of intolerable fœtor. The greater part of the mouth and tongue mortified, and part of the tongue, the under lip, and part of one side

of the face, sloughed off, presenting a most horrible spectacle and one exquisitely distressing to the parents and friends of the little patient—the more so, as the child continued to live some days after these parts had become detached.(*s*)

§ 634. That form of disease due to the action of mercury upon a depraved constitution, may be illustrated by the following cases.(*t*) A boy, aged thirteen years, after suffering from influenza and partially recovering, was attacked with gastro-entiritis, from over-indulgence in animal food. The bowels were moved daily with about two grains of calomel, followed by a teaspoonful of castor-oil when necessary. He amended under this treatment; but, about three weeks after the commencement of his sickness, it was discovered that mortification had commenced under the tongue, near the third molar tooth, on the left side; it extended around all the molar teeth of that side, embracing the gum and a portion of the cheek. The cheek was slightly swollen, and the left eye was opened with some difficulty. The mortification spread rapidly, notwithstanding the use of caustics, a dark spot appeared on the outside of the cheek, and the patient died on the third day. It is stated that the boy had dug out a piece of a tooth with a knife, a few days before the mortification began, at the place where it commenced. About twenty grains were taken during the first week of the disease, and none afterwards. The glands were not affected; and the mouth, when the mortification commenced, presented a healthy appearance.

Dr. S. Jackson (late of Northumberland), says: "I applied mercurial ointment to the face of a child, about three years old, to prevent the pitting of confluent small-pox; in a few days the gums were swelled and the teeth loosened, but only in the side upon which the patient continually lay. The gums soon mortified, the gangrene spread to the cheek, bringing on a fair case of gangrænopsis, and she died of her twofold disease in a very few days. This," he says, "was not a case of salivation, for the other side of the jaw remained sound, and the teeth on that side firm in their sockets."(*u*) In the same manner was fatal ulceration and gangrene developed, in a case reported by Dr. Marshall Hall. A child four years of age, with hooping-cough, took, according to a prescription furnished from a dispensary, three grains of calomel, on the 29th of October, and the same dose four times thereafter until the 7th of November. About this time the right cheek became much swollen, and there was great difficulty in opening the mouth, with very offensive breath. The gums and inside of the cheek became ulcerated, and on the 16th a sphacelus appeared on the right cheek, of about the size of a shilling, which rapidly extended to the size of a crown. The child continued to get worse, and died on the 23d. On post mortem examination, there was found pleuro-pneumonia of the lower lobe of the right lung; there was an extensive eschar in the right cheek; its size, externally, was two and a half inches in length by one and a half in breadth. It penetrated through

(*s*) Bost. Med. and Surg. Jour. Vol. XXXII. pp. 459 and 517.
(*t*) Ibid. p. 342.
(*u*) Trans. Coll. of Phys. Philad. U. S. Vol. II. No. 3.

the entire cheek, and occupied an equally extensive space on its internal surface; the contiguous gum was in a similar state of sloughing, the alveolar processes were denuded, one or two teeth had disappeared, and several adjacent ones were loose. On the left side there was incipient gangrene of the cheek internally, and also of the contiguous gum, and the teeth were loose. The rest of the mouth was not affected.

§ 635. Cases of true gangrene of the face, however, have a different origin and course. A single example will suffice. It is taken also from Dr. M. Hall's Observations in Medicine. A little girl, aged three years and a half, had been affected with *fever* about fourteen days, and was apparently convalescent, when the left side of the face and lips was observed to be swollen, and to have a red and glistening appearance. About the same period, three spots were observed, one on the gum of the lower jaw, and the other two on the left cheek. These spots became dark-colored, and gradually spread. A slough separated from the cheek, and exposed the inside of the mouth. The contiguous teeth fell out. The breath and the exhalation from the ulcer were extremely offensive. The child lingered about fourteen days, and sank grudually.

Having thus seen the various forms of disease of the mouth which may give rise to a suspicion of poisoning by mercurial preparations, it only remains for us to point out the means by which the symptoms caused really by such preparations, may be distinguished from others which are spontaneous in their origin.

§ 636. All authors agree that mercury does not produce salivation in children as readily as in adults. Dr. Clarke says, that although he has prescribed mercury in very large quantities in a great number of cases, he never produced salivation, except in three instances, in any child under three years of age. Dr. Warren of Boston observes, "That he has never known an infant to be salivated, notwithstanding he has given, in some cases, large quantities with this view." Mr. Colles of Dublin says, "No man in the present day requires to be told that mercury never does produce ptyalism or swelling and ulceration of the gums in infants." Drs. Evanson and Maunsell say, "Mercury does not seem capable of salivating an infant; we have never seen it do so, nor are we aware of any such case being on record."(*v*) Dr. West of London says, "In infants under five years of age, the gums hardly ever become affected by mercury, though most energetically employed; and it has never yet occurred to me to meet with an instance of profuse salivation or dangerous ulceration of the gums. Such accidents, however, do now and then occur, and have been known to terminate in fatal gangrene of the cheek or necrosis of the jaw." Yet, when salivation does occur, there is quite sufficient testimony, which it is unnecessary to quote, that the most disastrous consequences may follow. In this fact, however, appears to lie the great distinction between the disease resulting exclusively from the use of mercury, and that which is spontaneous or merely called into action by it. Dr. Hall says, "It is well known to every observer that the effect of calomel, when it does take place, is *uniformly*

(*v*) Beck's Essays on Infant Therapeutics, p. 48.

diffused over the *gums*, *tongue*, and internal parts of the cheek." Further, "it is *diffused* and is totally different in many respects from the *circumscribed* form of the gangræna oris." In other words, the mercurial disease commences in the gums and tongue; they swell, ulcerate, and slough, and the disease may then extend itself to the lips and cheek. The disease is therefore different in its early manifestations, is attended with salivation, is slower in its progress, and at first confined to parts which in true gangrænopsis are only secondarily affected.

§ 637. We take the following description of *gangrænopsis* from the admirable monograph of Dr. Jackson, which we have already referred to:—

"I. The gangrænopsis attacks the cheek, the lip, or the nose, sometimes the fauces; most frequently in children, but sometimes in adults.

"II. It begins in those soft parts, and never in the manilla, often where no mercury has been used, in a debilitated and febrile state of the system, as in idiopathic fevers and dysentery. Van Swieten saw it in scurvy, and Huxham in measles. Dr. Marshall Hall says, p. 178, 'In all the cases which came to my knowledge, this affection had been preceded by fever, acute disorder of the digestive organs, inflammation of the lungs, vanila nibeola, or scarlatina.' An exhausted state of the vitality with cachectic fever is, therefore, the predisposing cause.

"III. The exciting cause is any injury done to the parts. I saw it evidently started in two cases by the child's lying continually on one side, with a hand under the cheek, thus pressing the mucous membrane against the molar teeth; a protuberance of this membrane being caught between the teeth, was continually bruised and a point of gangrene was thus established in an examinate state of the whole system.

"IV. It is sometimes the result of severe cases of cancrum oris, the irritation spreading from the gums to the cheek."

It is well known that cancrum oris and the gangrene which attacks the cheek often occur in cases where no mercury has been given. We think that there is between these two, essentially little pathological difference; the most tangible distinction being, as it appears to us, that the canker sore-mouth of children (as it is called) sometimes prevails endemically in low unhealthy situations, and among the poorer classes, being frequently seen in the hospitals for children, and occurring without being necessarily preceded by disease; whereas the gangrene of the cheek is commonly a sequel of exanthematous or other prostrating diseases. Both are allied closely to the gangrene of the genitals in female children elsewhere referred to. (Vid. RAPE.)

§ 638. It is evident, we think, from what has been said, that the diagnosis of the cause of these various forms of disease is not always easy. It depends chiefly upon the possibility of ascertaining the manner in which the disease first manifested itself; whether by swelling and ulceration of the gums generally with an increased flow of saliva, or whether it commenced in the mouth or cheek with a hard red swelling, rapidly running into gangrene. The character of the disease under which the child was suffering and its hygienic conditions must also be known.

If an opinion is required only after death or at an advanced period

of the disease, it may be impossible to know whether it can be attributed to mercury, or whether, in case it is known that mercury has been exhibited, it can be fairly attributed to it. Dr. Taylor does not admit the validity of the criterion, that mercurial poisoning can be known by the *uniform diffusion* of the disease over the gums, tongue, and internal parts of the cheek, as advocated by Dr. Hall; and Dr. Christison, he says, has recorded a case in which, although the gangrene resulted from mercury, it was observed to occur on the skin near the mouth, on each side, whence it spread over the whole cheek and destroyed life in eight days. (p. 319.) He also gives a case, in which a charge was made against a medical practitioner, of having caused the death of a child aged four years, by administering an over dose of some mercurial preparation. The child was laboring under hooping cough, and some medicine was prescribed; on the fourth day, the child complained of soreness of the mouth, the teeth became loose and fell out, the tongue and cheek were very much swollen, and the child died in the course of a few days from gangrene in the left cheek. The answer to the charge was, that not a particle of mercury had been exhibited,—a fact clearly proved, by the production of the prescription book of the medical attendant.

§ 639. In the midst of these conflicting opinions and observations, the only path for the physician to follow is that we have already pointed out, viz., a careful inquiry into the early history and symptoms of the case, and, we consider, that should these prove that the child was already laboring under a prostrating disease, the most reasonable conclusion that can be drawn will be that this was the true cause of its death whether mercury was exhibited or not. If, on the other hand, the child was not affected by any such disease, it must be shown that the early symptoms were either those of mercurial ptyalism or epidemic canker. Upon these grounds, we do not think that it will be difficult to form a probable opinion.

CHAPTER X.

THE SALTS OF LEAD.

§ 640. *Acetate or Sugar of Lead*, is a white, crystalline salt of a sweet astringent taste, and soluble in water and alcohol. The solution in ordinary water is turbid, owing to the formation of the carbonate of lead. It resembles loaf-sugar in appearance, a circumstance which has sometimes led to its being swallowed in mistake for it. Its constant use in medicine and the facility with which it can be procured are the chief causes of the frequent cases of poisoning observed from it.

§ 641. *Symptoms.* Acetate of lead is by no means an active poison. In general its poisonous effects arise gradually and become slowly developed after its long continued use. When taken, however, in a large quantity at once, it is capable of producing symptoms analogous to those caused by other irritant poisons. It is eliminated from the

system by the urine, by the skin, and by the milk. The constitutional effects of lead have been thus described by Tanquerel des Planches(*w*):—

1st. Saturnine coloration of the gums, of the buccal mucous membrane, and of the teeth. A narrow leaden-blue, or slate-blue line, from one-twentieth to one-sixth of an inch in breadth is formed on the margins of the gums nearest to two or more teeth (usually the incisors) of either jaw. The inner part of the lips and cheeks is sometimes stained blue. The blue discoloration is supposed to depend upon the formation of the sulphuret of lead.

2d. Saturnine taste and breath.

3d. Saturnine jaundice.

4th. Emaciation most evident in the face.

5th. Slowness, smallness, and irregularity of the pulse.

The true saturnine diseases which follow may either exist alone or be complicated with each other. They are: 1st. Lead or painter's colic. 2d. Lead rheumatism. 3d. Lead palsy, often accompanied with loss of sensation in the part affected. 4th. Disease of the brain—*encephalopathia saturnina*—manifested by delirium, coma, or convulsions, and the loss of one or more senses.

§ 642. Dr. Wm. Norris of Stourbridge, gives an account of the poisoning of a vast number of persons, by acetate of lead accidentally mixed with flour. About thirty pounds of this salt were mixed with sixty or eighty sacks of flour, which was retailed to a great many persons in the neighboring villages. Nearly a thousand persons suffered from the poisonous effects of lead. The persons who ate the bread, after a few weeks complained of a peculiar taste; some compared it to soda, others to rusty needles or copper. The tongue was covered with a darkish cream colored mucus, and was soft and flabby; the gums were swollen, with a blue line on the margin, and in many cases the blue tinge extended nearly over the gums, and occasionally on the inner side of the lower lip, and in a faint degree over the mucous membrane of the mouth and towards the fauces; the tonsils were in some cases enlarged, and in other cases there was salivation. These symptoms were accompanied by loss of appetite, nausea, vomiting, flatulency, and obstinate constipation, with a sense of constriction in the throat and epigastrium, and a violent spasmodic pain and twisting around the navel, which was retracted; the pain was sometimes increased by pressure, and when the paroxysms were violent, the muscles of the abdomen were contracted spasmodically, and a most frequent symptom was pain in the loins, about the situation of the lumbar fascia and in the deltoid muscles. The patients were chilly, with great languor and lassitude; the skin dry; the intellect was clear, but there was general depression, and the pulse was low and feeble; the features were sallow and shrunk; and the muscles flabby; the fluid vomited was often mixed with bile and occasionally, a coffee-ground secretion; the fœces were dark and highly offensive, with scybala; the urine scanty and of a dark red color almost like porter.(*x*) It is well known that the acetate of lead is frequently

(*w*) Traite des Malad. de Plomb. Paris, 1839.
(*x*) Prov. Med. and Surg. Journal. June 27, 1849.

administered in disease in small doses, for a considerable length of time without any symptoms of poisoning arising from it.

§ 643. An interesting case of imputed poisoning by acetate of lead, may be found in Dr. Maclagan's "Contributions to Toxicology," in the Ed. Month. Jour. for Dec., 1848. Although the falsity of the charge was shown by many circumstances, which it is not here necessary to relate, there was one which in itself would have had great weight in its refutation. The acetate of lead was said by the prosecutor to have been given to him in coffee. Now acetate of lead is the very agent employed to decompose and decolorize coffee, in preparing its characteristic constituent caffeine. The precipitate which the lead salt forms in its infusion, if it is allowed to rest, subsides, and leaves a pale-colored fluid in no respect resembling that which people are accustomed to drink as coffee. One ounce of ordinary coffee, was boiled for ten minutes in the coffee-pot, which had been used, with six cupfulls of water. It was allowed to settle for five minutes, and then poured off. It had the ordinary appearance of unclarified coffee, dark brown, and slightly turbid, and depositing some coffee grounds. "Half-an-ounce of sugar of lead being the same proportion to this bulk of fluid as was found in the coffee got from the prosecutor, was now added; the coffee was boiled again and allowed to settle for five minutes after removal from the fire. Another similar portion, being decanted, was now found to be a clear transparent liquid, with hardly any color, except a faint shade of green, and more resembling a weak infusion of green tea than coffee. It was obvious, therefore, that if, during the breakfast, the coffee-pot remained at any time at rest for five minutes, the next cupfull poured off must have been so different in appearance from ordinary coffee as at once to attract attention." This decolorizing property of the sugar of lead, should therefore not be lost sight of in any future case of alleged poisoning by its mixture with coffee.

§ 644. Occasionally, however, these symptoms are seen, and, in a case reported by Dr. Letheby, with a fatal termination. A child six years of age was given one-fifth of a grain two or three times a day for nearly nine weeks. It became emaciated, had colic and constipation, the stools were black and offensive, the breath fœtid, and towards the last it became drowsy and its limbs were paralyzed. Upon the day of its death it had convulsions, and shortly before death, fell into a state of coma.(*y*) An instance of recovery from an ounce and a half of sugar of lead, swallowed in mistake, is related by Dr. Taylor.(*z*) The woman fell ill almost directly, had a nauseous metallic taste in her mouth, with a burning heat in it, the throat, and the stomach. On taking some water to wash down the taste, vomiting was brought on. The mouth became very dry; she had great pain at the pit of the stomach, and excessive vomiting. Two hours afterwards, she felt sleepy and stupid,—alternately perspiring and shivering; she complained of violent colic, which was relieved by pressure. With great languor, she had also cramps in the thighs, and numbness over the whole body, with giddiness. The gums were tender and had, apparently, a blue line on their edge; there was some salivation, and the breath was foul. There

(*y*) Pharm. Jour., Dec. 1845. (*z*) p. 348.

were other symptoms such as have been before detailed. She was relieved by treatment in a few days. Several other cases of the same kind are reported, which it is needless to describe. They all recovered.

§ 645. The symptoms which follow the introduction of the *carbonate* or other soluble salts of lead into the body, are precisely similar to those already mentioned; occurring soon when taken in large doses, and gradually when entering the system by water, wine, cider, or other liquids which are apt to be impregnated by them, and also when inhaled by the lungs. The subject of chronic poisoning by lead in these ways is one which has indeed its interest for the physician, in its relation to medical police, but the facts relating to it are too fully detailed in the comprehensive works on Poisons and the treatises upon the Practice of Medicine, to require elucidation at our hands.(*a*) The character of the poisoning differs so completely from that of the irritant poisons, that no mistake on this point can ever be made; the only embarrassment which ever presents itself being the discovery of the particular way in which the lead had been introduced into the system.

§ 646. *Post mortem appearances.*—There are few poisons productive of so much suffering, and, when fatal, of such violent symptoms towards the close of life, and yet leave in the body such indistinct traces of their action as these. In a case which terminated with the symptoms of saturnine *encephalopathia*, viz., delirium, insensibility, and tetanic convulsions, Empis and Robinet found no anatomical alterations of any importance. Lead was discovered, by incineration, in the brain and liver.(*b*) Likewise, in another case, examined by Dr. Hopfgartner, of Vienna, lead was found in the same organs, but no pathological alterations, except that one of the lateral columns of the spinal marrow appeared to be wasted.(*c*) In Dr. Letheby's case, lead was freely detected in the contents of the stomach, in the brain, muscles, liver, intestines, blood, and in the serum of the cerebral ventricles. The stomach and intestines were pale and nearly empty, and the latter contracted and in some places invaginated.

§ 647. *Chemical Examination.*—Sugar of lead is very soluble; it has an astringent and sweetish taste, and a slight odor of vinegar. In the solid state it may be reduced in the blow-pipe flame with carbonate of soda, globules of metallic lead being immediately formed with a yellow incrustation of the oxide. In solution, it may be detected by several reagents: *hydro-sulphuric acid* throws down the black sulphuret of lead, and *chromate of potash*, a yellow precipitate of the chromate of lead. These latter tests produce the same results with bismuth; but the basic oxide of bismuth is precipitated by a large quantity of water alone, while the oxide of lead is completely precipitated by sulphuric acid. *In organic mixtures*, however, as acetate of lead forms insoluble compounds with albumen and other animal principles; these must be redissolved by a little nitric acid and the mixture then filtered. It should

(*a*) Besides the chief authorities which may be consulted on this subject, are the following: Tanquerel des Planches Traité des Maladies du Plomb. (also translated by Dr. Dana, of Boston); Dr. Burton, Med. Chir. Trans., Vol. XX.; Gueneau de Mussy, Dub. Quart. Jour., Vol. VII. p. 405; Dalton, Am. Jour. Med. Sci., Oct. 1849; Alb. Smith, Month. Jour., March, 1853; Bois de Loury, Rev. Méd. Juillet, 1852; Alderson, Lancet, July, Aug., Sept., and Oct., 1852. For some cases of poisoning by visiting cards (glazed with lead), vid. Med. News, 1854; or Med. Times and Gaz., July, 1854. Eichmann.

(*b*) Arch. Gen., Sept. 1851, p. 67. (*c*) Wiener Zeitsch., Sept. 1852.

then be tested by hydro-sulphuric acid, and if a dark colored precipitate is formed and the precipitate reduced before the blow-pipe flame on a piece of charcoal, a malleable globule will be thus procured if lead be present. Although this test is quite satisfactory and easily applied, another one may be employed as recommended by Dr. Christison. The black sulphuret of lead should be collected on a filter, washed and dried, and then heated to redness in a tube and digested with nitric acid by the aid of a gentle heat. "The lead is thus dissolved without the sulphur being acted upon. The solution is then to be diluted with water, filtered, evaporated to dryness, and gently heated, to expel the excess of nitric acid." It can then be tested by the reagents before mentioned. Care must be taken to expel all the excess of nitric acid, because an excess will strike a yellow color with the hydriodate of potash, though lead be not present. The same process may be used for any of the soluble salts of lead.

In the *tissues*, lead may be detected by incineration in a crucible with black flux. It will, of course, if present, be found at the bottom in the metallic form. There is no reason to suppose that it may not be detected several months after death. It appears to be the opinion of the most eminent toxicologists, with the exception of Orfila, that this metal does not exist as a normal constituent of the tissues of the body.

CHAPTER XI.

THE SALTS OF COPPER.

§ 648. It is seldom that these poisons are designedly administered with homicidal intentions, since the detection, both by the color and taste, is too easy to permit it. A husband attempted to poison his wife by adding verdigris to a dish of beans. The bad taste prevented her from eating them. He buried the cooked mess in his garden, from which it was disinterred and then examined by chemists. They proved the certain presence of the metal. He was condemned to hard labor for life.(*d*) Cases of poisoning from these salts may then be divided into those in which a large dose is swallowed, either by accident or with a view to suicide, and those which proceed from the contamination of food by copper vessels, or by the salts of copper used as coloring matters for confectionary, &c.

The *symptoms* come on, in the first instance, much sooner after the ingestion of the poison than in the latter. There is violent headache, vomiting and purging, severe colicky pains, eructations, salivation, cramps in the limbs, and finally convulsions and insensibility. Sometimes jaundice is observed. In a case related by Dr. Percival, two drachms of sulphate of copper produced fatal convulsions. In another, where the same salt was swallowed, there were no convulsions. The child, which was sixteen months old, died in four hours.(*e*) Those cases which have terminated fatally have lasted a variable period. Thus, in one reported by Pyl, a woman who swallowed two ounces of verdigris, died in *three*

(*d*) Jour. de Chimie. Chevallier, 1854. (*e*) Med. Gaz. Vol. XVIII. p. 742.

days; in another, by Neumann, a half an ounce destroyed life in *sixty* hours; and in another in which an ounce of blue vitriol was taken, death ensued within *twelve* hours.(*f*) In most cases, however, of poisoning with these salts, the patient has recovered, when timely and efficient means have been used.

In those cases in which the poison has been conveyed accidentally, through articles of food, into the system, the symptoms have been the same as those mentioned, although they have usually not come on until a few hours afterwards. They are thus described by Orfila: "An acrid, styptic, coppery taste in the mouth; parched and dry tongue; a sense of strangulation in the throat; coppery eructations; continual spitting; nausea; copious vomiting, or vain efforts to vomit; shooting pains in the stomach, which are often very severe; horrible gripes; very frequent alvine evacuations, sometimes bloody and blackish, with tenesmus and debility; the abdomen inflated and painful; the pulse small, irregular, tight, and frequent; syncope, heat of skin, ardent thirst, difficulty of breathing, anxiety about the precordia, cold sweats, scanty urine, violent headache, vertigo, faintness, weakness of the limbs, cramps of the legs, and convulsions." Such are the symptoms which, it is said, are produced by the ingestion of articles of food contaminated with copper salts. How far they are *really* due to this cause we shall presently inquire.

§ 649. *Post mortem appearances.*—The mucous membrane of the stomach and intestines is inflamed and thickened, in some places eroded, and in a case quoted by Orfila, the small intestine was perforated. If the patient has not survived long, the mucus of the intestines will be found tinged of a green color. No other changes worthy of note have been observed.

The salts of copper which most frequently give rise to accidents are the *sulphate* (which is sometimes used for the purpose of procuring abortion), the *subchloride*, the *subacetate* or verdigris, and the *arsenite*, or Scheele's green, which last named is elsewhere considered.(*g*) It is seldom that the case can be so doubtful as to render a chemical investigation necessary, except in those cases in which one or more persons having been taken ill after partaking of a meal, it is suspected that some poison, as arsenic for example, may have been intentionally introduced into their food or drink.

§ 650. The use of copper utensils in the preparation of food has occasionally given rise to serious consequences, on account of the impregnation of the food by some poisonous salt of this metal. If the vessels be bright and clean, very little harm can ever possibly result from this cause, if ordinary articles of food are boiled in them and not allowed to remain in them after they are cool. Saline, acid, or oily matters act, however, upon copper vessels, and if these are not clean, having been already exposed to moist air and become covered with the carbonate, the food may become impregnated with a poisonous salt, in sufficient quantity to produce alarming symptoms. This will be especially the case if articles of this kind have been allowed to remain in the vessels to cool. (It need hardly be stated that tinning the vessels is the only certain mode of preventing such accidents.)

(*f*) Quoted by Beck. (*g*) Vid. Arsenic.

There can be little doubt, we think, that the frequency of accidents from this cause is much exaggerated, and that in many cases the sudden illness which is mistaken for the symptoms of copper poisoning, is really due to the unwholesome nature of the food eaten, or to other causes. We are led to this belief not only from a consideration of the extremely small quantity of copper that in most cases can be dissolved, but also from the reflection that unwholesome food is capable of giving rise to a set of symptoms very nearly similar to those produced by copper, and finally, from the fact that in several cases of suspected poisoning by copper this metal could not be detected, by chemical analysis, in portions of the food used.

Prof. Langenbeck of Göttingen reported an instance of the poisoning of thirty-one persons, who had eaten a portion of beef sausage. This sausage meat had been fried in lard which had stood for two days in a badly tinned copper vessel, and was said to have become green in consequence. The poisoning was therefore attributed to copper. Dr. Paasch, in order to estimate the amount which each person in this instance must have taken, makes the following calculation. He assumes as barely possible that one scruple of metallic copper could have been dissolved by means of the fatty acids existing in the lard. This amount would correspond with twenty-five grains of oxide of copper, or fifty-seven and a half grains of anhydrous, or sixty-three grains of crystallized acetate of copper. Supposing that the whole of this had been taken up by the food, and this entirely consumed, each person would have swallowed *two* grains of verdigris.(*h*) That so small an amount as this should be capable of producing alarming symptoms of poisoning is hardly possible, when we reflect how much larger doses of this, and other equally poisonous salts of copper, have been given without harm, in medical practice. Gerbier is said to have given the sub-acetate in doses amounting to twenty and even thirty grains in the twenty-four hours, and Solier de la Romillais ten to twelve grains a day.(*i*) The sulphate of copper is frequently given in doses of fifteen grains at a time, for the purpose of procuring emesis, in narcotic poisoning. Richmond gave as much as a scruple of carbonate of copper daily, to patients suffering with obstinate neuralgic affections, and Key, for the same purpose, administered as much as half an ounce daily, divided into three doses, continuing the treatment for a fortnight, with no other result than the cure of the disease.(*j*) Dr. Pereira says that he has administered six grains of the sulphate of copper thrice a day for several weeks, in an old dysentery, without any other obvious effect than slight nausea and amelioration of the disease for which it was given. If the symptoms arising from the use of unwholesome food, such as sausages, old cheese and the like, be now compared with those which are ascribed to poisoning by copper, a very great similarity will be found between them.(*k*) Dr. Paasch relates instances in which the conviction was so strong that the symptoms of poisoning must have been due to a salt of copper, that a chemical investigation of the food was undertaken, which resulted, however, in the fact that not a trace

(*h*) Casper's Vierteljahrschrift, Jan. 1852.
(*i*) Guersent Dict. des Sci. Med. Art. *Cancer.*
(*j*) Dict. de Med. Art. *Cuivre.*
(*k*) Vid. *Poisonous Food.*

of copper could be discovered.(*l*) Dr. Taylor, in his work on poisons, states that he was required to examine the following case: "In an extensive poor-law union, a number of the paupers had been seized with diarrhœa and dysentery, and several of them died. There was no apparent cause for this sickness and mortality; and it was suspected that the soup, which was daily prepared in large copper boilers, might have become impregnated with the metal, and have given rise to the symptoms, although these were scarcely indicative of irritant poisoning. I ascertained that the copper vessels were cleaned out daily, that the soup was made with salt and other vegetables, but was poured into other vessels to become cool." The soup, however, gave no trace of copper, by the iron test, was unaffected by a current of sulphuretted hydrogen gas, and the incinerated residue, after evaporation and calcining, gave no sign of the existence of copper to any of the tests.

While these considerations throw doubts upon the frequency of poisoning by food impregnated with copper, from the use of cooking utensils of this material, they do not, of course, destroy the well-attested fact of its occasional occurrence. It appears evident, however, that the slightest attention to cleanliness in the keeping of such articles, is all that is necessary to secure immunity from danger.

The use of verdigris or other salts of copper for the coloring of confectionery or of other edible articles, is manifestly a highly pernicious practice. A highly interesting case, in which a whole family was poisoned, and two of its members died from the use of vegetables thus colored, is reported by Kramer.(*m*) Dr. Percival found a strong impregnation of copper in pickled samphire, of which a young lady ate one morning a considerable quantity, and which proved fatal in nine days. Dr. Falconer once detected so large a quantity in some pickled cucumbers, bought at a great London grocer's, that it was deposited on a plate of iron, and imparted its peculiar taste and smell to the pickles. It seems, indeed, to have been at one time the custom to make a point of adulterating pickles with copper; for in many old cookery-books the cook is told to make her pickles in a copper pan, or to put some half-pence among the pickles, to give them a fine green color.(*n*) Many of the cases of poisoning by confectionery are due to the arsenite of copper, or Scheele's green, which we have elsewhere treated of.(*o*)

§ 651. Numerous cases are related in which *copper coins* have been swallowed, with the symptoms of copper poisoning resulting. On the other hand, a case is mentioned by Dr. Jackson, of Boston, in which a half cent swallowed by a child produced nausea and vomiting, another by Dr. Budd and others,(*p*) and another by Dr. Hartshorne, in which a boy, five years old, died with all the symptoms of poisoning by copper, just two years after having swallowed a brass button.(*q*) A curious case is related by Deutsch, of a boy, six years old, who swallowed a number of small copper coins. His medical attendant prescribed vinegar and other organic acids! In consequence of this singular treatment, he was seized with alarming symptoms, violent

(*l*) Loc. cit.
(*m*) Canstatt's Jahresbericht, für 1851. Bd. IV. S. 269.
(*n*) Christison, p. 352.
(*o*) Vid. *Arsenite of Copper.*
(*p*) Vid. Beck.
(*q*) Taylor, Am. ed. p. 112.

colic, and vomiting and purging of greenish colored mucus. Finally, he was enabled to throw up the coins, by means of an emetic of ipecacuanha, but recovered very slowly from the effects of the poison.(*r*) A curious question might well arise in such a case as this. Metallic copper is usually acknowledged to be not poisonous; the poisonous salt, viz: verdigris, was here formed in the stomach by the administration of vinegar. *Q.* Was the poison *administered?*

§ 652. *Chemical Examination.* The salts of the oxide of copper may be made to yield metallic copper when heated with carbonate of soda upon charcoal before the blow-pipe. In this way, very minute traces of copper can be detected. The *ferro-cyanide* of *potassium* produces, even in very dilute solutions, a dark purple-red precipitate of ferro-cyanide of copper. *Ammonia* precipitates a pale blue or greenish salt, which, in excess of the reagent, is dissolved and acquires a beautiful azure-blue color. When the quantity of copper is very small, this colour is only perceived by looking through a considerable body of the fluid. *Hydro-sulphuric acid* precipitates the sulphuret of copper, of a black or chocolate-brown color. *Iron* will throw down copper from its solutions, in the metallic state. If a bright iron rod be immersed in a neutral or slightly acid solution of a salt of copper, it will soon become coated with copper.

In *organic mixtures*, it may usually be separated as a sulphuret, after previous dilution and filtration. The precipitate should be carefully collected, dried, and then boiled with a little nitric acid to convert the sulphuret into the sulphate. This liquid will acquire a rich blue color, and may then be subjected to the tests above mentioned. These processes will generally suffice for all cases in which the copper is not so excessively minute in quantity, that it may become a question whether, if discovered, it is not due to some accidental impregnation of the reagents, or of the animal tissues. With reference to this latter point, it may be stated that Orfila has detected traces of copper in the bodies of animals not poisoned by any of its preparations, and Wackenroder has obtained it from human blood. It has also been found in coffee, wheat and flour by M. Sarzeau and others.(*s*) It is, therefore, unnecessary for medico-legal purpose to push the investigation any further, if the above mentioned processes yield no evidence of the presence of the suspected poison.

CHAPTER XII.

Tartrate of Antimony and Potassa. (Tartar Emetic.)

§ 653. This salt is capable of producing violent and alarming symptoms, and occasionally also fatal effects. Its immediate action upon the stomach appears to be irritant, since it produces a burning pain in the

(*r*) Canstatt, 1851. Bd. IV. 269.

(*s*) Vid. Bley's Archiv für Pharmacie, 1853, Oct.; also Christison on Poisons, Am. ed. p. 356.

stomach, excessive vomiting, and diarrhœa. The large doses which have been tolerated in some febrile affections, such as pneumonia, rheumatism, and mania-a-potu, have thrown some doubt upon its irritant properties, and its speedy rejection from the stomach in other cases, defeats, in a measure, both its local and constitutional poisonous effects.

Hence the amount requisite to endanger life is not accurately known, although a case is related by Dr. Beck, in which fifteen grains of tartar emetic killed a child a few weeks old, and in a case reported by Mr. Hartley, ten grains killed a child in a few hours. Dr. Pereira refers to a case in which death ensued in four days after forty grains had been swallowed. A case is related in which four grains nearly proved fatal. Violent pain in the abdomen, vomiting and purging took place, and were followed by convulsions; the man became speechless, no pulse could be perceived, and the skin was quite cold; in short it was supposed he was dead. Stimulating frictions and cataplasms were employed, and he slowly recovered in about fourteen days.(*t*) An Italian courier died in eleven hours after swallowing, by mistake, *one* drachm of tartar emetic.(*u*) In a case related by Dr. McCreery, U. S. N., a physician took, through a mistake of the apothecary, half an ounce of tartar emetic. In little more than half an hour he experienced nausea, which was followed by distressing vomiting and purging, with most violent cramps of the legs, and slighter ones of the wrists. Copious draughts of green tea, large doses of tannin and other appropriate remedies were used, which did not, however, immediately mitigate the symptoms. He remained very much prostrated, but recovered in a few days.(*v*) The usual symptoms are an austere metallic taste in the mouth, a burning pain in the stomach, vomiting and purging, and excessive prostration, with cramps and convulsions. In a case recently observed by Dr. J. T. Gleaves, of Tennessee, where a tablespoonfull was taken, these symptoms ensued, but reaction was brought about in seven hours. On the third day the fauces were covered with pustules, and on the following day the skin also. The patient recovered.(*w*) A case is related by Deutsch, in which a woman, who took by mistake a scruple of tartar emetic, was brought exceedingly low by its violent action, and died in the course of a year in consequence of its irritant effects upon the intestinal canal.(*x*) Boudet observed local irritant effects upon the fauces twenty-six times out of one hundred and forty-four cases of pneumonia treated with tartar emetic.(*y*) Difficulty of swallowing and copious perspiration have also been frequently observed. Applied to the skin in the form of ointment, it produces a crop of painful pustules, which in weakly subjects may occasionally give rise to ulceration, and it may cause nausea and vomiting even when thus used.

§ 654. *Post mortem appearances.*—There have been but few cases observed. In the cases before referred to as having been seen by Mr.

(*t*) Taylor on Poisons, p. 389. See also two cases in the Union Medicale, 1852. No. 61, p. 245.
(*u*) Monthly Journ. May, 1850.
(*v*) Am. Jour. Med. Sci. Jan. 1853, p. 131.
(*w*) Am. Journ. Med. Sci. Vol. XV. from West. Jour. of Med. and Surgery, Jan. 1848.
(*x*) Canstatt's Jahresbericht fur 1851. Bd. IV. p. 270.
(*y*) Canstatt. 1853. Bd. V. p. 148.

Hartley, in which two children of the ages respectively of five and three years, swallowed each ten grains of tartar emetic, the following appearances were noted. The bodies were examined between four and five days after death. "In that of the boy there was effusion of serum in the right pleura; the lower lobe of the right lung posteriorly was redder than natural, and the peritoneum was injected from recent inflammation. The mucous membrane of the duodenum was inflamed and covered with a whitish-yellow viscid secretion; this was observed throughout the intestinal canal, although the color was of a deeper color in the colon and rectum; there was no ulceration. The peritoneal coat of the stomach was inflamed. The mucous membrane of this organ was much inflamed, especially about the larger curvature and at the cardiac orifice; there was no ulceration. The contents (about two ounces and a half of a dark grumous fluid, having a slightly acid reaction) were very adherent to it; and in one place there was a patch of lymph. The tests used did not indicate the presence of antimony. With regard to other appearances, the tongue was covered with a white fur and appeared soddened; the fauces were not inflamed; the trachea and œsophagus had a natural appearance. On opening the cranium, the dura mater was found very vascular; the longitudinal sinus contained a coagulum of lymph, and but very little blood. The vessels of the surface of the brain were very much injected with dark blood, the whole surface having a deep purple color. Every portion of the brain, when cut, presented many bloody points. The cerebellum and medulla oblongata were also extremely vascular; there was no effusion in the ventricles or at the base of the brain. In the body of the girl the morbid appearances were similar; there were also patches resembling the eruption of scarlatina on the arms, legs, and neck. The arachnoid membrane was more opaque than usual; and on the mucous membrane of the stomach, where the inflammation was greatest, were two or three white spots, each about the size of a split pea, which appeared to be the commencement of ulceration.(z)

§ 655. *Chemical examination.*—The double tartrate of antimony and potassa (tartar emetic) is readily soluble in water, even when it contains uncombined cream of tartar.

1. A crystal or two dropped into a solution of *hydrosulphuric acid* will be covered with an orange-colored deposit of the tersulphide of antimony. This is readily soluble in potassa and in the sulphide of ammonium, sparingly so in ammonia, and insoluble in bi-carbonate of ammonia.

2. Exposed to the reducing flame of the blow-pipe with carbonate of soda, white incrustations and globules of antimony are obtained, known by the needle-shaped crystals with which they are beset, their metallic brilliancy and brittleness.

3. *Nitric acid* throws down from the solution a white precipitate, which is soluble in an excess of the reagent, and also in tartaric acid.

4. Ferrocyanide of potassium causes no precipitate.

5. If the solution be introduced into Marsh's apparatus and the gas evolved, inflamed spots may be obtained upon porcelain which are blacker and less brilliant than those of arsenic, and which do not under-

(z) Taylor, from Lancet, Ap. 25, 1846, p. 460. See also a case by Mr. Beale. Lancet, Jan. 21, 1854.

go any change by dropping upon them a concentrated alkaline solution of hypochlorite of soda. Nitric acid converts this sublimate into the white oxide of antimony; a drop of nitro-muriatic acid dissolves it completely, and the solution, carefully freed by evaporation from the excess of acid, gives with hydrosulphuric acid an orange-red precipitate. With sulphide of ammonium the precipitate is of an orange color, and is soluble in an excess of the reagent. A metallic antimonial ring may also be obtained by applying the flame of a spirit-lamp to the tube while the stream of antimoniuretted hydrogen gas is passing through it. The metallic globules of antimony, recognizable by a lens, may be obtained from the ring by a sufficient increase of heat. No odor of garlic is perceived in this operation. All vegetable substances containing tannin decompose the salts of antimony.

§ 656. *Detection of antimony in organic liquids.*—No better process has been devised than that recommended by Dr. Turner. "Add to the suspected liquid a little muriatic and tartaric acid; the first with a view of coagulating any animal principles which may be present, the latter in order to dissolve all other precipitates formed with tartar emetic, except the sulphuret. Filter the resulting liquid, and transmit sulphuretted hydrogen through it. Collect, wash and dry the precipitate, and introduce it into a horizontal tube connected with a vessel in which hydrogen is generated. Transmit the gas freely till all risk of an explosion is passed, and apply the flame of a spirit-lamp to the part of the tube containing the precipitate. The metal is reduced, remaining in the place of the sulphuret if the stream of gas is slow, but undergoing a spurious sublimation if it is rapid, and collecting on the sides of the tube in the form of detached crystals, or of a crystalline crust. The metal is apt to be concealed by the presence of animal or vegetable matter. In this case it should be heated in an open tube, when it oxidates and sublimes as a glimmering white powder, which, unlike arsenic, is not crystalline; or the antimony may be dissolved by nitric acid, the resulting solution neutralized, and the orange-red sulphuret be again thrown down by a stream of sulphuretted hydrogen."(*a*) Or the sulphuret, when dried, may be dissolved by boiling hydrochloric acid. A dense yellowish-white precipitate of oxychloride of antimony falls down, on adding this solution to a large quantity of water. Although a white precipitate is produced also by the salts of bismuth when added to water, the color produced in the liquid by sulphuretted hydrogen at once will distinguish the two bases; bismuth yields a black, and antimony an orange-red precipitate.

If an examination of the *tissues* is required for the purpose of detecting absorbed antimony, the liver should be selected as the organ most likely to contain it. Orfila has been able to detect antimony in the tissues by the employment of Marsh's apparatus. The organ supposed to contain the antimony should first be cut into small fragments and dried, and these added gradually to boiling nitric acid until dissolved. This liquid should then be evaporated to dryness and carbonized, and the ash boiled in muriatic acid, to which a small quantity of nitric acid is added. The antimony is thus converted into the chloride

(*a*) Guy's For. Med. p. 499.

which may be introduced into Marsh's apparatus, or subjected to the tests already described. Antimony may be separated from liquid organic mixtures by Reinsch's process also, viz., by boiling with muriatic acid and water in the presence of copper. This metal acquires a bluish-gray color from the deposition of metallic antimony. The grounds of distinction between this and the deposit made by arsenic under similar circumstances have already been more appropriately given in the chapter upon this latter poison.

§ 657. It is evident that the presence of antimony, either in the stomach or absorbed in the other organs, may be due to the proper medicinal administration of the salt. The forms under which it is given, and the occasions on which it is prescribed, are numerous, and it is not unfrequently administered in cases of poisoning with other substances, without a thought of the complications it may, in case of a death, place in the way of the chemist. Hence, unless the possibility of its introduction into the system under any of these circumstances be fully excluded, the object of the medico-legal inquiry may be entirely frustrated.

§ 658. *Chloride of Antimony.*—Butter of Antimony. This substance is highly corrosive in its action. The following case will be sufficient to illustrate its effects. "An army surgeon swallowed, for the purpose of suicide, from two to three ounces, by measure, of chloride of antimony. About an hour afterwards he was seen by Mr. Mann. There was entire prostration of strength, with coldness of the skin and incessant attempts to vomit. The most excruciating griping pains were felt in the abdomen; and there was a frequent desire to evacuate the bowels, but nothing was passed. In the course of a few hours reaction took place, the pain subsided, and the pulse rose to 120. There was now a strong disposition to sleep, so that he appeared as if laboring under the effects of a narcotic poison. In this state he continued until he died—ten hours and a half after he had swallowed the poison. On inspection, the interior of the alimentary canal, from the mouth downwards to the jejunum, presented a black appearance, as if the parts had been charred. In general there was no mucous membrane remaining either on the stomach or elsewhere; only a flocculent substance, which could be easily scraped off with the back of a scalpel, leaving the submucous tissues and the peritoneal coat. All these parts were so soft that they could be easily torn with the fingers.(*b*) The symptoms have been similar in some cases which recovered. Poisoning with this substance is, however, very rare, and mostly happens from mistake, or it is taken with suicidal intentions. The tests are the same as for tartar emetic.

CHAPTER XIII.

THE SALTS OF ZINC, TIN, SILVER, GOLD, IRON, &c.

§ 659. *Oxide of zinc* has been of late years used as a substitute for

(*b*) Taylor on Poisons, Am. Ed. p. 397.

white lead, with the view of avoiding the dangerous effects of the latter on the workmen. It has been supposed to be innocuous; and this idea appeared to be confirmed by some experiments made by M. Flandin. He rubbed animals over with ointments of oxide of zinc, of carbonate of lead and sulphate of lead: the two last were found always to produce poisonous effects, but the animals rubbed with the ointment of oxide of zinc continued to enjoy their usual health. Lately, however, a case has been recorded by Dr. Bouvier, of the Hôpital Beaujon, at Paris, in which a laborer, who had been employed for fifteen days in barreling oxide of zinc, and in other ways had handled this substance, and had breathed an atmosphere loaded with the powder of oxide of zinc, was attacked with vomiting, colic, and constipation. These symptoms persisted and increased in intensity so much, that he rolled on the floor in agony. The vomited matters were bilious, he rejected his food almost immediately after swallowing it, and he had been constipated for five days. From the whole history of the case, it was considered to be one of genuine zinc colic. He was cured by the remedies usually employed for painters' colic. The particles adhering to his body were examined, and found to consist of oxide of zinc.(*c*)

Cases of zinc poisoning, arising from the inhalation of the oxide of zinc, have also been observed among the workmen engaged in twisting and beating the iron wires galvanized with zinc used for securing champagne corks. Four had symptoms of general depression, with sore throat, swelling and ulceration of the tonsils, salivation, fetid breath, colic, and diarrhœa. In one case there was colic and obstinate constipation. These symptoms subsided readily on abandoning the occupation, and did not return when the workpeople resumed their work, with wires better prepared, and free from loose oxide or carbonate of zinc.(*d*)

§ 660. *Sulphate of zinc.* The prompt emetic action of sulphate of zinc (white vitriol), is the cause of its seldom producing serious effects. The dose usually administered with a view to its emetic operation is from fifteen grains to half a drachm, and unpleasant results have seldom been witnessed from this amount. Dr. Babington once gave thirty-six grains, three times a day, for several weeks, without any sickness or other untoward effect being produced; but cases in which the stomach would tolerate such doses as these, must be very rare.(*e*) That it is capable of acting violently as an irritant poison, there can be no doubt. Dr. Christison quotes a few cases which sufficiently prove this. The best marked cases are, however, those which have been recently reported as occurring at Pavia. The first case occurred in the person of a strong woman, who took by mistake, for Epsom salts, a solution of an ounce and a half of sulphate of zinc. She instantly vomited, and then became affected with almost incessant retching and purging for half an hour, which continued afterwards, at short intervals, for three hours, and then gradually diminished. The pulse was frequent and small, and extreme prostration existed, accompanied with distressing restlessness and anxiety; the temperature of

(*c*) Am. Jour. Med. Sci. Oct. 1850, from the Comptes Rendus.
(*d*) Ibid. from Monthly Jour. Aug. 1850.
(*e*) Guy's Hosp. Rep. Vol. XII. p. 17.

the skin was diminished; great pain in the abdomen, limbs, &c., existed, as well as a sense of burning in the throat and stomach. She died thirteen and a half hours after taking the poison, retaining her intellectual faculties to the last. On examination, forty hours after death, the following were the chief appearances observed: great lividity of the skin, congestion of the brain and its membranes, congestion of the lungs, flaccidity of the heart, the inner surface of the stomach covered with a yellowish pultaceous matter, on the removal of which, a uniform yellow, ochrous color was observed, except towards the great curvature, where it became reddish; a gelatiniform ramollissement of the mucous membrane prevailed, exposing in some parts the sub-mucous cellular tissue. The small intestines were somewhat injected, and contained yellowish matters. In the *second* case, a similar dose was taken, followed by nearly the same symptoms, but the patient recovered. In the *third* case, a quarter of an ounce was taken, which produced the same symptoms of irritant poisoning, ending in recovery. In the *fourth* case, of which little account is furnished, but which proved fatal, it is stated that "two drachms of sulphate of zinc were detected in the liver and blood, the fluids of the alimentary canal furnishing but little.(*f*)

One case, in which the sulphate of zinc was supposed to have been given with criminal intentions, became the subject of judicial inquiry in France. An old man died somewhat suddenly, having suffered from severe pain and great heat in the chest and abdomen, with violent vomiting and purging. He was not seen by a physician. On inspection, the stomach and bowels were found highly inflamed, and sulphate of zinc was found in the contents of the stomach, and detected in the tissues. The body of a woman who had died two months previously, was also disinterred, and sulphate of zinc found in the viscera.(*g*) Violent enteritis was also observed in a case reported by Krauss.(*h*)

§ 661. *Chemical Examination.* Sulphate of zinc is a white crystalline powder bearing considerable resemblance to sulphate of magnesia, readily soluble in water, and having a disagreeable styptic taste. From its solution, if pure, the oxide is thrown down in the form of a white hydrate by the *caustic alkalies*, and which is easily soluble in an excess of the precipitant. The *sulphide of ammonium* gives a white milky precipitate, and also sulphuretted hydrogen, provided there is no free acid in the solution. *Carbonate of ammonia* precipitates carbonate of zinc, also white, which is readily dissolved in an excess of the precipitant. *Ferrocyanide of potassium* also causes a white precipitate. The *hydrosulphuret of ammonia* is the most characteristic and unobjectionable of these tests, since this is the only metal, with the exception of aluminum, the salts of which are thrown down white by it.(*i*) Having discovered the base, the presence of sulphuric acid in the combination may be easily detected, by testing with chloride of barium.

(*f*) Brit. and For. Med. Chirurg. Rev., April, 1849.
(*g*) Jour. de Chimie. Med. 1845, p. 529. (*h*) Canstatt Jahresbericht, 1853.
(*i*) In the case of alumina, the precipitate is soluble in caustic potash; and in that of zinc in an excess of ammonia.

The following is the process recommended by Christison, for the detection of sulphate of zinc in *organic mixtures*. The mixture being strained through gauze, it is to be acidulated with acetic acid, and filtered through paper. The acetic acid dissolves any oxide of zinc that may have been thrown down in union with animal matter. The filtered fluid is then to be evaporated to a convenient extent, and treated, when cool, with sulphuretted hydrogen gas; upon which, a grayish or white milkness, or precipitate, will be formed. The excess of gas must now be expelled by boiling, and the precipitate washed by the process of subsidence and effusion, and collected on a filter. It is then to be dried, and heated to redness in a tube. When it has cooled, it is to be acted on by strong nitric acid, which dissolves the zinc, and leaves the sulphur. The nitrous solution should next be diluted and neutralized with carbonate of ammonia; (*j*) after which, the liquid tests, formerly mentioned, will act characteristically. The effect of carbonate of ammonia and that of heat on the carbonate of zinc, which is thrown down, ought to be particularly relied on.

§ 662. *Chloride of zinc.* Several cases of poisoning by a solution of this salt, known by the name of "Sir Wm. Burnett's disinfecting fluid," have occurred in England and Canada. They prove that it is a highly corrosive poison. The symptoms observed have been violent; epigastric distress followed by vomiting, and attended with burning heat in the mouth and throat. In a case reported by Mr. Letheby, where a child, fifteen months old, was poisoned by it, prostration was extreme, and the child died comatose in ten hours. The body was examined twenty-two hours after death. The lips, mucous membrane of the mouth, fauces, and œsophagus, were white and opaque. The stomach felt hard and leathery, and contained a liquid like curds and whey. Its inner surface was corrugated, opaque, and tinged of a dark leaden hue; this appearance ceased abruptly at the pylorus. On digesting the stomach in an ounce of distilled water, the liquid obtained gave white precipitates with prussiate of potash, carbonate of soda, sulphuretted hydrogen and acid nitrate of silver, no precipitate being obtained on the addition of a soluble salt of baryta. The presence of chloride of zinc was thus demonstrated. This author concludes, from some experiments, that the chloride of zinc is distinguished from the other salts of the metal by its quick and firm coagulating action on liquid albumen and on the delicate tissues of the body, and that its toxicological action is twofold, first as an irritant and caustic, and second, by a specific constitutional impression upon the nerves.(*k*) This is the only fatal case yet recorded. In those reported by Dr. Stratton, although death appeared imminent, the patients were saved by timely medical aid.(*l*)

Tin.

§ 663. *Chloride of tin.* This preparation needs little notice: it is an irritant poison, but has seldom given rise to accidents. An old man

(*j*) Carbonate of soda is more suitable.
(*k*) Lancet, July 6, 1850. (*l*) Med. Exam. Feb. 1849.

dried some wet cooking salt in a tin dish upon a stove, and then ate some meat and bread with which he had wiped the dish. He was seized with chilliness, violent pain in the stomach, and the abdomen became swelled, and tender upon pressure. A febrile condition was soon set up; but the most striking symptom was salivation, with extreme fœtor of the breath, and a grayish discoloration of the gums. These, as well as the tongue and inside of the cheeks, became covered with ulcers. By an antiphlogistic treatment, and gargles of chloride of lime, he was restored in a few days.(*m*)

Silver.

§ 664. *Nitrate of silver. Lunar caustic.* The appearance of this caustic is well known. Poisoning by it is not, however, of frequent occurrence. A patient at the Hôpital St. Louis, in Paris, recovered, after having swallowed an ounce in solution. The nitrate of silver was neutralized by the administration of common salt.(*n*) The nature of the poison can be readily detected by the black color which it communicates to organic matter.

The *terchloride of gold* is also a highly irritant poison, acting very much like corrosive sublimate. Cullerier, the nephew, has seen one-fifteenth of a grain excite, at the second dose, gastric irritation, dryness of the tongue, redness of the throat, colic, and diarrhœa.(*o*)

The *bichloride of platinum* is a powerful caustic poison. It is sometimes used, in medical practice, for the treatment of secondary syphilis.

Iron.

§ 665. *Sulphate of iron.* (Copperas. Green Vitriol). A case of supposed criminal poisoning with this substance, is related by Dr. Christison. A girl, four years of age, and previously in good health, was attacked with violent vomiting and purging immediately after breakfasting on porridge, and died in the course of the afternoon of the same day. The porridge had a blue color, and it was proved that a woman in the house had purchased both this salt and the sulphate of copper. The body being disinterred, four months after death, the stomach was found soft, gelatinous, and of a uniform intense black color through the whole thickness of its parieties, and the whole alimentary canal lined with a thick layer of jet black mucus "from the pharynx down to the very anus." There was no evidence found of the presence of copper, but abundant proof was obtained of the presence of iron both in the textures of the stomach and the black mucus which lined it.(*p*) More recently, a case somewhat similar, has been observed by Orfila. The present case, was that of a child, aged fifteen months, who died, after purging and vomiting a black fluid. On opening the body, ten days after burial, the stomach was filled with a greenish fluid, and the vessels of the lungs and brain were gorged with

(*m*) Memel. Deutsche. Klinik. No. XLI. 1851.
(*n*) Am. Jour. 1840, p. 239.
(*o*) Pereira. Mat. Med.
(*p*) Ibid. p. 393.

black blood. M. Orfila detected sulphate of iron, in notable quantities, in the portions of the abdominal contents forwarded to him.

Chemical Analysis. It should not be forgotten, in making a chemical examination of the viscera, in cases of supposed poisoning with the salts of iron, that iron is a normal constituent of the body. Orfila says, that when these, or the salts of copper or lead, exist in the alimentary canal, as a consequence of poisoning, we have only to treat the canal by means of very dilute muriatic or acetic acid, at a moderate heat; these acids dissolving the metallic substances sought for, without attacking any portion of those metals that form part of the organization. To obtain these last, we must treat the viscera by more energetic agents, or by incineration.(*q*) The crystals of sulphate of iron are of a bluish green color, have a styptic taste, and are readily soluble in water. The base may be detected by the ferrocyanide of potassium (producing a greenish blue precipitate), and the acid by the chloride of barium.

§ 666. *Chloride* (Muriate) *of iron.* The medicinal tincture of this salt of iron has frequently given rise to serious and fatal accidents. The symptoms produced by it are very much like those of the corrosive acids, viz., heat and dryness, and swelling of the throat, with a burning pain in the stomach and in the course of the œsophagus, vomiting of blood, and inky evacuations. Its corrosive properties seem to be due to the presence in it of free hydrochloric acid. Dr. Christison relates a case, in which death occurred in about six weeks after an ounce and a half of the tincture had been swallowed. A case of recovery, after three ounces of the concentrated tincture had been swallowed, is reported by Sir Wm. Murray.(*r*)

A gentleman, aged seventy-two, swallowed three ounces of it by mistake. He was found "tossing about in the utmost consternation and agony; his tongue was swelled, and protruded from the mouth; its skin was parched and peeling off it, while ropy mucus flowed from the mouth and nose; the eyes seemed starting from their sockets; the respiration was noisy and laborious, and suffocation seemed to be impending. During this time his hand was riveted to the region of the stomach, as the principal seat of pain; the palate and the interior of the mouth were burned, and presented a parboiled appearance." The acid was first neutralized by an alkaline mixture, and this treatment was followed by demulcents and laxatives. The gentleman rapidly recovered.(*s*) Several other cases of recovery from large doses are recorded, which it is not necessary to particularize.

Tests. The iron may be detected by the blue precipitate with *ferrocyanide* of potassium, and the hydrochloric acid by the nitrate of silver.

§ 667. *Subnitrate of bismuth.* A man subject to water-brash took two drachms of this preparation by mistake. He was immediately attacked with burning in the throat, vomiting, purging, cramps, coldness of the limbs, and his pulse became intermittent, and he had a constant me-

(*q*) Am. Jour. Med. Sci. Jan. 1853, p. 259.
(*r*) Ibid. July, 1849.
(*s*) Sir Wm. Murray, Dub. Med. Press, Feb. 1849.

tallic nauseous taste. On the third day he had hiccough, laborious breathing, and swelling of the hands and face, and suppression of urine was then discovered to have existed from the first. On the fourth day, swelling and tension of the abdomen were added to the pre-existing symptoms; on the fifth day, salivation; on the sixth, delirium; on the seventh, swelling of the tongue and enormous enlargement of the abdomen; and, on the ninth, he expired. The tonsils, uvula, pharynx, and epiglottis were gangrenous, and inflammatory redness, with spots of gangrene, existed throughout the whole intestinal canal.(*t*) It has been found that this preparation of bismuth is often so carelessly made, that the arsenic which is commonly found in bismuth has often not been previously excluded by the operation of roasting. M. Cornut recommends that it should be tested before being dispensed for medicinal purposes. Moisten half a drachm of the trisintrate of bismuth with a sufficient quantity of *pure* sulphuric acid, evaporate to dryness in a small porcelain capsule, wash the residue with a little distilled water, filter, and put into a Marsh's apparatus.(*u*)

§ 668. *Bichromate of potash.* This salt being extensively used in dyeing, has given rise, in several instances, to accidental poisoning. Locally applied, its action is irritant, causing in the workmen who make use of it, troublesome sores and ulcerations upon the hands. Taken in poisonous doses internally, its action is highly irritant also, and death has taken place from it, with the symptoms usually attending the action of irritant poisons. Mr. Wilson, however, relates a case in which death was caused by it, without any signs of vomiting or purging having occurred.(*v*) Several fatal cases have occurred in Baltimore. The following was communicated by Dr. Baer, to Professor Ducatel:—A laborer, aged 35, on attempting to draw off from a refiner a solution, in the effort to exhaust the siphon by suction, received a small quantity of the solution into his mouth. His first impression was, that he had spit it out; but only a few minutes elapsed before he was seized with great heat in the throat and stomach, and violent vomiting of blood and mucus. The vomiting continued until just before his death, which occurred in five hours. On dissection, the mucous tissue of the stomach, duodenum, and about one-fifth of the jejunum, was found destroyed in patches. The remaining parts of it could be easily removed by the handle of the scalpel.(*w*) A boy, who swallowed about two ounces of bichromate of potash, was seized in half an hour with vomiting, and became almost totally insensible. He was pale and collapsed, the pupils dilated and fixed, the pulse feeble, and cramps in the legs. An emetic of sulphate of zinc was given, and the stomach-pump used, until the pinkish color of the washings obtained by it had ceased. He had an attack of gastro-intestinal inflammation, from which he did not recover for four months.(*x*)

(*t*) Christison, quoted from Wibmer.
(*u*) Association Med. Journ. June 17, 1853.
(*v*) Med. Gaz. Vol. XXXIII. p. 734.
(*w*) Beck, Vol. II. p. 666.
(*x*) Guy's Hosp. Rep. 1850, p. 214.

IRRITANT POISONS.

VEGETABLE.

CHAPTER XIV.

Colchicum Autumnale. (*Colchicum*,—Meadow Saffron.)

§ 669. The seeds and cormus of this plant, and, it is said, the leaves(*y*) and flowers(*z*) also, are capable of producing violent poisonous effects. The symptoms are, an acute, gnawing pain in the stomach, vomiting and purging, tenesmus, reduced pulse, and great debility. The symptoms are said to resemble, occasionally, those observed in Asiatic cholera, from being sometimes attended with cramps in the various parts of the body, ice-cold surface, purging of rice-water stools, suppression of urine, and general collapse. The dose of the medicinal tincture, or the quantity of the crude seeds or bulb that is requisite to produce the effect described, is not precisely known. The officinal dose of the dried bulb or of the seeds, is six to eight grains, and of the wine of either, from ten drops to a fluid drachm. A case has been lately reported in which a person swallowed a wine-glassful of the tincture by mistake; he was soon seized with violent pain in the stomach and vomiting, and died the next day of exhaustion.(*a*) In another case, reported by Mr. Feraday, the same quantity was taken. The symptoms did not appear for an hour and a half; there was then urgent pain and vomiting, followed by great exhaustion, purging, and tenesmus. In this case the intellect was unaffected. The patient died in forty-eight hours. (The uniformity with which, in the reported cases of poisoning by colchicum, either no mention is made of any cerebral disturbance, or, on the other hand, an express statement is given that the intellect was not at all impaired, justifies the position which we have given to this substance, viz., among the irritants; instead of its customary place among the narcotico-acrid poisons.) Ollivier met with two cases of death within twenty-four hours, in consequence of a tincture being taken which contained the active part of forty-eight grains of the dry bulb. Dr. Christison states that he has known very violent effects produced by half an ounce taken by mistake, although most of it was brought away, by emetics, in an hour; and that, in medical practice, he has seldom seen the dose of a sound preparation gradually raised to a drachm thrice a day, without such severe purging and sickness ensuing as rendered it prudent to diminish or discontinue the remedy.(*b*)

The *post mortem appearances* in *fatal* cases may be those of inflammation, but the evidence of this is extremely equivocal. In a case in which a decoction made with a tablespoonfull of the seeds had been taken, and the inspection was made twenty-three hours after death, a remarkable rigidity, especially of the abdomen, was noted. The muscles were of a

(*y*) Bleifus, Repertor für die Pharmacie, LXIX.
(*z*) Magazin für Pharmacie, XXX. (*a*) Med. Times & Gaz., 1853, 1.
(*b*) On Poisons, p. 667. For a collection of curious cases, vid. Ed. Month. Jour. of Med. Sci., 1852. By J. McGrigor Maclagan.

deep blue color, as if they had been dried in the air. The heart was covered with spots of a black, violet, and brown color; the stomach was of a light violet color, and the veins of it and of the intestines, much engorged with blood. The other organs had a healthy appearance.(*c*)

§ 670. Recently, the possibility of demonstrating the fact of poisoning by colchicum, by means of the extraction of its active principle, *colchicin*, from the *contents of the stomach*, &c., has been shown by Schacht and Wittstock, of Berlin.(*d*) Four persons were poisoned by drinking tincture of colchicum in mistake for "schnapps;" but the fact being somewhat uncertain, a chemical examination of the contents of the stomach was instituted with the view of detecting, if possible, the presence of colchicin. Previous to the experiment upon the viscera, however, what remained of the suspected liquid was examined, and also a tincture known to be the officinal preparation of colchicum. In both cases colchicin was obtained, and it was found that half an ounce of the officinal tincture of the drug yielded about four and a half per cent. of pure colchicin.

The contents of the stomach were mixed with a large quantity of alcohol, to which a few drops of hydrochloric acid had been added, then shaken, the liquid portion filtered off and evaporated to the consistence of a thin syrup. This residue was dissolved in distilled water, by which much fat was separated; then filtered, carefully evaporated, alcohol added again as long as any foreign material appeared, and then filtration and evaporation as before. To the mass now obtained, after having been reduced by evaporation to about 8 oz., half a drachm of calcined magnesia was added to free the colchicin, and after a time, 3 oz. of ether added. This was allowed to evaporate spontaneously after being filtered. The residue was taken up again by water and evaporated in a watch glass. The residue gave, with tincture of galls, chloride of platinum and tincture of iodine, all the reactions of *colchicin*.

Drastic Purgatives.

§ 671. The chief articles enumerated under this name, are *jalap*, *scammony*, *gamboge*, *colocynth*, *croton oil*, and *elaterium*. With the exception of the two last, they are seldom given singly in medical practice, but generally combined with each other and with milder purgatives, or with mercurials, and always in small doses. That they may give rise to fatal consequences from over purging, is not only possible but is demonstrated by cases upon record. Being the most usual ingredients of quack cathartic medicines, especially in the pilular form, they have often been taken in large doses, and have thus caused death by the exhaustion arising from over-purging. One element in the consideration of cases in which death is attributed to the use of any of these drugs, should not be forgotten; viz.: that the very young, or, on the other hand, the aged, cannot bear the operation of violent purgative medicine with the same impunity as those in other periods of life; and also that those who are already enfeebled by disease may readily perish from the effects

(*c*) Neubrandt, in Ed. Med. and Surg. Jour., July, 1840.
(*d*) Casper's Vierteljahrschrift, Jan. 1855.

of a comparatively small dose. In general, where the quantity of any of these medicines taken has been very large, there will be found evidence of inflammatory action in the intestines.

Castor Seeds or Beans.

§ 672. It is stated (*Wood and Bache*) that two or three of these seeds are sufficient to purge, and that seven or eight act with great violence. This property depends upon an acrid principle which exists, as is now satisfactorily ascertained, in the embryo. Dr. Hartshorne states that he has known them to be eaten freely with impunity at times, and in other cases to produce the most violent and even fatal emeto-catharsis. Dr. Taylor gives an instance of poisoning by them. A young lady ate about twenty of them. About five hours after they were eaten, she felt faint and sick; vomiting and purging came on, and continued through the night. On the following morning she appeared like one affected with malignant cholera. The skin was cold and dark colored, the features contracted, and the breath cold; the pulse was small and wiry; there was restlessness, thirst, pain in the abdomen, and she lay in a sort of drowsy, half-conscious state. Whatever liquid was taken was immediately rejected, and the matters passed by stool consisted chiefly of a serous fluid, with blood. She died in five days. On inspection, a very large portion of the mucous membrane of the stomach was found abraded, and softened in the course of the greater curvature. There was general vascularity of the organ, and the abraded portion presented the appearance of a granulating surface of a pale rose color; it was covered with slimy mucus. The small intestines were inflamed and the inner coat abraded.(*e*)

Fungi.—(Mushrooms.)

§ 673. There are a vast number of cryptogamous plants thus denominated, some of which are generally wholesome as food, while others are exceedingly poisonous. The rules laid down by M. Richard, in the Dict. des Drogues, to guide those who eat mushrooms in their selection, are that those should be rejected which have a narcotic or fetid odor, or an acrid, bitter, or very acid taste; which occasion a sense of constriction in the throat when swallowed; which are very soft, liquefying, changing color, and assuming a bluish tint when bruised; which exude a milky, acrid, and styptic juice; which grow in very moist places and upon putrefying substances; in fine, all such as have a coriaceous, ligneous, or corky consistence. The last, however, are injurious in consequence rather of their indigestible than of their poisonous nature. Even mushrooms which are usually edible may prove poisonous if collected too late, or in places which are too moist. It is said, moreover, that the poisonous species become innocent when they grow under favorable circumstances; and that the most noxious may be rendered edible by boiling them in water acidulated with vinegar.(*f*) In many portions of Europe, but especially in Poland and Russia, they form the most im-

(*e*) Med. Jur., p. 125.

(*f*) On the Medicinal and Toxicological properties of the cryptogamic plants of the United States, by F. Peyre Porcher, M. D., of Charleston, S. C., in the Trans. of the Am. Med. Assoc., Vol. VII.

portant part of the food of the common people; and in the latter country whole tribes are mainly supported by them, scarcely any species, except the dung and the fly *agarics*, being rejected. Even those kinds which are elsewhere refused, by common consent, as poisonous, on account of their extreme acridity, are taken with impunity, being extensively dried, or pickled in salt and vinegar, for winter's use.(*g*)

§ 674. It appears very certain that the poisonous properties of mushrooms may be removed by boiling, and especially with acidulated water or with vinegar.

Dr. Pouchet, of Rouen, gave a quart of the water in which five poisonous mushrooms (*A. manita muscaria and Avenenata*) had been boiled, to a dog, who died in eight hours; but the boiled fungi themselves had no effect upon other dogs. Another, who was fed for two months on little else than boiled amanitas, not only sustained no harm, but actually got fat on his fare.(*h*) M. Gérard has recently exhibited, before a committee of the Paris Council of Health, the complete innocuousness of these two most poisonous varieties, after having being macerated in water. He directs that some two or three spoonfuls of vinegar or some coarse salt should be added to the water, and the fungi macerated for two hours, after which they should be washed, and then put into cold water and boiled for half an hour. They may then be taken out, washed, dried, and used as food.(*i*) In a later number of the same journal, Dr. Gondot relates the cases of seven persons poisoned by eating mushrooms, three of whom died. The mushrooms had been fried in butter. One person ate, the next day, at least half in quantity, of those that had served the family the day previous. These, however, had lain in water for an hour, and were then drained and pressed. In this condition they were fried in butter and eaten. Diarrhœa followed for several hours, but without any other dangerous effect. For a full account of the facts so far ascertained, regarding the distinction between the poisonous and edible mushrooms, we beg leave to refer the reader to Dr. Porcher's admirable essay above quoted, and to Christison and Orfila's treatises on poisons.

§ 675. The *symptoms* of poisoning by mushrooms or other fungi, are both of an irritant and narcotic character. In Dr. Gondot's cases, the symptoms did not come on until several hours after the meal; in the fatal cases, not until twenty hours, the patients dying in sixteen hours. They were all affected with vomiting, purging, and cramps. In three cases related by Dr. Peddie, the symptoms began in half an hour, with giddiness and stupor; there were no abdominal symptoms, and the patients recovered. The principal symptoms in sixty-eight cases referred to by Ballardini, were nausea, uneasiness in the abdomen, vertigo, a state resembling intoxication, vomiting and diarrhœa, loss of power of locomotion, with convulsions. The following case exhibits a singular form of the narcotic effects. A boy of fourteen, who had eaten the *Agaricus panterimus*, near Bologna, was, in the course of two hours, seized with delirium, a maniacal disposition to rove, and some convulsive movements. "Ere long, these symptoms were succeeded by a state resembling coma in every way, except that he looked as if he under-

(*g*) Berkeley, ibid. (*h*) Vid. Christison on Poisons.
(*i*) Union Méd., 1851, No. 148.

stood what was going on, and, in point of fact, did so."(*j*) Both the lethargy and the symptoms of irritation may continue for a considerable length of time, and both may occur simultaneously.

§ 676. The *post mortem* appearances in the few cases recorded, have been the following. An unusual fluidity of the blood, turgescence of the vessels of the brain, inflammation and even gangrene of the stomach. In one of Dr. Gondot's cases (the only one examined) there was a decomposition of the tissues, the abdominal viscera were softened, and the odor from them was extremely fetid.

The evidence in cases demanding a legal investigation will most probably be derived from circumstances and the symptoms. The only case which can present difficulty is that where an irritant poison has been designedly introduced into the preparation of mushrooms. An instance of this kind occurred: a woman died from the effects of arsenic mixed by her servant with the mushrooms. The girl afterwards confessed the fact.(*k*) Of course, the only means of distinction in such cases is a chemical examination for the suspected poison.

IRRITANT POISONS.

ANIMAL.

CHAPTER XV.

Cantharides.

§ 677. The cantharis or Spanish fly, much used in medicine as a counter irritant and also occasionally given internally, is capable of producing fatal results. From the irritation in the genital organs, which is a secondary effect of its use, it has frequently, in ignorance of its dangerous properties been employed for the purpose of exciting the sexual propensities, and it is occasionally taken also with the hope of procuring abortion. It may produce serious results even by external use. Its vesicating and its irritant property result from the presence of the same principle, viz., *cantharidin*, which is found chiefly, if not entirely, in the wing-cases of the insect. This principle, however, is too active for internal use, and is only employed for the purpose of vesication. Cantharides are mostly taken in powder or in tincture.

§ 678. The *symptoms* occasioned by an over dose of either of these preparations commence with nausea, vertigo, and a burning sensation in the mouth and throat. This sensation presently extends to the œsophagus and stomach, is succeeded by violent pain in the abdomen, thirst, difficulty of swallowing, and vomiting of blood, mucus and shreds of membrane. There is also violent pain in the loins, strangury, and priapism. The secretion of urine is, in some cases, suspended; for in a case in which the catheter was introduced, no urine could be obtained. Occasionally profuse salivation occurs, and, in fatal cases, violent cerebral symptoms are observed. A young girl at Windsor was killed by

(*j*) Christison on Poisons. (*k*) Ibid.

the external application of blistering ointment, which was rubbed over her whole body in mistake for sulphur ointment which had been prescribed for the cure of the itch. Although the ointment was washed off, the cuticle came with it, and the girl died in five days, with the symptoms above described.(*l*)

§ 679. The *quantity required to destroy life* is not accurately ascertained. Drs. Wood and Bache state the medicinal dose as from one to two grains of the powder, and from twenty drops to a fluid drachm of the tincture. It is evident, however, from the frequently deteriorated condition of the powder, that the active principle may, in any given quantity, be found in less than the average amount, and that the strength of the tincture may be often thus impaired. This fact will serve to explain the large quantities which have been sometimes taken without dangerous symptoms. The smallest quantity of the powder which has been known to destroy life, is in the case of a young female, mentioned by Orfila, who took *twenty-four* grains in two doses. She took it to procure abortion, and as this followed, it is uncertain whether it may not have hastened the fatal result. Much larger doses of the powder have been taken, followed by the most dangerous symptoms, but early vomiting, no doubt, removed a great deal of the poison.

In a case observed by Dr. Ives of New Haven, a boy of seventeen died from the effects of an *ounce* of the tincture. Death occurred seventeen days after he had taken it. A curious case occurred in France, in 1846, where the ointment of cantharides, consisting of a fourth part of the powder, and three parts of resin, wax, and lard, was administered to a man in his soup, with the intention of poisoning him. The criminal was condemned to death, although his intended victim recovered from the dangerous symptoms which he suffered. The exact dose in this case is not mentioned.

§ 680. The *post-mortem appearances* are those of inflammation. If a quantity sufficient alone to destroy life have been taken, the œsophagus, stomach, and small intestine will most probably be found highly inflamed, and if the person have lived for several days, the kidneys, uretus, and neck of the bladder also. Such has been the case in the few fatal cases of poisoning by this substance which have been examined. Sometimes the lining membrane of the mouth and throat is destroyed, and in Dr. Ives' case that of the stomach was pulpy and easily detached.

The presence of the greenish, gold, or copper colored scales, derived from the wings of the insect, is, however, the best evidence of the nature of the poison. They adhere very closely to the mucous membrane of the intestines, and may be easily recognized by a common lens. Although there are many other insects which have wings of the same color and are not poisonous, it is hardly possible that these should find their way into the stomach, and much less that they should have been given with any evil intent. M. Poumet recommends also that the suspected liquids which have been vomited should be mixed with alcohol and allowed to evaporate on sheets of glass, by which means the brilliant colored particles of the fly, will be visible after evaporation. Or, the stomach and intestine may be inflated and dried, after which, upon

(*l*) Taylor on Poisons.

cutting them open and examining them upon a flat surface, the particles above mentioned, if present, will be seen sticking closely to the mucous membrane. They are not affected by putrefaction, and, according to Orfila, may be recognized as long as nine months after interment. If, however, the tincture has been taken, this method will not, of course, be available. An effort may be made to detect the cantharidin in the the suspected liquid, by digesting in ether what remains after evaporation, and then testing the vesicating properties of the result, but it is evident that the evidence derivable from such a method is very imperfect, if the experiment should not succeed, it being very possible that cantharides may have been used and yet not be detected by these means.

There are several species of fly having similar properties with the Spanish, and which are found in the United States and elsewhere. They are seldom used, however, but could probably be detected as readily as the genuine cantharides.

Sausages.

§ 681. These and analogous articles of food have so frequently given rise to poisoning in Germany, that we cannot pass them over entirely unnoticed. According to the statistics of Prof. Schlossberger, there have occurred in the kingdom of Wurtemberg alone since 1800, no less than 400 cases of poisoning by sausages. Blood and liver-pudding (*blut* and *leber-würste*) constitutes one of the most ordinary articles of the diet of the Germans, and other smoked and fatty preparations, obtained chiefly from pork, are much used. The nature of the sausage poison is not yet clearly ascertained, Liebig considers it a kind of ferment, Buchner believes it to be due to a peculiar acid which he terms botulinic acid, while Schlossberger considers it to be an organic base. He supports this theory by referring to the now numerous sources of the ammoniacal bases, the transformation of protein combinations by putrefaction, and the very poisonous nature of many of these alkaloids, among which conicine and nicotine are already well known.(*m*)

Whatever may be the chemical nature of the poison, it appears to depend upon putrefactive decomposition of the fatty matters. The cases of poisoning occur chiefly in the winter and spring months. The unwholesome sausages are described by the last mentioned author as showing, especially in the interior little masses of soft consistence like curd; they have a repulsive odor, and a sour, bitter, and rancid taste.

§ 682. The symptoms are well seen in the following narration. The family of Ehrmann at Limmetshausen, with a number of guests, partook of a supper of pork sausages, in consequence of which all were more or less affected with symptoms of poisoning, eight with severe symptoms, and three died. The sausages were made of the liver of a healthy pig prepared eight days previously, slightly boiled, then smoked and hung up. There must have been something peculiar in the taste of the sausages, as one of the guests remarked that they were not wholesome, and did not partake of them, in consequence of which he escaped. The symptoms were similar in all, differing merely in degree. *Shortly after partaking* of the sausages, pains in the bowels, vomiting,

(*m*) Cantstatt's Jahresbericht für 1852. V. Band, p. 136.

giddiness, dryness of the mouth and throat, and difficulty of swallowing came on. The pupils soon became dilated and fixed, the headache and vertigo increased, and the power of vision was lost. Great prostration of strength followed, the power of speech was destroyed, the abdomen was painful to the touch, the pulse small, weak, and frequent, and at last intermittent. The respiration became difficult, and deglutition impossible, lividity of the countenance came on, spasms of the muscles of the extremities ensued, and rapid death. Death occurred within thirty-six hours after eating the sausages.(*n*)

These cases show that the symptoms are not always so slow in appearing as is generally stated. Many other cases might be referred to in which the effects were precisely similar to those described.(*o*)

§ 683. In some cases suspicion is wrongly thrown upon the food. Thus in the narrative (communicated by Prof. Röse to Casper's Journal, 1852) of the poisoning of a family by the smoked breasts of geese (*spickgans*,) it was found upon chemical examination that a considerable quantity of *sulphate of zinc* was contained in the food. It had been used instead of saltpetre in its preparation. The symptoms were of a choleraic nature and nothing like the narcotism produced by sausage poison was observed.

§ 684. The *post-mortem appearances* in the cases seen by Roeser were the following. The brain and spinal marrow were healthy. The palate and tonsils were red, the last much larger than natural, the lining membrane of the larynx was of a deep blue color, and that of the trachea and bronchia of a blackish red color. The lungs were highly congested and condensed. The œsophagus was of a remarkably white color, and covered with a white false membrane. The stomach and intestines internally were mottled with red spots, and the duodenum had a black appearance. The other organs were nearly natural in their aspect. Similar appearances have been observed in other cases.

§ 685. In December, 1841, over forty cases of cholera morbus occurred in New York, which according to Dr. Lee, were traced to some smoked beef, sold from a particular grocery, and of which individuals attacked had freely eaten. The symptoms did not generally make their appearance until several hours after the beef had been eaten. They commenced with pain and uneasiness in the precordial region, which extended to the back and loins, and were only temporarily relieved by the dejections which followed. Vomiting soon came on, attended with great thirst and a burning sensation at the pit of the stomach, and the irritability of this organ became so great, that no substance, either as food or medicine, could be retained for an instant. Extreme prostration followed; the functions of the nervous, muscular, and the digestive systems were much impaired, and convalescence was very slow and protracted. In one case, that of a girl six years of age, the disease proved fatal on the fifteenth day; and on dissection the blood was found fluid, the mucous coat of the ileum deeply injected, and inflamed; the other organs were healthy.(*p*)

(*n*) Roeser. Am. Jour. Med. Sci. April, 1843.

(*o*) Vid. Kussmaul. Ver. deutsch. Zeitsch. V. II. 1849. Two children out of a family of seven died.

(*p*) Copland's Dict. Am. Ed. Art. *cholera*.

Poisonous Cheese.

§ 686. The nature of the poisonous quality occasionally acquired by cheese, is not more precisely known than that of sausages; it is supposed by Hünefeld and Sertürner to depend upon two animal acids, analogous, if not identical with the caseïc and sebacic acids. According to the researches of Proust, the sharp, peculiar taste of old cheese is owing to the gradual conversion of the curd or caseïne into the caseate of ammonia, which in sound cheese is always united with an excess of alkali. But if the fermentation has been too much hastened, or allowed to go too far, a considerable excess of caseic acid is formed, as well as some sebacic acid. According to Hünefeld, the deleterious cheeses are yellowish red, soft and tough, with harder and darker lumps interspersed; they have a disagreeable taste, redden litmus, and become flesh-red instead of lemon yellow under the action of nitric acid.(*q*) Instances of poisoning by cheese have been hitherto observed chiefly in Germany, some few in England, and within a few years in this country also.

Dr. Parrish has given an account of several cases which fell under his observation in Philadelphia.(*r*) A poor family, consisting of a laboring man and his six children, after a meal composed of tea, bread and cheese, were seized with severe vomiting and purging, with dizziness of the head and great prostration of strength; the liquids discharged from the stomach and bowels, were thin and watery, and not very dissimilar to the rice water discharges of cholera. The attacks were frequent and distressing, and the cases exhibited at first view, very much the appearance of poisoning from some metallic irritant. These symptoms occurred within an hour after partaking of the meal, and the mother of the family, who was alone unaffected, had been absent from dinner on that day. On the following day all Dr. P.'s patients had recovered. Similar symptoms having occurred in numerous instances in the same neighborhood, after eating cheese obtained from the same grocer, inquiry was made of him, and it was found that the cheese from which the deleterious slices had been cut, was one of a large lot from a celebrated dairy in New York, all of which up to that time had produced no unpleasant results, but on the contrary had been considered remarkably good. There was nothing in the taste or external appearance of the remnant to indicate any poisonous properties. It was moreover tested by a competent chemist, and no mineral poison was detected in it. Dr. P. was unable to explain the sudden development of poisonous properties in any other way than by reference to the peculiar state of the atmosphere existing at the time. "It was in the month of January, during a spell of remarkably damp, foggy, and mild weather, succeeding to a cold atmosphere. In the two days during which these cases occurred, the air was loaded with moisture, and the fog on the Delaware was so heavy that the boats were very much impeded in crossing. Might not the softening of a mass of cheese, after being hardened by freezing, develop deleterious properties." He also

(*q*) Christison on Poisons, p. 495. (*r*) Trans. Coll. Phys., Jan. 1851.

considers that the fact of the cheese being mild and newly made, would favor the changes referred to.

Poisonous Fish.

§ 687. There can be no doubt, as Dr. Christison observes, that "the subject of fish poison is one of the most singular in the whole range of toxicology, and none is at present veiled in so great obscurity." In many cases it is possible that the symptoms of poisoning may be due to the fish having been kept too long, in others to its mode of preparation, as by pickling or smoking; but nevertheless some few cases will still remain in which the freshest and usually most wholesome fishes have caused symptoms of irritant poisoning. These cases are however far more common in tropical countries, their occurrence in this latitude being so rare, that it is reasonable to suspect either idiosyncrasy on the part of the persons eating the fish, or some deleterious quality acquired by it after its removal from the water.

Oysters have not unfrequently proved dangerous. On several occasions in France, they appear to have become suddenly unwholesome.(*s*) In the autumn of 1854, numerous deaths in our principal cities were ascribed to their use, and it was generally conceded that for a period of a few weeks in the month of October, they frequently gave rise to choleraic symptoms. No clue to the nature of the poison, was in this instance, or in any of the previous epidemics in France, obtained by chemical examination. We doubt very much whether *crabs* and *lobsters* acquire any peculiar poisonous qualitiy apart from their general unwholesomeness as articles of food, if not eaten very soon after their capture.

§ 688. *Mussels* however by general consent seem to have a specific poisonous property accorded to them. The idea that it is due to an impregnation from copper is wholly untenable, since not a trace of this metal has been discovered in those taken from the stomachs of persons who have been killed by them. Unquestionably, in many instances, idiosyncrasy is the cause of the mussel proving unwholesome to some individuals.

But in the cases described by Dr. Combe of Leith, not only were the mussels perfectly fresh, but every person who ate those from a particular spot, was more or less severely affected, and even animals were poisoned by them, a cat and a dog having been killed by the suspected article. Dr. Christison was unable to detect in them any principle which did not exist in the wholesome mussel. Many cases descriptive of the symptoms have been reported. The following is a recent one. A boy aged ten years, ate the thick part of two mussels; forty-five minutes afterwards he complained of uneasiness in his stomach; he had a sensation of heat, giddiness, and a desire to vomit; there was an eruption of nettle-rash over the whole body as far as the knee, attended with swelling of the face and intolerable itching: after an emetic the symptoms disappeared completely.(*t*) Very much the same symptoms were exhibited by the persons seen by Dr. Combe.(*u*) In

(*s*) Mem. sur les Empoisonnements par les Huitres, les Moules, les Crabes et par certains Poissons de Mer et de Rivière, par A. Chevallier et E. A. Duchesne.—Ann. d'Hyg. Vol. LI. (*t*) Guy's Hosp. Rep. 1850. 213. (*u*) Ed. Med. and Sur. Jour. XXIX. 86.

the fatal case of an adult of intemperate habits, reported by Dr. Lee, who with his whole family, seven in number, were poisoned by eating mussels, the attack commenced with severe distress at the stomach, followed by vomiting and purging, painful muscular spasms, with great anxiety and prostration; the pulse was frequent and feeble, the skin of a deep crimson or livid color, and covered with a cold clammy sweat; sleeplessness, subsultus tendinum and delirious agitation, great heat at the epigastrium, the rest of the surface being cold, pupils contracted, face sunken; voice and intellect unaffected until four hours before death, about which time a vomiting of matters resembling coffee-grounds came on; death occurred about forty eight-hours after the time of the attack.(*x*) Chevallier and Duchesne report a number of cases of poisoning by the *roes* of a fish called the barbel, (barbillon) and several cases of a similar origin are reported by Dr. Trapenard.(*y*) The symptoms were such as would be produced by a violent emeto-cathartic: copious evacuations, and constant efforts to vomit, headache, frequent pulse, great pain, and an insupportable sensation of heat.

Unsound Meat.

§ 689. The symptoms produced by the use of unsound meat are similar to those arising from irritant poisoning, but in addition there are typhoid symptoms which indicate the contamination of the whole body by the products of decomposition. In some cases related by Dr. Christison, the patients were soporose or delirious, and one died comatose in six hours after eating a portion of a putrefied calf. The rest being freely purged and made to vomit, eventually got well; but for some time they required the most powerful stimulants to counteract the exhaustion and collapse which followed the attack. Game which has been long kept may be the source of the symptoms of irritant poisoning. In this country the flesh of the pheasant, when snow is upon the ground, is apt to prove unwholesome to some, in consequence, as is supposed, of the bird feeding upon the leaves and berries of the laurel. It is doubtful, however, whether this explanation is correct. Instances of arsenical poisoning resulting from the eating of birds who had fed upon grain steeped in a solution of this poison, to preserve it, are not unfrequent in England and France, where this process is chiefly in use.

Mechanical Irritants.

§ 690. There is a vast number of indigestible substances, which, when introduced into the stomach, may give rise to fatal consequences. Pins and needles, and powdered glass are those which, in case of death, are most likely to give rise to a suspicion of their having been criminally given. Naturally, such questions can be reasonably raised only in the cases of children; although, indeed, at one time, glass in powder was considered as extremely poisonous, and was occasionally criminally administered. Thus, in France, in 1808, a man was tried for poisoning his wife with this substance. It was found in the stomach, but there

(*x*) Am. ed. of Copland's Dictionary. Art. *Cholera.*
(*y*) Ann. d'Hyg. of 1850, and Jour. de Chimie 1851. p. 584.

were other causes which might have produced death. A negro woman, in Jamaica, attempted to poison a whole family with pounded glass, put into a dish of curried fish. The fact was discovered towards the end of the meal, and purgatives were given, which brought away large quantities of coarsely powdered bottle-glass. The persons did not suffer any inconvenience. Dr. Bowling, of Kentucky, obtained as much as eighty grains of powdered glass from the discharges of a child. It had not suffered at all.(*z*) Nevertheless, Dr. Christison reports a case in which a child, eleven months old, was evidently killed by it.(*a*)

§ 691. *Pins* and *needles*, when swallowed, rarely cause death; they frequently emerge from various parts of the body, or are found after death in the viscera. Thus, a case is related in which a needle was found in the kidney, in another in the liver, and in another across the œsophagus; the point of it had, in this case, penetrated the common carotid artery, and produced fatal hemorrhage. Sometimes, no doubt, they are thrust under the skin by hysterical patients, animated by a morbid desire of attracting attention and curiosity. They may be the accidental cause of death in many ways, but the most usual is that of disturbance of the digestive functions. A case is related,(*b*) in which a woman eventually died from the continued irritation produced by a quantity of needles she had swallowed. The stomach which was enormously enlarged contained *nine* ounces of pins of a purple-black colour, and the duodenum contained a *pound* of the same. In the body of a lunatic who died suddenly of peritonitis, in the Peckham house asylum, the following articles were found in the stomach: thirty-one entire spoon-handles, of about five inches long; four half handles, nine nails, varying in size from a garden wall nail to a spike nail; half of the iron heel of a shoe; a screw, two and a quarter inches long; four pebbles, and one metal button, weighing in all two pounds eight ounces. The whole of them were stained of a black color, and the angular articles rounded off and blunted. In the duodenum an entire spoon-handle was found, and here the perforation occurred which caused the peritonitis.(*c*)

A case in which a mass of hair and string, weighing from eight to ten pounds, was taken from the body of a girl aged eighteen, who had been in the habit of swallowing these substances, is related in the same journal.(*d*) A remarkable instance of the passage of a tinned iron fork through the whole alimentary canal, was communicated to the French Academy of medicine by Velpeau.(*e*) Another in which death was caused by eating raw rice.(*f*) M. Gosselin related to the Surgical Society of Paris, the case of a man who swallowed a clay pipe three inches and a half in length. It occupied two months in passing through the bowels, and, at the end of this time, it was discharged unbroken. But the man's health had suffered severely from the irritation it had caused, and he died five days after its discharge.(*g*) Cases such as have been enumerated in this chapter, are evidently rather subjects of curiosity, than of any importance in legal medicine.

(*z*) West. Jour. of Med. and Surg. Nov. 1848.
(*a*) p. 504.
(*b*) Lancet, Am. Ed. 1852, p. 224.
(*c*) Lancet, 1852. Vol. II. p. 296.
(*d*) Vol. I. 1852, p. 224.
(*e*) Ibid. 1849, p. 246.
(*f*) Ibid. April, 1847.
(*g*) Ibid. 1851. Vol. II. p. 462.

NARCOTIC POISONS.

CHAPTER I.

OPIUM AND ITS PREPARATIONS.

§ 692. The *symptoms* produced by a poisonous dose of opium or its preparations, differ from those which are occasioned by moderate and remedial doses of the drug. While in the latter, the purely narcotic effects do not occur without a certain degree of previous exhilaration and stimulation,—in the former, dizziness and stupor are the first symptoms, or the excitement is so temporary as to pass unnoticed. The main characteristic of poisoning by opium is the profound somnolence which it occasions, and which is not preceded by active delirium. When under the full influence of this narcotic, the patient lies in a deep lethargy, his eyes are closed, the pupils extremely contracted, the face generally pale, the limbs relaxed, and the skin moistened with copious perspiration. Respiration is slow, and sometimes stertorous. If no efforts are made to save life, or if medical assistance is fruitless, the stupor deepens, the patient can no longer be even momentarily awakened, his pulse becomes feeble and imperceptible, and he dies comatose. Copious perspiration is a singular and not unfrequent symptom. It is mentioned by Christison, who says, that in one case, "the sheets were completely soaked to a considerable distance around the body;" and Dr. Moreland observed it, in an equal degree, in a case he has reported.(*h*) Delirium is very rare, and when it occurs, is of a passive character. In the adult, *convulsions* have been seldom observed, although one or two curious cases have been reported in which they were witnessed. In children, however, they are not uncommon. Occasionally, spontaneous vomiting takes place, especially after the ingestion of the drug in large quantities, and some instances have occurred in which this early rejection of the poison from the stomach has saved the life of the individual. A child nine years of age, mentioned by Dr. Coale, recovered in this way after having swallowed four grains of opium and four of extract of belladonna. The pulse also varies in character, being usually feeble and irregular, but sometimes full and slow. In a case reported by Dr. J. B. S. Jackson, it is described as "rapid, full and throbbing." Such differences depend often probably upon the variable periods at which the observation is made,—thus, the skin is warm and perspiring, and the pulse rapid and feeble, or perhaps even strong early in the case, while later, if the patient get worse, the surface becomes cold and pale, and the pulse slow, feeble and irregular. Much also may depend upon the constitutional irritability of the system.

§ 693. The symptoms usually commence, in the adult, within an hour after the poison has been taken, but sometimes the confirmed

(*h*) Am. Jour. Med. Sci. Oct. 1854.

narcotic effects do not come on until a later period. In a case quoted by Dr. Taylor, the patient was found totally insensible in fifteen minutes. In Dr. Lyman's case,(*i*) a female, after taking an ounce of laudanum with suicidal intent, began very suddenly, in thirty-five minutes, to lose her pulse and muscular power, and had slight spasms; the lips became livid, there was spasmodic dropping of the lower jaw, the extremities were cold, and in ten minutes she was unmistakably dead. Thus, three quarters of an hour only elapsed from the ingestion of the laudanum to her death. Dr. Coale,(*j*) states that he met with a case fatal in the same time, and Dr. Taylor quotes a similar one. Dr. Beck reports a case which proved fatal in two hours. Another is given which terminated in two hours and a half.(*k*)

§ 694. The *average duration* of cases of poisoning by opium is stated by Christison to be from seven to twelve hours. The rapidity or indeed the certainty of death does not always correspond with or depend upon the amount taken, when this is beyond the limits of safety. Among the cases above referred to, is one by Dr. Jackson, which recovered although ninety grains of opium were taken, and no relief was afforded for three hours afterwards; while the most rapidly fatal case yet recorded, was one in which only an ounce of laudanum was swallowed. The fact should, however, be borne in mind that laudanum or any *solution* of opium is more prompt in its effects, owing to the greater facility of its absorption than in the case of the solid opium.

§ 695. Owing to the varying susceptibility of individuals to the poisonous action of opium, it is not possible to state the *amount* which will be uniformly fatal. A case is referred to by Taylor, in which four grains proved fatal, and another in which death was supposed to have resulted from a dose of two drachms of laudanum, but it was uncertain whether as much as half an ounce had not been swallowed. In Dr. Lyman's case, one ounce was the cause of speedy death. The smallest dose which has proved fatal to a child, is one twentieth of a grain.(*l*) The child was six days old. Dr. J. B. S. Jackson met with a case, in 1845, in which five drops of laudanum injected into the rectum of a child eighteen months old, caused death in six hours. Instances are quoted by all the writers on toxicology, of death in children from extremely small doses, such as the one-tenth or the one-fifth of a grain, and most practitioners have witnessed alarming symptoms from a few drops of laudanum, or fractional doses of Dover's powder given to children. In many instances these have been dissipated only by active medical interference, such as cold affusion, galvanism, &c.(*m*)

The tincture of opium is liable to considerable variations in strength, and although, in adults, the difference of effect will hardly within certain limits be perceivable, it may certainly be so in children, in whom this drug has moreover always a disproportionately speedy action. The quantity of

(*i*) Am. Jour. Med. Sci. Oct. 1854. (*j*) Am. Jour. Jan. 1850, p. 73.
(*k*) Bost. Med. and Surg. Jour. Vol. XI. p. 285.
(*l*) Dr. E. Smith, Assoc. Med. Journ. April, 1854.
(*m*) Vid. I. Young's case, and the references given by Dr. Hays, Am. Jour. Med. Sci. April, 1852, p. 426; also a very instructive case by Dr. Herapath, where respiration was artificially maintained by means of the galvanic battery, until the narcotism passed off, and the child saved. Lancet, Am. ed. 1852, p. 450.

soluble matter taken up by the menstruum is subject to great variation, since the purity of the opium, its comparative strength in morphia, the strength of the spirit used as a solvent, and the period of the maceration will undoubtedly affect the result materially. The tincture properly prepared should contain one grain in 12.8 minims, or about twenty-five drops. Godfrey's cordial contains a little more than one grain of opium in the fluid ounce.(*n*) Dalby's carminative mixture has five minims or ten drops of laudanum in two ounces. The fatal consequences arising from the constant and ignorant use of these empirical preparations in domestic practice, are undoubtedly very frequent.

§ 696. The influence of *idiosyncrasy* in modifying the usual effects of opium are often seen, and may be of importance in legal medicine. Thus Grisolle states, that he saw narcotism induced in a lady by the ingestion of half a grain of opium. Dr. Christison mentions the case of a gentleman who was always narcotized by so little as seven drops of laudanum, and Taylor observed alarming symptoms from the injection in a clyster of one grain of opium. Some authors contend that the drug is more active by the rectum than when swallowed. Some diseases render the system extremely susceptible to its poisonous action, and this is particularly the case in all those affections attended with a plethoric condition of the blood-vessels. On the other hand, painful maladies enable the person to bear very large doses, not only without injury, but with positive advantage.

§ 697. The habit of taking opium diminishes the influence of this drug upon the system, and doses, which in other cases would be absolutely poisonous, are taken by persons, who have been in the habit of using it, with entire impunity. The influence exerted by the habitual use of opium upon the *duration* of *life*, does not appear to be so unfavorable, as from the powerful action of the drug upon the system, might at first be supposed.(*o*) The picture of the opium eaters and smokers of the East, as drawn by travellers, is indeed a melancholy one, and their general testimony is, that *there* it undoubtedly has the tendency to shorten life. This is the conclusion arrived at by Mr. Little of Singapore, as the result of careful and extensive inquiries at that place of the owners of opium shops, of the smokers who frequented them, the prisoners in the house of correction, and the paupers of a poor house. The following picture of the effects of the habitual use of opium is drawn by this gentleman: "As the habit grows upon its unhappy victim, the first evils experienced are disturbed sleep, watchfulness, giddiness, sometimes headache, capricious appetite, a white tongue, frequently costiveness, indescribable oppression in the chest, and haziness of the

(*n*) Wood & Bache's Dispensatory.

(*o*) This subject received particular attention from Dr. Christison in consequence of its importance in a remarkable civil trial. The Earl of Mar effected insurances on his life to a large amount while addicted to the vice of opium eating, and died two years afterwards of dropsy. He had used laudanum for thirty years, at times to the amount of two or three ounces daily, and died at the age of fifty-seven. He suffered greatly from rheumatism. The insurance company having been unaware of this habit, refused payment on the ground of its having a tendency to shorten life. The persons holding the policy, therefore, instituted an action against the company, which was decided in favor of the former, but on other grounds.

eyes. Afterwards a copious secretion of mucus takes place from the eyes and often from the nose also; digestion becomes much impaired and micturition difficult; a mucous discharge begins to flow from the organs of generation; the sexual organs, at first preternaturally excitable, gradually lose their tone; the body wastes, the muscles lose their torosity, and the bones are affected with dull gnawing pains for some hours in the morning. By and by the figure stoops, and a peculiar shuffling gait is acquired, by which alone a practised eye may recognize an old opium debauchee. At the same time, the eyebrow droops, the lower eyelid becomes dark, the eye itself seems to sink and grow dim, and the whole expression is that of premature old age. In both sexes the procreative power is greatly lessened, and in those women who, nevertheless, do bear children, the secretion of milk is defective. The influence of the habit on the generative functions is indeed so decided, that were it not for fresh arrivals from China and other parts of the East, the population of Singapore would very soon be seriously diminished."(*p*) Finally, according to this author, structural derangement is induced, the digestive and assimilative functions become very much impaired, strumous affections are readily developed, and the opium-smoker succumbs without resistance under any violent disease.

Some Eastern travellers, however, assert that it has no tendency to shorten life. Thus Dr. Macpherson says, that although the habit of smoking opium is, in China, universal among rich and poor, we find them to be a powerful, muscular, and athletic people; and Dr. Burnes, who resided several years at the court of Scinde, says, that "it will be found in general that the natives do not suffer much from the use of opium.(*q*) A celebrated Cutchee chief, who had taken opium largely all his life, was alive at the age of 80, paralyzed by years but his mind unimpaired."

Dr. Christison, moreover, found upon an examination of twenty-five cases, the particulars of which he obtained from various quarters, that instances of longevity among opium eaters in Great Britain were not uncommon. In most of these cases it is expressly stated that no injurious effect upon the general health was observed; in some instances, indeed, the persons being ruddy and robust in appearance. In a few, unpleasant symptoms were experienced only upon the intermission of the habit. The only inference that can at present be drawn from the testimony of travellers, and from these observations reported by Dr. Christison, is adverse to the general belief that opium, like intemperance in strong drink, has a tendency to shorten life when habitually used. Future observation must decide whether this reasonable belief is not really the correct one. The possibility of abruptly discontinuing the habit without injury to the constitution has been lately shown by Dr. Christison.(*r*)

§ 698. *Post-mortem appearances.* It is quite unnecessary to particularize the morbid alterations which have been seen in persons dying from poisonous doses of opium, since there are none which are sufficiently constant or distinctive to be attributed to this cause. As a

(*p*) Edinb. Month. Jour. June, 1850.
(*q*) Christison on Poisons.
(*r*) Edinb. Month. Jour. June, 1850.

general rule, the vessels of the brain will be found turgescent and the lungs congested, while the blood remains fluid. The multitude of diseases and of accidental modes of death which may occasion these conditions preclude us from attaching any importance to them as indicative of death from opium. Sometimes opium in substance or laudanum may be found in the stomach, or the latter recognized in this organ by its smell, but in the vast majority of cases the poison is rapidly absorbed or eliminated from the system, so that at the post-mortem inspection no trace of it will be found.

§ 699. *Poisoning by Morphia* or its salts requires no separate consideration. The symptoms are rather more prompt in their appearance but are otherwise entirely similar to those produced by opium or laudanum. The medicinal dose of morphia, or of its acetate, muriate, or sulphate, is *one-sixth* of a grain. Death has been caused by *one* grain of the muriate, taken in divided doses over a period of six hours.(*s*) This was equal probably to six grains of opium. It was for poisoning with the acetate of morphia, that Castaign, who had formerly been a pupil of Orfila, was, in the year 1823, tried and executed in Paris. He was convicted less upon the medical than the moral and circumstantial evidence offered, since with the most ingenious refinement of cruelty he had administered tartar emetic to his victim for the purpose of getting rid of any of the poison which might have remained in the stomach. The medical testimony could only show that the symptoms and post-mortem appearances were not opposed to the supposition that morphia was the cause of death.

§ 700. *Chemical Examination.* Opium is easily recognized by its familiar physical properties. As, however, it is seldom presented in a pure state for examination, but mingled with some form of organic matter, these properties can seldom enable us to distinguish it. It is necessary, however, to describe first the properties and tests of morphia and meconic acid, since it is to these constituents that opium owes principally its poisonous qualities, and the chemical analysis is therefore directed to their separation from the substances examined.

§ 701. *Morphia.* The crystals of morphia are transparent, they are nearly insoluble in water, and have a bitter taste. Boiling water dissolves a little more than one four-hundredth part of morphia; it is nearly insoluble in ether, but readily soluble in sulphuric, muriatic, or acetic acid. The following are some of the chief characteristics of morphia, as enumerated by Dr. Pereira:—

1. *Nitric acid* reddens morphia or its salts (the chlorate excepted, according to Dumas) and forms with them an orange-red solution, which is much darkened by excess of ammonia, and which becomes yellow after a little time. *Fallacies.* Nitric acid produces a red color with several other bodies, as brucia, commercial strychnia, several volatile oils (as oil of pimento and oil of cloves,) some resinous substances, &c.

2. *Iodic acid* is deoxidized by morphia, iodine being set free. Hence when this alkali is added to a solution of iodic acid, the liquor becomes reddish brown, and forms a blue compound (*iodide of starch*) with starch. *Fallacies.* Sulphuretted hydrogen, sulphurous acid, phospho-

(*s*) Ed. Month. Jour. Sept., 1846.

rous acid, sulphocyanide of potassium, sulphosinapisin, and some other agents have a similar effect on iodic acid. Of course if the morphia be pure these fallacies have no application.

3. Neutral sesquichloride of iron dropped on crystals of morphia, renders them blue. If water in excess, or acids, or alkalies be added to the blue compound, the color is destroyed. It is also destroyed by heat. *Fallacies.* Tannic and gallic acids with a little water, and infusion of cloves or pimento also form blue compounds with sesquichloride of iron. Dr. Carson adds to the above statements,—"if to a mixture of morphia and concentrated sulphuric acid, a drop of bichromate of potash be added, green oxide of chrome is set free."(*t*)

§ 702. *Meconic acid.* The characteristics of this acid are as follows: 1. It reddens the neutral sesqui-salts of iron; the red color is destroyed by alkalies, protochloride of tin, and nitric acid, assisted by heat. This which is the most reliable test for meconic acid, is still also open to objection. Thus sulphocyanic acid produces a similar red color with the persalts of iron. The force of this objection is derived from the fact that sulphocyanic acid is naturally sometimes present in the saliva. Christison, indeed, states, that "it is seldom possible to procure a distinct blood-red coloration from the saliva, except by evaporating a large quantity to dryness, and redissolving the residue in a small quantity of water;" but Dr. Pereira dissents from the accuracy of this assertion, and says, that in a large majority of cases, he has found saliva distinctly and unequivocally reddened by the persalts of iron. He says, moreover, that he has several times obtained from the stomach of subjects in the dissecting room a liquor which reddened the salts of iron. We believe that the opinion of chemists now, is, in general, in accordance with the statements of the last named author. The means of distinguishing the sulphocyanate from the meconate is to be found in the action of chloride of gold or of corrosive sublimate, since if a few drops of a solution of either of these reagents be added to the red liquid, the color, if due to sulphocyanic acid, will be immediately destroyed. Further, the liquid may be diluted and a few drops of a solution of the acetate of lead added; a precipitate falls which is either meconate or sulphocyanate of lead. The former is insoluble, while the latter is quite soluble in acetic acid.(*u*)

§ 703. *Detection of opium or its constituents in organic mixtures.* Various processes have been recommended for this purpose. All of them require delicacy and skill in manipulation, but from the comparatively infrequent opportunity of discovering any trace of opium in the body, we will cite only the two most recent and probably the best.

The following is the process recommended by M. Flandin for the detection of the vegetable poisons in organic mixtures: "Mix the matter in question in the proportion of 12 to the 100 of its weight of anhydrous lime or barytes, and rub them down together in a mortar; heat to perfect dryness but not to exceed 100 degrees; treat the powdered matter, at least three times successively, with anhydrous, boiling alcohol, and, on cooling, filter. The liquid thus obtained is almost

(*t*) Mat. Med. Am. ed. II. p. 1061.

(*u*) Taylor on Poisons, p. 503. For an elaborate account of the nature of the tests for morphia and meconic acid, the reader is referred to Dr. Taylor's work.

without color; it contains the principle or principles sought for, and also fatty or resinous matters soluble in alcohol. Distil or evaporate slowly by alcohol and treat the dry and cold residuum with alcohol so as to remove the fatty matters. If the principle sought for is insoluble in ether (as morphia, strychnia, brucia) it remains isolated in the liquid and can be separated by filtration and even simple decantation. If it be soluble in ether, then the principle must be obtained by a special solvent of the organic bases, as, for example, acetic acid, and precipitate the base finally by ammonia. The chemist in charge must adapt his tests to the supposed substance. I submit only the general method. I have mixed with 100 grains of animal matter a grain, or even less, of morphine, strychnia, and brucia; and operating on the mixture, in the manner described above, have collected from the mixture ponderable portions of the above poisonous principles. Again, I have added to the animal matters rough opium, laudanum, a decoction of nux vomica, false angustura, &c., and have isolated by this method the poisonous principles perfectly pure. In order to satisfy myself of the satisfactory application of it to legal medicine, I have poisoned animals with the smallest required doses of opium, morphia, nux vomica, strychnia, false angustura, and brucia, and it was always possible to detect the poison in the contents of the stomach and intestines, and sometimes, indeed, in the organs to which it had been carried by absorption. In a special experiment I mixed two parts and a half of morphia with one hundred of meat, and abandoned the compound to putrefaction for two months. At the end of that time, using the method above described, I discovered a notable proportion of morphia."(*v*)

§ 704. A still more elaborate, and perhaps more perfect process, is detailed by Professor Stas, of Brussels, justly distinguished for his admirable reports in the Bocarmé case: "The method I now propose for detecting the alkaloids in suspected matters, is nearly the same as that employed for extracting those bodies from the vegetables which contain them. The only difference consists in the manner of setting them free, and of presenting them to the action of solvents. We know that the alkaloids form acid salts, which are equally soluble in water and alcohol; we know also that a solution of these acid salts can be decomposed, so that the base set at liberty remains either momentarily or permanently in solution in the liquid. I have observed that all the solid and fixed alkaloids above enumerated, when maintained in a free state and in solution, in a liquid, can be taken up by ether when this solvent is in sufficient quantity. Thus, to extract an alkaloid from a suspected substance, the only problem to resolve consists in separating, by the aid of simple means, the foreign matters, and then to find a base, which, in rendering the alkaloid free, retains it in solution, in order that the ether may extract it from the liquid. Successive treatment by water and alcohol of different degrees of concentration, suffices for separating the foreign matters, and obtaining in a small bulk a solution in which the alkaloid can be found. The bi-carbonates of potash or soda, or these alkalies in a caustic state, are convenient bases for setting the alkaloids at liberty, at the same time keeping them wholly in

(*v*) Am. Jour. Med. Sci. From the Comptes Rendus in March 21st, 1853.

solution, especially if the alkaloids have been combined with an excess of tartaric or of oxalic acid." To put in practice the principles thus explained, the following method is proposed. "I suppose that we wish to look for an alkaloid in the contents of the stomach or intestines; we commence by adding to these matters twice their weight of pure and very strong alcohol; we add afterwards, according to the quantity and nature of the suspected matter, from ten to thirty grains of tartaric or oxalic acid—in preference, tartaric; we introduce the mixture into a flask, and heat it to 160° or 170° Fahrenheit. After it has completely cooled it is to be filtered, the insoluble residue washed with strong alcohol, and the filtered liquid evaporated in vacuo, or it may be exposed to a strong current of air at a temperature of not more than 90° Fahrenheit. If, after the volatilization of the alcohol, the residue contains fatty or other insoluble matters, the liquid is to be filtered a second time, and then the filtrate and washings of the filter evaporated in the air-pump till nearly dry. If we have no air-pump, it is to be placed under a bell-jar, over a vessel containing concentrated sulphuric acid. We are then to treat the residue with cold anhydrous alcohol, taking care to exhaust the substance thoroughly; we evaporate the alcohol in the open air at the ordinary temperature, or still better, in vacuo; we now dissolve the acid residue in the smallest possible quantity of water, and introduce the solution into a small test-tube, and add little by little pure powdered bi-carbonate of soda or potash, till a fresh quantity produces no farther effervescence of carbonic acid. We then agitate the whole with four or five times its bulk of pure ether, and leave it to settle. When the ether swimming on the top is perfectly clear, then decant some of it into a capsule, and leave it in a *very dry place* to spontaneous evaporation." If the suspected alkaloid is solid and fixed, there may be or not a residue containing it. If there is, a solution of caustic potash or soda should be added to the liquid, and it agitated briskly with ether. "This dissolves the vegetable alkaloid, now free, and remaining in the solution of potash or soda. In either case, we exhaust the matter with ether. Whatever be the agent which has set the alkaloid free—whether it be the bicarbonate of soda or potash, or caustic soda or potash—it remains, by the evaporation of the ether on the side of the capsule, as a solid body, but more commonly a colorless milky liquid, holding solid matters in suspension. The odor of the substance is animal, disagreeable, but not pungent. It turns litmus paper permanently blue."

In order now to obtain the solid alkaloid in a crystalline state, the foreign matters, with which it is generally solid, must be first removed. Prof. Stas, to accomplish this purpose, adds a few drops of water feebly acidulated with sulphuric acid, to the contents of the capsule, and thus forms an acid sulphate, which should be carefully decanted, evaporated in vacuo or over-sulphuric acid, the residue treated with pure carbonate of potash, and the alkaloid dissolved out by absolute alcohol. The evaporation of the alcohol, gives the alkaloid in crystals. By this process, Prof. Stas has isolated all the important fixed alkaloids previously mixed with foreign matters.(*w*) For the mode of obtaining the volatile alkaloids, the reader is referred to the Article NICOTINA.

(*w*) Am. Jour. of Pharmacy, Jan. 1853.

CHAPTER II.

HYDROCYANIC, OR PRUSSIC ACID.

§ 705. The extreme energy of this poison in small doses, is well known. The medicinal acid directed by the United States Pharmacopœia, contains two per cent. of pure anhydrous acid. Very nearly the same proportion exists in the formulas of the British pharmacopœias. Scheele's acid, for medicinal use, should contain five per cent. of real hydrocyanic acid, but as sold, it is said usually not to exceed the strength of two per cent. The dilute hydrocyanic acid, is a transparent, colorless, volatile liquid.

Its *taste* is described by Dr. Christison as acrid and pungent, and by others as hot or bitter; but it is probable, as remarked by Dr. Taylor, that the taste may be unperceived, when the dilute acid is taken in a fatal dose, concealed in porter or medicine.

Its *odor* is popularly supposed to resemble that of bitter almonds, but this notion is incorrect. It may have something of this odor, sufficient perhaps to recall it, and this peculiar smell may be recognized by some persons and not by others, but the impression usually made by it upon the sense of smell is indistinct, with the exception of a peculiar involuntary constriction of the fauces, caused by it. The character of the odor, is an important consideration in cases of supposed poisoning by prussic acid. If distinctly recognized by more than one person about the mouth of the deceased, or upon opening the body, it may afford strong reason for supposing that death was caused by this agent. But, as will be presently seen, this evidence is not obtained in every case.

§ 706. *Symptoms.* The rapidity with which this poison acts upon the system, hardly allows of the observation of successive symptoms. Where insensibility is not immediately produced, it is preceded by faintness, giddiness, loss of muscular power, and sometimes by convulsions. In other cases, the patient being found insensible, it is impossible to know the previous symptoms. When seen at this time, the eyes are fixed and glistening, the pupils dilated and unaffected by light, the limbs flaccid, the skin cold, and covered with a clammy perspiration; there is convulsive respiration at long intervals, and the patient appears dead in the intermediate time; the pulse is imperceptible, and involuntary evacuations are occasionally passed. The respiration is slow, deep, gasping, and sometimes heaving or sobbing. This description, which is applicable to the greater number of cases, we have borrowed from Dr. Taylor. It should be added, that there is usually rigidity of the jaws, which has sometimes effectually prevented the administration of antidotes.

§ 707. The *period at which death takes place* is usually within an hour, seldom indeed exceeding three quarters of an hour. A man drank from a phial containing prussic acid, while embracing his wife;

he died in fifteen minutes.(*x*) Seven epileptic patients, who were accidentally poisoned with this acid, died in convulsions within three quarters of an hour.(*y*) In most cases, however, death occurs in a few minutes; and if life be prolonged for a period of three quarters of an hour or an hour, recovery may take place. The rapidly fatal character of this poison, is indeed one of its most striking features. From experiments upon animals, it was supposed at one time that prussic acid was, necessarily, almost immediately fatal. Animals, poisoned by it, die within a few seconds. In the human subject, however, although the symptoms often commence in the act of swallowing, they may not be perceived for one or two minutes.

§ 708. Upon this fact depends often an important question, bearing upon the voluntary or homicidal nature of the poisoning, since it may become evident, from circumstantial evidence, that the deceased has retained consciousness and voluntary power for a certain length of time after swallowing the poison. In Mr. Burnam's case, mentioned further on, insensibility did not occur for two minutes after the poison was swallowed, and that in the largest dose yet recorded. In the case of a girl, aged seventeen, the servant of a chemist, who was seen by the reporter when already insensible, the retention of consciousness for a short period, was proved by circumstantial evidence. In turning up the feather bed, after the body had been removed from it, a prussic acid bottle, with the stopper in, was found between it and the mattress, near the centre; it contained about eight drops of the acid. The girl's mistress stated, that about twenty minutes after the girl had left her, she was proceeding up stairs to bed, when, in passing the girl's room door, she heard a moaning noise: she entered the room, and found her lying in bed, with her clothes on, and the bed-clothes drawn up to her face, apparently "gasping for breath." She instantly gave the alarm. "The evidence adduced proved, as far as *could* be proved, that she had swallowed an ounce of the acid, re-corked the phial, thrust it to full arm's length between the feather-bed and the mattress, got into bed, and then drew the clothes over her body, and there appeared to have been no convulsions."(*z*) Dr. Sewell reports, in the same journal, the interesting account of a gentleman who swallowed seven drachms of the medicinal acid, equal to twenty-one grains acid at five per cent. It was proved that after taking the poison he had walked from the table in the middle of the room to the door, unlocked it, called for assistance, and then returning to a sofa in the room, stretched himself upon it. Here he was found lying as if in a profound slumber, his legs crossed, his arms by his side, and his eyelids firmly closed. The eyes were more brilliant than during life, and continued so until the next day. His face was livid, and the lips very blue; the muscles were all relaxed.(*a*) A young man swallowed, in his bed-room, a dose equivalent to 2.54 grains. He then descended thirty steps, and walked about twenty paces, before he became powerless. He was endeavoring to open the front door of the house to go out, when he suddenly fell. The only

(*x*) Pharm. Journ. Aug. 1851. (*y*) Orfila, Vol. II. 286.
(*z*) Bost. Med. and Surg. Journ. Vol. XXXII. p. 528. Leithead.
(*a*) Ibid. Vol. XXXVII. p. 320.

symptoms observed by a person present were, that "he threw his arms about, and made a noise in breathing, fetching it hard; he very soon became still."(*b*) A case, which is characterized by Dr. Taylor as one of the most extraordinary on record in this respect, is that related by Mr. Godfrey: "A gentleman, aged forty-four, swallowed, it was supposed, half an ounce of prussic acid (strength not stated,) but certainly a quantity sufficient to destroy life. After taking it from the bottle, he walked ten paces to the top of a flight of stairs, descended the stairs, seventeen in number, and went to a druggist's shop at forty-five paces' distance, where he had previously bought the poison, entered the shop, and said, in his usual tone of voice, 'I want some more of that prussic acid!' He then became insensible, and died in from five to ten minutes after taking the poison." There were no convulsions.

Such cases as these (and more might be quoted) fairly prove the untenable nature of the notion, that any acts indicative of design, committed after the poison had been swallowed, cannot be attributed to the deceased. Many simple acts, like those noted, can be easily performed in a very short space of time, and scarcely take anything away from the fearfully rapid character of this poison.

Another fallacy, derived from the result of experiments on animals, was the supposition that death from prussic acid was always preceded by a shriek! There is no case in the human subject which attests any such fact; on the contrary, in the vast majority of cases, there are neither general convulsions, as is common in animals, nor any unusual cry, but on the contrary, death comes on in a placid manner, the patient passing away without a struggle. The convulsions which were observed in the seven epileptic patients, already referred to, may, with some probability, be referred to their constitutional predisposition. In a case of suicide by a dose equivalent to eight grains (reported by Dr. J. G. Fleming,) the appearance of the body was most strikingly like life, even the natural color had not left the cheek, the features were composed, and the limbs relaxed. There evidently could have been no convulsions.(*c*)

§ 709. The *smallest quantity* of prussic acid capable of destroying life, has so far, from actual observation, proved to be about nine-tenths of a grain. This was the amount which destroyed a woman mentioned by Mr. Hicks.(*d*) Life was extinct in twenty minutes. This quantity is equal to fifty drops of acid of the strength of two per cent. Other cases have been reported in which most alarming symptoms ensued from smaller doses.(*e*) In any case in which it appears that a death has resulted from a small quantity, it is highly important, if we would avoid errors, that the real strength of the acid should be ascertained by an analysis of the sample remaining.

§ 710. Instances of *recovery from very large doses* have been recorded. Dr. Christison has reported a case in which, with great difficulty, a gentleman was restored who had taken between a grain and a half and two grains of the anhydrous acid;(*f*) and, still more recently, Mr. W. H. Burnam communicated to the Lancet a very interesting history of the

(*b*) Lowe. Guy's Hosp. Rep. 1846, p. 490.
(*c*) Ed. Monthly Jour. July, 1846.
(*d*) Lond. Med. Gaz., XXXV. 896.
(*e*) Vid. Taylor on Poisons.
(*f*) Med. Gaz., 1850, 917.

recovery of his father from accidentally taking a drachm of Scheele's acid, which was found, upon analysis, to contain 2.4 grains of anhydrous acid.(*g*) Mr. Nunneley, also, has reported a case of recovery from one grain and a third of anhydrous acid.(*h*) One curious fact, in relation to the size of the dose, should not be forgotten, viz., that a comparatively small dose will produce equally fatal results with a large one, it being highly probable, from the cases so far recorded, that all doses over one grain are capable of destroying life with equal certainty and rapidity. The limits of safety, in the use of prussic acid, are easily passed, and the formidable symptoms occasioned by it, develop themselves with wonderful rapidity; hence, too great caution cannot be observed in its administration, with remedial views, in medical practice.

§ 711. *Post-mortem appearances.*—The face is either livid or pale; the lips and nails blue; and the skin of the neck, back, and shoulders, much discolored. The jaws are firmly closed; the muscles of the hands and feet contracted, and cadaveric rigidity comes on sooner and is more perfect than usual. The eyes have a peculiar brilliant and glistening appearance, the pupils are widely dilated, and foam is sometimes seen about the mouth. Evidence of involuntary evacuation of the bladder and rectum is not unfrequently observed. The veins of the brain are found turgescent, and the lungs are congested with a very dark colored blood. Orfila says that the mucous membrane of the air passages has generally a dark red color, which cannot be removed by washing, and the bronchial tubes are filled to their extremities with a bloody froth. The heart presents nothing abnormal. The mucous membrane of the stomach is, in perhaps the majority of cases, highly reddened, and this deepening of color may extend for some distance into the intestinal tube. In a case reported by Jochner, and in a few others, a chocolate colored fluid had been found in the stomach. The blood is generally dark and fluid, sometimes also of a purplish color. It will readily be seen how insignificant are the pathological alterations found in those who have been killed by prussic acid. There is no one of the appearances here noted which may not be met with in death from many other causes, and especially in sudden death by some mode of asphyxia.

§ 712. The only circumstance which is at all deserving of attention, and which merits a separate consideration, is the presence or absence of the odor of prussic acid. It may be at once stated that where this odor is unequivocally detected, the evidence is satisfactory, since it is of so peculiar a character as not to be readily mistaken for anything else. Unfortunately, however, it is not always discovered, even in well attested cases of poisoning by this substance. The odor is sometimes observed about the mouth and nostrils of the deceased and is not perceived in the stomach. This was the case, in an instance reported by Jochner, of a young man who committed suicide by this poison. On the other hand, the stomach may exhale the odor of prussic acid and none be perceived about the mouth or in the room. This was seen in the case reported by Mr. Hicks, in which, moreover, the examination of the body was not made until *ninety* hours after death. On opening the chest, the odor was more plainly perceived than in any other part of the body,

(*g*) Brit. and For. Med. Chir. Rev., April, 1854. (*h*) Taylor.

and the fluid contained in the stomach smelt very strongly of prussic acid.(*i*) In none of the epileptic patients before mentioned was there any odor of prussic acid discovered in any part of the body. The inspection was made twenty-four hours after death. Dr. Christison's case of recovery from a large dose may be referred to here, as corroborative of these facts; the first liquid drawn from the stomach by the tube which he introduced, gave indications of the presence of prussic acid, on analysis, but not by any peculiar odor, although there was none other by which it might have been concealed. The stomach of Sarah Hart, poisoned by Tawell, had no odor of prussic acid, yet one grain of anhydrous acid was obtained, by distillation, from its contents, consisting partly of apple pulp (not the seeds). In the greater number of cases, however, there can be no doubt that it is readily distinguishable, since in some it has been so strong as to seriously affect the bystanders. The circumstances which cause these singular variations, have not been thoroughly investigated. It is supposed, very naturally, that the length of time the person has survived after taking the poison, and the interval elapsing between death and the inspection of the body, must, as well as the dose, have an influence upon the preservation of the odor. But it is evident that these conjectures are not entirely satisfactory, since not only has the odor been detected after as long an interval as seven days, but, on the other hand, it has not been detected even where the presence of the acid has been demonstrated by chemical analysis. It is possible that in these cases it may have been fixed by a base.

§ 713. Hydrocyanic acid may be obtained from many vegetables, particularly those belonging to the sub-orders Amygdaleæ and Pomæ;(*j*) as from bitter almonds, apple-pips, the kernels of peaches, apricots, cherries, plums, and the flowers of the peach, cherry-laurel, and from the bark of the wild cherry, and the root of the mountain-ash. Prussic acid does not exist ready formed in these plants, but is the result of the reaction of water upon amygdalin. Hence, if any of the above substances are found in the stomach, the question may arise whether the indications of the presence of prussic acid are due to them or to the acid swallowed as such. The only manner in which doubt arising from this circumstance can be satisfied, is by obtaining, by chemical analysis, a larger quantity of the acid from the contents of the stomach, than these substances could afford. It is extremely improbable that death should result from the ingestion of any of these articles except in such a large quantity as to obviously preclude the idea of prussic acid in substance having been taken.

It has been stated that this acid may be produced spontaneously from unsound cheese; but Dr. Taylor was unable, by experiment upon numerous samples of decayed cheese, to find any evidence of it. The notion, also, that it may be a spontaneous product of animal decomposition, is timidly advanced by Orfila, but as yet has not received the necessary confirmation. It is also said to be produced by the action of nitric acid on alcohol. This fact was clearly ascertained by M. de Claubry, who observed the serious effects of the vapor upon the health of the workmen engaged in the manufacture of hyponitrous ether.(*k*)

(*i*) Med. Gaz., XXXVI. 460. (*j*) Pereira. (*k*) Ann. d'Hyg., 1839, II. p. 350.

§ 714. While these objections must be allowed their full force in cases where their applicability can be shown, it by no means follows that, where no chemical process further than mere distillation is employed, and where none of the organic matters above mentioned are found in the stomach, that the distinct evidence of the presence of prussic acid, by odor and by the simple chemical reactions to be presently noticed, ought not to be perfectly satisfactory. Moreover, if the mode of death be known, these objections will fall away of themselves. If, however, none of the circumstances preceding death can be ascertained, and neither the odor of prussic acid nor its reactions with the established tests be recognized, it may certainly become a question of serious import, whether the traces of it found afterwards may not be due to some other cause than its ingestion into the stomach. Thus, if the contents of the stomach be subjected to distillation, *with an acid*, it may possibly happen that the sulphocyanide of potassium, which sometimes exists in minute traces in the saliva, may be decomposed, and evidence of prussic acid be thus obtained. For the value of these objections, we must refer the reader to the more detailed treatises on Poisons, especially to those of Dr. Christison and Taylor, and to Orfila's *Médecine Légale* and *Toxicologie*.

§ 715. *Bitter Almonds.*—A lad of fifteen, the son of a wholesale grocer, got access to a cask of bitter almonds, and consumed a large quantity of them with sugar. After a time, but how long is not known, he felt a pleasing sensation, then became suddenly giddy, fell down, and lost his consciousness and recollection. He was found lying insensible near the cask. Ammonia and carbonate of potash were successively administered and the stomach pump employed. By these means he was much relieved. Emetics were then given, and he threw off, in the course of half an hour, as much as *eight ounces*, *troy*, of bitter almonds.(*l*)

§ 716. *Chemical tests.*—The best tests for hydro-cyanic acid are three in number. They are equally adapted to its detection in its simple state or mixed with organic liquids. In the latter case, if the vapor cannot be detected by the tests, the liquid must be filtered and reduced by distillation, the acid being fixed by caustic potash or nitrate of silver.

§ 717. 1. The *iron* test. Add sufficient caustic potash to the suspected acid to saturate it; then a solution of some proto and sesqui salt of iron, such as the partially oxidized sulphate of iron; a dirty green or brownish precipitate falls. Then add diluted sulphuric or hydrochloric acid, when *Prussian blue* will immediately appear if hydrocyanic acid were present. If this be in very small quantity in the liquid, the color will be bluish green, but a blue precipitate will gradually fall. Dr. Christison made use of this test in a recent case, and discovered by it prussic acid in the liquid first withdrawn from the stomach by the stomach pump, although there was no smell of it upon the breath or upon the person, and only a very equivocal odor in the liquid itself. Two drops of the solution of potash were added to half an ounce of the clear fluid, then a few drops of the two sulphates of iron mixed in the proportion of one equiv. of sesqui-oxide sulphate, and two of the pro-

(*l*) Ed. Month. Jour., Oct. 1850, p. 379.

toxide-sulphate,) and lastly, a single drop of sulphuric acid. A considerable precipitate of Prussian blue was obtained instantly and characteristically.(*m*) Dr. Carson observes that this test will detect hydrocyanic acid when it is mixed with common salt, or other chlorides which interfere with the reaction of nitrate of silver. It is, on the whole, a delicate test when properly employed; but a frequent cause of failure in its application is the addition of too much potash, or of the iron salt. The Prussian blue formed, is decomposed by an excess of potash, and if the quantity of iron be too large, the liquid, when the surplus oxide of iron is dissolved by an acid, will acquire a yellow color, and give a greenish tint to a small quantity of Prussian blue formed at the expense of the hydrocyanic acid. The *vapor* of prussic acid may also be detected by this test, by means of the following expedient: Put a drop of the solution of potash in a small white saucer, and invert it over another containing a portion of the suspected liquid. After two or three minutes, or more if the acid be much diluted, remove the upper saucer and drop on the potash a drop of the solution of the green sulphate of iron; agitate and expose to the air for a few seconds; add one or two drops of dilute muriatic acid, to dissolve the surplus oxide of iron, and if hydrocyanic acid is present, a trace of Prussian blue will appear. This test may be conjoined with the silver test, both in its application to the liquid and to the vapor, for if the cyanide of silver formed in that test be decomposed by muriatic acid, prussic acid being liberated will of course give the reactions just described.

§ 718. 2. *The Silver Test.*—The nitrate of silver causes, in a liquid containing prussic acid, a clotted white precipitate of the cyanide of silver, which is known by its solubility in boiling nitric acid, by its decomposition by muriatic acid, and by its evolving cyanogen gas (known by its inflammability and flame of a carmine color) when carefully dried and heated in a small reduction tube. The *vapour* of prussic acid may be detected also by this test. A watch glass may be moistened with nitrate of silver, and inverted over a vessel containing this acid; very soon an opaque white film of the cyanide of silver forms upon the moistened spot. Dr. Taylor states that one drop of the officinal acid (containing less than 1.50th of a grain) produces speedily a visible effect.

§ 719. 3. *The Sulphur, or Liebig's test.*—This test was first proposed by Liebig, and is the most delicate one yet discovered, as it will not only indicate the presence of prussic acid when no *odor* can be perceived, but when the other tests have failed to detect it. Dr. Taylor says that this test detected clearly so small a quantity as the 0.3930th of a grain, and that in an experiment in which ten drops of a liquid containing only one 473d part of a grain of anhydrous prussic acid, produced the characteristic reaction with hydrosulphuret of ammonia in five minutes. The manner of applying this test is as follows: "If a small quantity of hydrosulphuret of ammonia (containing a little excess of sulphur) be added to a few drops of the solution of prussic acid, and the mixture be gently warmed, it becomes colorless, and on evaporation, leaves sulphocyanate of ammonia—the sulphocyanic acid being indicated by the intense

(*m*) Med. Gaz., 1850, p. 917.

blood-red color produced on adding to the residue a solution of a persalt of iron; this color immediately disappears on adding one or two drops of a solution of corrosive sublimate. This test is very delicate, and it therefore requires some care in its application; thus, if the boiling and evaporation be not carried far enough, the persalt of iron will be precipitated back by the undecomposed hydrosulphuret of ammonia; and if the heat be carried too far, the sulphocyanate of ammonia may itself undergo decomposition and be lost."(*n*) "The great utility of the sulphur test, however, is in its application to the detection of the minutest portion of prussic acid when in the state of *vapour*. In this respect it surpasses any process yet discovered. In order to apply it we place the diluted prussic acid in a watch glass, and invert over it another watch glass, holding in its centre one drop of the hydrosulphuret of ammonia. No change apparently takes place in the hydrosulphuret; but if the watch glass be removed after the lapse of from half a minute to ten minutes, according to the quantity and strength of prussic acid present, sulphocyanate of ammonia will be obtained on gently heating the drop of hydrosulphuret, and evaporating it to dryness. With an acid of from three to five per cent. the action is completed in ten seconds. The addition of one drop of persulphate of iron to the dried residue, brings out the blood-red color instantly, which is intense in proportion to the quantity of sulphocyanate present. When the prussic acid is excessively diluted, the warmth of the hand may serve to expedite the evolution of the vapour."(*o*) The tests for the *vapour* are equally applicable to organic mixtures and to the detection of the poison in the blood, secretions, or soft tissues.

§ 720. Notwithstanding the readiness with which prussic acid undergoes decomposition, it has been detected in the body after death. Rieckher detected it in the contents of the stomach by the sulphur test, twenty-four hours after death.(*p*)

Mr. West was able to detect it, on distillation, by the odor and the silver and iron tests, *twenty-three* days after death, although no pains had been taken to insure its preservation.(*q*) In the following case, it will be seen that it was detected after about the same period of time.

A young man of Tours having purposely poisoned himself with medicinal hydrocyanic acid of the 12th degree, of which he appeared to have swallowed about twenty-five grammes, M. Brame, was called upon after the lapse of *three weeks*, for the purpose of trying whether it was possible to detect hydrocyanic acid in the body. He was able to detect and estimate a considerable quantity of this poison which had remained in the stomach. By the addition of neutral and pure nitrate of silver, there was formed an abundance of a flocculent and yellowish precipitate, which, well washed and dried under the air-pump, and then heated for a few seconds on a sand bath, assumed a gray color. This precipitate was soluble in ammonia and cyanide of potassium. Decom-

(*n*) The terms in the text, "hydrosulphuret of ammonia," and "sulphocyanate of ammonia," should more properly be sulphide of ammonium, and sulphocyanide of ammonium, or rhodanide of ammonium.

(*o*) Taylor on Poisons, p. 548.

(*p*) Canstatt's Jahresbericht für 1852. Bd. VII. p. 49

(*q*) Prov. Med. Jour. July 23, 1845.

posed hot with potassium, cyanide of potassium was formed, with which it was easy to obtain hydrocyanic acid and Prussian blue. Suspended in water, and subjected to the action of a current of hydro-sulphuric acid, it gave rise to a clear and limpid solution of hydrocyanic acid when the sulphuret formed had been separated by filtration. By means of hydrochloric acid, hydrocyanic acid could be obtained from it of a very powerful odor, and the vapour of which formed a white precipitate in a solution of nitrate of silver; the precipitate was soluble in ammonia. The first precipitate, heated in a lamp, in a narrow tube closed at one end, gave hydrocyanic acid and a few drops of water, &c. This same precipitate, gently heated with caustic potassa, gave rise to no disengagement of ammonia.

In this case the hydrocyanic acid had remained in the stomach three weeks after burial. It did not appear to have entered into any chemical combination. There was a very considerable quantity of it, for, says M. Brame, "I was able to collect about 0.60 of cyanide of silver, or nearly 0.120 of hydrocyanic acid."(*r*)

§ 721. The essential *oil of bitter almonds* is most active as a poison, and has repeatedly been the cause of death. It is stated that in one year the daily papers of London furnished accounts of ten cases of poisoning by it. Dr. Maclagan, who has recently made some valuable observations respecting it,(*s*) states that the ordinary commercial essential oil of bitter almonds consists of a peculiar oil, (hydruret of benzule,) to which its peculiar aroma and pungency are due, associated with anhydrous prussic acid. The hydrocyanic acid can be separated from the hydruret of benzule without impairing the peculiar flavor of the oil, and yet leaving it comparatively innocuous. Much of the difference of opinion which has reigned as to this fact, arises from the circumstance that by merely agitating the oil with a large excess of lime or caustic potash, and distilling it, the prussic acid is not sufficiently separated. A salt of iron should be employed, which fixes it more effectually. Dr. Maclagan made experiments upon dogs with the oil thus rectified, and found that when no trace of prussic acid could be detected by the iron test, it was not poisonous. The following are the most prominent of his conclusions. 1. That the poisonous action of the unrectified oil is essentially due to the hydrocyanic acid which it contains. 2. That the oil really free from prussic acid in doses of a few drops does not act as a poison on animals generally. 3. That although the rectified oil in doses of a drachm and upwards does prove fatal to rabbits, yet that on dogs, whose organization renders them much better subjects for testing the probable effects of the substance on man, doses even so large as three drachms of the oil, entirely or nearly free from prussic acid, produce no other effect than a little vomiting, and do not cause death or even dangerous symptoms.

The same results have in the main been obtained by other chemists, particularly Wöhler and Frerichs.

Why the deadly ingredient should be allowed to remain in it, if it can be so readily removed, it is not easy to understand. The placing of

(*r*) The Chemist, Feb. 1855, from Comptes Rendus, No. 20, November 13, 1854 By M. Brame.

(*s*) Edinb. Month. Jour. Jan. 1854.

restrictions upon the sale of this and other articles of a pernicious character, for the purpose of flavoring or ornamenting articles of food, appears to us to be of still more urgent importance than any restraint upon the sale of arsenic and similar poisons, which cannot be employed except for destructive purposes. In the latter case, means are readily found to obtain the required poison, while in the former, experience has shown that equal brilliancy of color and delicacy of flavor can be obtained from harmless substances as from the deadly poisons in universal and daily use in this country and England. Prussic acid is rather too potent a poison to be distributed to cooks and confectioners disguised with the pleasant odor of bitter almonds; the most ordinary prudence and humanity would seem to demand that it should not be used thus freely and unthinkingly.

§ 722. The following are a few of the instances in which the oil of *bitter* almonds has produced fatal results.

A child, eight and a half years old, took a teaspoonfull of *ratafia*, containing seven drops of the oil of bitter almonds. She became immediately insensible, but had no spasms, the limbs were relaxed, the jaw, however, firmly closed, the eyelids closed, but the eyes brilliant and glassy, although without expression. Cold affusion, emetics, and stimulants restored her, and in twenty minutes her consciousness returned.(*t*) The general symptoms of poisoning with the oil of bitter almonds, resemble very closely those by pure prussic acid, the principal difference being that in the former they are perhaps less instantaneous, or immediate in their accession, and that the duration of life is somewhat longer. Nevertheless, cases of very rapid death from this oil are recorded.

Dr. Taylor mentions the particulars of a case referred to him, in which it was probable that the whole duration of the case did not exceed *seven* minutes, and the man was not seized by the peculiar symptoms of poisoning until *five* minutes after he had taken the dose. During this time he was conscious and self-possessed, and replied rationally to questions put to him.

In a case related by Mertzdorff, in which two drachms of the ethereal oil of bitter almonds were swallowed, death occurred in half an hour. Another one, related by Dr. Taylor, is remarkable not only for its termination in a similar short space of time, but from the fact of the smallness of the dose, which was only *seventeen drops*. A druggist swallowed half an ounce of "almond flavor," equivalent, it is said, to thirty drops of the oil. He fell insensible in less than half a minute. This case presents, moreover, this peculiarity, that there was a temporary remission of the symptoms. He was sensible for a few minutes and spoke on the nature of his attack, but gradually again relapsed into a delirious and apparently very happy state. His eyes were extremely brilliant, but the pulse was quick and intermittent, and the whole body cold. He gradually recovered from the effects of the poison.(*u*) This case is a very extraordinary one; the peculiar effects cannot well be attributed to the smallness of the dose, since, as we have already seen, little more than half the quantity has proved fatal, and in this case it

(*t*) Lancet, June 8, 1844.

(*u*) Ibid. Sept. 1839, p. 930. Mr. Chavasse.

was strong enough to produce almost immediate insensibility. Mr. Iliff has reported a case in which death must have been very rapid. It is that of a young woman who poisoned herself in the Zoological Gardens, London. A small phial containing a drop or two of the oil of almonds was found in the pocket of her dress, with the cork pushed in.(*v*) In addition to the similarity in symptoms, the post mortem appearances of this substance resemble those of prussic acid. The same placid and natural expression of countenance, and the same purplish color and fluid condition of the blood are here found. But the odor is uniformly present, generally more or less about the mouth, but in all the cases yet reported, very characteristic and penetrating in the stomach and cavities of the body generally. It is very persistent and may be discovered several days after death.

§ 723. The oil of bitter almonds is about four times as strong as the medicinal hydrocyanic acid of the United States Pharmacopœia. It is of a yellow colour, has a bitter acrid, burning taste, and is slightly soluble in water. The almond flavors and essences so much used in cooking are solutions of the oil in spirit, and may prove highly dangerous in the hands of ignorant people. Enough prussic acid is contained in less than an ounce of most of these flavors, to produce fatal effects, and it is evident that smaller quantities might have the same result in the case of children.

§ 724. *Apricot kernels.*—At Arles, a child ate two or three apricots; but not content with this also took the kernels inclosed in the fruit. Very soon after he was seized with convulsions, and died in spite of every attention.(*w*)

§ 725. *Peach kernels*—Dr. Keating of Philadelphia has reported a very interesting case, in which he succeeded, by affusion of cold water, in restoring a child three years of age, who had eaten a quantity of peach kernels. The child was seized suddenly, and when seen was found insensible, with slow, deep, sobbing respiration, no convulsion of the limbs, but slight twitching of the mouth, icy-cold extremities, finger nails livid, hands slightly clinched, eyes prominent, and pupils dilated. A strong odor of prussic acid was perceived about the mouth. An emetic brought up a large quantity of peach kernels, emitting the characteristic fragrance.(*x*) Another case is reported in which the kernels of the cherry proved fatal to a child of five years, after forty hours illness.(*y*)

§ 726. *Cherry laurel water.*—The following case of poisoning by this liquid, is remarkable for the slowness with which the symptoms supervened, and the unusually long duration of life. A hypochondriac of advanced age, drank one morning, an ounce and a half of cherry laurel water. The symptoms of poisoning did not come on for *three* hours. Then the hands and feet became paralyzed, and the head fell forward upon the chest. Involuntary discharges from the rectum and bladder took place. The extremities, though cold and immovable, were not insensible. The pulse was small, the voice hoarse but distinct, and the

(*v*) Lancet. 1850. April. (*w*) Quoted in Am. Jour. Med. Sci. Jan. 1853
(*x*) Trans of Phil. Coll. of Physicians. Vol III. No. 3.
(*y*) Philada. Med. Exam. July, 1845.

intellect perfect. The patient observed with pleasure the incessant progress of the weakness; he died in the evening without pain or convulsions. On dissection, the blood was found gluey and of a peculiar dark color; but no odor of bitter almonds was detected. The celebrated trial of Capt. Donellan in 1781, on a charge of poisoning Sir Theodosius Boughton with this liquid is no doubt familiar to the reader.(*z*) Cherry laurel water is of uncertain strength, since the leaves gathered in the spring contain more prussic acid than when collected and distilled in the middle of summer. It also becomes weaker by being kept. The medicinal dose is from forty minims to a fluid drachm.

§ 727. *Cyanide of Potassium.*—This substance is equally destructive and rapid in its effects with the free hydrocyanic acid. The symptoms are exactly similar to those produced by this poison, as are also the post mortem appearances. The odor of prussic acid is less striking, and less frequently perceived in poisoning with this salt. In a case of sudden death from it reported by Casper, there was no unusual odor, although the nature of the poison was detected by chemical analysis.(*a*) The quantity capable of proving fatal is from two and a half to five grains, since the former quantity is equal to one grain of anhydrous prussic acid. A man aged thirty, died in a quarter of an hour after taking fifteen grains, prescribed for him by his medical attendant, in mistake for the ferrocyanide.(*b*) Dr. Perry related a case to the Boston Society for Medical improvement. A nurse administered this poison by mistake, to a child who had a slight cough, instead of a cough mixture, which stood near the bottle of solution of the cyanide. The immediate effects of the dose were vomiting and convulsions; then insensibility, locked jaw, coldness of extremities, which were pendulous and without muscular power; diminished frequency of respiration (twelve to sixteen per minute), the pulse small but distinct, sixty per minute; the circulation languid, pupils dilated, sphincters paralyzed; the teeth closed so firmly and continuously, that only once or twice could anything be poured into the mouth. Dr. P. saw the child in fifteen minutes after the accident, and found it in a warm bath and insensible. It was treated by stimulants and the inhalation of ammonia. Death was sudden, and no *post mortem* examination was made. The child lived *one hour and a half.*

CHAPTER III.

Chloroform and Ether.

§ 728. These anæsthetic agents now so much used in surgical, dental and obstetrical practice, in the form of vapor, are, as is well known, capable of producing fatal effects. Occasionally death has been due to their mal-administration, the patient being either unfitted to respire them, or

(*z*) Vid. Beck's Med. Jur. Vol. II. (*a*) Vierteljahrschrift. July 1854
(*b*) Henke's Zeitsch. Bd. 45. H. 1. p. 6.

having been required to inhale them unmixed with atmospheric air, or for too long a time. Such accidents have been extremely few in the case of ether; but chloroform being more energetic and rapid in its action, has so frequently been the evident cause of death, that the operator cannot be too careful to ascertain its purity, the probability of his patient being able to bear it, and to see that he does not inhale it to the exclusion of the atmospheric air, or for too long a time.

§ 729. Notwithstanding every precaution, however, occasionally death will suddenly occur in the most unexpected manner from its inhalation. This has occurred in the practice, and under the supervision of the most eminent surgeons. Many cases have been published, which it would however be tedious to enumerate.(*c*) We append however, one or two by way of illustration. Patrick Coyle, chloroformed for fistula; he inhaled for about a minute and almost instantly expired.(*d*) Abbey Pennock inhaled about three drachms in two applications, to relieve the pain of toothache, and died almost immediately after the second application.(*e*) John Griffiths had chancres and hemorrhoids; inhaled about three drachms, and died in about ten minutes, during the incision of the hemorrhoids.(*f*) In the case of Madame Labrunne, related by M. de Confevron, the fatal effects were manifested in eight seconds, and the operator remarked constant winking of the eyelids. The patient repulsed the dentist's hand, making signs that the effect was not complete. She then made four or five fuller inspirations. At that instant, M. de Confevron removed the handkerchief, and only took his eyes off her for the instant occupied by placing it on the table; but in this brief instant, he found the patient's face turned pale, the lips discolored, the features altered, the eyes turned upwards, the pupils horribly dilated, the jaw closed, the head drawn backwards; the pulse could not be felt, the limbs were all relaxed, and a few inspirations at long intervals were the only indications of life.(*g*) Such cases as these can leave no doubt upon the mind that death was attributable solely to the inhalation of chloroform, and that it may occur with a celerity unparalleled by any other poisonous agent whatever. In cases of ordinary surgical practice, when the chloroform is administered by a competent person, and with those precautions which experience has shown to be necessary, the surgeon is probably not culpable in the eye of the law; but increasing familiarity with its soothing effects, and ignorance of its toxical properties, may be the source of fatal results in the hands of unqualified persons. A case bearing upon this point has been recently reported.(*h*) Here the chloroform was procured and administered by a nurse, to a woman in labor, contrary to the injunction, and without the knowledge of the physician. The woman's death could be attributed to no other cause than the inhalation of chloroform.

§ 730. The external phenomena of etherization, whether produced by chloroform or ether, are very nearly alike. There is usually at first a little cough, with expectoration of mucus and flow of saliva, and some

(*c*) Dr. Crisp laid before the Medical Society of London a table which he had made, of the recorded deaths from chloroform up to the present time, June 1853. They amounted to *forty-two*.
(*d*) Dr. Warren. Effects of chloroform, &c. Boston, 1849.
(*e*) Ibid.
(*f*) Ibid.
(*g*) Med. Gaz. Vol. IX. 1849. p. 952.
(*h*) Med. Times and Gaz. April, 1855.

impediment of the respiration; then the respirations become strong and deep and take place without difficulty; the pulse becomes quickened, and the eyes injected. With these early symptoms, there are often irregular movements of the limbs, and expressions of various kinds are uttered; sometimes a patient will try to put away the sponge or instrument used, but more generally he is anxious to retain it. If the inhalation goes on, the face generally becomes distended, the eyes brilliant, and turn in different directions, often upwards; soon the eyelids droop; very often now there are laughter and incoherent expressions; the pulse begins to be slower, and a general insensibility with muscular relaxation follows. This is the true surgical period of anæsthesia. If this period be surpassed and etherization be pushed to its utmost limits, the respiration becomes stertorous, the face livid, the pulse slow and weak, and death may take place. To sum up, temporary excitement, then stupefaction or disorder of the intellectual powers, insensibility and death, are the three great and observable stages of etherization pushed to its utmost limits.(*i*) The symptoms produced by chloroform when swallowed in a large dose are nearly the same as the above. We have already described the psychical effects of the inhalation of the vapours of ether and chloroform. (Vid. Rape.)

§ 731. The *post-mortem* appearances found in those who have perished in this way are remarkably uniform; they are, great congestion of the lungs and bronchial tubes, and the blood is dark and fluid. Exceptions have, indeed, been observed to this rule, but in a very large majority these appearances are constant. Of course, however, such appearances are by no means characteristic of death from this cause alone; they are found equally in death from any asphyxiating cause and in cases of narcotic poisoning. They may also be due to disease.

§ 732. Chloroform may, it is said, be detected in the blood or tissues by the following means: "Place the blood in a sand-bath, pass the resulting vapour through a tube heated in the centre to a red heat, and lined at its extremity with a paste of iodide of potassium and starch; its open end being also covered with paper moistened with the same mixture. If chloroform be present, the paper will be tinged blue. This process depends on the decomposition of the chloroform at a red heat. The simple distillation of the chloroform would often be better."

The reader will find in the note some important considerations relative to the mode of death by chloroform and the means of obviating the frequent accidents which attend its employment.(*j*)

(*i*) Brit. and For. Med. Chir. Rev. Jan. 1852.

(*j*) *Report on an Experimental Inquiry Concerning Accidents by the Inhalation of Chloroform.*—The *Société d'Emulation* of Paris appointed a committee for the above purpose, which met forty times to conduct a series of 150 experiments upon different classes of animals. The results of their labors are detailed by M. L. Lallemand in the present report; but we must confine ourselves to recording his conclusions.

1. The action of chloroform upon the economy takes place with a rapidity directly proportionate to the amount of concentration of the inhaled vapour—the phenomena being, however, always manifested in the same order, and with the same characteristics. 2. The excito-motory properties of the nervous centres, the sensibility and motricity of the cerebro-spinal nerves are suspended by chloroform; but the excitability of the medulla, and the motricity of the nerves continue to be manifested under the electric current. 3. Chloroform possesses an especial elective affinity for the nervous centres, in the substance of which it becomes accumulated during inhalation, and is there found

§ 733. A medico-legal question of no little importance is that repecting the possibility of choroform being used for the purpose of facilitating rape, robbery, &c., by the production of insensibility. The question is not one merely of the possibility of its forcible administration but of its administration also to persons already asleep. Dr. Snow, it is well known, has denied the possibility, but we are disposed to think that his opinion can be no longer sustained. We, however, present his reasons to the reader, as well as the very sensible remarks made thereon by Lord Campbell, that he may judge for himself.

Dr. Snow says, "The sensation of pungency in the nostrils and throat that is caused by this agent when its vapour is in sufficient quantity to produce any effect on the sensorium, is so strong and peculiar, that no person can take a single respiration without being aware that he is inhaling something very unusual. Chloroform, in fact, can never be administered without the consent of the party taking it, unless by main force, which has to be used in the case of children who are not old enough to be reasoned into taking it. If a child be asleep when the process of inhalation is commenced, it nearly always awakes before being made insensible, however gently the vapour may be insinuated. As breathing is perfectly under the control of the will, a person would,

after death in a much larger proportion than in other organs. 4. The respiratory movements cease before the action of the heart. 5. After the respiratory movements are suspended, the animal, if left to itself, dies. 6. Chloroform is rapidly eliminated from the economy, the pulmonary surface being the principal agent of elimination. 7. In the majority of cases, the suspended vital functions can be re-established by means of the insufflation of air, or oxygen gas, even after all apparent circulatory movements are abolished. 8. In order to succeed, it must be resorted to immediately after the suspension occurs, and be steadily persevered in until the normal actions are completely re-established. 9. Artificial respiration, produced by the faradisation of the phrenic nerves, may likewise re-establish the suspended vital functions. 10. Electricity, employed as a general stimulus of the nervous system, is powerless, and it rapidly exhausts the nervous excitability of animals in the last stage of chloroform intoxication. 11. Insufflation acts by stimulating the excitability of the nervous system, and inducing elimination of the chloroform by the pulmonary surface. 12. Death ensuing on the inhalation of chloroform takes place from the abolition of the action of the nervous system, and not from asphyxia or paralysis of the motions of the heart. 13. The dilation of the vapour of chloroform with a considerable and constant proportion of air, will, if not entirely prevent, very much retard, the danger of intoxication.

Applying these results to the human subject, the reporter feels convinced that insufflation of air, effected by means of a tube passed through the mouth into the trachea, and connected with a bellows, if commenced at once on the development of accidents, and continued with perseverance, will, in the majority of cases, prove perfectly successful. Local faradisation of the phrenic nerves is only of secondary importance, compared with insufflation. By the latter, as much air as is desired can be introduced, the energies of the circulation becoming aroused and the elimination of the poison favored; while, under the employment of electricity, the excitability of the nervous system is apt to become exhausted.

In a *preventive* point of view, it is to be observed, that in all the experiments the respiratory movements first ceased; so that such suspension becomes the signal of the intense poisonous influence exerted on the economy, and the imminence of death. These movements, therefore, require especially to be watched during the administration. The chloroform, too, should be employed only when diluted with air, and care be taken not to administer large additional doses when the effect is commencing to take place. Owing to their density, the atmosphere near the patient remains charged with the vapours, which may easily thus become inspired in greater concentration than is supposed.

The reporter furnishes a drawing of a new apparatus, contrived by M. Duroy, for the purpose of administering a diluted chloroform, which he terms an *Anæsthesimeter*.—*Med. Times and Gaz.*, March 10, 1855, from *L'Union Médicale*, No. 13, 1855.

on finding such a strange attempt being made upon him, in the public street, instantly hold his breath and use all his powers of resistance to repel the assault," &c.(*k*) Lord Campbell, in his speech in the House of Lords advocating the adoption of the bill making unlawful administration or application of chloroform and other stupefying agents felonious, made the following remarks: "A most respectable physician had done him (Lord Campbell) the honor to write him a letter, which he had printed, and there he stated the fear arising from the use of chloroform in this way was altogether imaginary, that no strong man who made resistance could possibly be chloroformed. He believed that was true; but in the case of those who were not strong, and unable to resist, it might happen to many of that class, that the chloroform would be employed most effectively for facilitating robbery. The gentleman to whose letter he had referred, stated that a person thus attacked might refuse to breathe, and that he might turn away his head. But, suppose a wet handkerchief was put to his nostrils, and held there, the man must breathe and thus inhale the particular gas that came from the chloroform. It stood, indeed, on record, that since the discovery of chloroform, persons had been convicted before the competent courts of using that article for the purpose of robbery. He hoped, therefore, their lordships would be of opinion that those who made such an attempt, should not be guilty of a misdemeanor only, as was at present the case; but that any person who tried to commit a robbery by means of chloroform or such like substances, *though he did not succeed*, should, if convicted, be held guilty of felony, and be liable to be transported beyond the seas."

We have not seen the evidence brought forward in the cases thus referred to, but we do not doubt that it was fully sufficient to establish the fact of chloroform having been used for the purpose alleged; the only recorded instance which we have met with is the following; its employment was, however, as will be seen, unsuccessful. A gentleman named Mackintosh had retired to bed at an hotel in Kendal. He was awoke about twelve by a man attempting to suffocate him by means of a rag steeped in chloroform. Mr. Mackintosh, who is an elderly man, struggled desperately with his assailant; but whether from the fumes of the chloroform, or the disadvantage at which he was taken by his midnight assailant, he felt himself fast fainting, when his cries of "Help! murder!" roused the house. When the landlord made his way into the room, Mr. Mackintosh was almost powerless, and his assassin or robber was lying upon the bedding, which had fallen upon the floor in the scuffle, apparently sound asleep. On being roughly shaken, the latter professed that he had long been a sleep-walker, and appeared to be astonished to find himself where he was. A policeman was sent for and the man taken into custody. A strong smell of chloroform was perceived by the parties who entered the room upon the alarm being given, and a bottle containing chloroform was found under Mr. Mackintosh's bed and a similar bottle in the carpet bag of the prisoner, who had been at the hotel several days. The probability was that the ruffian was secreted under the bed when Mr. M. retired to sleep, as the latter

(*k*) Lond. Med. Gaz., 1850.

had placed a chair previously against the door to prevent intrusion, there being no lock upon the door.(*l*) This criminal escaped with eighteen months imprisonment; the offence not being a felony at that time, since there was no intent to commit *murder* shown.

Several remarkable instances of robbery of persons designedly rendered insensible by chloroform have lately been reported in the newspapers of this country; although they may be authentic, we do not feel warranted in further alluding to them while unable to attribute them to responsible sources. It is obvious that a person may allege that he has been robbed or maltreated after being rendered insensible by chloroform, but also that the allegation may be false, and be put forward so as to divert suspicion or awaken sympathy.

CHAPTER IV.

ALCOHOL, CAMPHOR, HYOSCYAMUS.

§ 734. The pernicious effects upon the system, of the abuse of alcoholic liquors, are too well known to need any mention here. We propose, therefore, to refer only to their immediate poisonous action when taken in large quantity into the stomach.

Death, from this rapid saturation of the system with alcohol, is by no means rare. Orfila mentions an instance in which a man died immediately from the effects of a large dose of brandy.(*m*) Dr. Rösch relates three cases in which adults died from the immediate effects of excessive drinking in a few hours.(*n*) Taylor says that a man died in half an hour after swallowing a bottle of gin for a wager. Rösch also relates the cases of two children in which quite a small quantity proved fatal. The one was a boy aged two years, who drank some brandy and soon after became comatose, had convulsions, and died in a few hours. The other was a little girl of four years, to whom her uncle had given about two tablespoonsfull of spirits. The child soon sank down insensible, was seized with convulsions, and, in spite of all remedies that were used, died within twenty-four hours. In another case, the same quantity of brandy was given to a child six months old, to keep it quiet during the night. In less than a minute it was attacked with convulsions; its face was purple, the eyes staring, the pupils dilated and insensible, the mouth open, the head extremely hot, while the rest of the body was cool, the breathing stertorous, and the pulse hardly perceptible. It had also bloody evacuations. It died, in a state of coma, in nine hours.(*o*)

§ 735. In general, the state of stupor is preceded by a short period of great excitement, but in some cases this preliminary stage is either very short or entirely absent. The difference probably depends upon the strength and quantity of the spirit and the age of the person.

§ 736. The general characteristics of the comatose stage in the adult

(*l*) Med. Gaz. Nov., 1850.
(*m*) Op. cit. II. 528.
(*n*) Henke's Zeitschrift, 1850, 4 H.
(*o*) Deutsch. Canstatt's Jahresbericht für 1851, Bd 10, p. 286.

are the following: The face may be either pallid or flushed; the pupil at first contracted, and afterwards dilated and insensible to light; respiration slow and sometimes stertorous; the pulse quick and jerking, and the limbs cool and relaxed. In general, the appearance is very much the same as in poisoning by opium, or as in the apoplectic condition. In the absence of any knowledge of the mode of accession of the symptoms, the diagnosis of the case will often be incomplete. The odor of alcohol upon the breath is of course an uncertain sign, since ardent spirits may have been swallowed without being the cause of the symptoms. The ability to arouse the patient temporarily is also no means of distinction, as this may be possible in the stupor from intoxication.

In fact, should the individual die, the physician will often be left in doubt of the origin of the symptoms until some evident cause for them is found in the *post mortem* examination. Even then nothing may be found to throw light upon the case, since a person presenting the above symptoms may have died of concussion of the brain, which leaves no ascertainable morbid change. If the symptoms have been due to opium or other narcotics, these may not be discovered, and, as will presently be seen, the evidences of death from alcohol may also be deceptive. It will only be from a careful analysis of the history of the case, and comparison of it with the post mortem signs, that the physician can hope to come to a probable conclusion.

§ 737. The *post mortem appearances* in acute poisoning by alcohol are generally the following: The odor of alcohol is perceived in the stomach and chest, if too long a time has not elapsed since death; the vessels of the brain are congested, and numerous bloody points are seen on cutting into its substance; there is also not unfrequently an effusion of bloody serum under the membranes. The stomach is reddened in patches, and there is acute œdema of the lungs. The only appearance, however, which can afford tolerable certainty as to the mode of death, is the highly injected state of the brain and the effusion of serum. This, however, gives only an indication of the mode of death, but not necessarily that it has been caused by alcohol.(*p*)

Camphor.

§ 738. Although camphor cannot be regarded as a very active poison, no well authenticated case of death from its use having, as far as we are aware, been yet reported; it is, nevertheless, capable of producing very dangerous symptoms. These, in the cases which are known, have varied somewhat, but in all there has been more or less evidence of its action upon the brain; vertigo, confusion of intellect, delirium, and somnolence being the most prominent effects. Dr. Florian has reported the following curious case: A man 56 years of age and of good constitution, took for the relief of priapism, and under misapprehension of the directions of his physician, an enema containing *ten* drachms of camphor. Immediately afterwards he had sensations of cold alternating with heat in the lower bowels, and these sensations extended along the

(*p*) For some valuable remarks upon the form in which alcohol enters into the system, we beg leave to refer the reader to Dr. Duchek's paper in the Prague Journal, translated in the Phil. Med. Examiner for Sept., 1854.

spine to the neck and spread over the whole body. He was then seized with vertigo, had grotesque hallucinations, an excessive frequency of the pulse, embarrassed respiration, vomiting, strangury, and was greatly prostrated within two minutes after taking the injection. The delirium increased, the features became pale and decomposed, the eyes fixed, and the pupils dilated. The skin became covered with clammy perspiration, and was ice-cold, the pulse frequent and thready, and the impulse of the heart very feeble. When violently aroused the patient regained his consciousness for a moment, complained of distressing nausea, extreme chilliness, and great desire to sleep. Vomiting of a yellow watery fluid, smelling of camphor, followed, and was succeeded by great prostration. By the assiduous employment of stimulation, both externally and internally, as well as purgatives, the patient was rescued from this very precarious situation. He recovered entirely, and the only durable effect of the camphor was seen in the complete aphrodysia which lasted for several weeks.(*q*) Two other cases are reported where the camphor was also given in injection (of about a drachm,) and which were followed by analagous symptoms. In one of these the symptoms were very similar to those of an epileptic convulsion.(*r*) Dr. O. E. Brown, of Kentucky mentions the case of a young man who chewed and swallowed about 100 grains of camphor. No symptoms came on for a short time, but he was, perhaps an hour afterwards, suddenly seized with convulsions, and remained unconscious for several hours. He was relieved by bleeding and a warm bath. He gradually recovered his speech, but remained stupid, languid, and wandering all the next day.(*s*) A few cases are quoted by Drs. Taylor and Christison, in which camphor was taken by the mouth, but they do not differ essentially from the preceding.

§ 739. The smallest dose which appears to have been attended with serious symptoms, is *twenty grains*.(*t*) In a case related by Wibmer, as much as eight scruples were swallowed by a drunkard, dissolved in spirit. It was followed by vertigo, dimness of sight, delirium, and burning pain in the stomach; but there was no vomiting, and yet the man recovered. The nature of the poisonous agent cannot fail, in cases where camphor has been taken, to be discovered, since the odor is so powerful and so well known that it would betray itself at once.

Hyoscyamus Niger. (Henbane.)

§ 740. All parts of this plant are poisonous. The root is long, tapering, whitish and fleshy, and bears considerable resemblance to parsely or to the parsnip, and has been eaten in mistake for them. Dr. Houlton states that, in a monastery where the roots had been eaten for supper by mistake, the monks who partook of them were seized in the night with the most extraordinary hallucinations, so that the place became like a lunatic asylum. One monk rang the bell for matins at twelve o'clock at night; of those of the fraternity who attended to the summons, some could not read, some read what was not in the book, and

(*q*) Gaz. des Hopitaux, No. 41, 1851.
(*r*) Canstatt's Jahresbericht für 1851, Bd IV. p. 277.
(*s*) Bost. Med. & Surg. Jour., Vol. XXXVI. p. 368.
(*t*) Vid. Taylor on Poisons.

some saw the letters running about the page like so many ants.(*u*) Orfila relates two cases in which paralysis, delirium and insensibility, together with tetanic symptoms were caused in two soldiers who ate of the young shoots of this plant.(*v*) The seeds are still more active. Two young children having eaten some of them, became actively delirious, and even maniacal, striking and biting all who came in their way. Their faces were red, hot and swollen, and the pupils dilated. They were gradually restored by the use of emetics, local depletion, and sinapisms to the extremities.(*w*) Another similar case is related in the same journal, but the seeds being unripe, the symptoms were still more alarming.

§ 741. The medicinal preparations usually given are the tincture and extract. Both of these vary greatly in strength. The dose of the former is a fluid drachm, of the latter five grains, on an average. Dr. Cabot, of Boston, gave three tea-spoonfulls of the tincture, at intervals of an hour between each. Ten minutes after the last dose, the face began to swell, and became red and polished, the eyes were closed, and the patient was able to speak only with the greatest difficulty, on account of the swelling of the tongue and lips. The red discoloration of the skin extended as far as the navel, and was attended with intolerable itching and burning.(*x*) Delirium and hallucinations, after a dose of fourteen grains, at intervals, were met with by Reinbold, of Hanover.(*y*)

§ 742. *Hachisch*, or *hatchy ratchy*, a narcotic much used by the Turks and Arabs in place of opium, for the purpose of producing intoxicating effects after their meals, is composed of a mixture of hyoscyamus, bitter almonds, and the juice of hemp root (*cannabis indica.*) A single tea-spoonfull of this preparation is said to be sufficient to deprive the strongest man, for a short period, of the right use of his senses, and render him oblivious of the external world.(*z*)

§ 743. *Lactuca. Lactucarium.* The inspissated juice of two species of lettuce, the L. Sativa and the L. Virosa, has decided narcotic properties, and in some experiments made by Orfila, the extract of the latter variety was fatal to dogs. No observations of its poisonous effects upon man have been recorded. The lactucarium, or inspissated juice, is known under the name of lettuce opium.

§ 744. *Solanum.* The *bittersweet*, or *woody nightshade*, (S. Dulcamara) is said to possess feeble narcotic properties. There is but little testimony to support this view. A case is recorded in Casper's *Wochenschrift*, in which a man took, in one forenoon, from three to four quarts of a decoction, made from a peck of the stalks, and was attacked with pain in the joints, numbness of the limbs, dryness of the mouth and palsy of the tongue, with consciousness unimpaired, the pulse quiet but small and rather hard, and the skin cool. The symptoms disappeared under the use of stimulants.(*a*) Orfila relates an

(*u*) Lancet, July 6, 1844.
(*v*) Toxicol. gener. II. 264.
(*w*) Henke's Zeitsch. 1848, 4 H. p. 516.
(*x*) Am. Jour. Med. Sci. Oct. 1851.
(*y*) Clasper's Wochenschrift. 1840, No. 8.
(*z*) Schneider, in Henke's Zeitschrift. 1848, 4 H. p. 520; see also Bayard Taylor's Travels in Palestine, &c., for an amusing account of its effects.
(*a*) Lond. Med. Gaz. Sept. 1850, p. 548.

instance in which three children were poisoned by the berries of the S. Nigrum, the common garden or deadly nightshade. One of them died, and all of them exhibited symptoms analogous to those produced by belladonna. The supposed active principle of these plants is called solania, or solanin, and is found also in the young shoots of the common potato, S. Tuberosum, but not in the tuber itself. In some experiments by Dr. Fraas, the effect of this alkaloid upon animals was very variable, when administered by the mouth or rectum. Those in which it was injected into the veins we do not consider as conclusive. Two grains of acetate of solanin injected into the rectum of a rabbit, produced heaviness, apathy, *dilatation* of the pupils, convulsions, and death in six hours; but twenty grains of pure solanin given to a pig, and five grains to a dog, produced little or no effect.(*b*)

NARCOTICO-ACRID POISONS.

CHAPTER I.

DATURA STRAMONIUM—TOBACCO—CONIUM MACULATUM.

Datura Stramonium. (Jamestown Weed.)

§ 745. All parts of this plant are poisonous, but the seeds and the leaves are most frequently employed. In some countries it has been, and is still now used for the purpose of producing intoxication with unconsciousness, in order to facilitate the perpetration of criminal designs. It has been thus given, infused in wine or mixed in food. Poisoning by other species of Datura is very common in India. During the year 1848, there were treated for it at the Native Hospital, in Bombay, forty-nine males and two females. The powdered seeds are there employed, concealed in rice or other grain. In many cases three stages of symptoms are observed; primary delirium, sopor or even coma; in others delirium only is observed. The primary delirium may be vociferous or merely garrulous, the patient usually manifesting excessive timidity. In both this and the soporific stage, he is constantly engaged in picking at real or imaginary objects, and sometimes in performing such antics, as to render laughter on the part even of friends unavoidable. Several of these movements seem to depend upon perverted vision, which destroys the power of judging of the distance of objects, and which may be due to the widely dilated pupil—a persistent symptom. The pulse and temperature, although usually natural, undergo, in some cases, extremes of exaltation and depression. On recovery, the person usually recollects nothing since the meal at which he was poisoned, so rapid are its effects.(*c*) Dr. Duffin, of London, reported the case of his own child, two years old, who died in twenty-four hours after swallowing one hundred seeds, without chewing them. She became fretful, and like a person intoxicated; in the course of an hour

(*b*) Brit. and For. Med. Chir. Rev. July, 1854. (*c*) Ibid. Jan. 1851.

efforts to vomit ensued, together with flushed face, dilated pupils, incoherent talking, and afterwards wild spectral illusions and furious delirium. In two hours and a half she lost her voice and the power of swallowing, evidently owing to spasms of the throat. Then croupy breathing and complete coma set in, with violent spasmodic agitation of the limbs, occasional tetanic convulsions, warm perspiration, and a scarcely perceptible though not frequent pulse. In other cases, the pulse was full and slow, and the general symptoms those of ordinary intoxication, with this remarkable exception, of the slowness of the pulse. In a case related by Bœrhaave, and in others reported in this country, a scarlet eruption appeared on the face. In females it has produced nymphomania. Dr. Bobierre, professor of chemistry, at Nantes, drank by mistake a small quantity of an infusion of the leaves and seeds. In a quarter of an hour his head began to feel heavy, and he had an uncomfortable feeling of constriction in the neighborhood of the larynx. His pupils were dilated, and the secretion of saliva, perspiration and urine were entirely suppressed.(*d*) The external application of the bruised leaves may give rise to the symptoms of poisoning. An overdose of the officinal extract has produced fatal effects. The active poisonous principle resides in the alkaloid, *Daturia;* this, when placed on the eye, dilates the pupil, and the eighth of a grain has killed a sparrow in three hours.

§ 746. The *post mortem* appearances after poisoning with stramonium leaves or berries, present nothing which can be fairly attributed to the poison. In the cases which have been examined, there has been but a very slight deviation from the natural condition.

Nicotiana Tabacum. (Tobacco.)

§ 747. The symptoms produced by a poisonous dose of tobacco are nausea, vomiting, giddiness, great prostration, convulsions, and finally syncope and death. It has produced death by having been criminally mixed with liquor. Not being used in medicine, by the mouth, the dose capable of destroying life, when thus introduced, is not known.

Two cases are related by Dr. Deutsch, in which life was in extreme danger from the swallowing of tobacco. In one, a soldier suffering with the tape worm, took by the advice of a friend a quantity of the fluid extract of tobacco, such as is deposited in smoking pipes. The quantity swallowed was estimated at an ounce. He was at once seized with the most horrible pains in the stomach, and fell into a state of extreme collapse. The efforts to vomit were ineffectual until an emetic was given to him. After extreme suffering he slowly recovered. In the other case, a young lady accidentally swallowed the still lighted stump of a cigar which she had been smoking, and suffered greatly from the ordinary symptoms of poisoning by tobacco, together with pain in the stomach from the burning fragment, until she was relieved of it by vomiting.

Dr. Weaks, of Vermont, mentions the case of a child a few days old,

(*d*) Journ. de Chim. Méd. 1851, p. 539; vid. also Charleston Med. Jour. and Rev. Nov. 1854.

to whom two tablespoonfulls of water impregnated with the smoke of tobacco were given, for the purpose of keeping it quiet. It died comatose in eight hours, notwithstanding the most active efforts to resuscitate it.(*e*)

Dr. Pereira quotes from Dr. Copland an instance in which half a drachm given by enema proved fatal. Other cases are given in which one and two drachms had the same effect. In one of these referred to by Dr. Christison, death occurred in thirty-five minutes. Several instances also are recorded in which the external application of moistened tobacco-leaves produced alarming symptoms or death. Two also are said by Gmelin to have resulted from excessive smoking—in one case seventeen, in the other eighteen pipes having been smoked at a sitting.

§ 748. The *post mortem appearances* are by no means characteristic. In a case minutely described by Dr. Grahl, of Hamburg, the only appearances at all unusual were a diffuse redness of the omentum, and of the outer and inner coats of the intestine, and patches of extravasation in some portion of the mucous membrane, together with an empty condition of the vessels of the abdomen and of the heart.

Where a large quantity of snuff has been taken into the stomach, portions of it may remain entangled in the mucus, and thus be recognized either by its physical characters or on chemical analysis, by the active poisonous principle called *nicotine* or *nicotia*. In Dr. Weaks' case *no odor* of tobacco was perceived on opening the body.

§ 749. *Nicotina*, or *nicotia*.—This alkaloid has much interest attached to it from its having been the poison used by the Count of Bocarmé in the murder of his brother-in-law, Gustave Fougnies.(*f*) The nicotina

(*e*) Boston Med. and Surg. Journ. Vol. XLVII. p. 461.

(*f*) On account of the great interest which this trial excited, we have subjoined the following succinct history of the case, as presented by the Attorney-General of the Court of Appeals of Brussels.

ACT OF ACCUSATION.

The Attorney-General of the Court of Appeals of Brussels represents that the Court, by a decree of the 16th April, 1851, transmitted to the Court of Assizes of the province of Hainaut the names, first of Alfred Juline-Gabriel-Gerard-Hypolité Visart, Count of Bocarmé, aged thirty-two years, landholder, born at the Camp of Weltevredern in Java, &c.; second, of Lydia Victoire-Joseph-Fougnies, aged thirty-two years, wife of Count Bocarmé, born at Péruwelz, and having lived for the last two years at Bury, accused of the crimes enumerated in the articles 301, 302, 59 and 60, of the Penal Code.

In consequence, the Attorney-General set forth the present act of accusation, in which the following facts and details are related.

The Count Hypolite Visart de Bocarmé, belonging by birth to one of the first families of Hainaut, married in 1843, at Peruwelz, the daughter of an old grocer, who had two children; and whose son having lost his right leg by amputation, possessed a very feeble constitution. The accused, therefore, even before the contract of marriage, foresaw the end of Gustavus Fougnies, his brother-in-law, more or less near: and after he had somewhat tardily secured the property of his wife by will, he did not hesitate to consult Dr. Semet regarding the chances of life or death which Gustavus might have.

But Gustavus also began to think of marriage. He had already entertained the idea in 1846, and he was on the point of carrying it into execution, in the month of last November, when he died suddenly at the mansion of Bitremont, where the prisoners resided, and even in the apartment where he had come to dine with them. They communicated the intelligence the next day to Madame Dudzeele and her daughter, to whom Gustavus was about to be married; and the Countess even charged a servant to "go and tell the two prostitutes that her brother had died of apoplexy." But the state of the body indicated a very different kind of death, since the autopsy exposed upon the

was obtained by Professor Stas from the mouth and stomach of the deceased, and from articles of clothing and furniture. It had been prepared by the hands of the murderer himself, who had devoted several

anterior part of the nose a deep contusion, upon the left cheek a number of scratches, which appeared to have been made by the finger nails; over the left maxillary region there was a corrosion penetrating the cuticle, and which seemed to have been caused by some caustic fluid; in fine, upon the tongue, in the mouth, fauces, and stomach, there were numerous traces of the passage of a similar substance.

The physicians (experts) concluded from these observations that a corrosive liquid had been poured during life into the mouth of Gustavus Fougnies, and had produced a cauterization of the whole of that cavity and part of the pharynx; that a portion of some liquid, either spilt or rejected, had burned the left side of his neck; and the marks of violence on the face proved that efforts had been made to force down the liquid, and to stifle the cries of the victim.

On the other side, the Count presented upon the second phalanx of the middle finger of the left hand, a double wound, which penetrated the skin, and which was evidently the result of a bite, since the two lower teeth had penetrated more deeply than the upper.

At the time the investigation took place, on the 22d November, at the chateau of Bitremont, there was also apparent upon the fingers and under the nails a red discoloration, which was too evidently connected with the scratches of which the face of Fougnies offered numerous traces. All this required an explanation, which was far from being satisfactory; and chemical analysis was not slow in demonstrating that Gustavus Fougnies had been poisoned by nicotine, an organic alkali, extracted from tobacco, and which is one of the most deadly poisons. The indictment also showed that the accused had for ten months previously made this poison a particular study; that he had, some days before the death of Gustavus, procured by his labors two small phials of it, which had not been found since the event. Although the Countess herself formally accused her husband of having poisoned her brother; and although the Count himself acknowledged at the time, that he had extracted the nicotine which had destroyed Gustavus, without, however, explaining by whose means it had been administered, we think it may be useful to prevent a summary of the facts which instigated, preceded, accompanied and followed the crime on the 20th November.

In espousing Lydia Fougnies, whose patrimony he had over estimated, the Count Bocarmé was far from gaining, for the time being, an opulent position, since he only received from his father-in-law a yearly allowance of 2000 francs, and he brought on his own side 2400.

Such feeble resources did not well accord with a grand domestic establishment, with numerous domestics, and especially with the irregularities of the accused, who in a short time had a second household in the environs of Brussels. He thus finds himself obliged to resort to daily loans from his notary, to whom he already owed nearly 43,000 francs of principal; and although M. Fougnies, the father, died in 1845, leaving his daughter a revenue of 5,000 francs well secured, this increase of fortune was far from assuring the future of the accused, since their expenses were every day increasing, and they had even drawn since 1846, without repayment, to the amount of 84,000 francs.

All this did not prevent them from owing dribbling debts to the amount of 7,000 francs, some of which dated back to the same epoch, and in which we see figure domestics or honest journeymen for sums of 30, 12, 10, or 3 francs. In fine, they had so completely lost their credit, that the Count was seen to pledge for 400 francs, at a pawnbroker's in Brussels, a dress, which was found there again, and which belonged to the Countess. The ruin of the accused was thus imminent, unless the death of Gustavus, on which they had so long counted, should occur, to re-establish a fortune so dilapidated.

But Gustavus would not die; he had even formed, since the month of July, new projects of marriage, which the accused violently opposed, and which they sought to break, through the mediation of the notary, Cherquefosse. The Countess herself had written to her brother two letters, which were found after his death, and which contained some slanders against Miss Dudzeele, which she had used in an anonymous letter of the month of August. These attempts, however, had resulted in nothing, and there remained to the Count but the last resort, and the most efficient means for attaining his end.

After having cultivated poisonous plants in 1849, he presented himself, in the month of February, 1850, under the false name of Berant, before Löppens, Professor of Chemistry at the Industrial School of Gand, and requested of him the proper apparatus for extracting the essential oil of vegetables, remarking that he had seen the American

months to the study of the process of eliminating it from tobacco. The *symptoms* produced by it in the human system are not known. In experiments upon dogs, Orfila observed that vertigo was first produced,

savages poison their arrows with the juice of certain plants, and that he wished to make some experiments for the benefit of his parents, who lived in the United States. He consulted Löppens particularly with regard to the mode of distilling the essential oil of tobacco, that is to say, of *nicotine;* and he had ordered from the brazier, Van der Bergh, according to the instructions of the professor of chemistry, an apparatus of brass, which he wished to be ready by the 11th of March.

On his return to Gand, in the month of May, the accused showed Löppens the first sample of nicotine, which had not proved efficient. He then recommenced the operation before his eyes, and after having labored two days in his laboratory, he succeeded in obtaining two drops of pure *nicotine.*

He returned again, after some time, with another sample, which had not succeeded any better than the first. Löppens then gave him new instructions; and the accused announced to him at last, on his third visit, in the beginning of October, that he had obtained the most deadly effects on animals.

Nothing now remained but to procure the necessary substances and instruments to operate on a larger scale, and to follow the procedure of Schlœssing, which Löppens had pointed out as the best, and which Pelouze and Fremy describe in their course of General Chemistry.

But these purchases made new journeys to Brussels necessary, which the accused visited in the 16th and 28th of October, and after laboring without interruption ten days and two nights, he at length succeeded, on the 10th of November, in obtaining two phials of nicotine, which he employed on the 20th, and which could not be found after the death of Gustavus. With regard to the chemical instruments which had served for its preparation, the Count had taken care that they should immediately disappear. The servants of the establishment could give no information with regard to them, and it was not till six months after that they were discovered in a secret place, where the Count had mysteriously concealed them.

This precaution, all will agree, does not well accord with scientific labors, or with researches made for the benefit of another continent.

There is, moreover, the false name of *Berant*, which the Count always assumed in his interviews with Löppens and Van de Bergh, although he did not conceal his true name at the pawnbroker's shop in Brussels. We may then safely conclude that he had already, in the month of February, meditated the crime which he committed in the month of November, and of which his own mother would seem to have had a presentiment, since she said one day to her daughter-in-law, that Hippolyte was capable of anything, that he would do some mischief by his chemistry, and that she expected nothing else but to see him some day brought before the Court of Assizes. The diligence with which he labored night and day, moreover, clearly indicated the object he had in view, especially at the period when the idea of marriage had taken possession of Gustavus, and the Countess herself had avowed the object, since she said in so many words, in reply to one of her interrogations, "My husband meditated the death of Gustavus; it was his fortune that he coveted—it was that which made him decide upon his death; he had lived too long, in his estimation. During the first days of November, I knew that the poison was prepared for Gustavus; I knew, moreover, that the poison was nicotine. My husband himself told me this in the rear wash-house, the day I saw the large mattrass in the vessel of oil, and where he told me he made cologne water. I used many entreaties to know what he was really proposing, and he finished by avowing that it was nicotine. Some days after, he told me, that the first time an opportunity presented, he would not miss Gustavus; and on the 20th of November, on learning that he was coming to Bitremont, he declared to me," added the Countess, "that he would do the business for him that day."

Gustavus, in fact, arrived at ten o'clock; it only required a single word to save him, and yet the Countess travelled the whole distance with him without informing him of the dangers which impended. She even gave orders which would insure the execution of the crime, by removing those whose habitual presence would have prevented it. Thus, she made the oldest of the children, and his teacher, dine in the room of the latter, instead of admitting them to the table where they dined every day, and she had caused supper to be prepared for the two smaller children in the apartment of the nurse, instead of in the kitchen, as was their usual custom.

It is true that one can hear from the kitchen, what passes in the dining-room. It is also true that he sent his coachman, Van de Bergh, to Grandnutz, with a letter to the

that they then sank together, had tetanic convulsions, with opisthonos, and died in a variable time, according to the strength of the liquid. Anchydrous and pure nicotina, he says, may kill a dog in half a minute,

woman Dudzeele, although he had, by the arrival of Gustavus, to take care of, and although the letter had no other object, except to inquire of the females what price they would ask for their agricultural implements. There was no urgency in the message, but the distance to travel over took the coachman four or five hours to accomplish; and when afterwards the Countess ordered her chambermaid, Emerance Bricourt, to serve at table instead of Van de Bergh—she was careful to order her to withdraw after the second service. Emerance did not again appear in the dining-room until the time when she supposed they would need a light, and the accused, to whom she came to offer it, answered both at the same time, "*No, no, not yet.*"

On withdrawing, Emerance was going to the kitchen, where the coachman was dining, who had returned from his trip to Grandnutz. The Countess followed her and made her go up to the nursery, where she found the two nurses, Justine Thibaut and Virginia Chevalier. She had also ordered Van de Bergh to accompany, on the route from Leuze, a distance of about one kilometre (nearly equal to three-quarters of an English mile) the cook, Louisa Naez, who would return with him. Van de Bergh was thus sent back on the road for Louisa, but he was not long in perceiving that he would be too late; and as the girl could travel as well alone as with him, and as he had no money to pay for his lodging on the way, he had returned to the house, and informed his master and mistress, who were then in the dining-room with Fougnies. Gustavus had already manifested an inclination to leave. The Count had even ordered Francis de Blicquy, the gardener, to get the carriage ready, but the stable was locked, and Van de Bergh had the key. He had scarcely returned to the house, when the Count went to the kitchen to give the same orders which he had given to Blicquy. The coachman then took the lantern and went to the stable, and the Count returned to the dining-room.

Justine Thibaut was coming down stairs at this moment to get some supper for the children although the Countess had ordered them away from the kitchen on this occasion, as already stated. Arriving upon the last steps of the stairs, she heard a fall in the dining-room, and the voice of Gustavus, who cried for help, exclaiming, "*Oh, oh, forgive me, Hippolyte!*"

She then ran to the kitchen, passing the office which separated the porch from the dining-room, when she saw the Countess go out of the dining-room and enter the office, closing the doors of the two apartments, so as to prevent the cries of Gustavus from reaching the kitchen. The girl being still more frightened at this sight, she hastened to reach the court by a private passage; she then passed opposite the windows of the dining-room, from whence issued stifled cries, and she ascended to the children's apartment by the old back stairway. Emerance, whom she found there, then descended to offer her services; but she heard no more noise, and the Countess made her go up again on seeing her at the bottom of the stairs.

The marks of violence observed upon the body, will exclude the idea of accident or of suicide. They prove, on the contrary, a violent struggle; and when we reflect, that to make the poison take effect upon the victim, it was necessary at the same time to open the mouth and restrain the movements of the head to the right and left, which it would otherwise make, it is nearly impossible to admit that the crime was the act of one person only.

In fine, how can we conceive that the Count Bocarmé, whose left hand, imprinted with a double grip, was held in the mouth of Gustavus, and whose right hand was fully employed in steadying the head and arms, could of himself, and without foreign aid, turn down the mouth a phial of nicotine?

Another person was therefore, necessarily, a participator in the act, and there were only the Count and Countess in the dining-room at the moment when Justine heard the fall and the cries of Gustavus. The accused wrote as follows, on the 12th of last March, to a correspondent in Paris:—"My wife has requested you to engage M. Berryer; do not do it; and if the engagement is made, suspend it until a new order is received from me, but let her continue in the belief that he is engaged. On this recommendation, both her life and mine depend. You can imagine that this wretched woman, after having poisoned her brother, can find no better defence now, when we are both in prison for the crime, than to charge the whole upon me, and to utter against me the most atrocious calumnies. Do not answer this note, which I secretly slip in the accompanying letter. Remember, that all the letters we receive are opened. When Berryer shall have engaged to come, explain to him what I have stated to you in

but two minutes are usually required. If somewhat less pure and more diluted, death will follow in about ten minutes, and if still further diluted, the animal may recover. The doses given were from one to twelve drops.

this note; show him that the hostile attitude assumed towards me by my wife, is only the result of a moral constraint, occasioned by the position in which she finds herself placed, and that his aim should be to defend us both equally against the accusation, and not to take up for my wife in the hostile position she has assumed in regard to me: this would give great plausibility to the charge, and lead us inevitably to the scaffold."

This note, which the accused had fraudulently slipped into an open letter, was not intended for the Judge of Instruction. It expressed then the secret thoughts of Count Bocarmé, better than they were ever explained in his interrogations, and those thoughts entirely agree with the nature of the crime of which he is accused; it also well agrees with the confidence the prisoner had reposed in the keeper of the prison, since he told him, on returning from his first examination, that it was the Countess who had turned the poison into the mouth of Gustavus; that she had made two different attempts in doing it, and had even spilt it on the clothes of her brother.

This explains why she went, a few minutes afterwards, to wash her hands with soap in the kitchen; why she immediately placed the clothes of Gustavus, and those of her husband, in a copper kettle full of water; why she caused them to be rubbed and washed in lye at night, in her presence, by the cook, L. Naes. This also will explain why she caused the crutches of her brother to be washed with hot water; why she even caused them to be burned, saying she could not bear the sight of anything that had belonged to him; why she had burned his under-waistcoat and cravat, at the very moment the officers of justice arrived at Bitremont. This will also serve to explain why she caused the floor of the dining-room to be washed the same morning, and in her presence; why, the next day, she herself turned oil upon the spots, that they might not be recognized; and why she said, with evident satisfaction to Emerance, at the time they were making the autopsy, that everything went on well, and that they had discovered nothing, and would bury Gustavus on the morrow.

These facts are too numerous and too direct for any one to doubt of her being an accomplice, especially when placed in connection with the extra-judicial declarations to her husband, with the special character of the crime, and with the measures the Countess had taken to insure their execution. This complicity, dated as far back even as the time when she had written and signed, with the false name of *Berant*, all the letters addressed to Löppens, and the brazier, Van de Bergh; and she had even counterfeited his handwriting, in several of these letters.

The Countess pretended, it is true, that if she passed the night in causing the traces of her crime to disappear, it was only to save her husband, and the father of her children. But it was very difficult to admit the excuse in regard to so odious a crime; and one, too, committed against her own brother.

Especially, it is difficult to admit it in presence of almost daily acts of violence, which the Countess had complained of, and to which her husband added the grossest immorality; since we have seen, that he obliged her to receive the fruit of his adultery, at the seat of Bitremont.

She also maintained, that if she concurred in preparing for or aiding the poisoning, she had only done it under the threats of her husband, and under the influence of moral constraint. But then, why did she not at least apprise her brother, when a single word might have saved him? Why did she profane his dead body, by ordering the coachman, Van de Bergh, to deluge it with vinegar? Why attach a disgraceful epithet to the ladies Dudzeele, when she directed a servant to inform them of the death of Gustavus? All this denotes too clearly a common purpose to attain the same object, which might profit both the accused, and which even the uncle of the Countess openly proclaimed in his deposition, explaining the reasons why he had not been present at the house the next day, in compliance with the invitation he had received. "I was," he said, "too indignant against their infamous conduct, and this indignation had its foundation in the deep conviction that they had murdered Gustavus."

In conclusion, Alfred Gabriel Gerard Hippolyte Visart, Count Bocarmé, and Lydia Victoire Joseph Fougnies, wife of Bocarmé, are charged with having voluntarily made an attempt upon the life of Gustavus Fougnies, their brother, and brother-in-law, at Bury, on the 20th of November, 1850, by substances which would cause death more or less promptly, or by means of which would render them accomplices in the act, whether they gave instructions to commit it, or procured the substance, or did any other act to carry it into execution, knowing the object intended; whether they knowingly aided or

§ 750. Nicotina is an oily, transparent, colorless liquid, becoming brown and thick upon exposure to the air, and when pure, exhaling a *slight* smell of tobacco. Its taste is acrid and burning. The vapours that are given off when it is volatilized at 200° have so strong an odor of tobacco, and are so iritating, that, according to Orfila, it is difficult to bear them. Nicotina is soluble in water and ether.

§ 751. It may be sought for in the viscera of a person poisoned by tobacco, in the following way. After the suspected substances have been macerated in water acidulated with sulphuric acid for 12 hours, this should be filtered, evaporated in closed vessels nearly to dryness, treated with a little distilled water, to dissolve the sulphate of nicotina, then neutralized with potash and distilled over. Or instead of this latter stage of the process, the solution holding the sulphate may be treated with ether, decanted, and allowed to evaporate. The residue will be nicotina. It has been detected by Orfila in the bodies of animals destroyed by it, two or three months after their death. The process employed by Professor Stas, has been, in its preliminary steps, explained in the chapter on OPIUM.

§ 752. The subsequent steps applicable to the discovery of *any* of the *liquid* and *volatile alkaloids* may be here briefly quoted. "By the evaporation of the ether there remain in the inside of the capsule some small liquid striae which fall to the bottom of the vessel. In this case, under the influence of the heat of the hand, the contents of the capsule exhale an odor more or less disagreeable, suffocating, irritant; it presents, in short, a smell like that of a volatile alkali masked by an animal odor. If we discover any traces of the presence of a volatile alkaloid, we add then to the contents of the vessel, from which we have decanted a small quantity of ether, one or two fluid drachms of a strong solution of caustic potash or soda and agitate the mixture. After a sufficient time we draw off the ether into a test tube; we exhaust the mixture by two or three treatments with ether and unite all the ethereal fluids. We pour afterwards into this ether, holding the alkaloid in solution, one or two drachms of water, acidulated with a fifth part of its weight of pure sulphuric acid, agitate it for some time, leave it to settle, pour off the ether swimming on the top, and wash the acid liquid at the bottom with a new quantity of ether." The sulphate of nicotine, as well as some others, being entirely insoluble in ether, a pure sulphate is contained in the water. The alkaloid may be now set free by caustic ammonia, and agitation with ether. The ether may be left to spontaneous evaporation and the last traces of ammonia removed by placing the vessel containing the alkaloid in a vacuum over sulphuric acid. The organic alkaloid being thus isolated, it is the duty of the chemist to determine if possible its real nature. This was the process used by

assisted the author or authors in those arts which prepared for or facilitated the deed, or in those which consummated it.

Regarding which, the Court of Assizes of Hainaut will decide.

For the Procureur Général,

May 3d, 1851. (Signed) E. D. CORBISIER, Substitute.

The discussions respecting this case occupied the Court during twenty-one sittings (from May 27 to June 15.) M. Bocarmé was found guilty by the jury, and condemned to death; and Madame Bocarmé was acquitted.—(N. Y. Jour. of Medicine, Vol. IX. pp. 219–227, translated by Dr. Lee.)

Prof. Stas, for the separation of *nicotina* in the celebrated Bocarmé trial for poisoning, and also in experimental researches upon animals.(*g*)

Conium Maculatum (Common or Spotted Hemlock.)

§ 753. The poisonous properties of this plant reside chiefly in the leaves, but exist also in other parts. The accounts of its action upon the human system are somewhat contradictory. Some authors attribute to it positive narcotic properties; Orfila quotes the case of a soldier who having eaten of some broth into which hemlock had been put, went to sleep immediately after his supper. A couple of hours later he was found still lying on the ground in a profound sleep, insensible. His pulse was extremely slow, the extremities cold, the face swollen and livid, and his respiration labored. He died in three hours. Some cases are related in which delirium and fatal convulsions were said to be due to this poison. On the other hand, these symptoms are not produced by conia, which is supposed to be the active poisonous principle of the plant, nor do they agree with the observations of other authors, especially of recent date. Dr. Pliny Earle tried the effect of the extract of conium upon himself. The preparation seems to have been a feeble one, for although the dose was steadily increased until it reached sixty grains three times a day, and seven such doses were taken, the effects were by no means striking. No soporific effect, however, resulted; he experienced merely the sensations of fullness of the head and eyes, a "tendency to vertigo," double vision, and great feebleness in the limbs.(*h*)

§ 754. Dr. Hosea Fountain, however, who prepared for himself an extract from the fruit or seeds of the plant and took twelve grains of it began to experience its effects in half-an-hour. He had a feeling of lightness in his head, dimness of vision, and *muscæ volitantes*, before his eyes; "very soon," he says, "a numb, pricking sensation was felt in the fingers, extending gradually to the elbows, producing a stiffness of the muscles of the parts, making it difficult to move the forearm and hand. In a few minutes the same sensation was observed in the feet creeping slowly upward, until it reached the upper part of the thigh. The eyes now began to feel uncomfortable, causing me to brush them frequently, to clear apparent obstructions from the lids. The pulse was soft and feeble but not more frequent than usual." Having dismounted from his horse, he found so much difficulty in walking that he required assistance, and the lower limbs appeared to be nearly paralyzed. This partial paralysis of the limbs continued through the whole day, although the head symptoms disappeared under the influence of tobacco and rest. No *soporific* effect was produced.(*i*)

In an undoubted case of death from eating hemlock, the symptoms were very much like those just described. The man's consciousness and intelligence were not affected, but he lost his sight completely and was unable to walk. He seemed also to have lost all muscular power in his arms, and the power of deglutition and speech; several efforts

(*g*) Am. Jour. of Pharmacy. Jan. 1853. (*h*) Am. Jour. Med. Sci. July, 1845.
(*i*) Am. Jour. Med. Sci. Jan. 1846.

were made to vomit but they were ineffectual. His pulse and breathing were perfectly natural as well as the heat of skin. Death ensued in three hours after eating the poisonous plants, without convulsions, but apparently from paralysis of the heart.

The post-mortem appearances in this case were not important except the presence of numerous extravasations of dark-red blood below the epithelium of the mucous membrane of the stomach. The stomach contained a pultaceous mass formed of a raw greenish vegetable resembling parsley. Its contents weighed eleven ounces and had an acid and slightly spirituous odor. The presence of hemlock leaves was identified by their botanical character, and by the peculiar musty odor of *conia* which was strongly evolved, on bruising some of the leaves in a mortar, with a solution of potash.(*j*)

The *Hemlock Water Drop-Wort* (Œnanthe Crocata) is a still more energetic poison than the foregoing, but from not being medicinally used does not require notice here. Many accidents have happened from the roots of this plant having been eaten in mistake.

§ 755. *Conicine* or *Conia.* The active principle of common hemlock is a most virulent poison and a local irritant. A single drop applied to the eye of a rabbit, killed it in nine minutes; and when two grains of the muriate of conia were injected into the femoral vein of a young dog, it died before there was time to note the interval.(*k*) It produces paralysis almost instantaneously, but does not appear to interfere at once with the functions of the brain, since, according to Christison, the external senses are little, if at all, impaired, until the breathing is almost arrested; and volition too is retained. The blood undergoes no alteration. The following plan is recommended by Orfila for its detection in food and other organic matters. The parts cut into small pieces should be placed in water acidulated with sulphuric acid, filtered, and evaporated by a gentle heat, after cooling, agitated with twice their volume of strong alcohol, then again filtered and evaporated until all the alcohol has been dissipated. The fluid should, after cooling, be neutralized or rather rendered alkaline by soda, when the characteristic, mousy smell of conicine will be perceived. Being now agitated with sulphuric ether, and decanted, the conicine is left behind by the spontaneous evaporation of the ether and may be distilled over chloride of calcium. Heated in a capsule it forms white vapors, having a strong smell of celery and of the urine of mice.

CHAPTER II.

STRYCHNIA, ACONITE, LOBELIA.

Nux Vomica.—Strychnia.

§ 756. Nux vomica and its chief poisonous alkaloidal principle may be conveniently treated of together. *Nux vomica* is a round flat seed

(*j*) Ed. Med. and Surg. Journ. July, 1845. J. H. Bennett. (*k*) Christison.

about three-quarters of an inch in diameter, and two lines in thickness. It is covered with fine, silky, gray hairs, and is hard and difficult to pulverise. The powder is of a yellowish gray color, and has an intensely bitter taste. *Strychnia* is usually seen as a grayish white powder, inodorous but excessively bitter. This property is so distinct that it is said that it may be perceived when only one part of strychnia is present in 600,000 parts of water. It is very sparingly soluble in water, but is easily dissolved by ordinary alcohol when boiling. It is deposited, however, upon cooling.

§ 757. The *symptoms* produced by strychnia or by nux vomica in poisonous doses are the following. The most prominent are spasmodic muscular contractions, which the slightest cause, such as a noise in the room, the contact of a person, the attempt to introduce liquids into the mouth is sufficient to excite. During these convulsions the limbs become perfectly rigid, the muscles tremble, the respiration is suspended, and the lips, tongue, and fingers become blue. The intellect is not affected, this drug seeming to exercise its influence upon the nervous centres, from the medulla oblongata downwards, alone. The fits succeed each other at short intervals, and death usually takes place during one of them, although it may occur after their cessation, from mere exhaustion. A well described case of accidental poisoning with strychnia by Mr. Bennett, (*l*) would answer almost equally well for a picture of hydrophobia. The quantity taken was about a grain and a half in solution. The patient when first seen, which was about an hour after the poison had been taken, was in a rigid and trembling state and the face almost maniacal in its expression. This was soon followed by a violent tetanic convulsion. Between the fits she did not utter any expression of alarm, but would occasionally request a little cold water. The muscles of the jaws remained so rigid between the spasms that the attempt to introduce the stomach pump was unsuccessful, and although some strong emetics were got down, it repeatedly happened that the attempt of the patient to take liquids was followed by so violent a spasmodic fit as to prevent her swallowing them, and to give that apparent dread of water so well marked in cases of hydrophobia. During the tetanic fits the whole body was stiffened and straightened; the neck violently drawn back, the chest fixed, the eyes protruding from their sockets in a horrible manner, the legs pushed out and widely separated, the muscles of the face convulsed, pulse imperceptible, and no breathing could be perceived; the face was livid, more particularly the lips, and froth issued from the mouth. The pupil was also dilated during the paroxysm. It was impossible to produce any relaxation of the body during a fit, and if moved the whole body remained in its rigid condition. As soon as death had taken place, which was in an hour and a half, the limbs relaxed, the face and lips gradually lost their livid hue and became, as well as the body, extremely pallid.

In this case alarming symptoms did not arise until about an hour after the poison had been taken; usually they supervene very speedily, being seldom delayed more than fifteen minutes. Death may

(*l*) Lancet, 1850. Vol. II. p. 462.
(*m*) Am. Jour. Med. Sci. Oct. 1848. p. 302, from Gaz. Médicale.

occur in fifteen minutes, as in the case of Dr. Warner, or in half an hour, as in a case reported by Dr. Theinhart, where thirty grains of strychnia were swallowed, and seldom is postponed for more than two hours, if no measures for the removal of the poison have been taken. In a case that occurred near London, a prescription was improperly prepared so that the young man for whom it was directed, took a grain and a half of nux vomica, and the same quantity of strychnia. It is stated, that "he soon afterwards complained of some extraordinary sensations and *almost immediately* expired."

§ 758. The smallest quantity of *nux vomica* which is known to have caused death, is said to be three grains of the alcoholic extract, but it is quite uncertain to how much of the powder this corresponds. Hoffmann (quoted by Christison) states, that two doses of the powder of fifteen grains each proved fatal, and other cases are related in which fifty and sixty grains produced death. The smallest *quantity* of *strychnia* which has proved fatal appears to be one grain.(*o*) In Mr. Bennett's case, above quoted, about one grain and a half was taken.

Recovery occasionally is observed, even after very large doses. Dr. Dresbach, of Ohio, attended a man who drank, by mistake, three ounces of a solution of strychnia, containing one grain to the ounce. When seen by Dr. B., about twenty minutes afterwards, he was in the following condition: The whole muscular system rigid, the muscles of the back and legs so rigidly contracted, that it was with extreme difficulty the man was able to walk, face drawn awry and articulation impeded, a sense of burning about the stomach, tightness about the chest, vertigo and dimness of vision, lower extremities cold, and perspiration abundant. Chloroform being the only article at hand which seemed likely to be useful, Dr. B. gave the patient at once two drachms, and in less than fifteen minutes, the relief, Dr. B. says, was complete.(*p*) A case, in which a man recovered after swallowing a grain and a half, is reported by Mr. Foster.(*q*) In another case, a girl swallowed two grains of crystallized strychnia, upon an empty stomach. The poison remained in the stomach fifty minutes before it was removed by an emetic and the stomach-pump. The disturbance was but slight, and the girl recovered. Dr. Taylor suggests (in his last edition), that owing to the symptoms having been very slight in this case, the strychnia was probably not pure.(*r*) But recently, other cases have occurred of recovery from still larger doses. In one, four grains were taken by mistake. Copious vomiting was produced by emetics in about a quarter of an hour, but the system was violently affected, there being not only excessive tetanic rigidity of the muscles, but frequently recurring convulsions, with other symptoms already detailed. The man recovered entirely in two or three days.(*s*) In another case, by Mr. Chippendale, a man who had been in the habit of using small doses for an imaginary spermatorrhœa, took four grains of strychnia, and four of

(*n*) Am. Jour. Med. Sci. April, 1854, p. 537, from Pharm. Jour. July, 1852.
(*o*) Med. Times and Gaz. April 1855.
(*p*) Am. Jour. Med. Sci. April, 1850, p. 546, from Western Lancet.
(*b*) Lancet, 1852, Vol. II. p. 198.
(*r*) Med. Times and Gaz. Ap. 1854.
(*s*) Ibid. Ap. 1855. G. Hinnell.

morphia, in an ounce of spirit, with the intention of destroying himself. The tetanic spasms ensued in about half an hour; but in this, as in the preceding cases, the intellect remained unaffected—a fact the more remarkable, on account of the large quantity of morphia which had been swallowed. The latter produced none of its peculiar effects, except, perhaps, an itching of the skin, which occurred in the convalescence, and might perhaps be ascribed to it. The man recovered perfectly. The stomach-pump was used one hour after the poison had been taken, and water and animal charcoal injected into the stomach.(*t*) Mr. Iliff has reported a case in which a female recovered after swallowing two drachms of powdered *nux vomica*.(*u*)

§ 759. The *post mortem* appearances are by no means characteristic. In some cases there have been found signs of inflammation in the intestinal canal, and very generally congestion of the brain, and sometimes softening of its substance, and of the spinal marrow. In some instances, no doubt these appearances were due to cadaveric changes, and not the result of any peculiar influence of the poison.

§ 760. The usual *tests for strychnia* are the following. It is slowly dissolved, and acquires a red color by the addition of strong nitric acid. The color is immediately destroyed by the protochloride of tin. Specimens of the alkaloid entirely free from brucia, are not turned red by nitric acid. If a drop of a solution of chromate of potash be added to a solution of strychnia in sulphuric acid, the mixture acquires a beautiful violet color, which becomes darker on standing. If a grain of peroxide of lead be added to the solution of strychnia in sulphuric acid, brilliant colors are produced, which pass through various shades of blue, red, and yellow.

The following process for the detection of strychnia in mixed fluids, was devised by Prof. Graham and Dr. Hoffmann, for the purpose of testing the presence of this poison in the bitter ales of Burton.(*v*) It may be also applied to other liquids. Two ounces of animal charcoal are to be shaken in about half a gallon of the suspected fluid, and this is to be left at rest for a night, and then filtered through paper. The fluid is thus deprived of its bitterness. The charcoal which contains the strychnia is then to be boiled, for half an hour, in eight ounces of rectified spirit; and the spirit, after being filtered, is concentrated by distillation. The remaining liquor, which is watery, is next decomposed with a few drops of solution of potash, and agitated with an ounce of sulphuric ether. The ether contains the strychnia in a state of considerable purity, and on being evaporated, it deposits a white soluble matter of intense bitterness. If a drop of sulphuric acid be placed upon this residuum, and then a fragment of bi-chromate of potash, in the resulting liquid a beautiful violet tint appears at the points of contact, and soon spreads over the whole fluid. This change of color, they say, seems to be characteristic of the alkaloid strychnia.

(*t*) Med. Times and Gaz. Ap. 1855. G. Hinnell. (*u*) Lancet, 1849, Dec. 15.

(*v*) This inquiry was instituted at the invitation of the English brewers of ale, who were naturally indignant at the assertion made in a lecture by M. Payen, of Paris, that strychnine was there prepared in large quantities, for the purpose, as had been ascertained by the French authorities, of being sent to England, to be there employed in the manufacture of the celebrated bitter beer of that country.

The discoverers could detect with it half a grain of strychnia in half a gallon of the pale ale (of Allsop and Son), into which it had been purposely introduced. These gentlemen attest, that after analyzing a large number of samples of pale ale taken indiscriminately from the supplies of various manufacturers, *not one of the varieties of beer*, when tested with the greatest scrupulousness, gave the *slightest evidence of the presence of strychnine.*(*w*)

The following is a description of the process used by Mr. Lonsdale, in a case of supposed poisoning by a grain and a half of strychnia:(*x*)

Experiment I.—(*a*). Portions of the stomach and contents were boiled in water, pretty strongly acidulated with sulphuric acid; the mixture was then filtered, and to the liquid, thus obtained, a quantity of carbonate of lime was added, sufficient to neutralize the acid. This was evaporated to dryness, and digested with rectified spirit; after which, it was again filtered, to remove all insoluble matter. The result, a clear liquid, was then evaporated to the consistence of syrup, which had a slightly yellowish color, and when tasted, was distinctly and persistently bitter.

(*b*). To this alcoholic extract a few drops of strong sulphuric acid was added, and then a small quantity of powdered bi-chromate of potash. A purplish tint was at first observed, but it very speedily changed to a beautiful light green, which remained permanent.

(*c*). A very small quantity of the above extract was mixed with sulphuric acid and peroxide of lead; but there was no appreciable change of color.

(*d*). A similar quantity was tried with the bi-chromate of potash test, with a very slight change of color, hardly appreciable. With a large quantity, the color was unmistakable.(*y*)

Aconite. (Monkshood. Wolfsbane.)

§ 761. The leaves and root of the Aconitum Napellus, contain one of the most extraordinary and speedy poisons known. The former have proved fatal when eaten by mistake for salad; and the latter, from its resemblance to horse-radish, has given rise to many unfortunate accidents. The root is tapering, about the thickness of the finger at its upper part; its color externally is brown, internally it is white and fleshy. Its taste is bitter, but after a few minutes a remarkable numbness and tingling is perceived on the lips, tongue, and fauces. The leaves, when chewed, have the same taste, and produce the same feeling of numbness.(*z*) The pharmaceutical preparations most in use, and which, therefore, are most apt to be either accidentally or designedly employed, are the ordinary and the saturated tinctures and the alcoholic extract. There being several formulæ for these preparations, they are variable in strength, owing to the variable quantity of aconitina contained in the prescribed dose. Thus, two persons, who took twenty-five minims of the tincture, died; while another, who

(*w*) Med. Times and Gaz. May, 1852.
(*x*) Ed. Monthly Jour. Feb. 1855, p. 116.
(*y*) Vide Experiment (*b*).
(*z*) Pereira.

swallowed an ounce and a half of the tincture, prepared according to the Parisian Code, survived. The *aconitina* prepared by Mr. Morson, of London, is so powerful, that, according to Pereira, one-fiftieth of a grain has endangered life; but on the other hand, a case is reported by Dr. Golding Bird, in which, although two grains and a half of this alkaloid were taken, the patient recovered, after having very dangerous symptoms. Dr. Pereira states also, that there is a spurious aconitina sold in the shops, which is inert or nearly so, since he took one grain of it without perceiving the least effect upon the tongue, or otherwise. The effect of a slight increase in the medicinal dose, is well seen in the following case, communicated to Dr. Pereira by Dr. Redfern. The patient, who was suffering with acute articular rheumatism, took five drops of the tincture, three times a day, for two days, without marked relief. On the third day, the dose was increased to six drops, at the same intervals. Two doses of this amount were taken; and an hour after the second, he was found in a state of extreme restlessness, and complaining of great pain in various parts of his body. To use his own expression, he felt as though his skin were too tight for his body. He described his sensations as intolerable. At this time there was much frothing at the mouth, with violent retching at intervals. The surface of the body was cold, and bathed in profuse perspiration, which ran down his face in streams. The pulse, though at first 150 in the minute, fell to between 50 and 60 in a few minutes, and was so small and compressible as scarcely to be felt at the wrist. He recovered under the use of brandy and water, and external warmth.

§ 762. The first and most usual *symptoms* are a burning and numbness of the lips, mouth, throat and stomach, followed by tingling in various parts of the body, loss of sensation, vertigo and dimness of vision, tremors, cramps, great prostration, sense of fullness in the throat, speechlessness, hurried respiration, and death, in a state of collapse. Vomiting and purging are also usual symptoms, but are not observed in every case. General convulsions are unusual, as we find that, in fifty-three cases collected by Dr. Tucker, of New York,(*a*) they are mentioned as having occurred only in seven. The mind remains perfectly clear, there being in general neither stupor or delirium. The latter symptom was seen in three cases of the number collected by Dr. Tucker. When applied to the eye, the preparations of aconite are said to have the effect of contracting the pupil. In seventeen out of twenty cases, however, in which the poison was swallowed, it is stated by Dr. Tucker that the opposite effect was observed. The symptoms of poisoning by aconite usually arise within a few minutes after it has been taken; and when death takes place, it is, in the majority of cases, within three hours. The quantity of aconite, or any of its preparations, capable of producing death, is, for the reasons before given, unknown. The case related by Dr. Easton,(*b*) in which twenty-five minims of the tincture were taken, shows probably the smallest dose which has proved fatal. Another case, in which twenty-five drops proved fatal, occurred in January, 1853. A gentleman, feeling him-

(*a*) For these valuable tables, vid. New York Journal of Medicine for March, 1854.
(*b*) Glasgow Med. Journal for July, 1853.

self unwell, stepped into a drug-store, and was given by a medical student, a friend of his, who was attending, this amount of the tincture, under the supposition it was the proper dose. He expired about four hours after taking it, under the symptoms of poisoning by aconite. Dr. Male, of Birmingham, it is stated, died from the effects of not more than *eighty* drops, taken in ten doses, during a period of four days—the largest quantity taken at once being *ten* drops. An excise officer in England died in consequence of tasting Fleming's tincture of aconite. He said he thought he had swallowed about a tea-spoonful. He did not complain at the time, but in the course of a few hours was cold and pulseless. The remedies applied were ineffectual, and he soon expired.(*c*)

§ 763. *Post mortem* appearances. The few cases in which *post mortem* examinations have been made, have revealed nothing peculiar. The most constant appearance being congestion of the vessels of the head and of the lungs. It is, of course, evident that no conclusion can be drawn from such imperfect data as these.(*d*) Of the fifty-three cases collected by Dr. Tucker, in which aconite in various forms and in all variety of poisonous doses were taken, twenty-seven recovered, and twenty-six died. In all those who recovered, emetics and external and internal stimulants were employed.

§ 764. *Tests.* No chemical tests have been yet proposed. The remarkable symptoms occasioned by the poison, and the discovery of a portion of that which has been taken, will generally be sufficient to explain the cause of death. The only case in which it was criminally administered, is in that which is related by Dr. Geoghegan, where the deceased had eaten for his dinner some greens dressed by the prisoner. The latter was convicted upon the medical and general evidence, no trace of the poison having been discovered in the body. He confessed before his execution that the powdered root of aconite had been mixed with pepper and sprinkled over the greens.(*e*)

Lobelia Inflata. (Indian Tobacco.)

§ 765. This plant, which in the hands of empirics, has been productive of so much mischief, is very similar in its effects to ordinary

(*c*) Am. Jour. Med. Sci. Ap. 1852, p. 553.

(*d*) In the trial of John Hendrickson, Jr., for the murder of his wife, by poisoning, at Bethlehem, Albany County, New York, Dr. Swinburne, who made the post mortem examination, inferred from the emptiness of the stomach and small intestine, the corrugation of their mucous coat, and the presence of a reddish viscid mucus in the stomach, that *vomiting* had taken place, and that this vomiting was produced by *aconite!* Dr. Salisbury, who had charge of the chemical analysis of the organs of the deceased, testified that he tested a *small portion of the stomach and a small portion of the duodenum* for prussic acid, most of the mineral poisons, then for morphine, strychnine, "stramonine," and other poisons, none of which he discovered. He then inferred the presence of *aconitine*, from the fact that, after digesting a small portion of the stomach and duodenum in alchohol, evaporating, filtering and purifying, finally with *animal* charcoal, and then testing the filtered solution by boiling in sulphuric acid, it was "*turned to a deep port-wine red color.*" We beg leave to refer the reader for well merited strictures upon the medical and chemical evidence given upon this trial, to the candid and able review of it by Prof. Charles A. Lee, in the American Journal of Medical Sciences, for Oct. 1854.

(*e*) Dublin Journal. July, 1841.

tobacco. It is a powerful nauseating emetic. It causes severe and speedy vomiting in most cases, attended with continued and distressing nausea, sometimes purging, copious sweating, and great general relaxation. As an emetic, the dose is from ten to twenty grains, as an expectorant, from one to five grains. The poisonous principle, called lobeline, a viscous transparent oil with a strong alkaline reaction, has been obtained in a pure state by M. Bastick.(*f*) The trial of Samuel Thompson for the murder of Lovett by this drug, is given in considerable detail in the chapter on "Malpractice." Other cases of death from its administration, both in this country and in England, where the peculiar practice of Thompson has been extensively introduced by a person named Coffin, and is there called "Coffinism." Dr. Letheby, in his testimony upon an inquest held upon a man who died from the effects of a lobelia emetic given him by a green-grocer, stated that within three or four years there had been, in England, *thirteen* cases of poisoning with it.(*g*) Dr. Beck says, "that thousands of individuals in the United States have been murdered by the combined use of capsicum and lobelia, administered by the Thomsonian quacks." "The founder of what has been called '*Coffinism*,'(*h*) an individual who styles himself, 'A. S. Coffin, M. D., Professor of Medical Botany,' declares in his '*Botanic Guide to Health, and the Natural Pathology of Disease*,' 17th ed., 1850, that lobelia 'is not a poison,' and 'that it never operates upon those who are in perfect health,' and he says that the powdered leaves or pods may be given in doses of a tea-spoonful every half hour, in a cup of vervain tea or pennyroyal, and repeated until it operates as an emetic; and he adds, 'Never mind Hooper, but give enough!!'"(*i*)

(*f*) Gaz. des Hop. July, 1851. (*g*) Med. Times and Gaz. 1853, II. 568.
(*h*) Vid. Pharm. Journ. Sept. 1, 1849, and Feb. 1, 1851.
(*i*) Pereira. For cases, vid. Med. Gaz. Aug. 1849 and 1850; Lancet, 1849, June, 1850, and Pharm. Journal, Aug. 1851; also Med. Gaz. 1851, p. 384. The following case of lobelia poisoning we have selected on account of its brevity. "The defendant Riley Drake, was charged with having produced the death of Miss Lucina Frost, by "the grossly ignorant, careless and unskilful administration of lobelia to her." Dr. A. H. Brownson sworn, says, "He was called to visit Miss Lucina Frost on the 11th of September, 1843. Found her laboring under febrile excitement. Considered her complaint a case of bilious remittent fever. Continued to attend her as a physician, until Thursday, the 28th of September, when she was convalescent, and had been for several days. Patient had some appetite. Witness also testifies that lobelia is a violent emetic; which, if taken in large doses and not discharged from the stomach, will act as a fatal poison. Thinks an emetic, of any kind, would have been very improper for the deceased when he last saw her." Dr. Brownson's testimony was corroborated in every point by that of Dr. P. R. Brooks, who was called to see the patient two or three times, in consultation with Dr. Brownson. Nancy Sutcliffe, sworn, says, "She has known the deceased about eight years. Was there about a week before her death, and up to the time of her death. Saw Riley Drake there on Sabbath, (September 24th,) when the patient asked him if he thought she was getting better, and he said not. He, Drake, had something to say to her every time he was there. On Thursday, she, deceased, said to him that Brownson told her that her fever had turned, and that she was better. Drake said that Brownson was mistaken, that her fever had not turned, and that she never would get well under Brownson's treatment. Deceased asked Drake if he could help her, and he said he could. Her father would not give his consent to have Drake. Friday night, September 27th, Drake came in, and she, deceased, told him if he thought he could help her, she wished he would. He gave her some medicine, to prepare her stomach for an emetic. The next morning he came in and gave her an emetic. He gave her small seeds steeped in water. Witness saw the seeds. She vomited twice.

CHAPTER III.

CEDAR OIL, SAVIN, TANSY, COCCULUS INDICUS.

Cedar Oil.

§ 766. The oil of the common juniper (Juniperus Virginiana) has an action upon the system similar to that of savin, except that it appears

After vomiting, appeared to feel better. Probably a tea-spoonful of seeds was given. Nothing else was given. Drake did not come again till afternoon. Patient appeared better till noon, when she became distressed for breath. Seemed filled up on her stomach, and continued so until Drake came in the afternoon. He ordered ginger-tea, which was made, and *three tea-cups full* given. He then steeped *lobelia* in a tea-cup, and gave her that, *seed and all.* Tea-cup was about half full. She drank about half of it; and then wanted some physic. He gave her some. She then said she thought she ought to take more. She then took the *rest* of the *lobelia.* He then gave her some red stuff, and then some *nerve-root tea.* She died in half an hour after the lobelia was first administered. The evidence was confirmed in every essential particular by that of Olive Fairchild and Charles Gearnsey, with the additional fact that the deceased was severely *convulsed* after taking the emetic, on Saturday just previous to her death. Dr. Stephen D. Hand, sworn: "Witness is a practising physician, residing in Binghamton, Broome County, New York, says he was called to examine the body of Miss Lucina Frost, on Sunday, September 31st, 1843. Was informed that she died on the Saturday previous, September 30th. External appearances of the body natural. Examined the stomach and other internal organs. Found a *table-spoonful* of *lobelia seeds* in the *stomach.* Mucous membrane of stomach softened and much inflamed. Intestines also considerably inflamed. The heart and other organs healthy. Witness has no doubt but the lobelia contained in the stomach killed the patient. Thinks there was enough there to destroy the life of any person unless thrown off. All parts of the lobelia plant contains the same properties. Thinks, from the description given of the patient by Drs. Brownson and Brooks, that an *emetic* of *any kind* would have been very *improper* under the circumstances." The testimony of Dr. Hand was corroborated by that of Drs. West, Brooks and Cook, who were also present at the post mortem examination. Drs. Thomas Jackson and N. S. Davis, both residents of Binghamton, were also sworn in regard to the properties of lobelia, which they stated "to be an active narcotico acrid poison, when taken in large doses."

This closed the evidence on the part of the prosecution, when the defendant called Charles Gearnsey, Haman Gearnsey, Samuel Martin, Harry Martin, Alvah Parsons, Nathaniel Boughton, Charles Elliot, Sherlock Black, Rhodia Gearnsey, George Doolittle, Uriah Doolittle, James Russell; all of who testified that they were personally acquainted with Riley Drake, and considered him a skillful physician of the *Thompsonian* school." The defendant then called the following *Thompsonian* and *Botanic* doctors to prove the qualities of the lobelia. Folkert Van Vleck, sworn: lives in Hamilton, Mad. Co. Is a physician of the Thompsonian order. Twelve years practice. Have had as many patients as I could attend to. Have used lobelia in almost every case of inflammation and fever, and usually with good success. In cases of remittent fever, should use lobelia as an emetic, and afterwards in broken doses. My patients have always recovered. Lobelia produces an emetic effect on the healthy stomach. It will not produce inflammation under any circumstances. Did not hear the testimony of Dr. Brownson. Heard Dr. Hand's. Thinks that lobelia would not produce the effect described by Hand." Cross-Examined.—"Says he lost only one *fever patient.* Has lost some with consumption. Gives lobelia in consumption. Has been present at a post mortem examination. Thinks that a single dose of lobelia could not be taken so as to produce death; it might be by repeating the dose. Cannot tell whether tobacco is a *poison,* or not. Thinks cicuta would produce nausea. Has never studied surgery, anatomy, &c., and does not deem it necessary." William Rose, sworn: "Is a botanic doctor. Has used lobelia for thirty years in all cases where emetics were needed. In 1825, had one hundred cases of scarlet fever, in which he used lobelia, and did not lose a patient. Has no knowledge of its possessing poisonous qualities. Understands by *narcotic* poisons, that which stops the blood. Don't know how opium produces death. Thinks arsenic would produce death quicker than cicuta." Jabez Jeffers, also a botanic

to have also a more decided narcotic influence. Dr. Wait reports four cases of poisoning by this oil, two of which proved fatal. The quantity taken in each case was from half an ounce to an ounce, and in three of them it was swallowed with the view of bringing on arbortion. The patients were seized with convulsions, and vomited a fluid having a strong odor of the oil. After the convulsions had subsided, they fell into a comatose condition. The *post mortem* appearances in the two fatal cases were not very striking. There were several small red patches upon the lining membrane of the stomach, and the duodenum showed marked signs of inflammation. The uterus in each case was in a healthy, gravid state. The odor of the oil was distinctly perceived on opening the stomach.(*k*)

§ 767. *Savin.*—The leaves of this plant have, in the fresh state, a strong, peculiar, and heavy odor, especially when rubbed, and a nauseous, resinous and bitter taste. The dried tops are of a yellowish green color, and are less odorous than the fresh ones. The *oil of savin* is a limpid, almost colorless liquid, having the unpleasant odor of the plant, and a bitter, acrid taste. The medicinal dose is from two to six drops. But the use of the oil or of the dried leaves of this plant, in medicine, is exceedingly restricted. From the frequency, however, with which it is resorted to for the purpose of procuring abortion it is necessary to notice its effects. The oil of savin when applied to the skin exercises a powerful rubefacient and even vesicant property. Swallowed in large doses, it occasions vomiting, purging, and other symptoms of gastro-intestinal inflammation. Dr. Pereira says, that according to his observation, it is the most certain and powerful emmenagogue of the whole materia medica. He quotes, from a German author, the case of a woman who swallowed an infusion of savin to occasion abortion. Violent and incessant vomiting was induced, which was followed in a few days by excruciating pain in the abdomen, abortion, dreadful hemorrhage from the uterus, and death.

Two other fatal cases are given by Dr. Christison, in one of which abortion was produced. In two others, related by Dr. Taylor, the women, who were respectively in the seventh and eighth month of pregnancy, violent and fatal gastro-intestinal inflammation was induced, and abortion followed. In one of these cases, that of Mr. Letheby, the symptoms resembled those of narcotic poisoning; the woman being found lying on her back, perfectly insensible, and breathing stertorously. Although, therefore, the power of producing abortion cannot be denied to this drug, it is the result of general observation that this effect ensues only when it is taken in such doses as to endanger life by the violent inflammation set up in the stomach and intestines, and that

physician, gave similar testimony to that of Dr. Rose. Thomas W. Griffin, sworn, says he is a Thompsonian physician; has practised eighteen years as such. Says he uses three articles, viz: lobelia, Cayenne pepper, and Barbary bark, in all cases, and in all *stages* of disease, and under all *circumstances*, and *always* with *good* effect. Thinks that lobelia is not a poison. The testimony being closed, the case was ably argued by Lieut. Gov. Dickinson, for the defendant, and by the Hon. Joshua A. Spencer in behalf of the people, when it was submitted to the jury by Judge Morrell. The jury, after an absence of a few hours, returned with a verdict of guilty. Judgment was, however, suspended until the next term of Court." New York Journ. of Medicine, Nov. 1844.

(*k*) Bost. Med. & Surg. Jour. 1849.

it may yet even destroy the life of a pregnant female without bringing on the premature expulsion of the child.

§ 768. *Post-mortem appearances.*—After death there are found, in general, undoubted evidences of inflammation of the stomach and intestines. In one of Dr. Christison's cases, the inside of the stomach was red with patches of florid extravasation, and there was extensive peritoneal inflammation, with fibrinous effusion. The contents of the stomach had a green color. In the case communicated by Dr. Salisbury to Dr. Beck (vid. "Abortion,") where the examination was made from twelve to fourteen hours after death, the stomach was found softened and *perforated*, its contents emptied into the cavity of the abdomen, and extensive peritonitis. The perforation was about the size of a fifty cent piece, and was situated in the region of the greater curvature, near the cardiac orifice. For several inches around the perforation, the stomach was very much corroded, thinned, and softened, so that it was easily torn. The œsophagus and upper part of the small intestines are described as inflamed. Evidence of the presence of savin in the intestinal canal was obtained, and a vial was discovered in the room, still containing a half a drachm of the oil of savin and tincture of lavender. In a case occurring to Mr. Lord, of Hampstead, the œsophagus presented a dark, arborescent injection, with slight patches of ecchymosis, and in the stomach there was a large patch of redness about three inches in length; the vessels of the mucous membrane were considerably injected, forming infiltrated patches, especially about the lesser curvature, but there was no ulceration or erosion. Here, also, a large quantity of a greenish fluid was found, of the appearance and consistency of green pea soup, which was found, on examination under the microscope, to be due to the presence of finely triturated savin powder. The intestines, also, were highly inflamed, the duodenum being of the color of cinnabar, and there was also some peritonitis.

§ 769. *Detection.*—According to Pereira, powdered savin may, on account of its green color, be mistaken for bile, but when mixed with distilled water, it entirely subsides, and provided no bile be intermixed, the supernatant liquor will be devoid of a green color.

If savin have been given in the form of infusion or decoction, it may be impossible to detect it, but when the oil has been administered, it may be separated by distillation. Furthermore, as has been already stated, savin, in powder, may be recognized by means of the microscope; the circular pores being visible, and the acuminated shape of the leaves. The odor, also, may aid in its recognition.

Taxus Baccata.—(Yew.)

§ 770. The leaves and berries of the common yew have been known for ages as poisonous. Although Orfila gave them to animals in many cases without effect, numerous cases of accidental poisoning by them are known. It is usually classed among the acrid narcotics, although in most cases of poisoning by it which have been reported, acrimony has been the least essential part of its properties. In the case of a lunatic who died fourteen hours after chewing yew leaves, the symptoms were

giddiness, sudden prostration of strength, vomiting, coldness of the surface, spasms, and irregular action of the heart.(*l*) Similar effects were seen in a child who died four hours after eating the berries.(*m*) Brandis says, a young woman took, as an abortive, the leaves of the yew, and fell into the sleep of death without convulsions. Indeed, one might have supposed her to be really sleeping, for her cheeks preserved the hue of life, and a quiet smile played over her face.(*n*) In a late number of Henke's Journal,(*o*) an interesting history is given of the poisoning of eleven persons by a decoction of yew leaves. They had partaken of it as a prophylactic against hydrophobia, some of their dogs having been bitten by one supposed to be rabid. In half an hour all of them were seized with giddiness, confusion of sight, pain in the head, nausea and vomiting, and then fell asleep. Two of them, however, died within about an hour, without either pain or convulsions, but with a smile upon their countenance. The rest recovered without further symptoms. The *post mortem appearances* in these and in the preceding cases, threw no light upon the manner in which the poison affected the system, except from the negative evidence of the absence of any well-marked signs of inflammation. In Mr. Hurt's case, however, it is stated that, besides patches of redness upon the mucous membrane of the stomach, it was also much softened.

Oil of Tansy.

§ 771. The few cases that have been reported of poisoning by the oil of tansy, indicate that its appropriate position is among the narcotico-irritant poisons. It has been often taken for the purpose of inducing abortion, but does not seem to possess this property, which is popularly attributed to it. A fatal case of poisoning with half an ounce of this oil, is recorded in the Am. Jour. Med. Sci. for May, 1835. Frequent and violent clonic spasms were experienced, with much disturbance of respiration. No signs of inflammation in the stomach and bowels were found upon dissection. Death occurred in two hours after taking the poison. A young lady took a teaspoonfull of the *oil* in mistake for the *essence* of tansy, for the purpose of promoting the catamenial discharge. She complained of dizziness, and became insensible in ten minutes, was seized with convulsions, and her respiration was laborious and her pulse irregular. She died in one hour and a quarter after taking the oil. Another young lady in the family took of the medicine at the same time, but vomited very soon, and suffered no inconvenience.(*p*) In a case which came under the notice of Dr. Dalton, of Lowell, recovery took place in consequence of spontaneous vomiting having occurred. Nevertheless, the girl remained insensible and convulsed for some time after it. The most interesting and detailed case is that related by Dr. Dalton, Jr., of Boston. The quantity taken was a little less than an ounce and a half, and death took place in three hours and half. The girl when first seen had fallen out of bed, in con-

(*l*) Dr. Mullan, Dub. Hosp. Gaz., 1845.
(*m*) Hurt, Lancet, Dec. 10, 1836
(*n*) Blumenbach's Med. Bibliothek, Bd. 3, p. 684.
(*o*) Erg. Heft. 43, p. 127.
(*p*) Am. Jour. Med. Sci., July, 1852, p. 279.

vulsions, and was entirely unconscious. The cheeks were highly flushed, the eyes open and brilliant; the pupils widely dilated and insensible; the skin was warm; pulse full, rapid, and strong; respiration hurried and stertorous, and obstructed by an abundance of frothy mucus, which filled the air-passages and was blown from between the lips in respiration; the breath had a strong odor of tansy; convulsions occurred every five or ten minutes, in which the respiration was suspended, the arms raised and rigidly extended, and the fingers contracted. In the intervals between the convulsions there was no return of consciousness, and the jaws remained clenched so that it was impossible to administer any medicine by the mouth.

§ 772. The *autopsy* was made ten hours after death. The countenance was natural, the cadaveric rigidity was very strong, and there was only a slight discoloration of the dependent parts. The brain was not congested in any part, nor was there any effusion. Neither was there any appearance of congestion in the lungs. The interior of the heart exhaled a distinct odor of tansy, as did also the cut surface of the pectoral muscles. There was a strong odor of tansy in the peritoneal cavity. "The stomach contained about twelve ounces of a semi-fluid, yellowish gray substance, consisting of partially digested food, potato, cranberries, onions, &c., mixed with an abundance of small, yellowish brown, glistening oil globules, exhaling an excessive odor of tansy; mucous membrane generally pale, not vascular in any part, but throughout nearly the whole of the great pouch, brownish and much thinned and softened, so that for a considerable space it was nearly or quite destroyed. There was an old, whitish, slightly puckered cicatrix of the mucous membrane on the posterior wall of the stomach, near the smaller curvature, but no other morbid appearance." A four months' fœtus was found in the womb not in the least disturbed. A two ounce phial, containing still five drachms of the oil of tansy, was found in the pocket of the girl's dress, and a mug was found, smelling very strong of the medicine, from which it had apparently been drunk, mixed with water. No other means have as yet been proposed, or are, perhaps, necessary for the detection of this oil in cases of poisoning by it, than its powerful and peculiar aromatic smell.

Cocculus Indicus.

§ 773. This is the fruit of the *Anamirta Cocculus*. The kernel, which is the only poisonous portion of the berry, has no smell but an intensely bitter taste. It contains an alkaloid, called *picrotoxia*, which is an exceedingly active poison. It appears from the experiments of Glover, Routh, and Falck, that the prominent symptoms produced by it in animals are salivation and tetanic convulsions, which usually terminate fatally, although the dose required to kill is much greater than that of other poisonous alkaloids, as much as forty grains of it being required to kill a dog. Cocculus Indicus is chiefly used for the purpose of taking fish and of sophisticating malt liquor. It is also used for the destruction of lice. Several fatal accidents have occurred in this country from it. Dr. Thompson reports one from its *external* application. A child, aged six years, whose head, after the hair had been cut close,

was washed with an alcoholic tincture of cocculus indicus, was seized in less than half an hour after its application with tetanic convulsions. The pupils during the spasm were exceedingly contracted, and in the interval between the attacks were dilated to the fullest extent. By touching the eyelids the spasm could be produced at pleasure. The case was treated with energy, but the child died in a few hours.

§ 774. On *post mortem* examination, no changes of any note were observed. A younger sister of the deceased, who had also been submitted to the same cleansing process, was likewise attacked in a similar manner. Under the use of counter irritation by mustard, and injections of the tincture of assafœtida, she recovered, the convulsions gradually subsiding about three hours after the attack commenced. The next morning a scarlatinous eruption appeared upon the body and arms, which gradually faded during the day.(*q*)

The following account of several cases of poisoning by the internal use of this substance has been kindly communicated to me by Dr. Fish, formerly assistant resident physician at the Philadelphia Hospital, Blockley. A strong decoction of this berry (two ounces to a pint of water) is used in that institution for the destruction of vermin upon the paupers. The vessel containing it, was unfortunately placed near some tonic infusions in use by several patients. Through the ignorance of the nurse, a wine glassfull of this decoction was given to each of three persons, and two tablespoonfulls to three others, in mistake for their usual medicine. Two of those who took the largest quantity were seized with convulsions about twenty minutes after they had taken the poison and died in about half an hour. This happened in the evening, and their muscles were still contracted the next morning. Both of these men were much reduced by intemperance and disease. The remaining four, who were seized within a few moments of each other, and within a half an hour after they had taken the poison, presented the following symptoms; faintness, mental confusion, giddiness, dimness of vision, nausea, excessive thirst, severe pain in the abdomen, and in one case insensibility. The pulse was much weakened, and the respiration was slow and labored. Emetics were given to them, and after their operation, mucilaginous drinks and stimulants. They all recovered, but suffered greatly from headache during the rest of the day.

Another case is mentioned in Traill's Outlines, and one is referred to by Dr. Taylor, in which the post mortem examination distinctly revealed traces of gastro-enteritis due to the irritant action of the poison. In this case, however, the patient lived until the nineteenth day.

§ 775. The following case presents a curious question in the administration of poisons. The prisoner was indicted for administering poison, and it was proved that two cocculus indicus berries had been given to a child nine weeks old. The child, after having swallowed them, threw up one by vomiting, and the other passed through her body, in the course of nature, and was found next day in her clothes.

Two medical witnesses, called on the part of the prosecution, proved

(*q*) Phil. Med. Exam. April, 1852, reported by William B. Thompson, Sen. House Surgeon, Emigrants' Hospital, Ward's Island.

that the cocculus indicus berry is classed with the narcotic poisons; that the poison consists in the presence of an alkaloid, which is extracted from the kernel; that all the noxious properties are in the kernel; that it has a very hard exterior or pod, to break which much force is required.

One of the witnesses added that the berry, if the pod is broken, is calculated to produce death in an adult human subject, though he did not know how many berries would be required for the purpose; that he thought the poison contained in the kernel of two berries, if the pods were burst, and if retained on the stomach, might produce death in a child nine weeks old, but that the berry could not be digested by the child, and that it would pass through its body, without the pod being burst, and so would be innocuous (as had, in fact, happened in the present case.)

The counsel for the prisoner objected that the berries were not poison within the meaning of the statute, for that, though the kernel of the berries contained poison, yet the pod rendered the poison innocuous. The judge (Vaughan Williams) overruled the objection, and left the whole case to the jury. (Verdict, guilty.)

Judgment of death was recorded, but execution was stayed in order to submit the point raised by the prisoner's counsel to the consideration of the judges. The discussion before them in the Exchequer Chamber is given in detail by the reporter, and is quite interesting.

The counsel for the prisoner observed that the indictment was founded on the statute 1 Vict. c. 85, sect. 2, which makes it a capital felony to administer to, or cause to be taken by, any person, "any poison or other destructive thing," with intent to commit murder. The real question is, whether the berries in the state in which they were administered were "poison." The prisoner thought he was giving a destructive thing, but did not do so. It was inquired of the counsel by the judges what he would say if arsenic was given in a globule of glass? Again, if arsenic was put in a paper envelope, and that wrapped in oiled paper and administered? He contended that in "such states it could not be a destructive thing." But it was replied, if a person gives poison in too small a dose, you would say that was not within the statute, as it could not be destructive. If you are right in so saying, persons might gives doses of arsenic and speculate on the size of the dose. Finally, Chief Justice Wild remarked, "The question here is whether the prisoner administered poison with intent to murder. The kernel of the berry was a poison, but he administered it in a condition in which it was not capable of doing injury. Is that administering poison? If a person administers poison with intent to murder, but accompanies it with something which prevents its acting, we all think it is the offence provided for by this enactment, and that the conviction must be affirmed." Justice Alderson said, "This is very different from the case of a person administering an innocent thing and thinking it poison, there he does not administer poison at all; here he does." The other judges concurred in affirming the conviction.(*r*)

(*r*) Am. Jour. Med. Sci. April, 1851, from Regina *v.* Clanderoy, Carrington and Kirwan's Nisi Prius Reports, Vol. II. p. 707.

CHAPTER IV.

BELLADONNA. DIGITALIS. QUINIA. MEZEREON.

Atropa Belladonna. (Deadly Nightshade.)

§ 776. The root, leaves, and fruit of this plant are all poisonous. The berries are black, and have often been eaten by children in ignorance of their poisonous properties. Dr. Taylor states that they were at one time openly sold in the streets of London as an edible fruit. Two persons, who had eaten of them, died; and the man who sold them was tried and convicted of manslaughter. A case, graphically described by this author, will suffice as an illustration of the symptoms produced by this drug. "A boy, aged 14, ate, soon after breakfast, about thirty of the berries, which he had bought in the street. In about three hours it appeared to him as if his face was swollen, his throat became hot and dry, vision impaired—objects appeared double, and they seemed to revolve and run backwards. His hands and face were flushed, and his eyelids tumid; there were occasional flashes of light before his eyes. He tried to eat, but could not swallow on account of the state of his throat. In endeavoring to walk home he stumbled and staggered; and he felt giddy whenever he attempted to raise his head. His parents thought him intoxicated; he was incoherent—frequently counted his money, and did not know the silver from the copper coin. His eyes had a fixed, brilliant, and dazzling gaze; he could neither hear nor speak plainly, and there was great thirst; he caught at imaginary objects in the air, and seemed to have lost all knowledge of distance. His fingers were in constant motion; there was headache, but neither vomiting nor purging. He attempted to get out of bed, with a reeling, drunken motion; his speech was thick and indistinct. The pupils were so strongly dilated that there was merely a ring of iris, and the eyes were insensible to light. The eyelids did not close when the hand was passed suddenly before them. He had evidently lost the power of vision, although he stared fixedly at objects as if he saw them. The nerves of common sensation were unaffected. When placed on his legs, he could not stand. The pulse was 90, feeble and compressible; his mouth was in constant motion, as if he was eating something. His bladder was full of urine on admission. He continued in this state for two days, being occasionally conscious; when by a free evacuation of the bowels, some small seeds were passed; these were examined and identified as the seeds of belladonna. The boy gradually recovered, and left the hospital on the sixth day after his admission."(*s*) Sometimes the cerebral symptoms are much more aggravated than in this case, there being frequently delirium or stupor, which, as well as the other symptoms, is slow in passing off. In a case related in the Lancet, a lady was given by mistake a drachm of the extract in soap liniment; she fell into a comatose condition in half an hour; the pupils were

(*s*) On Poisons, Am. ed. p. 617.

widely dilated, the hands and feet cold, and the pulse scarcely perceptible. Her jaws were rigid, and there was no vomiting; the stomach-pump was used, and she recovered in a few days gradually. Another instance is mentioned in the Annales d'Hygiène, in which it caused serious symptoms, from having been put into soup instead of caramel. The toxical effects of belladonna are produced when applied locally, or introduced into the rectum. A fatal case of the employment of an enema of a decoction of the root is recorded.(*t*) The extract varies very much in strength, and is sometimes quite inert.

§ 777. *Atropia* is a white, transparent, silky, crystalline powder, having no odor but a very bitter and acrid taste. When impure it is somewhat colored and has an unpleasant odor. Its effects are similar to, but more powerful than those of belladonna, of which it is the poisonous principle. About one-sixth of a grain is capable of producing unpleasant symptoms. It is chiefly used for dilating the pupil. A young man poisoned himself with two grains of this alkaloid. No trace of the poison could be detected in the stomach or intestines. Dr. Andrew of the Royal Infirmary, Edinburgh, had a patient who was under the use of atropia locally, to the eye. She swallowed one morning, by mistake, between five and six drachms of the solution, containing about two-thirds of a grain of atropia. She was immediately sensible of her error, her eyesight failed her, as well as her voice, the muscles of her face were convulsively moved, and she complained of a burning heat in her throat and stomach. She was very restless, but unable to stand. Although emetics and purgatives were given to her, the next day she was violently agitated and presented the symptoms of a person with delirium tremens. She recovered, but had double vision, spectral illusions, and various disturbances of the nervous system for a week or two.(*u*)

Three or four drops of a solution of atropia, containing two-thirds of a grain to the ounce of water acidulated with acetic acid, was put into the eye of a man with double cataract. In half an hour he had vertigo, and shortly after all the symptoms of poisoning with belladonna, flushed face, dilated pupils, and incessant hallucinations. His bladder became distended, and he was unable to empty it. Violent delirium continued during the night. He recovered in four days, these unpleasant symptoms having gradually disappeared.(*v*) Atropia and belladonna must be recognized by their physical characters; the former by its color, taste, and property of dilating the pupil, and the latter by the presence of the husks and seeds, when these have been taken, in the stools. The leaves may also be known by their botanical characters.

Digitalis Purpurea (Foxglove.)

§ 778. The leaves of this plant are the part usually employed, although the seeds contain also a large proportion of its active principle, which is called *digitalin*. The symptoms produced by digitalis in a

(*t*) Casper's Wochenschrift, Feb. 1845, p. 101.
(*u*) Edinb. Month. Jour. Jan. 1852.
(*v*) Am. Jour. Med. Sci. (from Gaz. des Hopitaux.) Oct. 1853. p. 540.

poisonous dose have some peculiarities by which they may be distinguished from those caused by other poisons enumerated in this class. It is characterized by its remarkable property of causing slowness of the pulse. This symptom, which is quite familiar to physicians, was experimentally produced in nineteen patients in Andral's clinic, the object being to test the efficacy of the pills of digitalin recommended by Homolle and Quevenne. In all of them the pulse was reduced gradually about twenty-five beats, after the use of the pills for a period of time, which varied with each one.(*w*) The effects of this poison are cumulative; it may remain some time without any obvious effect upon the system, and then display its properties suddenly in a violent manner, and also after being discontinued, its action upon the system does not immediately cease.

The following is an example of poisoning with the tincture of digitalis, where a tea-spoonful was taken in a glass of water. The symptoms did not manifest themselves until five hours after the dose had been taken; then they commenced with a feeling of nausea, which increased until violent and frequent vomiting took place. There was great precordial distress, intense frontal headache, dimness of vision with dilated pupil, ringing in the ears, cramp in the muscles, very powerful but, at the same time, irregular and intermittent pulsations of the heart, with diminished frequency (44 in the minute), the pulse strong and tense, the respiration sighing, the thirst uncontrollable, retention of urine, sleeplessness, and great debility. The next day, in addition to these symptoms, there was violent delirium, and from that time they continued very gradually to decrease for 10 or 11 days. The pulse was very long in regaining its frequency.(*x*) The tincture is often quite inert or very feeble in medicinal properties; most of the fatal cases of poisoning by digitalis which have occurred have been either from the leaves in substance or infusion, or from digitalin. A decoction of the leaves, prescribed by a quack in London, to the amount of six ounces, proved fatal in twenty-two hours. Dr. Leroux relates a case of poisoning by digitalin which nearly proved fatal.(*y*) The dose taken amounted to 0.03 grammes, which is equal to about half-a-grain. Another instance, in which 40 granules, equal to about two-thirds of a grain, were supposed to have been taken, the patient recovered under the use of emetics and stimulants.(*z*) The symptoms, however, were not as urgent as in the preceding case.

§ 779. The *morbid alterations* in the only case where these have been reported were merely an injection of the "external membranes of the brain and some redness of the mucous membrane of the stomach." It need hardly be said that this evidence amounts to nothing. Two cats accidentally shut up in a room where the leaves of this plant had been spread out to dry, were found the next morning dead. They had eaten of the leaves. Their bodies were very much relaxed, and, it is stated, putrefied very soon.(*a*)

(*w*) Union Med. 1852. Nos. 52 and 53. (*x*) Union Medicale. No. 112. 1851.
(*y*) Ibid. No. 99. 1852.
(*z*) Dr. Chereau, Union Med. Jan. 10, 1854. Quoted in Ed. Monthly Jour. for August 1854.
(*a*) Archiv. für Pharmacie. Oct. 1853. p. 16.

Quinia.

§ 780. The occasional occurrence of alarming and even fatal effects from the use of sulphate of quinia, renders it necessary that we should briefly notice them. When given in larger doses than usual, continued for too great a length of time, or in persons peculiarly susceptible to its influence, it produces considerable cerebral disturbance, and may occasion severe headache, vertigo, deafness, diminution or loss of sight and of speech, delirium, coma, and great prostration.(*b*) Dr. M'Lean relates four instances in which complete blindness was produced, from which, however, the patients partially recovered in the course of a year. In one of these cases, three drachms were given in the course of 36 hours; in another, an ounce; in the others the quantity was somewhat less, being in one, three drachms and a half in three days, and in the other the quantity is merely said to have been "large."(*c*) In the same journal will be found the paper of Dr. Baldwin detailing his experiments upon animals, and giving the particulars of a case which came under his notice, where he considered that death resulted from its use, although not administered in large doses. Death was preceded by extreme restlessness, dilatation of the pupils, blindness, and convulsions. The disease was intermittent fever. Without presuming to deny the accuracy of Dr. B.'s opinion of the cause of death in this case, we may state that we have seen precisely the same alarming cerebral symptoms in a child seven years of age, with intermittent fever, which could not have been caused by quinia as none had been taken in any form. A man with acute rheumatism, under the care of M. Récamier at the Hôtel Dieu, after taking about 100 grains of the sulphate of quinia in hourly doses of from four to five grains, was suddenly attacked with delirium and died in a few hours. A similar case under M. Husson occurred, but the patient recovered. The quantity given here was 93 grains, the symptoms coming on after the last dose.(*d*)

§ 781. *Daphne mezereum.* The berries of this plant, which resemble those of the red currant, are actively poisonous. In two cases reported by Dr. Schwebes, the symptoms were nausea and vomiting, followed by complete narcotism; there were convulsive movements of the eyes and upper extremities occurring at short intervals, the pupils were contracted and scarcely sensible to the stimulus of light. The children were restored by cold affusion to the head and other appropriate treatment.(*e*) Dr. Christison mentions the case of a child, aged eight years, which proved fatal, and three others who recovered. The symptoms were similar to those described.

(*b*) Wood and Bache.
(*c*) Am. Jour. Med. Sci., April 1847. 515.
(*d*) Gaz. des. Hôp. Dec. 1842
(*e*) Casper's Wochenschrift. No. 35. 1848.

POISONOUS GASES.

CHAPTER I.

Carbonic Acid Gas.

§ 782. This gas is in itself irrespirable; the irritation produced by it upon the glottis being so great that it closes, and respiration becomes impossible. When, however, it is mixed with the air, it may be respired, and then produces symptoms somewhat similar to those of asphyxia, but which, nevertheless, are due to its specific narcotic action upon the system through the mucous membrane of the lungs. The first symptoms produced by it are heaviness of the head, a sensation of weight or pressure upon the temples, ringing in the ears, and a disposition to sleep. Then nausea and sometimes vomiting follow; the respiration becomes slower, difficult, and sometimes stertorous; the pulsations of the heart, which are at first precipitate, become stronger but slower; the muscles are paralyzed, and the individual falls into a comatose condition, which may last several hours before life is finally extinct. Occasionally, secondary phenomena, such as nasal or pulmonary hemorrhage and pneumonia, are observed. The general appearance of the body varies in different cases, according to the rapidity of death and the length of time elapsing before the body is seen. Sometimes the face is red and swollen, the eyes bright and glistening, the limbs flexible, and red spots in various parts of the body; in others, on the contrary, there may be remarkable pallor, and a tetanic stiffness of all the muscles of the body.

§ 783. The internal appearances are a vivid red, or sometimes a violet color of the blood, or, again, this fluid may be black and thick; the lungs are voluminous, and of a brownish black color on their exterior, and red internally; the body retains its heat and rigidity for a considerable time, and putrefaction occurs more slowly than after other modes of death.(*f*) The presence of carbonic acid in the air of a room where persons have died or been more or less affected by it, may be detected by the white precipitate formed by it with lime water or a solution of subacetate of lead. The *proportion* in which it exists may be detected, as recommended by Dr. Taylor, by introducing into a measured quantity, in a graduated tube over mercury, a strong solution of caustic potash. The degree of absorption will indicate the proportion of carbonic acid present.(*g*)

§ 784. Death from the inhalation of carbonic acid gas is almost always, where it is not suicidal, produced accidentally. There can be no doubt, however, but that a person may be thus destroyed by criminal design when asleep, this gas being of so insidious and oppressive a nature, that the individual may pass readily, without waking, from natural sleep into a state of fatal coma. Attendant circumstances may awaken a suspicion of wilful poisoning, but there is evidently nothing in the

(*f*) Briand Méd. Lég. p. 414.

(*g*) Med. Jur. p. 529.

medical aspect of the case by which death can be attributed to the action of another rather than to that of the individual himself. The study of the effects of carbonic acid upon the system, under the various circumstances where it is inhaled, is important only as enabling us to refute unjust suspicions of other violent causes of death, and especially of poisoning by other agents. Such suspicions are very apt to be entertained. Dr. Christison relates a case, in which a man and woman who had survived the effects of the gas generated from a pan of burning coals in their apartment, while at the same time four other persons in the room perished, were imprisoned on suspicion of having conspired to murder their companions. Similar cases have frequently been the subject of examination before the coroner's inquest.

§ 785. Carbonic acid is disengaged not only during the combustion of fuel, but may be present in deleterious quantity in the atmosphere from other sources. Thus it has been the cause of death by the non-renewal of the air where a large number of persons are confined in a close apartment, and are obliged to respire the same air repeatedly; it is disengaged in breweries during the process of fermentation, and in green-houses, from the plants, during the night; persons have been frequently destroyed by it who, for the sake of warmth, have laid themselves down near the vents of lime kilns; and it is well known that it accumulates in the shafts of coal mines, and has been the cause of death there to large numbers of persons. The only one of these cases that can well become the subject of medico-legal inquiry is that in which death results from the gases evolved by the combustion of fuel. (We use the word *gases* since it is by no means certain that the fatal effects are due always to the disengagements of carbonic acid gas. Carbonic oxide, which is also evolved, is still more rapidly poisonous than is the carbonic acid gas.)(*h*) On the continent of Europe, and especially in Paris, self-destruction by the vapors of charcoal is one of the most common forms of suicide. In England and the United States, this mode of self-destruction is seldom resorted to, while accidental death from the gases escaping from burning coal or the smothered combustion of wood are very frequent.

§ 786. Carbonic acid gas, when not heated, is heavier than common air, and will therefore be found in greatest quantity near the floor after combustion has ceased; but during combustion, or while the air is still warm, it will be found equally diffused through the apartment. Dr. Taylor found, by experiment, that in burning a quantity of charcoal actively in an open brasier raised above the floor, in a large apartment, the proportion of carbonic acid was nearly equal in air taken a foot above and a foot below the level of the source of combustion, there being no current to affect the results. The inferences which he draws from this and from other considerations, are—1st. That in a small and close apartment individuals are equally liable to be suffocated at all levels, from the very equal and rapid diffusion of carbonic acid gas during

(*h*) M. Chevallier, in the Oct. number of the Ann. d'Hyg. for 1854, has related a case of poisoning by the vapors of carbon. He shows that three or four per cent. of carbonic oxide will suffice to destroy a strong dog, that would not have been killed by less than than thirty or forty per cent. of carbonic acid in the air. Warm-blooded animals may be destroyed by one per cent. of carbonic oxide.

combustion. 2d. That in a large apartment, unless the gas be very rapidly diffused by a current of air, the air around the source of combustion may become impregnated with a poisonous proportion, while that at a distance might still be capable of supporting life, because carbonic acid requires time for its perfect and equable diffusion in a very large space.(*i*)

§ 787. The following case may serve to show the circuitous route by which carbonic acid may find its way into bed rooms:(*j*) A man and his wife were found dead in their bed room; the first in an easy bent position on his right side, on the floor; the latter in a similar position, and her countenance wore a mild and placid expression. No marks of violence were found upon the bodies, and with the exception of slight sugillations on the man's back, the skin was perfectly natural in color and appearance. A post mortem examination and a chemical analysis were made without any indication of poisoning being found. There was a singular and intolerable smell in the house, strongest in the chamber. It was found, upon further inquiry and examination, that a straw mattress had been burnt in the cess-pool of an adjoining yard, a few days previously, the embers of which were still in a state of ignition, and when stirred, gave off dense volumes of smoke and a disgusting smell resembling that in the house. The walls of this cess-pool and of the foundation of the house were of loose stones, and under the influence of a strong west wind the products of combustion had found their way through the foundation into the boarded walls of the house, and thence into the chamber. No sulphuretted hydrogen could be detected in the gas which still escaped into the room, but sufficient carbonic acid to fatally contaminate its atmosphere. Briand enumerates several instances in which carbonic acid, coming from fires lit in an apartment other than that occupied by the deceased, has nevertheless penetrated into it and been the cause of fatal accidents.(*k*) In one of these cases a man and his wife were found dead in bed, suffocated by gas produced by the charred woodwork in the neighborhood of a fire in a room at the opposite end of a long corridor on the same floor. The gas had worked its way under the floor until it had found a vent in a crack of the flooring in their apartment. In other instances the gas was driven through stove-pipes, and from one chimney-flue to another on different floors.

§ 788. *Lighting Gas.*—The ordinary illuminating gas, which consists chiefly of light carburetted hydrogen, contains also vapors of volatile liquid carburets of hydrogen, carbonic oxide, and other elements. Light carburetted hydrogen is in itself hardly poisonous, but the composite gas, which is now everywhere so freely used for burning, has frequently caused fatal accidents. Still, the atmosphere may be very offensively loaded with it, and yet be breathed for a short time with impunity. It does not appear to act merely as an asphyxiating agent, but rather like a narcotic. The first symptoms are nausea, headache, noises in the ears, and great prostration. All of these become aggra-

(*i*) Med. Jur. p. 535.

(*j*) An account of two cases of poisoning with carbonic acid, in remarkable circumstances. communicated by Jos. Law, Es., Surgeon, &c., Ed. Month. Jour. Mar. 1853.

(*k*) Méd. Lég. p. 418.

vated; the breathing then becomes oppressed, the limbs are paralyzed, and death is preceded by coma and convulsions.

The *post mortem appearances* are, generally, intense cerebral and spinal congestion, redness of the bronchial mucous membrane and of the lungs, and dark color of the blood. In the fatal cases which occurred at Strasburg, and which are reported by M. Tourdes, the bronchial tubes were filled also with a white, thick, and viscid froth, streaked with blood.(*l*)

The following is a recent case, by Gärtner, of Stuttgard.(*m*) The gas affected a lady, her servant maid, and also an English pointer dog. The lady was first seized; her illness began with an affection of the head, sickness, vomiting, and purging of thin rice-water-like stools, in which whitish flakes were observed. After twelve hours she recovered but felt very drowsy. On the fifth day she experienced pain in the back part of the head, lassitude, vertigo, tinnitus aurium and loss of appetite, accompanied by a loaded tongue, a small pulse of 90, and cessation of the menses. Blood of rather a dirty dark-red color, presenting no buffy coat, was abstracted from a vein. Next day, the patient was worse; she was quite insensible, and lay with closed eyelids; the eyes were turned up, the pupils were much contracted, and unaffected by the influence of light; the face was not swollen; there was trismus; the arms were flexed at the elbow-joints; the respiratory movements were very feeble; the pulse was hardly perceptible; and the skin warm, and insensible to the touch. She was, however, restored by venesection, and other remedies.

In the servant girl similar symptoms occurred, but not with much severity, which may be attributed to the fact that the atmosphere of her chamber had not been so strongly impregnated with the gas. She had severe cramps of the extremities, great jactitation of the hands, flexion of the arms at the elbows, great restlessness, and inclination to yawn. Her blood presented no buffy coat. Latterly she had a non-febrile bloody diarrhœa. She recovered in fourteen days from the date of her seizure.

The dog was found insensible, and quite stiff, as if dead, but it soon recovered.

§ 789. *Sulphuretted hydrogen gas.*—This is the principal deleterious gas, which is evolved from privy wells, and from foul drains and sewers. Its familiar and extremely offensive odor affords such unmistakable evidence of its presence, that unless a person is obliged to inhale it, or is exposed to it in a concentrated form, accidents will rarely occur from it. The consideration of its effects, and the means of obviating them, is evidently more the subject of medical police or hygiene, than of legal medicine. A few observations may not, however, be misplaced. When not existing in very large proportion in the atmosphere, it may be breathed for a certain time with comparative impunity, giving rise merely to lassitude, loss of appetite, and sometimes a typhoid febrile condition. Again, when taken in a greater quantity, the symptoms are, acute and oppressive pain in the head and

(*l*) Ann. d'Hyg. T. III. p. 457. Vid. also Devergie, Méd. Lég. T. III. pp. 72 and 75.
(*m*) Ed. Month. Jour. Oct. 1854.

pit of the stomach; and for this reason, this gas has received from the French the name of "*plomb des fosses.*" If, after experiencing these sensations, the individual does not immediately withdraw from his position, he loses his consciousness, and falls, completely deprived of sensibility and the power of motion; a reddish froth runs from the mouth, the body is cold, and the face livid; the eyes are dull, and the pupils dilated and unmovable; the pulse very irregular, and almost imperceptible; convulsions ensue, and the person dies comatose.

§ 790. The *post mortem appearances* usually described, are the following:—A proneness to rapid putrefaction; an offensive odor from all parts of the body; the blood dark and liquid; the right side of the heart congested, and the muscles of the body of a dark color, and insusceptible to the stimulus of galvanism.

This is not the only noxious gas evolved from privies and drains, but is that which is the most destructive to life. There are also ammoniacal emanations, which are extremely irritating to the respiratory mucous membrane; and nitrogen gas, which sometimes accumulates in enormous quantity, but which, although irrespirable, is perhaps not positively noxious.(*n*)

§ 791. *Exhalations from the dead.*—According to the testimony of Mr. Waller Lewis,(*o*) the noxious character of the air which is found in the vaults of grave-yards, is chiefly due to the presence of carbonic acid. He says, that he has never succeeded in obtaining any traces of the presence of cyanogen, hydrocyanic acid, sulphuretted, phosphoretted, or carburetted hydrogen gases, even in the smallest quantity. In the vaults under St. Mary-le-Strand, he found a very minute proportion of sulphuretted hydrogen; he says also, "I examined gases formed by bodies of persons of all ages, from the still-born infant to those who had survived to the age of ninety-two; the coffins had been in the vaults various lengths of time; those that had been there a week were examined, as well as those that had remained there a century and a half. Death had been caused by accident, by age, by disease. The latter had been of the most various kinds—typhus, phthisis, smallpox, childbirth, dropsy, and cholera. Not one of the above circumstances seemed to influence, in the slightest degree, the composition or character of the gases. These were most remarkably similar in every instance. All the gases I analyzed, or otherwise examined, were composed of nitrogen and carbonic acid gas mixed with atmospheric air, and holding decomposing animal matter in suspension. There was but one ingredient that was sometimes present, and sometimes entirely absent; this was ammoniacal gas, which was sometimes present in very large quantities. When this was added to the other gases, it overcame all other odor; when it was absent, the smell much resembled that of very putrid moist cheese. In every instance I searched most carefully for the presence of the hydrogenous gases mentioned, but never found the slightest trace of any one of them." The same results were obtained by Pellieux, in Paris, who examined all the cemeteries around that capital.(*p*) A lighted candle, let down into one of the vaults

(*n*) Vid. Briand. Méd. Lég. (*o*) Lancet, 1851.
(*p*) Henke's Zeitsch. 1850, p. 459.

which had stood open for twenty-four hours, and was twenty feet deep, was extinguished at the depth of five feet. Pellieux endeavored to descend into it, together with the inspector, but could not remain longer than a few seconds. A grave-digger, accustomed for many years to assist in placing coffins in the vault, was obliged to descend twice, before he could succeed in emptying a bladder of water and refill it with the gas. The symptoms exhibited by those who endeavored to descend below the point at which the light was extinguished, were, first, great oppression of breathing, a feeling of weight and pressure upon the temples and eyelids, succeeded by dryness of the fauces, a peculiar hot and repulsive sweetish taste in the mouth, singing in the ears, and profuse perspiration. The countenance acquired a reddish hue, and the nose, cheeks, and lips, became livid. They were obliged to return rapidly to the air, to escape total asphyxia. The natural color soon returned, but severe headache continued for some time. Mr. Lewis says, that in him the most prominent among the symptoms, after exposure to the putrefactive gases, were nausea and vomiting, succeeded by diarrhœa, and a throbbing pain in the upper part of the head, great prostration, and entire loss of appetite, accompanied with an unpleasant, earthy taste, in the mouth. He also says that these symptoms, after being experienced for a long time, were followed by a series of boils and phlegmonous erysipelas. In one instance, a sexton, who preceded him with a candle in the vault under the church of St. Andrew, Holborn, was scarcely able to save himself from sudden death by carbonic acid. The candle went out, and the man, after much exertion, presented himself in a pitiable condition—his eyes half starting from their orbits, breathing deeply, and evidently much oppressed.

It is hardly necessary to observe, that in medico-legal examinations of bodies in a state of putrefaction, the physician should guard himself against inhaling the noxious gases by the use of chloride of zinc, charcoal, and other disinfecting agents.

PART II.

OTHER FORMS OF VIOLENT DEATH.

WOUNDS.

CHAPTER I.

GENERAL CONSIDERATIONS.

§ 792. The meaning of the term "wound," in popular language, can hardly be misunderstood. Its meaning is, indeed, not precise, nor is the term susceptible of an exact definition. It is applied to most forms of bodily injury caused by external violence, apart from any consideration of the means by which this was inflicted, but, in general, involving the idea of a breach of continuity in the skin. This latter element, however, of the definition, is not included in the surgical meaning of the word, since one class of wounds, called "contused," and recognized by all surgical writers, is not attended necessarily with any division of the skin. Indeed, the popular understanding of the expression appears to be more rational than is the professional one, for if a contusion or bruise can properly be called a wound, it is difficult to perceive why a sprain, fracture, or dislocation, is not equally entitled to the name. Yet these latter injuries are never so called by surgical writers. It is difficult, also, in consequence of the apparent vagueness of this term, to know whether burns and scalds can properly be ranked as "wounds." The immediate effect of the application of a burning or heated body to the skin, may not be such as to cause more than a redness of the surface, or an elevation of the cuticle into a blister, but the surface of the skin may afterward, by the giving way of the cuticle, be exposed, and it is then termed "wounded." Hence, the reader will perceive, that any legal limitations of the meaning of the words, whether based upon popular or professional definitions, are liable to be erroneous, if the intention be really to designate the results of external violence by a name which shall comprise them all. In treating of this subject in its medical aspect alone, we shall make use of the word *wound* as expressive of any form of bodily injury caused by external violence, since it is only by such course that the medico-legal bearings of the subject can be properly considered. Hence we have used the term WOUNDS as a convenient designation for this chapter, entirely irrespective of the possible surgical or legal limitations of the word.

§ 793. Wounds are usually classified, in reference to their visible marks upon the skin, into incised, punctured, lacerated, contused, and gun-shot wounds. Although a division into mortal and non-mortal, would appear to have a more direct and useful bearing upon legal medicine, yet the unexpected complications, and the various extraneous causes which give gravity to the simplest cases, and on the other hand, the favorable termination of some injuries of apparently the most dangerous nature, render any such classification impracticable. These facts will become apparent in the course of this chapter, and the reader will not fail to perceive that in medico-legal practice, every wound must be judged by itself; the general principles and rules of surgery being subject to constant modifications from individual peculiarities.

§ 794. The varieties and the degree of danger attending wounds in general, depend very much upon some of the following circumstances: "the extent of the injury; the kind of instrument with which it has been inflicted; the violence which the fibres of the part have suffered in addition to their division; the size and importance of the blood-vessels and nerves which happen to be injured; the nature of the wounded part, in respect to its general power of healing favorably or not; whether the operations of the system at large and life itself can be well supported or not, while the functions of the wounded part are disturbed, interrupted, or suspended by the accident; the youth or old age of the patient; the goodness or badness of his constitution; and the opportunities which there may be of administering proper surgical aid and assistance of every kind."(*a*)

§ 795. But in this country the physician is seldom called upon by a legal tribunal to offer an unconditional opinion upon the probable danger of a wound, his assistance is more frequently invoked for the purpose of deciding how far a given wound was the cause of death, and hence his testimony is required before the coroner upon the post mortem examination. No one should be willing upon theoretical grounds alone, to give an opinion as to the agency of the wound in producing death. A careful post mortem inspection will either reveal the violent cause of death, or demonstrate that it was not due to external violence; it is the duty of the physician whose opinion is desired, to make the examination most carefully himself, and to base his opinion entirely upon this, and not upon previous notions of the probable nature and effect of the wound.

Whatever parts of this examination call for the application of knowledge of which he may not be possessed, as the use of the microscope, or chemical analysis, should be committed to one who is really an "expert" in these branches. The idea is much too prevalent, and should be corrected, that the practitioners of medicine must necessarily be acquainted with all the appliances and new modes of investigation which modern science has produced; in other words, that every physician is equally competent to undertake the examination of a case involving the question of homicide. It is to this cause chiefly, viz., the disparity in the attainments of one physician as compared with another, and also to the natural division of medical science and practice into numerous depart-

(*a*) Cooper's Dict. of Pract. Surgery.

ments, some one of which may be cultivated to the exclusion of others—that the "disagreement of doctors" is really due. Men of equal medical attainments will rarely differ upon an essential point of pathology or practice, but ignorance, or a defective knowledge in medicine, does not differ from that in any other branch of science in being usually associated with presumption and obstinacy. Still there are few practitioners of medicine who are thoroughly prepared to enter upon an examination of all the medical aspects of a case of violent death; familiarity with the means required to carry through such an investigation, can be gained only by special study, for which, to the majority, time is wanting.

Circumstances may, however, impose upon the physician the duty of making an examination for which he does not feel himself fully competent. In remote or interior parts of the country the means for the successful prosecution of a medico-legal inquiry are usually not at hand; who ever may be obliged to undertake an examination under such circumstances, should endeavor to obtain the assistance of a colleague, and should candidly represent to the authorities the necessary imperfection of the examination, and what influence this may have upon the objects of the inquiry.

§ 796. *Examination of the body.*—The following points must be carefully noted; the locality, the direction and the dimensions of the wound; whether there is a loss of substance or not; and whether the wound was inflicted before or after death, with the grounds of the opinion; the probable cause of the wound, and position of the body at the time; the results of the injury (ecchymosis, swelling, hernia of internal organs, concussion, inflammation, suppuration, ulceration, gangrene;) notice of the clothes of the deceased, especially the portion (if any) corresponding to the place of injury; comparison of the weapon with the wound; medical assistance, and by whom rendered. Besides these general points which claim attention, a very carefully detailed account of the wound itself is required, not only to ascertain the nature of the weapon with which it was given, but also to learn how far it has penetrated the body, and what organs have been wounded. And, moreover, the importance of a general and careful examination of all the organs of the body should not be forgotten, for notwithstanding the immediate cause of death may be evident, it is still advisable to be sure that there was no cause of death in any other part. Although there may be no suspicion of poisoning, the stomach should be opened. In a case often referred to, a girl died while her father was chastising her for stealing, and on account of the marks of violent treatment upon her body, it was supposed that this had caused her death. On opening the stomach, however, it was found to be inflamed, and contained a white powder, which was proved to be arsenic. The girl had taken the arsenic in dread of her father's anger, upon the detection of the theft; she vomited during the flogging, and died in slight convulsions.

§ 797. The phenomena which intervene between death and putrefaction are often of assistance in throwing light upon the mode and period of death. The changes which take place in the body after death are due to physical and chemical laws.

External phenomena.—Soon after death, while the body is still warm,

the peculiar cadaveric smell (not putrefactive) is perceived at the same time that the surface becomes pale. The blood sinks gradually to the more dependent parts, occasioning a discoloration of the skin resembling in some respects a contusion produced during life.

The complete cooling of the body (with the disappearance of the peculiar smell just referred to) is accomplished much more slowly than is usually supposed. According to Bock,(*b*) it does not take place in less than 15 to 20 hours. Externally, the reduction of temperature takes place more rapidly than in the interior of the body, but in both cases it is dependent upon the temperature of the surrounding air. The bodies of old people and children, of the thin, anemic, and wasted, grow cold at quite an early period after death. But in those who die suddenly, in the fat and robust, the animal heat is more slowly parted with. *Rigidity* or *rigor mortis*, occurs generally within 12 hours after death, and lasts from 36 to 48 hours. It is more complete and lasting in those who have died suddenly, or in the course of acute inflammatory diseases, while in the weak and those exhausted by long illness it is feeble and transient. It may be distinguished from the rigidity occurring in cases of apparent death (syncope) by the reflection that in the latter case the rigidity is spasmodic and partial, arises and disappears suddenly without any regularity, and returns after the contracted limb has been extended, which is not the case to the same extent in the true post mortem rigidity.

Internal phenomena.—The blood remains fluid for two or three hours after death. It accumulates in the veins, owing to the last contractions of the heart and arteries having more or less completely emptied the arterial system. The amount of blood found in the cavities of the heart, and the existence of coagula, depend upon the nature of the blood itself, and the mode of death, whether rapid or protracted.

§ 798. *Wounds made before or after death.*—The distinction between wounds made before and those made after death, depends upon the signs of vital reaction in the wound and its vicinity. If the signs of inflammation, or its products, are found; if the wound be swollen and discolored; if plastic lymph have been thrown out between its edges; or suppuration, or gangrene, or cicatrization, taken place; we have not only certain proof that the wound was inflicted during life, but also that death could not have been immediate. The question, therefore, as to *post* or *ante-mortem* infliction of the wound, cannot arise when any of the processes referred to have taken place. But when none of these signs are recognized, there may be room for doubt as to the period of its infliction.

If death have resulted from a wound, not immediately, but still before, the effusion of plastic lymph, its edges will be found swollen and everted, and coagulated blood effused in the track of the wound and in the adjoining cellular tissue. When, however, it has proved immediately fatal, as in some penetrating wounds of the heart, aorta, and spine, the above mentioned characters will not be found. This fact is most probably due to the sudden drain from the capillaries, in consequence of internal hemorrhage, or to the sudden cessation of the action

(*b*) Gerichtliche Sectionen des Menschlichen Körpers.

of the heart. Thus, in a case related by Casper, in which a woman was instantly killed by a table-knife which was thrust through the arch of the aorta, entering the chest between the first and second ribs, the wound presented sharp and smooth edges, without a trace of either fluid or dried blood; in fact, exactly like a wound made upon the dead body.(c) It is therefore of importance to remember, that in wounds which prove immediately fatal, there may be no signs of vital reaction, and no outward effusion of blood. A case is very easily supposable, in which a wound in the region of the heart might be designedly inflicted after death; as, for instance, to divert attention from the real cause of death, which may have been due to poisoning. Although no distinction might be possible, from an inspection of the external wound, the absence of internal hemorrhage would, in such a case, betray the period at which the wound was made.

§ 799. Dr. Taylor endeavored to solve the question of the differences between wounds inflicted before and after death, in an experimental way. In one experiment, an incised wound, about three inches long, was made in the calf of the leg, two minutes after its amputation. The skin retracted considerably, the adipose tissue underneath protruded between its edges, but the quantity of blood which escaped was small. Examined after the lapse of twenty-four hours, the edges of the wound were found red, bloody, and everted; the skin not in the least tumefied, but merely flaccid. A small quantity of loosely coagulated blood was found at the bottom of the wound, but no clots were found adherent to the muscles. In the second experiment, which was made ten minutes after the limb was amputated, the skin appeared to have already lost its elasticity, the edges of the wound became very slightly everted, and scarcely any blood escaped from it. On examination, twenty-four hours afterwards, the wound presented *none* of the characters of a wound inflicted during life, except that, at the bottom of the wound, a few coagula were found. Other experiments were made at a still later period after the removal of the limbs, but it was found that the wounds then made possessed still fewer points of similarity with wounds inflicted during life. From these experiments, one fact, at least, may be fairly inferred—that the coagulation of the blood is not a safe criterion of the time at which the wound was made, but that, as long as the body retains its warmth after death, this apparently vital process may still take place. If, therefore, a wound be made upon a person just dead, it is not impossible that the blood will coagulate in the wound. Facts, more pertinent than the above experiments, are, however, required to establish the fact beyond a doubt, as the accidental determination of the question upon the entire body would be naturally more conclusive than experiments upon separated limbs. Although the swollen and everted condition of the lips of the wound is a good indication of its having been inflicted upon the living person, this appearance may be removed by causes acting after death. Thus, if the body have lain in the water, this, together with the blood effused in the wound, may have disappeared before the inspection is made, by the maceration to which the body has been thus subjected,

(c) Gericht. Leichen-öffnungen, 1s. Hundert. Fall. 9, 1853.

and it is also often materially changed by the advance of putrefaction, since, by this process, the skin very soon becomes puffy, and many of the relations of the wound changed.

§ 800. The amount of *hemorrhage* is generally a reliable test of the period at which the person was wounded, but is, of course, only applicable in wounds involving a solution of continuity. In those made after death, even while the body is yet warm, the amount of blood poured out will, of necessity, be far less than while the active circulation of the blood is going on. This is especially true of wounds of parts which prove unavoidably fatal by copious and sudden hemorrhage, such as wounds of the heart, aorta, or any of the great blood vessels. In fact, wounds involving the left side of the heart, or the arteries, would probably, if made after death, be attended with no hemorrhage whatever; whereas, in the division of any of the venous trunks, soon after death, the amount of blood lost would be far smaller than would have been poured out during life, and would depend, in a great measure, upon the position of the part injured. In a celebrated case of assassination, tried in Berlin, the head of the murdered person had been severed from the body, but, at the same time, other injuries of a fatal nature had been inflicted. Dr. Casper gave his opinion that the neck had been severed before life was extinct, for the reason, that a very large amount of blood was found to have been effused from the cervical vessels. The chief distinction, therefore, between hemorrhage before and after death, is, that in the latter case the amount lost is but trifling and exclusively of a venous character.

§ 801. While the signs we have referred to are the principal means of discrimination in wounds, involving a loss of blood, there is another large class of wounds to which they do not have so extensive an application. Thus, although in *contused* wounds, the coagulation of the blood under the surface injured sometimes affords, especially in injuries of the head, an indication of the blow having been given during life, yet, on the other hand, the want of coagulation is no proof that it was not inflicted till after death. The blood may, from various causes, remain fluid after death. Its coagulability may be impaired by disease, or by the mode of death. If, for instance, the person murdered has been affected with scurvy, or his death caused partly by any mode of asphyxia, the fluidity of the blood under contused wounds, or indeed in any kind of wound, in such an individual, would be no obstacle to the opinion that the wound was given while the person was alive.

§ 802. *Ecchymosis, or Sugillation.*—The meaning of this term is an effusion of blood under the skin, but in general medical parlance the name is applied to the discoloration of the skin produced by this extravasated blood. In cases where it is necessary to discover whether the person was living at the time his injuries were received, it is customary to rely upon the presumptions afforded by the appearance of the ecchymoses. Their color varies according to the time elapsed since they were produced; at first they are purple, and pass through various shades to black, then through violet, green, and yellow, until their disappearance. In general, the discoloration appears within twelve hours after the injury, and sometimes, immediately after it, the violet color is seen on the third day, the green from the fifth to the sixth day, and

the complete disappearance of the spot is, in healthy persons, from the tenth to the twelfth day. The changes are more rapid in the young than in the old, and depend also upon the gravity and extent of the blow.

If the extravasation be deeply seated, the external discoloration will not immediately occur, but may be delayed even for several days, and in parts where the cellular tissue is abundant, will not always correspond to the spot on which the injury was received, but over that to which the blood has gravitated. Indeed, the cutaneous discoloration may not appear until after death. Thus, in a person who died in thirty-five hours after having received a violent kick from a horse, rupturing the bladder, there was no ecchymosis in the seat of the blow until after death.(*d*) The amount of blood extravasated, except it lie immediately under the skin, cannot be determined by the degree of the external bruise, since, in many of those cases of violent death, in which a heavily loaded vehicle has passed over the body, or a great weight has fallen upon it, there has been, externally, no discoloration whatever, or in such a slight degree, that the vast amount of internal disorganization and hemorrhage could hardly be suspected. In a case related by Casper, in which a wagoner was crushed to death, and upon opening the body the lungs and liver were found to be ruptured, and the heart completely torn from its attachments, the only external injuries discoverable were two trifling abrasions of the skin upon the clavicle and the arm.

§ 803. The phenomena observed in those cases where contusions have been purposely made upon the dead body, resemble, in some cases, those which occur during life. From experiments made by Dr. Christison, it appears, that blows inflicted two hours after death will produce a discoloration of the skin, similar to what might be expected during life, except in regard to extent, which does not correspond with the severity of the blow. The experiments of Dr. Christison establish a strong presumption, that when contused wounds may have been inflicted *immediately* after death, the external similarity will be still greater, and the correspondence between the amount of violence and the discoloration more exact. While this author was performing his experiments to ascertain whether blows inflicted after death would produce similar appearances to those produced during life, he selected as a subject for a series of these experiments, the body of a female who had died in the infirmary. The body being afterwards carried to the dead-house and there seen by some persons who were not aware of the experiments having been performed, was not allowed to be buried until an inquiry had been made into the circumstances, so persuaded were these persons that the woman must have died in consequence of barbarous treatment received during life.

§ 804. The inference from the considerations here presented, is not that there is no distinction possible between ecchymosis produced before and after death, but that great caution is necessary in giving an opinion upon this point. The external bruise must be carefully compared with the effusion into and under the skin and adjacent tissues. If the latter

(*d*) Taylor, Med. Jur. p. 177.

be at all extensive, and especially if the blood be coagulated, we think there need be little hesitation in declaring that the injury must have been inflicted during life. Moreover, there are few cases of vital ecchymosis, without attendant swelling of the skin and other signs of vital reaction. If, while the body is fresh, the ecchymosed spot be found at all swelled, there can be no suspicion of post-mortem violence. Also, if the ecchymosis, though trifling in extent, be accompanied with excoriations or abrasions of the skin, as is often found in cases of strangulation with the hand, the fact of the violence having been done upon a living person will be manifest. Any difficulty in making the discrimination between contusions made before and after death, will be much enhanced by the putrefactive process, the effect of which is to so alter the consistence and color of the skin and subjacent parts as to destroy all characteristic signs.

§ 805. *Ecchymoses from natural causes.* It can hardly be necessary to caution the physician against the possibility of mistaking the ecchymoses observed in *certain diseases* for the effects of violence. The morbid states of the system in which they are seen, have so many other striking peculiarities during life and after death, that it would hardly be pardonable for a professional inquirer to overlook or misinterpret them. Thus in scurvy, purpura hemorrhagica, and petechial typhus, the shape, size, and diffusion of the spots in various parts of the body, the absence of swelling or other indications of violence, and the pathological changes in the mucous membrane of the mouth and the intestines, together with the fluidity of the blood, will afford more than sufficient reasons for rejecting all suspicion of violence.

The spots and blotches produced by *cadaveric changes* are more likely to give rise to mistakes. In persons unaccustomed to inspect the bodies of the dead, the stasis or congestion of the blood in the capillary vessels of the skin, which sooner or later invariably occurs, may lead to the suspicion of violence having been inflicted before death. This lividity is most apparent and extensive in those who have died suddenly in full health, by some asphyxiating cause. It occurs in almost any part of the body, but is usually deeper and more distinct in those which are the most dependent. The time at which it is developed varies from the moment of dissolution up to the occurrence of rigidity, and is, of course, hastened or retarded by various causes, such as the mode of death, the season of the year, and the age of the subject. The blood is merely superficially diffused in the outer surface of the skin, and this mark alone ought to suffice to distinguish these discolorations from those produced by violence, since in the latter the blood is effused in the whole substance of the cutis and generally also into the subcutaneous cellular tissue, muscles, &c.

§ 806. The *form* assumed by the marks of cadaveric lividity is various: sometimes the skin is mottled, at others large blotches spread over the surface, and in others again the lividity is more uniformly diffused, without necessarily appearing on a dependent part. The marks of the clothing which the deceased wore, if they have remained upon him until rigidity has taken place, give a very singular appearance to the skin. Those portions which have compressed the body tightly will be recognized by the paleness of the surface, while the intervening spaces

may be deeply tinged. The folds of a sheet often thus communicate to the body an appearance of flagellation, the back being covered with stripes. These are called *vibices*, and are familiar to every one accustomed to the inspection of those recently dead. This stage of cadaveric lividity which is due to the congestion of the capillary vessel, runs gradually into another at the approach of putrefaction. This stage is characterized by the uniform purple or dark red discoloration of all the depending portions of the body and arises from a transudation of the serum and coloring matter of the decomposed blood. Hence, when an incision is made into parts thus affected, as, for instance, over the occiput, the skin and subjacent tissues will be found thickened and infiltrated with bloody serum. But neither of these stages of cadaveric lividity ought to mislead the physician; the diffusion, the superficial character of the infiltration, or, as in the latter case, the peculiar kind of effusion, the want of any internal injury to correspond with the external marks of apparently great violence, and many other considerations which it is hardly necessary to specify ought to render the distinction an easy one. We are disposed to think that the possibility of serious error arising from the distant resemblance between cadaveric lividity or the discoloration of the skin caused by certain diseases of the blood, has been in general over-estimated by writers upon legal medicine.

CHAPTER II.

CLASSIFICATION OF WOUNDS.

§ 807. Wounds are classified according to the nature of the means by which they were produced, as, for example, "an incised wound," "a lacerated wound." It will at once be seen that, in legal medicine, the name by which the injury is designated, thus indicating the means by which it was inflicted may, unless much discrimination be used by the physician, lead to incorrect inferences. It becomes important, therefore, to establish the relation between the injury and its supposed cause. In other words, it being recognized that the wound was produced on a living person by mechanical violence, by what instrumentality was it affected? This is not always evident upon a first inspection. In order that a correct judgment may be had, the earlier the post-mortem examination is made the more likely will it be to yield useful and positive results, for the occurrence of putrefaction, maceration in water, and various disturbing causes may materially alter the aspect of wounds.

In some kinds of wounds the nature of the cause is far more apparent than in others; thus incised and punctured wounds convey the idea of the employment of cutting or pointed weapons, whereas the cause of a contused or lacerated wound is much less easily discovered. Hence the caution is necessary that the means by which the injury was inflicted should be described in general terms only, and especially should the physician avoid giving too positive an opinion as to the particular weapon or other means by which it was produced, since he wil

often find himself deceived in his opinion. By indicating upon insufficient grounds any particular weapon as the one by which the homicide was effected, the ends of justice may possibly be defeated, or an innocent person wrongfully suspected or accused.

§ 808. *Incised and punctured wounds.* Such is the name given to those wounds made by weapons with a sharp cutting edge or point. In the former, the superficial extent of the wound is usually greater than its depth; in the latter, the reverse is the case. In both these kinds of wounds the edges are cleanly cut, the edges separated and not contused unless the cutting portion of the weapon have been dull or possessed considerable convexity. The regularity and evenness of the incision is, therefore, a mode of distinction between wounds inflicted with weapons, properly so called, and those made by glass, crockery, nails, &c. The shape of the wounds differs somewhat according to the region of the body and the tissues divided, as well as the state of tension or relaxation of the skin, and the direction in which the blow is given. Thus, when the weapon has penetrated in an oblique direction through the tissues, or when the latter are irregularly stretched, the shape of the wound will not correspond with that of the weapon; in such cases an incision is apt to assume a crescentic form, and if inflicted on a limb in a state of tension, its edges will be widely apart, and the skin more so than the subjacent parts. If a punctured wound have been made obliquely through the skin, it will offer an oval or elliptical shape, and the orifice will usually be smaller than the diameter of the weapon producing it. From the experiments of M. Filhos, in 1833, it appears that a conical and rounded weapon produces small elongated wounds, with two acute angles; but these trials having been made upon the dead subject, the results are not fairly applicable to wounds on the living, because the vital retractility of the skin will necessarily greatly modify the shape of the wound. Nevertheless, several punctured wounds, made by the same weapon, may differ in shape, and be either triangular or oval, according to the circumstances already indicated as influencing the shape of the wound.

A punctured or penetrating wound may be single upon the skin, and yet two or more internal wounds have been made by the same weapon. This is effected by the weapon having been only partly withdrawn after the outer wound was given, and then plunged into the body in another direction, as is often the case in a close struggle. Thus, in a case related by M. Bayard, the deceased presented a single gaping wound in the breast, out of proportion to the weapon found at the spot where the murder was committed, but the left ventricle of the heart was perforated entirely through, and its walls were wounded in another part also.(*e*)

§ 809. *Lacerated and contused wounds.* These being frequently due to accident, and seldom presenting any peculiarity by which the use of a weapon can be positively inferred, an opinion can rarely be given, merely from an inspection of the wound, of the cause by which the injury was produced. A medical witness may indeed be enabled to state the possibility of the wound having been made with a blunt

(*e*) Briand. Méd. Lég. p. 317.

instrument, similar to that which is perhaps shown at the inquest or trial, or found near the deceased, but can seldom, on the other hand, deny that it may have been of accidental origin, or caused by a fall. The aspect of wounds of this class is, of course, too characteristic to require description. When, however, they are situated upon the skull, they often bear the aspect of incised wounds, the edges being apparently cleanly cut, and capable of being adjusted together. The division of the integuments is not, however, straight and regular as in an incised wound, and the angles of the wound are generally less acute. The contusion of the neighboring integuments, the extravasation of blood under portions of the skin, not embraced in the apparent incision, and often the existence of an irregular fracture of the bone, with internal extravasation, will not permit of more than a momentary mistake. But, practically, the chief difficulty in judging of the origin of lacerated and contused wounds, is that injuries of this kind may be received by a fall in a quarrel, or in the retreat of one of the parties, similar in appearance to those which might have been produced by a direct blow. In such cases, the position of the wound compared with the known relative position of the parties at the time of the receipt of the injury, will be the chief source from which information will be derived.

§ 810. In some cases it may not be unimportant to consider whether the wound may not have had a *spontaneous or accidental* origin. A number of criminal trials have taken place in Scotland in consequence of women, for the most part pregnant, having died from hemorrhage from the pudenda. In most, or all of these cases, it has been averred that the wound had been inflicted with criminal intent by the husband or others. A case has lately occurred at Dundee, in which there were no grounds for suspicion that the woman had received a wound. She lived on good terms with her husband and neighbors. She had been straining at the night-stool when the hemorrhage came on. A large quantity of blood was found about her person; it had flowed from the genital organs, but not from the uterus, which was fully expanded in pregnancy. On examining the vagina, Dr. Kyle found a recent aperture in one labium, which he traced into a large vein; one of a plexus which extends some way into the vagina. A case is related by Dr. Thomson, in which the woman, however, recovered after losing a large quantity of blood. In this instance, the woman's husband, a cattle drover, had been long absent from home, and on his return, remained alone with his wife about half an hour. The bleeding commenced immediately after this visit. A wound was discovered large enough to admit the finger to the depth of about half an inch, in the anterior wall of the vagina, at the union of its upper with its middle third. It was probably an accidental laceration, but if death had actually resulted, the existence of the wound might have given rise to suspicions of criminal violence.(*f*) Dangerous hemorrhage may also occur from varicose veins in the leg. The orifice from which the blood escapes being very small, and situated immediately over the enlarged vein, can hardly be mistaken for an intentional wound.

(*f*) Am. Jour. Med. Sci., April, 1850, p. 535, from Edinb. Monthly Jour. Feb.

Casper relates a case in which a woman, raising a broken chamber vessel under her cloths, for the purpose of urinating, wounded herself therewith in the vena saphena. The wound was one and three quarter inches long and three-quarter inches wide, and the vein was opened to the size of a pea.(*g*)

Gunshot wounds.

§ 811. Gunshot wounds present notable differences in their appearance, according to the distance at which the piece was fired, and the number and character of the projectiles. If exploded in immediate contact with the body, the wound is large and circular, the skin denuded, blackened and burned, and the point at which the ball has entered is livid and depressed. The blackened and burned appearance of the skin is due to the imperfect combustion of the grains of powder, and the point of entrance of the ball is larger than that of exit. The hair, clothes or other organic substance in the line of the shot, exhibit traces of burning. When, however, the arm is fired at a greater distance, the appearance due to the imperfectly burned powder and the flame are no longer seen; the ball itself being then the only cause of the wound. In the celebrated case of Peytel, tried in 1839, for the murder of his wife, it was found that she had been killed by two balls which entered near the nose. The eye-brows, lashes and lids were completely burned, and a large number of grains of powder had imbedded themselves in the cheek. Experiments being made in order to determine the distance required that these effects should be produced, it was found that the weapon must have been held within a foot's distance to produce them. The point of entrance is here smaller than that of exit. M. Matthysens has shown this by experiments upon the dead body. A pistol fired at twelve paces distance, with a ball fifteen millimeters(*gg*) in diameter, made a wound in the breast of 8.5 millimeters in diameter, and at its point of exit on the back, one of ten millimeters. In two experiments at the same distance upon the forearm, the entrance wound was four millimeters less in diameter than that of exit, and when a larger ball with a diameter of seventeen millimeters was used, the same relations were preserved, both in the entrance wound being less in size than the ball with which it was made and also three millimeters less in diameter than the wound of exit.(*h*)

According to M. Nelaton, when the wound is recent, the orifice which the ball has made on entering the body is depressed and contused, while that made by its exit is lacerated and prominent. In the former there is an actual loss of substance; in the latter, merely a solution of continuity, and its edges if brought together would almost completely close the wound. Still the irregularity of its flaps, render it the larger, notwithstanding the loss of substance in the entrance wound. After some days the case, however, is different. The contused margins of the wound of entrance slough away, while those of the other become

(*g*) Ger. Leichenöff, 2 Hundert. Fall. 43.
(*h*) Quest. méd. lég. sur les plaies par les armes a feu. Gazette des Hopitaux, No. 145.
(*gg*) A *millimètre* is equal to 0.03937 inch.

partly united, and its size is thus diminished, while that of the former is enlarged.(*i*)

§ 812. It is important, however, to observe that the relative size of the wound depends not only upon the distance at which the weapon is held, but also upon other causes affecting the velocity of the ball. Thus the quality and amount of powder, the length and calibre of the weapon, the compression of the wadding, and the form of the projectile, all require attention. Hence the relative size of the wounds of entrance and exit varies continually, and unless the velocity of the ball can be approximately ascertained, from a knowledge of the weapon used and its proximity to the wounded person, it would be unsafe to draw a positive conclusion from this circumstance alone, as to the position of the body and the direction of the line of shot, both of which are points occasionally of extreme importance. More reliance is to be placed upon the depressed and clean character of the entrance wound and the bulging and lacerated aspect of that of exit. This fact has been substantiated by the experiments of M. Dévergie. When, however, the ball enters a portion of the body well covered with fat, this often protrudes between the edges of the wound, and will entirely mask its character.

If the ball have traversed the clothing before attaining the body, it carries a portion of this with it; and should it have lost much of its force before reaching the body, the clothing is merely pushed before it into the wound, and upon pulling this out, the ball will often come with it. The hole made by a bullet in the clothing is smaller than it is itself, owing to the elasticity of the material, and also is depressed like that in the skin. The wound is usually circular in shape, but is oval if the ball have entered the body obliquely. If caused by a rifle ball, it is said that a large and ragged hole is made, which is attributed to the spiral groove of the barrel, and the tightness with which this kind of ball fits the bore of the weapon. The wound made by the Prussian needle gun, which carries a conical ball, differs from that made by an ordinary bullet in being far smaller.(*j*)

§ 813. In a case communicated by Mr. Tufnell to the Surgical Society of Ireland (March 11th, 1854), it was shown that the form of the wound made by the conical bullet of the Minié rifle was "a small semilunar split in the integument," about a quarter of an inch in length. There was no contusion nor inversion of the edges of the wound.

It is evident that one ball may produce several wounds upon the body; either, for example, by traversing a limb and then entering the trunk or head; or, as has been witnessed in some instances, by the splitting of the bullet upon a projecting ridge of bone. At the same time, it should be remembered that the piece may have been charged with more than one bullet, and this circumstance may give rise to some perplexity, since, upon examination of the body, only one may be found,—the other either having passed out of the body or been overlooked in the examination. Casper lays great stress upon the difficulty of finding

(*i*) Observations on Gunshot Wounds, made in Paris during the summer of 1848, by Edw. Waters, M. D., Month. Jour., Sept. 1848.

(*j*) Casper, ger. Leich. öffuungen, 2 Hundert, Fall 21.

balls in the body, even when there appears to be a certainty that they could not have traversed it,—no aperture of exit being found.(*k*)

A ball after entering the skin is deflected from its straight course by very slight causes. Many examples of this fact are given by all authors on military surgery. The following is a singular illustration of it: In a duel with pistols between two students at Strasburg, one fell, apparently mortally wounded in the neck, but almost immediately he got up, without feeling any inconvenience from his wound. It was found that the bullet had struck the larnyx obliquely, and glancing from the cartilage had gone completely around the neck, and stopped on the opposite side of the larnyx from where it had entered. It was taken out by making simply an incision over it. Other examples might be cited in which balls have made a circuit around the cavities of the body without entering them. In a wound of the head, thorax, or abdomen, the ball may make a half circuit of the body, and lodge or emerge at a point opposite that at which it entered, thus leading one to suppose that it must have passed directly through. In the battle of Suddozam, a soldier was struck by a bullet just above the right haunch bone. The ball passed around the trunk, entered the abdominal parietes on the *left* side, then passed downward through the sciatic notch, and "at length contented itself with remaining in the left nates."(*l*)

§ 814. *Wounds from small shot.*—These are too characteristic to be mistaken for any other injury. It is chiefly important to understand the character of the wound as affected by the *distance* at which the piece was fired. When this has happened sufficiently near to the person for the charge to enter the body in one mass before separating, the wound is of considerable extent and gravity. Its edges are ragged, contused, and blackened; and as the shot diverge after entering the body, great laceration and injury of the parts underneath takes place. Dr. Lachèse, of Antwerp, found, upon experiment, that in order that the opening should be single, the distance should not exceed from ten to twelve inches. At distances greater than this, the wound will no longer be perfectly regular, but more or less lacerated; and when the distance is so great that no central wound is made, each grain will make a distinct though trifling wound. Nevertheless, a single grain of shot may occasionally produce death. Thus, in a case related by Ollivier d'Angers, a thief scaling a wall, received, at the distance of fifteen paces, a charge of shot from a fowling-piece. He fell dead immediately. The charge had struck him in the breast, scattering over an extent of three to four inches, but one grain had penetrated the aorta over the attachment of sigmoid valves, and another had traversed the anterior wall of this vessel. The wound had the form of linear incisions, two lines in extent, and such as would be made by a fine double edged and pointed instrument. If the shot have had to penetrate the clothing, especially if this be loose and thick, before entering the body, the usual character of a near wound from this cause will be modified; the shot is spread out of its course by this obstacle to a certain degree, and does not enter the skin in a mass, causing a round tolerably regular opening, but being somewhat scattered, will either produce a large, lacerated wound

(*k*) Ger. Leichenöff, 2tes Hundert. (*l*) Cole's Military Surgery.

or a number of small wounds, according to the position in which the weapon is held.

§ 815. *Wounds from Wadding and Gunpowder.*—According to some experiments made by Dr. Swift, it was found that a *pistol* loaded with powder and wadding alone, at twelve inches distance, tore the clothes and abraded the skin, without penetrating it; at half this distance, the wadding penetrated to the depth of half an inch; at two inches, a ragged and blackened wound was made, and the wadding imbedded at the depth of two inches; at one inch and a half from the chest, the wadding passed between the ribs into the thorax, and in a second experiment, carried away a portion of the rib.(*m*) M. Lachèse found in his experiments that the distance at which the wadding of a gun would enter the body in one mass, did not exceed six inches from the muzzle, but that even at this distance it only occurred when a double charge of fine powder was used, and with an army cartridge.(*n*) Hence it is probable that the ordinary wadding, such as loosely wrapped paper, rag, or similar material, used in a fowling-piece, or in a musket by those not accustomed to the military use of the weapon, would not produce a rounded opening which would resemble that made by a bullet. Even if held at a less distance than six inches from the body, it is doubtful whether such a wound could be produced. Yet, although the opening may not be mistaken for that made by a bullet, it is certain that dangerous and fatal wounds are often made with wadding at short distances, the wadding penetrating the body and lacerating some important blood vessel.

Gunpowder alone is capable of producing wounds which may prove fatal. When a pistol or gun charged with gunpowder alone is fired at an uncovered portion of the body at a distance of a few inches, a blackened, burned, and slighty lacerated wound will be produced, or if the grains of powder be large, the skin may present the appearance of having been struck with small shot. The burnt appearance of the skin, the singeing of the hair in the neighborhood, or the burning of a portion of the clothing, will all indicate that the charge has been fired close to the body.

CHAPTER III.

HOMICIDAL, SUICIDAL, AND ACCIDENTAL WOUNDS.

§ 816. The mode of obtaining a satisfactory solution of the question, whether one or more wounds found upon a dead body were of accidental, suicidal, or homicidal origin, is by an examination of the wound itself, and of the circumstances under which it was produced. Under the first head, the considerations are purely of a medical nature; under the second they are so to a limited extent only, and will, therefore, be more appropriately examined in connection with the legal remarks upon

(*m*) Phil. Med. Exam., March, 1846.
(*n*) Orfila, Méd. Lég., 4me edition, 2, p. 464.

homicide. We shall allude to them, therefore, in this place only in a cursory manner.

Situation of the Wound.

Suicidal wounds are inflicted upon those parts of the body most accessible to the hand, such as the head, neck, and anterior part of the trunk. They are usually either made by fire-arms, or by cutting instruments. If by the former, the wound will most frequently be found in the head, or over the heart; and if by the latter, the throat is usually selected. If, therefore, a wound is found in some part of the body which is was manifestly impossible for the suicide to reach, this circumstance, in connection with the direction of the wound, will make the intervention of another or the occurrence of accident evident. Yet, as in the greater number of cases, wounds exist upon the front of the body, or at least in such situations that they could have been self-inflicted, the locality of the wound alone affords merely a presumption at most of its mode of origin. Moreover, it must be remembered, that all suicidal wounds are not inflicted always by means of the hand, but sometimes by violently striking the body against some solid substance, by precipitation from a height, and by various other means, especially in persons of deranged intellect, who not unfrequently contrive to mortally wound themselves in such a manner as would hardly be thought of by another.

Orfila relates a case, in which an insane person killed himself with a pistol-shot, fired behind the right mastoid process; the ball was found in the cerebellum.

A woman in this city lately endeavored to destroy herself by placing her head upon a block and dealing upon the back part of it numerous severe blows with a hatchet. A similar instance is reported by Mr. Tarleton, in which an insane gentleman was found lying insensible in his kitchen with the cleaver by his side. Upwards of thirty wounds were found over the occipital bone; they were horizontal, many of them superficial, but one, however, had removed a portion of the skull from the middle of the lambdoidal suture, so that the brain had escaped. This person, who survived his injuries four days, admitted that he had inflicted them himself.(*o*) Suspicion of criminal violence would very naturally be entertained in such cases as these, provided the body was accidentally discovered in a deserted place.

§ 817. The *direction* of the wound will more frequently serve to distinguish a homicidal from an accidental wound than from one which has been self-inflicted. Thus, on the trial of Mrs. Mackin, in Edinburgh, in 1823, for murder, it was stated in the evidence that the deceased died from a stab. The prisoner alleged in her defence that she merely held the knife in her hand sloping upwards, to deter the deceased from attacking her; but that he, being drunk, stumbled forwards upon it. This statement was disproved by the medical testimony, which showed that the *direction* of the stab was backwards, and very much downwards into the lungs, having penetrated the chest over the cartilage of the

(*o*) Taylor Med. Jur. p. 191.

second rib.(*p*) A similar instance is given by Elvert, in which the downward direction of the wound, and its having been made in the manner of the German butchers, viz., a second internal wound after a partial withdrawal of the instrument, not only disproved the accidental origin of the wound, but indicated also the occupation of the murderer.(*q*) In England, a few years since, a murder was fixed upon a man, from the fact that the wound in the neck of the deceased had been evidently made by a knife cutting from within outwards, as is done in slaughtering sheep.

The direction of suicidal wounds is subject to too much variety to be relied upon as a criterion, for although in many cases we may obtain from it a presumption that the wound was voluntary, yet it is evident that a wound inflicted by a murderer may assume any direction which could possibly be given to a suicidal wound. Besides the deceased may have been left-handed, or ambi-dextrous, a consideration of some importance in this relation. In short, but little information of value can be obtained from the direction of a wound, unless the circumstances under which it was received are known; hence its chief importance is in corroboration of other evidence.

In any case in which a person is found lying dead or dying from wounds or other bodily injuries, an accurate inspection of the locality, and of the position of the body in respect of surrounding objects is of the highest importance, and should be minutely noted before the body is removed.

§ 818. That part of the *circumstantial evidence* which requires medical knowledge for its elucidation, is often most curious and important, and as it has to deal with conditions incessantly varying, and is founded upon no familiar principles, nor positive scientific basis, but rather upon loose and badly observed facts, must partake of the same nature, and often appear discordant and improbable. Each medical witness may put together in a different manner, the materials with which he is required to reconstruct the scene immediately preceding death; and a successful result will most naturally reward him, who with the most acute perception unites the largest and most familiar acquaintance with similar facts. In estimating the probabilities in reference to the manner of death, the physician has need of all the aid which a general observation of the workings of the human mind can afford him, his psychological knowledge and his medical experience must here go hand in hand, for it is his task and duty to offer an explanation of the mutual dependence of motives and results, and that, in the same disinterested and merely scientific manner, that would be required by the demonstration of any curious fact in physics.

That portion of the indicatory evidence upon which medical testimony may possibly throw some light, we may now cursorily allude to.

§ 819. The *position of the body and that of the weapon*, (if the latter be found,) sometimes throw light upon the mode of death.

These two circumstances serve also generally to explain each other; separately considered they are not of so much importance. In

(*p*) Christison, Month. Jour. Nov. 1851, p. 401.
(*q*) Kopp's Jahrb. I. p. 143.

cases of suicide the weapon may be found grasped in the hand or not, according to the manner of death. Thus if death ensue by sudden and abundant hemorrhage, as in wounds of the throat, stabs in the heart or great vessels, the person dies by syncope, and hence the hand being relaxed the weapon falls from it. When, however, death is occasioned by a pistol-shot through the head, the weapon will, in most cases of suicide by this means, be found firmly grasped in the hand. In other cases where death has not been immediate, it is purely a matter of accident whether the weapon be still held by the deceased or not. In like manner, the position of the body will be affected by the suddenness and mode of death. Where death is sudden the body will usually be found lying upon the back, but if it have not been immediate, the face and trunk will generally be turned to the ground. The position of the body alone, cannot be considered as indicative of the voluntary, accidental, or homicidal character of the injury, but if it be found in a position indicating immediate death from hemorrhage or from the instantaneous loss of muscular power, and the weapon be found at a distance from it, the act may be considered in all probability as homicidal. Where, on the contrary, it is found in this position and the weapon by which death apparently was caused lies close to the body, it is impossible, of course, to determine whether it has been placed there by another after assassination or has fallen there from the hands of a suicide. Should the weapon be found firmly grasped in the hand of the deceased, there can be little doubt that the act was suicidal. The only objection which can be made to the supposition is, that it might have been placed in the hands of the person before life was extinct, and instinctively grasped by him. No case, however, is yet reported which would show that this has been done. Where after death by assassination a weapon is placed in the hand of the victim, it cannot be forcibly grasped but will lie there loosely. Sometimes the fact of the razor being shut (when this has been the weapon used) has been considered as indicative of homicidal interference; but such an inference is not justifiable unless it can be shown from the position of the body and the character of the wounds, that death must have been instantaneous, and even here the question might naturally arise whether the fall of the razor to the ground might not sufficiently account for its being closed. Thus, for example, in a case of suicide related by Dr. Casper, the man after having first inflicted with a razor some superficial wounds in the bend of both elbows, stood before a mirror and drawing down his cravat, cut his throat in an oblique direction from left to right, dividing the larynx and both external jugular veins. The razor was found bloody and *closed*, two feet distant from the body.(*r*) The same author reports another case of suicide by a pistol-shot in the breast, traversing the diaphragm and spleen, and subsequent drowning. In this case the pistol was found in the pocket of the deceased, and the fact of its having been fired against the naked chest was shown by the circumstance that his coat and shirt were not perforated, and the former was buttoned up to the chin.

The inferences to be drawn relative to the suicidal or involuntary cause of death, from the circumstances under which the body is found,

(*r*) Gericht. Leichenöff. 1 tes Hund. p. 17.

do not belong exclusively to the physician, requiring in general no medical knowledge for their explanation. This portion of the indicatory evidence is treated of in the legal part of this subject.

CHAPTER IV.

BLOOD STAINS.

§ 820. The color of stains of blood is dependent upon their age and the material upon which they are found. Those of a recent origin are of a deep red color, which becomes brown by keeping. The period required to effect this change is not determined; it occurs, however, more rapidly in warm weather. The recent stains of menstrual blood are also of a brown color. The depth of the color depends also upon the porosity of the substance. Thus marks of blood upon white stuffs and upon light wood are paler and duller than those on articles of greater density, as varnished wood, iron, and stone. Where it has coagulated, this will usually be shown by one portion of the spot being thicker and darker than the other.

On colored stuffs, especially on those which are brown, blue, or black, the spot is more easily recognized by candle-light than by day. This important fact was discovered by Ollivier d'Angers. He had been directed to re-examine the room of a person accused of murder; having already visited it in the day time his second examination was conducted at night, and he now discovered by holding a lighted candle near to the paper hangings, which were of a pale blue color, a number of drops of an obscure dirty red, which by day had the aspect of small black specks, and were lost in the general pattern of the paper. On a further examination, other spots of the same kind were found on the furniture. On the chimney jamb, which was painted blue, there was a large stain of blood, which appeared red by the light of the candle. The next day by day-light Barruel and Lesueur could not find these spots and were obliged to make use of artificial light to discover them.(*s*) The same remarks will of course apply to spots of blood upon dark woollen cloth, in which they can also be detected by the stiffening of the material. If the stain be upon a weapon, such as the blade of a knife or pogniard of steel, the color will be of a pale red where the layer is thin, and of a dark brown color where it is of greater thickness.

§ 821. *Chemical examination of suspected stains.* If the stain be upon a linen or other similar stuff, it should be cut out and suspended by a thread in a small test-tube containing an amount of distilled water sufficient to fully dissolve the stain; the coloring matter of the blood soon begins to detach itself and seek the bottom of the vessel, the supernatant liquid remaining tolerably clear. The coloring matter will be dissolved in the course of a few hours; the fibrin, if any were contained in the spot, remaining attached to the stuff as a soft greyish or rosy white substance. The colored liquid in the test-tube may now be

(*s*) Briand Méd. Légale, p. 782.

subjected to various tests; but one or two very simple ones are all that is necessary to establish the certainty of the presence of blood. Supposing the liquid to hold in solution the coloring matter of the blood and albumen, the effect of heat carried gradually to the boiling point is to coagulate it and destroy its color. According to the amount of albumen, will be the degree of coagulation, if the liquid contain merely a trace of it, boiling merely renders it opalescent. But the alteration of color is peculiar to blood. It changes from its more or less red color to a grayish green without a trace of red, the upper portion of the liquid acquiring also an indistinct yellow tinge. The grayish coagulated portion may be redissolved with potassa, and acquires thereby a brownish red color by refracted, and green by reflected light. Another important test for blood is the absence of any change of color by the addition of ammonia, except when very concentrated or added in large quantity.

§ 822. These two tests will suffice to distinguish the colored serum of the blood from any stains resembling it. Thus the red soluble dyes or stains from the juices of fruits are not coagulated by heat, nor do they lose their color on exposure to it, but the red color is changed either to a crimson or to a green, sometimes passing through a violet shade by the addition of ammonia. M. Raspail's statement, that a stain possessing similar chemical characters with that of blood, could be formed by exposing to heat a mixture of madder and white of egg, has been corrected by Orfila,(*t*) who, in fact, denies its accuracy. He found that a solution of this artificial stain although coagulated by heat preserved its orange red color, and the coagulum was of a pale red. In its further reactions also, it was quite dissimilar to blood. Dr. Taylor says, "having for some years performed numerous experiments on this subject, by making artificial mixtures of human serum or animal albumen, with the red coloring matters of cochineal, lac, and madder, and neutralizing the effects of the alkali contained in the serum by the addition of a small quantity of acetic acid, I feel justified in stating that in no respect whatever, except in regard to color, can such mixtures be confounded with blood. The objection is, therefore, more theoretical than practical. These red liquids may easily deceive those who trust to a *red color* alone; and herein we see the necessity for placing the investigation of such subjects in the hands of professional persons only."

§ 823. Other tests have been proposed, but none of them are as distinctive and reliable as those mentioned. Thus nitric acid coagulates the albumen and changes the color to a gray or dirty brown, according to the amount of hematosin, the tincture of galls occasions a precipitate without altering the color, and hypochlorous acid changes it to a greenish brown color.

§ 824. When the spot of blood is upon a hard substance, it may, in most cases, be removed by carefully scraping. If upon the point of a weapon, it may be macerated for a short time in a narrow vessel containing water, but if on any other part, if not easily removable by scraping, as when the blood has dried in a film or in streaks, the stained

(*t*) Méd. Lég. II. 618.

part should be laid upon a clean plate of glass, after having been previously moistened with distilled water. The two surfaces should be in immediate contact with each other, but care should be used that the metal be not left too long exposed to the action of the water. Blood stains upon iron and steel may sometimes be mistaken for *rust* or salts of the oxide of iron made by some of the *organic acids*. In the case of rust the color is different, being more or less yellow, but occasionally this distinction is not sufficiently evident. If, however, the spot be detached and placed in distilled water it does not dissolve, although part of it may remain suspended in the water. By filtration, however, the rust is entirely separated, the filtered liquid remaining colorless. The residue upon the filter will give the proper reactions with the ferro-cyanide of potassium or the alkalies, after having been first digested with dilute hydro-chloric acid. If, however, the stain be due to lemon-juice or other organic acid, it will be observed in the first instance that the color is darker than that of blood, being often nearly black; it is also very soluble, and although slightly coagulable the solution yields at once to the tests for iron, giving an intense blue color with the ferrocyanide, and a deep red with the sulpho-cyanide of potassium.(*u*)

§ 825. There are a certain number of insoluble stains which present a certain similarity to stains of blood. These are, madder and logwood dyes, iron moulds and red paint. The insolubility of these substances ought to be a sufficient indication of there being due to some other cause than the effusion of blood. The coloring principle in madder is, however, rendered yellow by acids and violet by alkalies, a change which of course will not be produced in a spot of blood.

§ 826. Still, the spot may be *soluble*, and yet not due to blood. In some cases stains, somewhat similar to blood-stains, are made by the juices of fruits, or by soluble coloring matters. Dr. Albert found on the clothes of a young man accused of attempted assassination, a large number of red spots which had the appearance of blood. On examination, however, he found that a portion of them only were caused by blood, and the rest from red chalk, the prisoner's trade being that of a wall-colorer. All the stains were soluble, but those which were really due to blood were distinguished from the others by their more shining appearance, the appearance of fibrin in the solution, which sank to the bottom, the want of change upon the addition of caustic ammonia, and their appropriate reaction with nitric acid and with tincture of galls. The spots made by the red chalk disappeared in a fine powder on being rubbed, communicated their color uniformly to the water, and the solution was changed to a violet-brown color by caustic ammonia, dark-brown by nitric acid, and remained unchanged upon the addition of tincture of galls.(*v*)

§ 827. If the suspected stain on the clothing be caused by *iron rust*, it will be readily dissolved out by hydrochloric acid, and then may be subjected to the appropriate tests. Dévergie reports an instance in

(*u*) Dr. Carl Schmidt, Diagnostik der verdächtigen Fleke in Criminal Fällen. Leipzig. 1849.

(*v*) Henke's Zeitschrift. 1855. II. H. p. 392.

which iron moulds awakened considerable suspicion of violent means having been used. The body of a young man, bearing the marks of many injuries upon it, was taken out of the Seine, where it was supposed to have lain for three weeks. Red stains were found on the shirt, which were supposed to be of blood, but, upon examination, they were satisfactorily proved to have been due to the rusting of a steel guard-chain and bunch of keys on the person of the deceased. Dr. Taylor gives an instance in which spots of *red paint* upon the dress of an individual, were the occasion of his being arrested on suspicion of being concerned in a murder which had been perpetrated shortly before. The color in this instance was due to the peroxide of iron, which was readily detected.

§ 828. The distinction of *arterial* from *venous blood*, except when recently effused, is manifestly impracticable. Their chemical reactions are very nearly alike, and the only ground of distinction is in the more florid color of the former when recently poured out, and occasionally also in the form of the spots; those made by arterial blood being generally of an oval or elongated shape, in consequence of the blood having been thrown in a jet from the divided vessel. Moreover, in practice the two kinds of blood will almost always be mingled together, as it is difficult to conceive a wound being made which shall not involve both sets of vessels. Dr. Taylor makes some interesting observations on the form and direction of spots of blood, suggested by the case of Reg. *v.* Spicer: (*w*) "At the top of the stair, and at the height of four or five feet above the level, several spots of blood were observed upon the brick wall, which was whitewashed. The spots took an oblique direction from above downwards, were of a pale red color at the upper part, but dark-red below, terminating in a point consisting of the fibrin, and the greater part of the red coloring matter. Their form and regularity proved that they had proceeded from a small artery, and that the wounded individual could not have been very distant from the wall, while their shining lustre rendered it probable that they were of recent origin, and their well-defined termination in a firm coagulum showed that they had proceeded from a living blood-vessel. The deceased had died from fracture of the skull and vertebral column, by a fall from the top stair; one branch of the right temporal artery was found divided, and this wound could not have been produced by the fall. It was therefore evident that a murderous assault had been made upon her at the top of the stairs; this had led to the spirting of the arterial blood on the brick. The height at which the spots existed, and their appearance, proved that the jet of blood had been from above downwards; thereby rendering it probable that the deceased was standing up, or that her head was raised at the time the wound was inflicted. Further, as the brick with the spots was, on the left hand in the descent, and the wounded artery was on the right side, it is probable that the deceased was face to face with her assailant in the act of ascending the stairs, and that she was killed by being precipitated to the bottom."(*x*) It has been supposed that *menstrual* blood could be distin-

(*w*) Berks' Lent Assizes, 1846.

(*x*) Med. Jur. p. 203. See also case of *Drory* by the same author. Guy's Hospital Rep. Vol. VII. 1851.

guished from other kinds by the absence of fibrin; but, although this discharge does not usually coagulate, it nevertheless contains fibrin, and sometimes in very appreciable quantity. Dr. Franz. Simon says: "There can be little doubt that there is fibrin in the menstrual secretion; its determination is, however, usually rendered impossible by the presence of a large amount of mucus, which seems to deprive the blood of its power of coagulating."(*y*)

§ 829. The presence of fibrin in a blood-stain is merely corroborative proof of the origin of the spot, but does not indicate with any certainty that the stain was derived from the blood of a living person; nor, on the other hand, does its absence give any support to the opinion that it was derived from a body already dead, since, if the stain be superficial, it may yield no traces of fibrin, even though it came from a living vessel, and coagulation in a dead body is not complete immediately upon the extinction of life. Hence, if the physician be able clearly to discover the traces of blood by the reactions of the colored serum before indicated, it is superfluous to inquire for the presence of fibrin; and, on the other hand, this element of the blood could hardly be detected without ample proof of the nature of the fluid being already obtained from other sources, since the quantity required would be considerable.

§ 830. The discrimination of the *blood of animals* from that of *man* by chemical means, is too uncertain to be used as evidence. M. Barruel has stated, that if one-third or one-half its volume of pure sulphuric acid be added to blood and agitated, that a peculiar odorous principle is evolved, recalling in each case the animal from which the blood has been derived. Thus, human blood is said to give off an odor of perspiration; that of the cow, horse, sheep, pig, &c., each a smell, recognized as peculiar to the animal. M. Barruel claims to have discovered this property even in blood which had been dried. According to Schmidt, the experiment succeeds only with the blood of the ram, sheep, and cat. Recently, an experiment was made by MM. Tardieu, Barruel, and Chevalier, which shows how little confidence can be placed in this test. These experts were charged with the duty of determining whether some blood found in the cellar of a woman accused of murder was human, or not, as she alleged, that of a sheep. Being undecided in opinion, they procured the blood of sheep, oxen, and of the living and dead human subject, and these, with the blood from the cellar and that upon the clothes of the accused, were placed in separate test-tubes by an assistant, and numbered. Sulphuric acid was then added to each, and the mixture stirred. Each expert was required to write secretly his opinion as to the origin of the blood in each glass. The result was the greatest confusion, the human blood being constantly mistaken for that of the animal, and a correct opinion seemed only to be obtained by chance.(*z*)

§ 831. *Microscopical evidence.* An additional and valuable means of detecting the presence of blood in suspected stains, is by the microscope. If the spots are recent, (a week old, for example,) three to

(*y*) Animal Chemistry. Syd. Soc. ed. p. 338.

(*z*) Casper's Vierteljahrschrift. 1854. H. I. p. 120. See also, Henke's Zeitschrift. 1855.—II. H. p. 392, for a number of experiments made with a similar result, by Dr. Albert of Euerdorf.

six hours are sufficient to disaggregate the globules, but the solution of the sulphate of soda penetrates very slowly those which are old, and several days may be required for this purpose. When the tissue has been well soaked, the stains may be carefully detached with a scalpel, and the liquid thus removed should be placed upon a glass slide, and immediately covered with another one. Upon examining a blood-stain thus prepared, many other objects will be seen besides the blood globules, such as filaments of tissue, &c., but the observer should abstract his attention from these, unless there is reason to suppose that they may indicate the locality from which the blood came, as in the case of mucus, &c., in attempts at rape. A portion of the globules will be found free, while others will be attached to the fibres of the stuff, but they will preserve their natural color, volume, and more or less, their shape also, to such an extent, however, as to be readily recognized.(*a*) The microscopical characters of spots upon woollen cloth, are less easily recognized than those on linen, hemp, or cotton. The investigation should, of course, be conducted only by one familiar with the use of the microscope. If this be done, there can be no hesitation in saying that the results will be fully as valuable as, and open to fewer objections, than the chemical tests.

The stain to be examined should be treated either with a solution of sulphate of soda or of white sugar, in order to retain the natural shape of the blood-corpuscles. If the stain have been previously washed, it is very possible that the microscope will afford only negative results; but whenever it is possible to recognize distinctly even a single blood disc in the liquid examined, this is quite sufficient to attest the presence of blood. Dr. Taylor says he has obtained "clear evidence of their existence in and separation from a minute fragment of dried blood, which had been kept in a dried state for a period of three years." Sometimes, when the red corpuscles cannot be detected, it may be possible to distinguish the *lymph globules* which are larger than these, but few in number, and colorless. Professor Wyman says, that when blood is allowed to dry in masses, he has failed to detect the presence of the blood discs. "The lymph globules, on the contrary," he says, "may be softened out after they have been dried for months, and their characteristic marks readily obtained." He found it easy to detect them in blood which had been dried six months.(*b*) Still, they are much fewer in number than the red corpuscles, and according to the best authorities, not in greater proportion than 1:400.(*c*)

The red corpuscles of man have an average diameter of $\frac{1}{3500}$ of an inch; and this size is not affected by age, being the same in the young and the old. They have a flattened shape, depressed centre, and circular outline. These characters suffice to distinguish them from those of birds, fish, and reptiles, in which creatures they are of an oval or elliptical form, and have a distinct central nucleus. They have the same shape also in the camel tribe. But the globules in all the mam-

(*a*) Robin. Briand Méd. Lég. p. 790.
(*b*) Statement by Prof. Wyman in Bemis' Webster case. p. 90.
(*c*) See Kölliker Mikroskopische Anatomie. II. Bd. p. 576.

malia, (with this exception of the *camelidæ*,) are so nearly alike in size and other characters to those of man, that, practically, no distinction can be made. Thus, the blood of an ox or of a sheep cannot by the microscope be, for medico-legal application, distinguished from that of a human being, for although the globules are somewhat smaller than those of human blood, yet the size of the globule of human blood varies according to whether it is fresh or dried, and the difference between its size in man and animals is too slight to be made a point of evidence in cases where such momentous consequences may depend upon the decision.(*d*)

§ 832. For the mode of detecting *hair*, and also *dried cerebral matter*, under the microscope, we would refer the reader to the suggestions of Orfila and Robin, in Briand's Manual de Méd. Lég. pp. 810–816. For cases in which evidence from these sources was considered of importance, see the same work, also Med. Gaz., Vol. XLVIII. p. 729, where it was necessary to distinguish between the hair of a human being and an animal; also, Taylor's Med. Jur. p. 249, where some cotton fibres detected by the microscope on the edge of a razor, showed that the weapon had cut through the strings of a cotton night-cap, in giving a fatal wound upon the neck; and, finally, one in Henke's Zeitschrift, 1853, p. 334, in which an assassin was detected and convicted partly upon the indicatory evidence furnished by a lock of hair remaining firmly grasped in the hand of the murdered man. The hair resembled, in all its physical

(*d*) For the comparative size of the blood globules in man and animals, the reader may consult with advantage Kölliker's Mikroskopische Anatomie. II. Bd. p. 580. Briand Manuel Pratique de Méd. Lég. 781. Todd and Bowman's Physiological Anatomy. Part IV. p. 299. C. Gulliver on the size of the red corpuscles of the blood in the vertebrata in the Proceedings of the Zoolog. Soc. CIII. 1842. R. Wagner Beiträge zur vergl. Physiologie des Blutes. I. 1833. II. 1838. Partium elementarum mensiones micrometricæ. 1834.

In the following case of presumed infanticide in which a medical expert was required to determine the nature of some spots found upon a towel (designated as having served to envelope the child) which was found concealed under a threshing floor, the reader will perceive the nature of the investigation sometimes required:—

(1.) The towel was of coarse huckaback, quite rotten, as a year had elapsed since it was concealed in the locality in which it was discovered, and the letters J. E. A. 20, were marked in red cotton upon one corner. It was very much torn and full of holes.

(2.) In one corner *three spots* of a dark red color resembling blood were found.

(3.) On another portion of the towel numerous large spots of a *dark green* color were seen, resembling dried meconium. The texture of the cloth was so penetrated with this matter that even upon the opposite side it was slightly tinged with green.

(4.) Spots of various sizes of a *grayish yellow* color were found on other parts of the towel. These spots were dry and could be detached in scales.

(*a*) The red spots were cut out and softened in some fresh liquor amnii, and revealed upon examination by the microscope all the characteristics of globules of human blood.

(*b*) The portions discolored by the green material were also cut out and placed in distilled water; others in alcohol. These solutions when treated with concentrated sulphuric acid, and a few drops of a solution of sugar, (according to Pettenkofer,) gave traces of a *violet* color; which was considered to indicate the presence of bile.

(*c*) Some of the same spots dissolved in liq. amnii, and examined by the microscope, were found to consist of biliary cells, cylindrical epithelium, and fatty crystals.

(*d*) The *grayish yellow* stains being prepared in a similar manner exhibited epidermic cells, and cells from the sebaceous follicles. Hence it was inferred that the various discolorations upon the towel arose,—1. From blood; 2. From the secretions of the liver and intestines; and, 3. From the cutaneous secretion, and that they could all be explained on the supposilion of a new born child having been wrapped in it. It was further supposed from the ragged condition in which the cloth was found that it had been torn by some animal which had carried away and devoured the body of the child.—*Wistrand. Hygieà.* Bd. XIV. p. 220.

character, that of the prisoner: the individual hairs were found to be some of them broken, others torn out by the root, and others cut, and a bare place was found on the prisoner's head to which they corresponded.

CHAPTER V.

CAUSE OF DEATH IN WOUNDS.

§ 833. Wounds become the cause of death either by direct or indirect influence. In the first case the tendency to death is necessary and immediate, or nearly so. In the second, the injury is the remote cause of death, other causes intervening by which the fatal result is accelerated or rendered inevitable. The mode in which a wound proves directly fatal is either by hemorrhage, shock, or great mechanical injury.

§ 834. *Hemorrhage.* The rapidity of dissolution, when this is brought on by loss of blood, is proportionate to the amount and suddenness of the hemorrhage. These, in their turn, depend upon the size and nature of the vessel wounded. Thus a person may sustain the loss of an enormous quantity of blood, provided it ooze but slowly from the body; while a far smaller amount would produce fatal syncope, if rapidly poured out from some large vessel. Blood escapes also from a wounded vein more slowly than from a divided artery, and venous hemorrhage is therefore less likely to prove fatal than arterial, as well as because the blood which is lost is not so essential to life. A third form of hemorrhage becomes, in some special cases, of serious importance. This is the *capillary* hemorrhage, in which the blood effused upon the surface of the wound is extremely serous in its character, less dark than venous blood, and appears in the form of drops, which quickly run together and cover the wound. It occurs in persons of a hemorrhagic disposition upon the most trifling wound, and is exceedingly difficult and often impossible to control. In these persons a common epistaxis becomes a matter of grave importance, a scratch with a knife, the bite of a leech, or the extraction of a tooth, is followed by an oozing of blood which no hemostatics will arrest. This hemorrhagic disposition is hereditary, and, according to the large number of observations now on record, is generally confined to the males in a family. Most of these cases have been collected by Dr. Beck.(*e*)

Age and disease have also their influence upon the fatality of hemorrhage. Children readily succumb from a trifling loss of blood, and those whose constitution has been impaired by chronic disease, have, as might be expected, little power of recovering from hemorrhage. A number of small wounds may occasionally lead to as grave results as a single large one. A singular case is related in which a dealer in leeches was fallen upon by highwaymen, who, after having plundered him of his money, thrust his head into the sack containing the leeches

(*e*) Med. Jur. Vol. II. p. 295 et seq. Vid. also Schneider,—Die Blüter, erbliche Blutung oder so genannte Bluterkrankheit, &c. Henke's Zeitschrift, 1847. 1 H.

and bound him fast. The unfortunate man, a short time afterwards, was discovered still alive, but notwithstanding medical aid was given to him, he perished in consequence of the loss of blood from the multitude of leech bites.(*f*)

Where the hemorrhage is *internal*, besides the exhaustion attending it, death is accelerated by mechanical action of the blood. Thus, if an intercostal artery have been wounded, the blood being effused into the cavity of the chest, will compress the lungs and seriously embarrass respiration. In wounds of the pericardium the blood effused into this sac is most probably the immediate cause of death, owing to interference with the functions of the heart. If the throat has been cut the blood may flow into the trachea and lungs, and thus cause death by asphyxia. But the mechanical effects of hemorrhage are best seen in those injuries of the head in which any of the cerebral vessels has been wounded. Here the fatal result of compression from a clot is seen in the apoplectic state induced by it, when perhaps the actual loss of blood has been trifling.

All of the above-mentioned circumstances must be taken into careful consideration, in the post-mortem inspection of persons who have died soon after receiving one or more wounds. Where death has resulted from hemorrhage alone, the fact is usually indicated by the pallor and waxy appearance of the skin, the absence of cadaveric blotches, and the paleness of the internal organs. Putrefaction occurs also later than usual. These appearances will be found more marked in those cases in which the hemorrhage has not been very rapid.

§ 835. *Shock.* The possibility of a person dying from the shock attendant upon an injury, when this alone appears to be unimportant in its nature, is attested by experience. Many theoretical explanations have been offered to account for this fact, a consideration of which would here be out of place. The shock from an injury may prove fatal in two cases. 1st. When the blow leaves no trace behind it; and, 2d. Where great violence has been done to some important organ without occasioning a sufficient amount of hemorrhage to produce death. If a person receive, for instance, a violent blow in the pit of the stomach, or behind the ear, he may be almost instantaneously deprived of life. On post-mortem examination, there may be found externally but slight marks of contusion, and internally neither laceration, fracture, or hemorrhage by which the cause can be brought into any visible relation with the fatal result. "Mr. Lambert, a respectable individual in New York, received a blow on the stomach from some rioters, immediately after coming from a supper party. He died almost immediately. On dissection no mark of injury could be discovered, except some small red spots on the internal surface of the stomach and there was no mark of external contusion. The brain was healthy. Dr. Post and other witnesses concurred in believing that the blow was the cause of death, and not sudden fright. The prisoners were convicted of manslaughter."(*g*) A similar case is related by Sir Astley Cooper, and another by Mr. Wood.(*h*)

(*f*) De Neufville. Henke's Zeitschrift. Erg. H. 1851. p. 40.
(*g*) Beck Med. Jur. Vol. II. p. 337.
(*h*) Med. Gaz. Vol. XLIV. p. 213.

§ 836. *Mechanical Injury.* If, again, some part of the body, especially any of the internal organs, have suffered any great mechanical injury, as from being crushed by a heavy weight or projectile, or by a fall from a height, there will very frequently be no external mark of violence and no internal hemorrhage sufficient to account for death. But the fatal result is no less evidently due to the powerful impression made upon the nervous system by the violent disruption or laceration thus produced. The following may serve as an example: An American Philhellene was struck by a cannon ball, in the batteries of Napoli di Romani, which carried off the right hand that had been resting on the haunch, a portion of the right half of the pelvis, and part of the thigh. The abdominal viscera were laid bare but not torn, and there was trifling hemorrhage from the wounds. He conversed calmly about the Greek wars, in which he had taken an active part, asked if a man could live who had lost the half of his body, and died suddenly three hours after being injured.(*i*)

Under this head might perhaps be properly introduced instances of death from ill-treatment or from a large number of trifling wounds, unattended with any serious hemorrhage. Death in such cases takes place rather from the exhaustion and terror of the sufferer than from the momentary shock of the injury, but it may also be due to inflammation of internal organs following upon extensive injury to the skin. Examples of this mode of death have been known to ensue from severe flogging ordered by military authorities.(*j*) Such also is probably the immediate cause of death in many cases of extensive burns or scalds, where the function of a large portion of the skin is at once destroyed.

The causes now enumerated which render wounds directly fatal without the intervention of secondary causes, may be variously combined. Practically there are few fatal wounds in which they are not united. This fact should not be lost sight of by the medical witness in giving his opinion as to the immediate cause of death.

§ 837. Sometimes a wound which, under ordinary circumstances, would not be immediately fatal, becomes so, in consequence of the existence of some *abnormal* or *diseased condition* of the body. The cases which fall under this remark are exceedingly numerous. An undue thinness of the skull, a displacement of the viscera, an abnormal distribution of the arterial trunks, an aneurism, a hernia, and many other similar defects may prove the occasion of a wound being rapidly fatal, which otherwise would not necessarily have been so. Thus, if a person have an aneurism of the aorta in the chest or abdomen, and be struck with a certain degree of violence over these cavities, he may suddenly die from a rupture of the aneurismal sac caused by the blow. Or if he have at any time been subjected to the operation of trepanning, by which a portion of the skull is removed, which is not again reproduced, a blow or wound on this part will necessarily prove eminently dangerous.(*k*) A constitutional disposition to hemorrhage upon slight causes has often brought on a fatal termination in trifling wounds.(*l*)

(*i*) Navy Medical Reports, by Sir John Liddell, M. D., &c. Med. Times. April, 1854.
(*j*) Vid. Lancet, 1846, for an account o the case at Hounslow.
(*k*) Vid. Hinze. Hufeland's Journal, 181[illegible], p. 79.
(*l*) Vid. Beck, II. 295.

It is hardly necessary to state that old age, infirmity of any kind, or that even a highly excitable condition of the nervous system, may rapidly accelerate the approach of death in those wounded.

§ 838. *Wounds inflicted on pregnant women.*—Pregnancy obviously renders the prognosis of a wound more grave. The mere shock of the injury may bring on premature birth of the child, and hence endanger the life of the mother. But wounds which interest the abdomen, and especially those in which violence is done to the uterus, are necessarily of extreme gravity for the woman and her child. The injury may result in the death of either or both. The amount of external violence necessary to produce this result it is of course impossible to determine, since many instances are on record in which very severe injury has been inflicted under these circumstances without being followed by fatal results. On the other hand, contusion of the abdomen from kicks or similar violence, may produce death by shock and peritonial inflammation, and wounds of the impregnated womb are always attended with severe bleeding and the danger of a premature delivery.

§ 839. A wound may prove *indirectly fatal* in a vast number of ways. We will only enumerate the more common and important of these, as it is, we conceive, of more consequence than the principle of the remote dependence of death upon a wound, perhaps not necessarily mortal, should be understood, than that all the circumstances which may possibly intervene between the period at which the wound was given and that of the fatal result, should be enumerated.

Should the person not die from the immediate effect of the wound, he may nevertheless succumb from some one of the chain of disturbing causes to which it has given rise, or from the wound itself, rendered fatal after a length of time, by extraneous causes. In many instances the fatal result can be traced to its origin in the wound, partly from the evidence derived from a post-mortem inspection, and partly from the history of the patient's condition from the time he received his injury. The length of time that may elapse after the infliction of violence, before death follows it, is of course indeterminate.

Without the supervention of any of the complications to be presently enumerated, the wound may have interested parts not essential to life, and yet may render its protraction for any considerable period impossible, since the changes produced by it in the organism may go on gradually increasing in their gravity till death result. Thus injuries to the spine, producing paralysis of the lower limbs and of the sphincters of the bladder and rectum, or blows on the head, giving rise to chronic disease of the brain, will gradually undermine the powers of life, and bring it to a deplorable end, after long confinement, suffering, and distress. Such is often, also, the result of gunshot wounds, where the ball remains in the body, the patient being wasted away by suppuration and hectic.

The old division of wounds into those which are necessarily, and those which are conditionally mortal, gave rise to so many errors of prognostication, that it has now much less authority than formerly. It will, of course, always be necessary to discriminate concerning the gravity of wounds, but it will never be possible to draw a line of distinction, which will be universally recognized, between the absolutely

and the conditionally mortal. The truth of this statement will, we think, be fully borne out, when the multitude of circumstances is considered which may influence the result favorably or the reverse.

§ 840. Among the most frequent and serious complications of wounds, is *tetanus* or lockjaw. This disorder occurs most frequently after punctured or lacerated wounds, especially such as interest the nerves or tendons. It is said to be occasionally epidemic, and to be of more frequent occurrence in warm than in temperate climates. In fact, it may occur idiopathically; that is, without any wound having been received. The wound giving rise to it is often exceedingly unimportant. Thus, it has been caused by the sting of a bee, the stroke of a whip, or the irritation of a small splinter of bone. But it is "mostly connected with wounds of fibrous and ligamentous structures, accompanied with tearing, bruising, partial injury, and exposure of the nerves; with wounds of the joints, of the face, neck, fingers, toes, and of the spermatic cord: it usually begins during the suppurative period, and even during or after the scarring of the wound. Foreign bodies in the wound, especially splinters of bone, ligatures of arteries, if a nerve be included in the ligature, are all to be considered as not unfrequent causes of of tetanus. Likewise, hot seasons of the year, cold, frequent change of the temperature, especially in low districts and in the neighborhood of rivers, and the influence of a moist, cold, foul air upon nerves after their exposure by the separation of sloughs."(*m*) The time at which it may supervene after the injury, is not precisely known. Occasionally, it ensues upon recent wounds immediately, and in other cases does not occur for several days. Not unfrequently the wound is entirely healed before the attack comes on. Brodie mentions the seventeenth day as the latest period after the accident in which he had known tetanus to come on.(*n*) Sir James McGrigor notices a case twenty-two days after,(*o*) and Blane speaks of it as happening within a month.(*p*) It is a very serious complication of a wound, proving fatal in the majority of cases. Dr. O'Beirne states, that of two hundred cases which he saw, not a single one recovered.(*q*) Hennen says: "I have never been fortunate to cure a case of acute symptomatic tetanus: in some instances of the chronic species I have effected or witnessed a cure."(*r*)

§ 841. *Erysipelas.*—This affection, which increases greatly the gravity of wounds, is a frequent accompaniment of those which are lacerated and contused, and especially if seated upon the scalp. It spreads rapidly in the wards of hospitals under certain states of the atmosphere, which are not well understood; and an important question will therefore arise as to the degree of responsibility of the person who inflicts the wound, when the injured man dies from an attack of erisipelas. This disease is, however, far less frequently fatal than is traumatic tetanus.

§ 842. *Hospital Gangrene.*—Such is the name given to an ulcerative and gangrenous disorder which seizes upon the wounds of persons

(*m*) Chelius' Surgery, by South, Am. ed. Vol. I. p. 417.
(*n*) Lond. Med. Gaz. Vol. II. p. 344.
(*o*) Med. Chir. Trans. Vol. VI. p. 453.
(*p*) Diseases of Seamen.
(*q*) Dub. Hosp. Rep. Vol. III.
(*r*) South's Chelius' Surgery, Vol. I. p. 419.

placed in close and crowded apartments. It is rarely seen except in military hospitals in time of war, or in other situations where fresh air and cleanliness are wanting.

§ 843. *Nervous Delirium*, *Secondary Hemorrhage*, and *Purulent Resorption*, may be mentioned as other causes giving fatality to wounds. All of these accidents may ensue upon surgical operations undertaken for the relief of the injured person, as well as be induced by the wound alone. Thus gangrene or erysipelas may attack the stump of an amputated limb, or the patient may die from secondary hemorrhage, or from any of the foregoing diseases, notwithstanding the best care and foresight and most judicious treatment.

§ 844. Death, indeed, sometimes takes place during or immediately after surgical operations undertaken for the relief of the wounded person. The question of responsibility in this case, belongs to the legal portion of the subject. It may not, however, be out of place to remark that the surgeon can seldom foresee, with confidence, the issue of capital operations, for there are many individual peculiarities and causes beyond his control, which may make it unfavorable. The same may be said of any plan of treatment, whether it involves a serious operation or not. The question may arise, whether the surgical treatment employed was the best that could be devised, and whether, had some other course been pursued, a favorable result might not have been obtained. Or, it may be alleged that the treatment was so unskillful, or the patient so much neglected, as to be the occasion of the fatal termination of the injury. That these facts should be established beyond dispute, it ought to be shown that the treatment was marked by the omission of something universally recognized as of primary importance. But as every surgeon has some peculiarities in his practice, and as the mode of treatment of bodily injuries, from the progressive nature of the medical art, is various, this omission should be looked for only in those points which betray an ignorance of the fundamental principles of surgery. However much the opinions of competent persons may differ respecting the choice of remedial means, they will generally, we think, be found united upon the principles which should govern their application. Still, occasionally, the plan of treatment may be so singular, although apparently founded upon correct notions of the curative process, as to call for reprobation. Thus, in a case which occurred in Saxony, a surgeon was deprived of the liberty of practising his profession in that country for having attempted to promote bony union between the fragments of a fractured patella, by the novel expedient of firing a pistol between them. Although no permanent injury was done to the patient, who, indeed, a few months after the operation, declared that his leg was nearly as good as the other one, and that he was even able to dance and to walk long distances, yet the medical commission charged with the case very properly considered the operation as likely to prove a dangerous precedent if it were not condemned.(*s*)

§ 845. The difficulty is not so great where the original wound has been trifling, chiefly because its comparatively innocuous character can be clearly shown. Thus, for instance, if the hand have been wounded

(*s*) Casper's Vierteljahrschrift, 1852, Bd 1, H. 1.

and one of the arteries divided, compression may be necessary to arrest the hemorrhage. But if a surgeon, with this view, should apply a bandage so firmly, or on the other hand, leave it on so long as to cause mortification of the part, and death ensue in consequence, it is evident that the treatment has not only been unskillful, but that it has really been the cause of death, since the wound of the hand was neither, in itself, mortal, nor would it have produced death in the manner described. But, in severe injuries, in which various complications arise and require the exercise of the greatest skill that learning and experience can give, it cannot be expected that some will not terminate fatally, which, perhaps, under more favorable circumstances, or a better plan of treatment, might have had a fortunate issue. The most humble surgeon may chance to receive the charge of an injury which calls for the enlightened tact and experience of a highly educated man; if his treatment should prove unsuccessful, he should be prepared to show, if required, that his patient had the best care which he was able to afford him, and, if possible, that he consulted with one or more colleagues respecting the treatment. In the language of Judge Woodward, "The implied contract of a physician or surgeon is not to cure—to restore (e. g.) a fractured limb to its natural perfectness, but to treat the case with diligence and skill. * * * He deals not with insensate matter, like the stonemason or bricklayer, who can choose their materials and adjust them according to mathematical lines, but he has a suffering human being to treat, a nervous system to tranquillize, and a will to regulate and control."(*t*)

§ 846. The voluntary and persevering *refusal* of surgical assistance, when this holds out the only probable means of safety, may be enumerated among the causes which indirectly increase the fatality of wounds. Thus, if the amputation of a limb, the tying of an artery, or the observance of a prescribed medical course, be resisted and refused by a patient, he may very often pay the penalty of his obstinacy or timidity with his life. Such instances are by no means rare among the ignorant, with whom often the most assiduous medical attention has to contend against every obstacle to success.

CHAPTER VI.

WOUNDS OF VARIOUS PARTS OF THE BODY.

Injuries of the head, from their frequency and gravity, as well as from the various medico-legal questions they often give rise to, are deserving of particular attention.

§ 847. *Concussion of the Brain.* This term is applied to those cases in which, either from direct or indirect violence to the head, the brain receives a shock which may prove fatal, without being revealed after death by any physical alteration. Thus, a blow upon the head, or a

(*t*) McCandless *v.* McWha, Error to Common Pleas of Beaver County. Am. Jour. Med. Sci. Jan. 1854, p. 273.

fall from a height upon the feet, knees or buttocks, may, without producing any serious external lesion, be the cause of death by a commotion or concussion of the brain. Cases are also related, in which a blow, familiarly designated as a "box on the ear," has resulted fatally in this manner. In Hennen's Military Surgery, a curious example of concussion of the brain is quoted from an old German author, in which a cannon ball took away the queue from the nape of a soldier's neck, without injuring the integuments in any sensible degree. He continued in a complete state of stupor for many days, during which he was bled at least twenty times.(*u*) Sometimes, indeed, the immediate cause of death is found in a laceration of the brain, a rupture of a blood-vessel in the brain, causing a compression of this organ by extravasation of blood, or, again, inflammation is set up with a like fatal result. Such accidents are thus conjoined occasionally with concussion.

The question has sometimes arisen as to the distinction between the symptoms presented by a person laboring under concussion of the brain, and one in a state of *intoxication*. Very often they are coincident in the same individual. Symptoms of slight concussion are, however, so similar to those produced by intoxication, that it is sometimes difficult to know which cause they should be attributed to. There are indeed few peculiarities by which a physician could, better than an unprofessional person, recognize the difference, and, practically, the history of the case and the odor of liquor upon the breath will be the only sources upon which a judgment can be founded. Mr. South says, "It is often very difficult to distinguish between drunkenness and either concussion or compression; especial care should therefore always be taken to ascertain, as far as possible, the condition of the patient previous to the accident, lest he should be lost by too slight consideration of his symptoms."(*v*)

Injuries of the head may prove fatal, whether they involve immediately the contents of the skull or not. Among the most serious of the external wounds are those effecting the tendinous aponeurosis of the occipito-frontalis muscle and the pericranium. Erysipelas is very apt to follow these injuries. Inflammation of these parts is, moreover, readily propagated to the membranes of the brain, and especially after contused wounds. The prognosis must therefore be always reserved, since wounds of these parts, in appearance trifling, may result fatally.

§ 848. *Fractures of the skull* vary in their danger according to their situation, their extent and the amount of depression. Fractures of the base of the skull are the most dangerous, both from the fact that they are not within the reach of surgical interference, and also because the effusion of blood resulting often from the laceration of the lateral sinuses, exercises a compression upon that portion of the encephalon, most intimately connected with the functions of both organic and animal life. These fractures are often not recognized during life, in consequence of their position; and it should not be forgotten that the portion of the skull which is not broken does not always correspond in situation with the part where the blow was received, but may indeed be

(*u*) Hennen's Surgery, p. 318. (*v*) Chelius' System of Surgery, Vol. I. p. 451.

produced by *counter-stroke*, at a point directly opposite to it. The cranium is composed of two tables of bone, between which is a vasculo-cellular substance, called the diplöe. The external table alone may be fractured, and although no compression be thereby exercised upon the brain, yet from the intimate vascular connection between the diplöe and the dura mater, the inflammation resulting may be communicated from it to the latter. Or necrosis may follow the contusion, resulting fatally at a later period. The inner table, which from its great brittleness is called *vitreous*, may be fractured without fracture of the outer one, and by compression from the fragments of bone, effused blood, or subsequent disorganization from necrosis, a fatal result ensue. M. Bayard relates several cases of this kind. In one, a man received a blow from the fist upon the forehead; no mark was left, but he became dizzy and fell to the ground. He suffered afterwards from headache, nausea, and vomiting, and on the twenty-sixth day, became paralyzed and died in convulsions. The inner table of the skull, under the right eye-brow, was found to be necrosed. Both hemispheres of the brain were covered with a purulent exudation, and the ventricles were filled with the same.(*w*) When, however, as it is generally the case, the whole thickness of the bone is broken, the danger is proportionably increased, and although the injury is, by no means, necessarily fatal, yet if the bone press upon the brain, and there be an extravasation of blood over the membranes or into its substance, death is the common result, unless the bone be elevated by surgical aid, and the compression removed. The cases in which it is proper to trepan, and the appropriate place for the application of the instrument, are fully discussed in surgical works. Questions arising out of the neglect of trepanning or its alleged unnecessary employment, have a bearing not infrequently in charges of mal-practice, as well as in homicide. Any abstract of surgical opinion on this subject must necessarily be extremely imperfect. The standard surgical authorities should be consulted in every case. Simple fissures of the skull, or separation of the natural sutures, are not without their gravity, for though seldom rapidly fatal, they often give rise to a slow effusion of blood, which having no external issue, extends over the surface of the brain and sinks between its lobes, thus causing a fatal compression of the organ.

§ 849. *Wounds of the substance of the brain* are not in themselves necessarily fatal. Many instances are recorded in which a portion of the brain has lost, others in which it has been traversed by a bullet, and others again in which a foreign body has remained in it for a considerable time, and the person has yet escaped with his life.

The following extraordinary case of recovery from the passage of an iron bar through the head, reported by Dr. Bigelow, Professor of Surgery in Harvard University, will illustrate the violence which the brain is capable of enduring: Phineas P. Gage was occupied in charging with powder a hole drilled in the rock, for the purpose of blasting. His assistant having neglected to cover the powder, as is usual, with sand, Mr. Gage, who was not aware of the omission, dropped the head of the iron upon the charge, to consolidate or "tamp it in." The iron struck

(*w*) Ann. d'Hyg. Vol. XXXV.

fire upon the rock, and the charge exploded. The bar of iron was projected directly upwards in the line of its axis, passing directly through his head and high into the air. It was picked up at some distance, smeared with brains and blood. "From this extraordinary lesion, the patient has quite recovered in his faculties of body and mind, with the loss only of the sight of the injured eye." The weight of the iron bar was thirteen and a quarter pounds, its length three feet seven inches, and its diameter one and a quarter inches. The end which entered first was pointed, the taper being seven inches long, and the diameter of the point one quarter of an inch. The track taken by the bar was the following, as ascertained by an experiment upon an ordinary skull,—the entering hole was under the zygomatic arch, encroaching equally upon its walls. "In the orbit, the sphenoid bone, part of the superior maxillary below, and a large part of the frontal above, are cut away, and, with these fragments, much of the spheno-maxillary fissure; leaving, however, the optic foramen intact about a quarter of an inch to the inside of the track of the bar." The base of the skull upon the inside of the cranium presents a cylindrical hole of an inch and a quarter in diameter, and the calvarium is traversed by a hole, two-thirds of which is upon the left, and one-third upon the right of the median line, its posterior border being quite near the coronal suture. "It is obvious that a considerable portion of the brain must have been carried away; that, while a portion of its lateral substance may have remained intact, the whole central part of the left anterior lobe of the front of the sphenoidal or middle lobe must have been lacerated and destroyed. This loss of substance would also lay open the anterior extremity of the left lateral ventricle, and the iron, in emerging from above, must have largely impinged upon the right cerebral lobe, lacerating the falx and the longitudinal sinus."

Immediately after the injury, the patient was slightly convulsed, but spoke in a few minutes. He was carried to an ox-cart which stood at a short distance, and rode in it, sitting erect full three-quarters of a mile. He got out of the cart himself and, with a little assistance, walked up a long flight of stairs, into the hall, where he was dressed. He retained his senses and memory perfectly, and gave an intelligent and connected account of the accident.(*x*) Many other instances of surprising recoveries after wounds of the brain might be related, but the preceding case gives, we think, ample proof that, even in very extensive injuries of the cerebrum, with fracture, hemorrhage, and loss of substance, death is not the necessary termination.

§ 850. Wounds of the central portion and of the base of the brain are more uniformly and speedily fatal than those of the hemispheres. Wounds of the cerebellum are said to be constantly mortal. In whatever portion of the brain, however, the injury may be seated, or whether the organ be merely compressed by effused blood, the important fact is still applicable, that the individual may recover, apparently, from the immediate shock or consequence of the injury, and die unexpectedly from it afterwards. Thus a person has received a blow upon the head, causing extravasation of blood, and has been able to continue on his

(*x*) Am. Jour. of Med. Sci., July, 1850.

way apparently not much injured; he dies, nevertheless, a few hours afterwards, with symptoms of compression of the brain. The Prince of N—— was thrown from his horse, but felt himself quite well, and mounted his horse again a few hours afterwards. Before, however, he had proceeded far, he dismounted, complained of nausea, was seized with convulsions, and died comatose. No fracture was discovered, but under the dura mater, on the great falx and in the base of the cranium, there was found a considerable extravasation of blood.(*y*) In the Lancet for Oct., 1843, is related the case of a man who walked nearly a quarter of a mile after having been kicked on the head by a horse. Two or three fractures were found at the base of the skull. Months or even years occasionally elapse before the injury terminates fatally. A sailor received a blow upon the head from which he soon recovered, and suffered no ill consequences, with the exception of a discharge from the ear. After a time, however, he suffered violent pain the head, and had fever and convulsions. He was trepanned, and issue given to a large quantity of pus, with temporary relief. He died one year after the injury. The dura mater was covered with a purulent exudation, which extended also into the spinal canal.(*z*) Where bullets have penetrated and remained in the brain, they often give rise gradually to fatal disorganization. Morand relates the case of a soldier who was wounded at the battle of Parma, in 1784. He returned on foot to Paris, and died nine and a half months after his wound. The ball was found between the bone and the dura mater. One-half of the cerebrum was destroyed by suppuration. Reich found in a soldier who had received a gunshot wound at the battle of Leipzic, and died eleven months afterwards, a portion of the brain in a gangrenous condition, and the ball adherent to the tentorium. He had suffered only from headaches and occasional epileptiform attacks.(*a*)

§ 851. The physician may be required to determine whether an extravasation of blood in or upon the brain is the effect of violence or disease, and if being due to the former, it has not been favored by the excitement of passion. Extravasation of blood, ensuing upon violence to the head, is perhaps most generally found over the dura mater, or upon the surface of the brain; that which arises from disease, in the substance, the corpora striata, or in the ventricles. Apoplexy is comparatively rare in the young and healthy, and it is hardly probable that in such persons a diseased condition of the vessels could be found occasioning the effusion. If, however, the blow has been inflicted upon an old person, and the extravasation is found in the cerebral hemispheres, there may perhaps remain a doubt whether a predisposition to the effusion did not already exist, and was awakened by the violence inflicted. If, however, it can be shown that the blow was sufficiently violent to produce this result, there can be no doubt, medically speaking, that it was the cause of it. Passion has no doubt, by the excitement of the circulation, a direct influence in causing an already weakened vessel to give way, and when a blow comes opportunely in, it would certainly perplex the most learned casuist to say which of the

(*y*) Langenbeck. (*z*) Denmark, Medico-Chir. Trans. Vol. V., 1814.
(*a*) Henke's Lehrbuch, 12te. Aufl. p. 246.

three causes of death was the effective one. The legal responsibility will be elsewhere set forth.

§ 852. *Wounds of the face* cannot in general be considered as dangerous to life. They are often followed by serious deformity and tedious sickness. The parts about the eye and this organ itself form the seat of the more dangerous wounds. Blindness, without any apparent external alteration in the eye, has been produced by blows dividing or injuring the supra or infra-orbitar nerves.(*b*) Severe neuralgia may be produced by the same cause. Penetrating wounds of the orbit, it is evident, may reach the brain and cause fatal injury, and many instances of this form of injury are on record. Even where the orbital plate of the frontal bone has not been broken, serious consequences may ensue from the spreading of inflammation from the eye and its appendages to the membranes of the brain. In comminuted fractures of the *nose* from external violence, the blow may have been so severe as to injure the ethmoid bone, in which case, the brain may readily become involved.

§ 853. *Wounds of the neck.*—In this region there are numerous structures and organs, the wounding of which is generally attended with fatal results. The neck being traversed by important blood-vessels and nerves, by the œsophagus, larynx, and spinal marrow, injuries which involve any of these parts must be looked upon, in general, as very serious. Hemorrhage resulting from the division of any of the large arterial trunks, as the carotid, lingual, or vertebral, is most rapidly fatal, and life is usually extinct before the requisite surgical aid can be rendered. The loss of blood from the internal jugular veins is equally fatal with that from the arteries, and in addition, the entrance of air into these vessels is considered to be frequently the cause of instantaneous death. A division of the principal nerves of this region or of the œsophagus, is usually accompanied with a destruction of other parts more essential to life, hence it is but seldom, as, for example, in punctured wounds of the throat, that the dangers from such injuries need be separately estimated.

Incised wounds of the larynx and trachea are not in themselves directly fatal, and more or less perfect recoveries are often made from them. But they may become fatal through the effusion of blood into the air-passages, or by subsequent inflammation. While in wounds of the carotids and jugulars death is often immediate, the fatal result in those wounds of the neck which do not implicate the blood-vessels is seldom so rapid. There are also many cases of wounds of the neck in which, although none of the above-named parts are wounded, yet terminate fatally. Such are those in which the cellular tissue becomes inflamed, in consequence of which abundant and exhausting suppuration takes place.

A case is related by Dr. Simeons, in which an old woman was struck

(*b*) Hippocrates was aware of this fact. He says, "*Visus obscuratur in vulneribus supercilii et paulo altius, prout autem vulnus recentius est, plus vident, cicatrice vero diutius persistente plus excœcantur.*" Anfangsgr. der Wundarzneik II. § 320. In a recent case where the amaurosis resulted both from concussion and from laceration of the eyebrow with a cricket ball, the loss of sight was temporary, vision being gradually restored under the use of mercury. Med. Times & Gaz. Sept. 4, 1852.

on the neck with a pewter soup-ladle; she died in a few hours afterwards, asphyxiated. Upon examination after death, blood was found extravasated under the muscles of the neck, and into the anterior mediastinum from a rupture of the external jugular vein. The cricoid cartilage, and some of the rings of the trachea were broken, by which injury the size of the respiratory tube was necessarily much diminished.(*c*) The skin was not broken.

A division of the *œsophagus* is not only in itself almost always fatal, if complete, but because also, being situated behind the trachea, it can hardly be incised without the important blood-vessels of the neck being injured. A case of recovery from a wound dividing the larynx and œsophagus to the posterior wall of the latter, is given by Dieffenbach, and an example of complete restoration to health after an *entire* division of both of these passages with a pruning-knife, is related by Boey.(*d*)

Dr. Ryan related to the Medical Society of London, a case of suicide, in which, after several ineffectual attempts to divide the thyroid cartilage, the man had succeeded in inflicting upon himself a wound five inches in length, between this cartilage and the os hyoides, dividing completely the pharynx to the vertebræ. The fourth vertebra was roughened by a cut, and there was another cut in the intervertebral cartilage. Some branches of the carotid arteries were divided, but neither these vessels, the jugular veins, nor the sterno-mastoid muscles were injured.(*e*)

As Dr. Ryan properly remarks, "A person wonders at the possibility of a wound of this sort, without cutting the larger vessels; and had the occurrence taken place in a lonely dwelling where no third party was present, it might become a serious question, particularly under unhappy domestic discussions, whether the wound was self-inflicted; as its extent, the two incisions on the thyroid cartilage, the two on the vertebra, and that on the intervertebral cartilage would argue a determination of purpose and strength of wrist which falls to the lot of few."

Wounds and injuries of the Spine.

§ 854. The danger to life in wounds that interest the spinal marrow is exceedingly great, indeed they are almost uniformly fatal, either immediately or indirectly. These injuries are, however, more rare than those of other parts of the body, and are often the result of casualty, such as a fall from a height, or being crushed under a heavy weight. In many cases of death from falls upon the seat, the spinal marrow will not exhibit any material lesion. In such cases it is supposed to have suffered concussion, by which some elementary change in its structure has been accomplished inconsistent with the maintenance of life. In concussion of the spine, death may be almost immediate, but usually it approaches gradually.

Any substance compressing the spinal marrow will interfere with or arrest its functions below the point of pressure. Hence the height at

(*c*) Henke's Zeitschrift. 1848. H. I.
(*d*) Reference to both these cases may be found in Henke's Lehrbuch. p. 254.
(*e*) Lancet, Am. ed. 1852, p. 218.

which the injury has been inflicted has an important bearing upon its gravity. If the compression be above the origin of the pneumo-gastric nerves, death is immediate, owing to the sudden suspension of respiration. Below this point a wound or injury is not inconsistent with the maintenance of life for a considerable period. A division of the spinal marrow at any part interrupts, of course, if complete, the functions of the part below it more effectually than compression. Dr. Staub gives an instance of immediate death from a wound of the spine by a knife, between the atlas and epistropheus; the spinal marrow was divided almost completely in the middle, between the corpora olivaria.(*f*)

Another rare instance of dislocation of the spine by criminal violence, is related by Dr. Simeons, of Mayence. A robust young man, twenty-six years of age, quarreled with three others, who fell upon him, threw him on the ground, and after having kicked and dragged him for some time, finally left him helpless. He was soon found, and carried into a neighboring house. He survived two days completely paralyzed, but retaining his consciousness. The fifth cervical vertebra was found to be completely separated from the sixth, all the ligaments being torn; the whole of the spinal canal was filled with partly coagulated blood, and the muscles in the vicinity of the injury much infiltrated. No other injury of importance was detected.(*g*)

"A bone-setter, named Richard, famous in the neighborhood of Napoléon Vendée, but still more famous by having been fined five francs, which made him a martyr, and increased his practice five-fold, was consulted on June 4th, 1853, by a farmer of the commune of St. Denis, named Lachavasse, who complained, after a heavy fall, of violent pain in the neck. The bone-setter, meeting him, made him enter a neighboring cottage, and said that he would soon put his neck right. He seized with both hands the patient's head, and by a rapid motion from left to right, he three times turned the head over the shoulder. At the third time a crack was heard, and the bone-setter exultingly exclaimed, "It is done, the neck is reduced." But at this very instant the patient was seized with paralysis of the arms and legs; his speech became very difficult, he complained of violent pain, and died the next day, firmly convinced of the skill of the operator, and asserting to the last that his neck was properly set. Examination of the body, showed an effusion of blood at the level of the second and third vertebræ, the ligaments between which were stretched and torn; there was another effusion between the cerebellum and the base of the skull, evidently arising from lesion of the cord and its membranes."(*h*)

In cases where the *vertebræ are fractured*, the injury done to the spinal marrow may be due to the constriction it undergoes from pressure, its irritation by a spicula of bone, or to the effusion of blood upon it. To whichever cause it may be attributed, the ultimate effect is, in the majority of cases, fatal. It is not unimportant to observe that sudden death may take place from the spontaneous luxation of the second cervical vertebra; the odontoid process which maintains it in its place being liable to caries and consequent sudden fracture. This cir-

(*f*) Henke, Zeitsch. Bd. XXXV. S. 406. (*g*) Ibid. Bd. LVI. H. 3, p. 131.
(*h*) From Rév. Thérap. du Midi.

cumstance as well as the existence of caries of the spine in any other and more usual position, may in some cases of death after ill-usage, explain the facility with which death has come on. Hence, it is of great moment, that in case of death from supposed injury to the spine, the absence of this disease should be carefully ascertained. Sir Astley Cooper mentions the case of a woman in the venereal wards of St. Thomas' Hospital, who, while sitting in bed eating her dinner, was observed to fall suddenly forward. The patients on hastening to her assistance, found that she was dead. At the autopsy, it was ascertained that the dentiform process was broken off, and the head, in falling forwards, had forced the root of the process back upon the spinal marrow, which occasioned her instant death.(*i*)

Another case of extensive disease of the cervical vertebræ, with death from fracture of the odontoid process, is admirably reported by Dr. Buckminster Brown, of Boston.(*j*)

Wounds of the Chest.

§ 855. Wounds which do not penetrate the cavity of the chest, or which are not accompanied with very great violence, offer but little gravity. In the latter case, however, one or more of the ribs or the sternum may be fractured, a complication which at once enhances the importance of the injury. The same force which has produced the fracture may also cause serious disturbance of the subjacent organs and their rupture. The broken ends of the bones frequently also cause hemorrhage, a disorganization of the lungs, or wound of the heart. The danger of penetrating wounds of this cavity cannot, of course, be too highly estimated, although it is, perhaps, less than in similar wounds in the abdomen. From the great vascularity of the organs contained in the chest, and from the fact of their functions being the aëration and the propulsion of the blood, the immediate danger of any injury to them lies in the sudden and abundant arterial hemorrhage, by which the heart and the system generally are deprived of their necessary vital stimulus, and the natural play of the apparatus of respiration and circulation is mechanically obstructed. The hemorrhage in wounds of the chest is almost entirely internal.

§ 856. *Wounds of the Lungs* cannot receive any detailed consideration. The chief point of interest in this connection is the fact that they may not prove fatal until a considerable period after their infliction. This is especially the case with gun-shot wounds of these organs, in which, if the larger vessels have escaped laceration, the foreign substances introduced into the wound may continue for many months and years to be a constant source of distress, and be the source of an ultimately fatal disease.

A question may sometimes arise as to the ability for motion after severe wounds of the chest. No general rules can be laid down upon this point, but in illustration of the possibility of locomotion after severe injuries to the chest, and the fortunate issue of some which are of ap-

(*i*) Dislocations and Fractures of the Joints, p. 463.
(*j*) Am. Jour. of Med. Sci., Jan. 1853.

parently the most formidable character, we adduce the following case, reported by Mr. Gallway, Surgeon in the Royal Artillery.(*k*)

"A gunner and driver of the royal artillery had made a murderous attack upon his sergeant with a bayonet, whereby he inflicted two wounds, happily superficial only, upon one leg and arm. Foiled in his efforts of greater success by the seasonable arrival of some other soldiers, the culprit rushed through the barrack-square to escape his pursuers, when the sentry on duty at the gate interposed himself with his carbine, in the attitude of 'charge bayonets' to obstruct him. The consequences of this movement to the other was, that as he was rushing through a narrow passage with an impetus which he could not at the time control, he threw himself (not premeditatedly, it will be understood,) with great force upon the bayonet of the sentry, which entered his body an inch to the left of the ensiform cartilage, and passing through the abdomen, emerged by its point on the left of, and close to the spinal column, some inches lower down. When I reached the scene of action, within two minutes after, I found the subject of this wound sitting upon a form in the guard-room, as insensible to any effects from the injury as he was unconcerned at his crime. I could not therefore at first believe the statement of his comrades, who told me what had happened, although the bayonet was handed to me *bent* by the violence to which it had been exposed; but on stripping the wounded man, I discovered the two openings of entrance and exit of the bayonet, corresponding, in form and diameter, to those which the different parts of the weapon would have occasioned. Added to this, the bayonet was withdrawn from his body by a non-commissioned officer, upon whose testimony I could rely; and what is more, this withdrawal was witnessed by a crowd of other soldiers around. Now this desperate character marched, in a quarter of an hour afterwards, to the hospital, *three-quarters of a mile* distant; and at the end of a fortnight was discharged from the same, to be placed upon trial for his life. The day after his admission his urine was a little bloody; and subsequently there was a general anæsthesia of the walls of the thorax and abdomen, which lasted but for awhile. With these exceptions, the injury was not followed by a symptom, nor did the subject of it require a dose of medicine for his recovery. To the circumstances of this affray having been enacted *before* dinner, I am disposed to attribute much of the immunity from evil which this ruffian enjoyed. Had the stomach been full, it is not easy to conceive that a bayonet could have travelled through such a track of vital organs, without endangering one or more. The reader may be interested to know that the life of this soldier was spared, transportation for the rest of his days being the sentence of his court-martial."

One of the most extraordinary instances of recovery from a wound traversing the whole thorax, is related in the Abeille Médicale, 15 Jan. 1855, from the Journ. de Med. de Bordeaux. A young soldier fell from a cherry-tree upon an upright stake, such as is used in the vineyards. It entered the left side, between the seventh and eighth ribs, and the pointed extremity projected on the other side between the fourth and fifth ribs, at the posterior part of the axilla, and to the length of a

(*k*) Med. Times and Gaz. May 6, 1854.

foot and a half. The young man retained his consciousness and intelligence, did not appear to suffer much, and after one end of the stick had been sawn off, was conveyed to the hospital. There the stake was extracted without difficulty, and it was found that it had carried part of the shirt with it. A few bleedings and an antiphlogistic treatment sufficed to remove some inflammatory symptoms which arose, and in three weeks the patient was entirely convalescent.

§ 857. *Wounds of the heart.* When the cavities of the heart have been opened death is generally the immediate, as it always is, sooner or later, the certain result. When the cavities of the heart have not been penetrated but their walls alone injured, the danger is still very great, not so much from the loss of blood as from its compression of the organ and the subsequent inflammation. This is particularly to be dreaded when the coronary arteries have been wounded. No case has yet been recorded in which a person has recovered from a wound penetrating the cavities of the heart. One of the most singular instances of apparent recovery from a gunshot wound of the heart, (if it can be properly so called,) is contained in the "Notes of Observations at the Field Hospital of Rangoon." Here a soldier survived his wound two and a half months, emaciating however rapidly, although he was able to walk about. On dissection, the course taken by the ball was traced through the pleura and lung, by a cartilaginous canal of condensed tissue, to the root of the lung, where all trace of it was lost. On opening the pericardium, however, a hard body was felt in the apex of the heart, which, when the cavity was laid open, proved to be a *musket ball* lying at the apex of the left ventricle, partly covered by a thin coating of white lymph. There was no injury to the heart nor evidence of diseased action. The heart was preserved in spirits and sent to Calcutta. The only manner in which the ball could have found its way, to the situation in which it was found, must have been through one of the pulmonary veins, as there was no trace of its passage through the substance of the heart. A case which would seem to confirm this idea is mentioned in Schmidt's Jahrbuch, Vol. LXXII. p. 328. A man was struck in the back by a bullet which entered his thorax, and caused his death in twenty minutes. On dissection it was found that the ball had entered over the sixth rib behind, grazed the lung, and wounded the pulmonary artery. But it could not at first be discovered. It was soon found, however, in the right ventricle of the heart, where it had fallen by its own weight after penetrating the pulmonary artery.(*l*)

(*l*) An instance of long survivance after an injury of the heart of an extraordinary character may be found in the Transactions of the Provincial Med. and Surg. Association, Vol. II. p. 357: A boy ten years old in discharging a wooden gun, was wounded in the thorax by a plug of wood about three inches long, which he had used to form the breech of this apparatus. It could not be found. He walked about for a fortnight and said he was well, but finally wasted away and died in five weeks and two days after the accident. On dissection the stick was found in the right ventricle, forcing itself between the columnæ carnei and the internal surface of the heart, and encrusted with a thick coagulum. No wound could be discovered in the heart or pericardium. Hence it is supposed that the stick first entered the lung, and afterwards passed into the vena cava and thence was carried by the stream of blood first into the right auricle, and then into the right ventricle.

A man, whose case is related by Prof. Malle, received a gunshot wound near the left nipple, he fell instantly in syncope, but afterwards revived, and lived 42 days, when he

The period at which wounds of the heart prove fatal, varies in different cases. The reason of this variation is found not only in the extent and locality of the wound, but in the fact that the point of the weapon or the bullet may have remained in the walls of the heart and thus the sudden loss of blood have been mechanically prevented. A coagulum of blood may, in some cases where the wound is not extensive, cause the prolongation of life for a similar reason. Should the patient escape the fatal results of inflammation ensuing upon such a wound, he is nevertheless exposed to sudden death by the removal of this mechanical obstacle to hemorrhage. Ollivier d'Angers found out of twenty-nine cases collected by himself, that only two proved fatal within forty-eight hours, and the others in from four to twenty-eight days.

Dr. Trugien of Portsmouth, Va., observed a case in which a young negro man was stabbed in the chest on Monday night and continued to do well until Saturday morning, at which time, contrary to orders, he went out, and used other improper exertion, in consequence of which he died. The wound, which had healed externally, perforated the cartilage of the fourth rib, passed through a part of the anterior wall of the right ventricle, without opening it, and thence into the left ventricle. About a pint and a half of blood partly fluid and partly coagulated was found in the pericardium. The wound in this membrane had completely cicatrized, and *two-thirds* of that in the heart.(*m*)

In a case reported by Dr. Bowen, the right ventricle was perforated a half an inch to the right of the septum, and through the septum the wound extended into the left ventricle, at the orifice of the aortic valves; the wound was lined with coagulable lymph. The patient had survived his injury eleven days and walked about; he died suddenly from hemorrhage into the pericardial and pleural sacs.(*n*) Muschner reports a case of penetrating wound of the heart which proved fatal on the 14th day.(*o*)

Stadelmayer gives a case in which not only the heart was penetrated but the stomach also, and an intercostal artery wounded, when death ensued on the 5th day.(*p*) These cases might readily be multiplied, but enough has been said to show that wounds of the heart, even where the left ventricle has been penetrated, are not of necessity immediately fatal.(*q*)

died of erysipelas of the leg. A piece of wood, "as large as a full-sized writing quill, was found transfixing the left ventricle and the septum, and projecting into the cavity of the right ventricle."—*Brit. and For. Med. Chir. Rev.* Vol. X. p. 46.

(*m*) Am. Jour. Med. Sci. July, 1850. See also *Am. Jour.* Med. Sci. for May, 1829. p. 263, in which there is a notice of a case of gunshot wound of the chest, in which the patient, a negro boy aged 15, lived 67 days after the accident, and on *post-mortem* examination, three shot were found lying loose in the cavity of the right ventricle and two in the right auricle.

For the case of Wm. Poole, (pugilist,) see N. York Med. Times. April 1855. In the same Journal for May 1855, will be found "Statistical Observations on Wounds of the Heart and on their Relations to Forensic Medicine, with a Table of Forty-two Recorded Cases." By Samuel S. Purple, M.D.

(*n*) Am. Jour. Med. Sci. Oct. 1849. (*o*) Ver. Deutsche Zeitschrift. III. 1. 1848.

(*p*) Med. Correspond. Bl. Bayer. Aertze. No. 318.

(*q*) A case of some interest in reference to the power of surviving a severe wound of the cavities of the heart occurred at Guy's Hospital in February 1854. An Italian, æt. 38, discharged a brace of pistols into his chest on the left side. The man was brought to the hospital, was able to converse on his condition, and lived one hour and fifteen

§ 858. Death is usually sudden, but does not always follow immediately upon the receipt of the wound, although the first effects are exceedingly alarming. In nearly all the cases, where the wound seriously implicates the heart, the individual staggers a few paces, or falls instantly into a state of syncope. Exceptional cases have, however, been reported in which, even where the wound has been found subsequently to have penetrated the cavity of the heart, the person has nevertheless retained his consciousness and power of locomotion for a short period after receiving it. Thus in the case of Mrs. Hamilton, murdered by Clough in 1833, at Bordentown, by repeated stabs with a dirk, three entered the left ventricle, and seven the lung. She walked some distance down stairs after this, and held some conversation, but soon fell, and died in fifteen minutes.(*r*) In a case related by M. Boyer, a young man who received a knife wound in the left ventricle, walked about for ten minutes and did not die until six days afterwards.(*s*) In another where the *right* ventricle was wounded, the man ran up stairs, but died in half an hour.(*t*) Mr. Baird relates a case in which a man continued fighting and ran 150 yards after receiving two penetrating wounds of the chest, and one of them penetrating the left ventricle.(*u*) In an instance given by Dr. Babington, a man walked twenty-five feet after a bayonet-wound which pierced the peritoneum, colon, stomach, left lobe of liver, diaphragm, pericardium, right ventricle in two places, and the lungs.(*v*)

§ 859. *Rupture of the heart.* This occasionally results from external violence, generally of an accidental nature, as from the falling of a heavy body upon the chest. The cause of the occurrence is usually too obvious to require any explanation here. The only case in which rupture of the heart may become the subject of medico-legal investigation, is when a person engaged in a quarrel dies suddenly after receiving a blow upon the chest, and this lesion is found after death. The case is one which evidently admits of discussion, belonging to that category of cases in which death already impending is apparently anticipated by external violence. The fact of the heart being in a diseased condition favoring its rupture, such as fatty degeneration, ulceration, aneurismal dilatation, must be ascertained, as well as the force of the blow inflicted. It must be remembered, however, that the rupture may occur spontaneously in these morbid conditions, even when the person is in a tranquil

minutes after the infliction of the wound. After death it was found that one bullet had perforated the pericardium, entered the right ventricle, and after traversing the septum of the ventricles made its exit from the heart at the junction of the left auricle with the ventricle. It traversed the upper lobe of the left lung, and was found fixed in one of the dorsal vertebræ. The second bullet perforated the left ventricle and then traversed the left lung. The wound was of such a nature, that at every contraction of the ventricle, the opening must have been closed so as to arrest the flow of blood. This man, owing to severe suffering, rolled about the floor and was with difficulty kept quiet. It will be seen that in this case there were bullet-wounds traversing completely the cavities of the heart, yet the man could talk and exert himself, and he actually survived their infliction one hour and a quarter."—*Taylor's Med. Jur.* 5th ed. p. 308.

(*r*) Beck's Med. Jur. Vol. II. p. 331.

(*s*) Bost. Med. and Surg. Jour. Vol. II. p. 209.

(*t*) Am. Journ. Med. Sci., N. S. Vol. XXVI. p. 85.

(*u*) Edinb. Month. Jour. Vol. III. 1843.

(*v*) Med. Records and Researches. Lond. 1798.

state, but that a fit of anger greatly increases the probability of its occurrence. Hence a blow upon the chest may really have had nothing to do with causing the rupture, this having been due entirely to the strong excitation of a weakened heart. Rupture of the heart from disease usually takes place in the left ventricle, except where the disease is ulceration, when of course it may take place at any portion. The heart is also ruptured sometimes by great physical exertion, in which case the left auricle is prone to give way. Violent emotions of any kind are enumerated among the causes of this accident, but it is probable that they are only effective when the heart is already weakened by disease. The same may be said of rupture of the *aorta*. Wounds of this and the other great vessels of the chest are inevitably mortal, if the opening have not been very slight.

Wounds of the Abdomen.

§ 860. *Superficial wounds.* A severe blow in the epigastric region has in several instances sufficed to produce immediate death, and this may result without any external or internal mark of violence. Death in these cases has been generally attributed to the violent impression made upon the solar plexus of nerves. Blows upon other parts of the abdomen not accompanied by any solution of continuity in the integuments may prove serious or fatal by causing peritoneal inflammation or the rupture of some organ in this cavity; but contused and lacerated wounds which are not attended with these effects may still give rise to serious consequences from the formation of fistulous communications. Incised wounds also which do not penetrate the cavity, may nevertheless prove fatal from a wound of the epigastric artery.

§ 861. *Penetrating wounds of the abdomen* usually prove fatal by causing inflammation of the peritoneum, either as a direct effect of its division or indirectly from the effusion of blood and the entrance of air. When the omentum or mesentery is wounded, death usually takes place by hemorrhage but sometimes from inflammation and gangrene. Wounds of the *stomach* and *intestines* prove fatal by hemorrhage, or by inflammation resulting from the effusion of the contents of these organs into the peritoneal cavity. The natural tendency of these injuries is to death, although by timely and skillful surgical treatment many cures may be accomplished.(*w*)

Wounds of the *liver* vary in importance according to their extent and situation. Superficial wounds of this organ have much less gravity than those which penetrate its substance deeply, and interest the large arterial and venous trunks which traverse its lower surface. If the gall bladder is wounded, violent peritonitis usually results from the effusion of bile into the peritoneum. Incised and punctured wounds of the *spleen* may produce death by hemorrhage, and this is the more likely to be the case when this organ is abnormally enlarged. Wounds of the *kidneys* usually prove fatal by the effusion of urine and consecutive inflamma-

(*w*) Vid. South's Chelius Surgery, Vol. I. p. 522, for several cases. For a recent case of speedy recovery after a penetrating wound of the stomach made by a bowie knife, see The Stethoscope, June 1855. (Richmond.) From Charleston Med. Jour. and Review.

tion. It is hardly necessary to mention that wounds of the great abdominal vessels are unavoidably fatal.

§ 862. *Wounds of the Diaphragm.*—Mr. Guthrie says that wounds of the diaphragm rarely ever close, but remain open during the rest of the life of the sufferer, ready at all times to give rise to a hernia, which may become strangulated and thus destroy life. Among other cases given by him, the following is interesting: On the day preceding the battle of Fuentes d'Onor, in 1811, Sergeant Barry was wounded in the chest. The ball entered close to the nipple of the left breast, and passed out at the back, between the eighth and ninth ribs. The anterior opening of the wound soon healed, but the posterior did not for a considerable period, when he became affected with such a severe cough, with expectoration, that his medical attendant deemed it proper to reopen it. The symptoms were relieved, and portions of his shirt and jacket were discharged. After this, his health improved so rapidly as to enable him soon to rejoin his corps; the wound in the back repeatly opened and healed again, generally at intervals of twelve or fourteen months, but for five or six years it ceased to do so. He died of another disease, twenty-two years after the receipt of this wound. On examination, the whole of the stomach and the greater part of the transverse arch of the colon, were found in the left cavity of the chest, having passed through an opening in the diaphragm about three inches in a transverse direction, near the centre. The wound in this instance was through the muscular and not through the tendinous part.(*x*) Slight penetrating wounds of the diaphragm, Mr. Taylor says, will heal; instances of the fact being upon record.

§ 863. *Wounds and Ruptures of the Bladder.*—The consideration of these has considerable practical importance, from the fact that the bladder is occasionally ruptured spontaneously from over-distension. If a person have received a violent blow or kick upon the lower part of the abdomen, and the bladder after death is found ruptured, the defence may deny that this was caused by the blow. To the medical mind, this line of defence cannot but appear very precarious. Spontaneous rupture of the bladder is extremely rare. The well-marked symptoms of distension can hardly be concealed,(*y*) and the cause of it would certainly be found after death; hence, if rupture has followed a blow, the dependence of one upon the other is, in the absence of undoubted evidence of the pre-existence of over-distension from natural causes, as satisfactory and conclusive as possible. In the words of Dr. Taylor,—"If a man were in good health prior to being struck,—if he suddenly felt intense pain, could not pass his urine afterwards, and died from an attack of peritonitis in five or six days; if, after death, the bladder was found lacerated, but this organ and the urethra were otherwise in a healthy condition, there can be no doubt that the blow was the sole cause of rupture and death. In such a case, to attribute the rupture to spontaneous causes, would be equal to denying all kind of causation."

(*x*) Lancet, Ap. 16, 1853. Vid. also Lancet, Ap. 1852.

(*y*) Nevertheless Mr. Hird related an interesting case at the Medical Society of London, which is quoted by Mr. Coulson, to show that the patient may walk several miles after complete rupture, and for a time exhibit no symptoms which attracts more than ordinary attention. Brit. and For. Med. Chir. Rev. July, 1852.

Rupture of the bladder is usually a fatal injury, producing death by peritonitis; but if it occur in the anterior portion, which is not wholly covered by the peritoneum, recovery will sometimes occur. Thus, in a case reported by Mr. Syme,(*z*) a boy ruptured the bladder by falling upon two upright stakes of wood, in jumping over a fence. Under an appropriate and skillful treatment, he finally got well.

There is rarely any external injury to correspond with the violent internal disorganization. In a recent case, where the urethra was completely torn across by external violence, there was no external wound, —not even an abrasion of the skin.(*a*)

§ 864. The occasional immunity from serious effects in wounds of the abdomen of apparently the most dangerous character, is well illustrated by two cases, very similar to one another, which have occurred in this country. Dr. Sargent, of Worcester, Mass., reported to the Boston Society for Medical Improvement, a case which occurred in his practice. A woman, about 37 years of age, in sliding down from a hayloft, impaled herself upon the handle of a pitchfork, which passed in at her vagina to the length of *twenty-two* inches, when her feet struck the ground. The handle was immediately withdrawn. Dr. S. saw the handle of the fork, which was rounded a little larger at the end than elsewhere, perfectly smooth, two inches in diameter, and showed distinctly the stain of blood up to an abrupt line, twenty-two inches from the end. It was supposed that the instrument perforated the upper end of the vagina on the left side, passed between the uterus and rectum, in front of the kidney, behind the spleen, and between the diaphragm and false ribs, peeling up the costal pleura till it reached the scaleni muscles. The subsequent history of the case, which showed a fracture of the first rib, proved this diagnosis correct. The woman recovered in a few weeks entirely.(*b*) Another case is reported by Dr. Bryant, of Mississippi, of a negro woman who leaped from the height of ten feet and alighted upon a tobacco stick, which had been driven firmly in the ground, and was concealed by some loose fodder. The stick was four and a half feet long and one inch square. It entered the vagina, penetrated its upper part, and traversed the abdomen to the eleventh or twelfth rib. The stick was smeared with bloody mucus to the extent of twelve and a half inches, and its termination was abrupt and distinct. "It was quite clear that the stick was not stained by the fluid running down upon it." This woman also recovered, after losing a considerable quantity of blood.(*c*)

§ 865. *Wounds of the Genitals.*—In the male these are usually self-inflicted, and instances of the kind most usually occur among the insane. The danger to life is great if the injury have been inflicted with a sharp instrument and is of considerable extent; the hemorrhage being profuse, and not easily controlled. Impotence may be the result of an imperfect mutilation.

Upon the female, on the contrary, wounds of the genitals are generally due to the violence of others. This appears to have been a favorite mode of committing murder in Scotland, probably from the facility with

(*z*) Ed. Month. Jour. p. 332.
(*a*) Neill, Hospital Cases. Med. Examiner, Aug. 1854.
(*b*) Am. Jour. Med. Sci., Oct. 1853, p. 355. (*c*) Ibid. p. 399.

which it would be overlooked. Several cases of the kind have been recorded, in which criminal trials took place. The latest are the trials of Andrew Paterson and Wm. Hetherton, charged with the murder of their wives by wounding them in the genital organs. In one case, the woman had been recently confined. A wound an inch and a half long was found in the vagina, supposed to have been inflicted with the iron hold-fast of a sign-board. In the other, the woman was in the eighth month of her pregnancy. There was found a lacerated wound of the genitals immediately on the left side of the urethral orifice. There were numerous contusions on both thighs and in the neighborhood of the vulva; the injuries were attributed to kicks.(*d*)

Occasionally, as has before been mentioned, there may occur spontaneous hemorrhage from a ruptured vein at the root of the labia; hence the necessity of establishing the presence of marks of violence, such as contusions, abrasions, &c. In a case, however, related in the Lancet, a woman received a kick in the private parts from her husband, while she was stooping, and died within an hour, from hemorrhage. The left root of the clitoris was crushed, and there was a wound on the edge of the vulva about an inch long, but otherwise *no* contusion or marks of violence.(*e*)

CHAPTER VII.

BURNS AND SCALDS.

§ 866. The effect produced upon the *living* person by a heated body, varies, according to the nature of the vehicle by which the heat is applied. Thus, boiling liquids produce scalds, which are serious in proportion to the density of the liquid; solids in a state of ignition, burns which are deep and extensive in proportion to the elevation of temperature and the duration of contact; while gases, in a state of combustion or flame, consume and destroy the living structure more completely than either of these other agents. The injuries produced by certain chemical substances of a caustic nature receive also the name of burns, in ordinary language, although an elevated temperature is not required for this result. The ordinary division of burns, according to their gravity, is that made by Dupuytren:—

1st degree. Superficial inflammation of the skin, without the formation of blisters.

2d. Vesication. The serum contained in the blisters is sometimes clear, at others opaque and of a yellowish white color, or again, sanguinolent. If the cuticle have been removed, the true skin is found granulated, of a viscid red, or secreting pus.

3d. Destruction of the external surface of the true skin. That portion which has lost its vitality is seen in the form of eschars, which are soft and yellow if made by a liquid, but hard and brown, or black, if

(*d*) Ed. Month. Jour. June and Sept. 1848. For other cases, see Watson on Homicide, p. 104, and Lond. Med. Gaz. XLIV. p. 813.

(*e*) Lancet, Oct. 1846.

made by a heated solid or burnt with flame. The skin surrounding them presents the character of burns of the first or second degree, being red and blistered. This form of burns leaves scars, which are on a level with the skin, or nearly so, and are white and shining.

4th. Disorganization of the whole thickness of the skin. These burns differ from the preceding only in the greater thickness of the sloughs. The scar which is left is characteristic, being sunk below the level of the skin, and irregular, radiated, and puckered.

5th. Not only the skin, but the sub-cutaneous cellular tissue, and a portion of the muscles underneath are destroyed. The injury is graver in its character than the last, although the external appearances are not strikingly different.

6th. Complete carbonization of the burned part.

§ 867. *Appearance of burns made upon the dead body.* *Orfila* says that *vesications* manifestly denote that the burn was made during life. According to Devergie, if boiling water or a red-hot iron be applied to the skin of a person, ten minutes after death, neither *redness* nor vesications will be produced, and that it is not possible to mistake a burn made after death for one which was made before it. Dr. *Christison* made six experiments, with a view of satisfying himself as to the distinction. He says that it is evident from these that the application of heat, even a few minutes after death, causes no effects which can be mistaken for those induced by the vital reaction. In one case, in which a young man lay in a hopeless state of coma from poisoning with laudanum, a hot iron was held on the outside of the hip-joint, and half an hour after death, a red-hot poker was applied to three places on the inside of the arm. It is stated that vesications were formed in both instances, those made during life contained serum, and those formed after death *air*. Dr. *Taylor* says that he has performed many experiments on the bodies of infants, eighteen and twenty hours after death, both with boiling water and heated solids; but that, in no case, has he observed any kind of vesication to follow at that period. The skin became shriveled, and was partly destroyed by the heat, but there were no blisters produced. Dr. Casper made four experiments with the same result. It is stated, however, by MM. Leuret and Champouillon, and also by Dr. Wright, of Birmingham, that serous blisters may be produced after death in anasarcous subjects. In M. Leuret's experiment, the blister contained an abundance of reddish colored serum. In those of the other two observers, the serum was not tinged with blood. In one of Casper's experiments, however, a flame was held close to the dropsical scrotum of a dead body; the skin nearest the flame shriveled up and acquired a shining silver-grey surface, but no blister was raised. We think, however, it may be fairly objected to this and the preceding experiments of Casper, alluded to, that the degree of heat employed was much beyond that necessary to produce vesication. In two of the other three experiments, cotton wadding soaked in turpentine was placed in contact with the skin and lighted. In one case it was allowed to burn *four* minutes, in the other *three and a half*. In the third experiment, the flame of an oil lamp was held *three* minutes in contact with the back of the foot. In each case the skin was superficially roasted. The result might,

perhaps, have been different had a less intense heat been employed. Casper also alludes to a fact of some importance in this connection. He says that it is a common practice to drop burning sealing-wax upon the pit of the stomach immediately after death, with the hope of reviving the defunct, but that in the large number of bodies he has seen, in which this unintentional experiment has been performed, not one has presented a trace of vesication in consequence. It may therefore, we think, be fairly inferred that, with perhaps the exception of anasarcous bodies, the presence of vesications upon the skin may be looked upon as a sure indication of the burn having been made during life, or immediately after, while the body is still possessed of a certain degree of organic vitality. Their absence, however, will be no evidence that the burns were not made upon the living person, since it is very possible that only the more serious results of burning may be found. There is, however, another sign of burning during life which cannot be simulated upon the dead body, viz: the congested and inflamed state of the skin around the blister or the burn, which is indicated by a red line which gradually merges into the color of the surrounding skin. This red border remains after death, and experiments made by Drs. Christison and Taylor prove that it cannot be produced by the application of heat to the dead body. The same may be said also of the red and granulated appearance of the true skin under the blisters.

§ 868. The only experiments which appear to throw doubt upon the correctness of these conclusions are those of Drs. Maschka(*f*) and Gräff.(*g*) The first of these gentlemen found, in his experiments upon the dead body, that when the flame was brought in contact with the skin, blisters were formed of various sizes from that of a pea to that of an apple, within the space of *one* minute. These burst with a noise and discharged serum. No redness, however, was observed under or around these vesications, until the denuded surface had been some time in contact with the air. The application of boiling water produced the same result. When the heat was maintained, the further changes could not be distinguished from such as would have been caused upon a living person. Dr. Gräff, whose object in his experiments was to acertain the length of time required to consume a head to a degree similar to the condition in which this portion of the body of the murdered Countess of Görlitz was found, laid the emaciated body of a person aged about fifty years upon a table in such a manner that the head hung over one end of it. A vessel containing alcohol was placed between five and six inches below it, and the spirit set on fire. The integuments of the head were consumed in about half an hour, and at the distance of from ten to fifteen inches from the burning parts, white vesications were formed, some of which had a moist and red base, and a pale red area around them. Accident recently furnished Dr. Taylor with evidence of the same nature. "A man was accidentally drowned; his body was immediately taken from the water and soon afterwards placed in a warm bath"—within ten minutes after apparent death.—"The water was so hot that portions of the cuticle came off when his

(*f*) Canstatt's Jahresbericht, für 1852. Bd. VII. p. 46.
(*g*) Prager. Vierteljahrschrift. 1850, 4 Band. p. 123.

body was removed, for it was found impossible to resuscitate him. On an inspection of the body, over a considerable portion of the skin, especially of the extremities, there were several vesicles, *filled with bloody serum*. There was no anasarca here to account for their production; and the fact of their occurrence, appears to bear out the view of Dr. Wright that the production of a serous blister on the dead body, depends upon the amount of organic life remaining in the body. The man was pulseless and to all appearance dead when placed in the hot bath; hence the effects of hot liquids on the living and the recently dead body are proved by this case to be very similar.(*h*)

§ 869. These experiments are directly in conflict with those before enumerated, and although the weight of authority and of facts is opposed to the possibility of the production of vesications after death, which can be mistaken for those which result from the application of heat during life; yet as these experiments seem to prove the contrary, the question still remains open, except perhaps when the comparison lies between the effects of burns upon the living body and upon one in which life has been extinct for a considerable length of time. In such a case we do not think it would be difficult to show important means of distinction depending upon the absence of vital reaction.

§ 870. *Wounds upon the burned.* From the frequency with which a criminal, after having robbed a dwelling and murdered one or more of the inmates, sets fire to it with a view of destroying the traces of his crime, it is often the province of the physician to seek for *wounds* upon the dead bodies there discovered, and determine their mode of origin. There are certain mechanical effects produced by fire upon the skin which should not be mistaken for wounds. Thus, in a case given by Casper of an old man whose clothes caught fire as he was seated before his stove, the body was burned black, and on the right side, over the liver, was a gaping wound, through which the viscera could be seen. It was nothing more than a fissure caused by the intense heat.(*i*) In another case, however, in which two old people were found burned in their house, the fact of their having been previously stunned if not killed by blows upon the head, was ascertained by the existence of fractures of the skull, under which coagulated blood was found effused upon the *dura mater*. The criminal was not discovered for a long time, but the circumstances of the murder were betrayed by an associate. A singular circumstance was observed in this case, viz: that although the bodies were both almost destroyed by fire, the element had spared that portion of the head by which the murder was revealed.(*j*) Dr. Wyman, in his evidence in the Webster case, stated that "some of the fragments of the bones of the skull (of Dr. Parkman) had the appearance of having been broken previous to calcination, or being burned with fire. Calcination," he remarked, "removes the animal matter which gives to bone its tenacity; before this is removed it breaks with sharp angles and is more likely to splinter. Common surgical experience shows this. After calcination the bone is more likely to crumble."(*k*)

(*h*) Med. Jur. 5th ed. 1855.
(*i*) Gericht. Leichenöff. II. Hundert. Fall. 99.
(*j*) Henke's Zeitschrift. 1844, p. 284.
(*k*) Bemis' Report of the Webster case. Boston, 1850.

In a highly interesting case of assassination related by Casper, the presence of contused wounds and extravasated blood upon the forehead and face of an aged woman, and vesications from burning, upon some portions of the body, gave indubitable evidence of violence and burning during life. Here the criminal confessed that he had struck his victim in the face with his fist and a paving stone, by which she was rendered senseless; but with a strange refinement would not acknowledge that he had designedly set fire to the apartment in which the half consumed body was found.(*l*)

§ 871. A conflagration having taken place in Paris, which caused the death of numerous persons, M. Tardieu, to whom the examination of the human remains was officially entrusted, took the opportunity of minutely observing and recording the effects produced upon the human frame by fatal burning. The soft parts on the bodies examined were in various conditions; completely charred to cinder, partly carbonized, reduced to fibrinous shreds. The bones were dried and brittle, and in the long bones, fractures with obliquely splintered and charred ends were observed, differing distinctly from the character of ordinary fractures. In the flat bones, which were thinned by the heat, the fractures caused by the heat assumed the form of fissures *confined to one surface, and not penetrating the substance of the bone.* The intervertebral discs were contracted in their diameters. Teeth and cartilage seemed to resist the action of fire more than other hard parts. The soft parts exhibited great diminution of volume; this was more especially observed upon the viscera, which had been more or less protected from the immediate action of the fire. Some of these were mummified. The blood in the heart, aorta and other large vessels presented an extraordinary appearance, resembling wax or fatty matter, of a most beautiful carmine color. The cerebral substance was contracted to half its bulk, and in consistence resembled a half-dressed sweetbread. To the details of the preceding, M. Tardieu has added the appearances discovered on the body of an infant that had been lain several years behind a stove, and had become completely mummified. The effects of slow, long-continued heat were much the same as the above described, with the absence of the destructive agency of fire seen in the carbonization of the external soft parts.(*m*)

§ 872. *Effects on the system.*—Burns and scalds are well known to be excessively dangerous, especially in children. The greater the extent in surface of the burn, the more apt is it to prove fatal with rapidity, especially when upon the chest or abdomen. When the burn is extensive, or the subject impressionable, the general irritation produced by the excessive pain, is sufficient alone to cause death. This generally ensues upon a kind of stupor, characterized by inertness, somnolence, paleness of the face, slow and stertorous respiration, and small pulse.

§ 873. *Post-mortem appearances.*—These are often by no means well marked; the most constant being a capillary injection of the mucous membrane of the bronchia and alimentary canal and serous effusion into the ventricles of the brain. In a child 13 days old, which was scalded

(*l*) Gericht. Leichenöff. sup. 1 tes. Hundert, Fall. 96
(*m*) Brit. and For. Med. Rev. from Ann. d'Hyg. April, 1854.

to death by being placed in a bath of boiling water, the official examination disclosed the fact that the mouth, throat, and œsophagus almost as far as the stomach, were denuded of their epithelium, which lay upon the surface as a white and greasy substance. The only appearances that could be considered at all abnormal, were a slight injection of the meningeal vessels, rosy and apparently inflamed patches in the small intestine, and an unusual amount of thick dark blood in the lungs and liver.(*n*)

Nearly the same appearances were found in two children who perished in a room which was set on fire. In them, however, the trachea was filled with a dark, frothy mucus, in which particles of soot could be easily recognized. It is probable, therefore, that the immediate cause of their death was suffocation.(*o*)

CHAPTER VIII.

SPONTANEOUS COMBUSTION.

§ 874. In approaching the examination of the question, whether such a phenomenon as the spontaneous combustion of the human body, is really possible, we encounter the usual obstacle to discovery of truth, viz., a doubt of the authenticity of the facts upon which the belief reposes. From a very early period in the history of medical curiosities, instances of apparently spontaneous human combustion may be found on record; but the credulous superstition and love of the marvellous, which, at the period when some of these observations were made, science rather encouraged than restrained, weaken our reliance upon their authenticity. Not having adopted a theory with a desire to find those facts only which might be adjusted to it, but desirous of discovering the real extent of our knowledge relative to the phenomenon of what is called spontaneous combustion, we have examined the subject not without some care and earnestness. The result of this investigation has shown us that if there is not such a phenomenon as the actual spontaneous combustion of the human body, there is sufficient evidence to prove, that in some cases it may acquire a præternatural inflammability and that this peculiarity can be recognized by the trifling source of combustion compared with the rapidity and extent of its progress. We do not hesitate also to affirm that a belief in the actual occurrence of the phenomena referred to may be entertained, without a satisfactory scientific explanation.

§ 875. We propose to refer only to such cases of spontaneous combustion as have been reported at a comparatively recent date, and by men of standing and authority. The first which we quote is reported by M. Devergie.(*p*) A washerwoman named Marie Jeanne Antoinette Bally, fifty years of age, and of intoxicated habits, returned to her lodging one evening in December in a state of drunkenness. Her room

(*n*) Schmidtmüller. Henke's Zeitsch. 1848. p. 175.
(*o*) Casper, ger. Leich. 2 Hund. 97 and 99 Fälle.
(*p*) Ann d'Hyg. T. XLVI. pp. 383–431.

was not more than 10 feet long by 6 to 7 feet wide, and was lighted by two little windows from a corridor. The only furniture consisted of a chair, a chest in the corner, and *muslin window curtains*. There was no bed. The next morning at eight o'clock, the neighbors perceiving a strong smell of smoke, entered her room, and there found the unfortunate woman upon the floor almost completely burned, with her feet turned toward the chimney place, in which, however, there was no fire. Under one of her arms there was still a portion of the chair upon which she had been seated, and underneath her an earthen pot such as is used by the poor people to hold a few coals to warm their feet. The chair was very nearly entirely burned, the floor was covered with a black soot, and an exposed beam in the wall of the room was charred upon the surface. The chest was, however, untouched, as were *also the muslin curtains*, which were only three feet distant from the body. The body was sent to the Morgue, and examined by direction of the judicial authorities. The body was lean, the face and hair, the anterior portion of the neck and upper part of the shoulders were not injured. The skin and muscles of the back were, however, thoroughly burnt, as were also the sides and anterior portion of the trunk. The anus and vulva escaped. Nothing was left of the upper extremities but the bones; there was, however, a portion of the chemise in each arm-pit still intact. The upper portion of the lower limbs was also burnt. *The stockings were entire.*

The following is abridged from a case reported by Dr John Grigor:

The body of John Anderson, a man aged 50, and of spare habit, a carter of wood from the forest of Darnaway to the pier of Nairn, was found dead by the road side, and so much blackened and charred by the action of fire, that it was identified only from the fact of his horses and cart being known. A post-mortem examination was imperfectly made, the result of which was, that the eyes, ears, and nose were burned away, as well as the hair and skin of the head; the skin and cellular tissue of the trunk were much charred, the thighs not to the same extent, and the burning had ceased about midway between the knees and feet, where there was a reddish and slightly blistered line. The back was not so much destroyed. This man was a notorious dram-drinker, consuming daily at least a bottleful of ardent spirits, besides porter, beer, &c. He left Nairn on the day of his death, intoxicated, and parted company with a brother carter within half a mile of the place where his body was found. "Before this, however, he wished his pipe to be lit and handed to him; but his friend thinking he had no need of a smoke, merely put a little fire on the old tobacco ash; when he drew, and immediately said, 'She is not in.' The conversation went on for ten minutes, when the poor man turned his horses' heads homewards. All this time the pipe was in his hand. His dress was a woollen shirt, a canvas frock, corduroy trousers, and 'a wide-awake.' The weather was very warm and dry. When a little further on his way homewards, smoke was seen rising up from the cart in which the man was and which contained a good deal of hay, by a herd boy on a neighboring rising ground about one-fourth of a mile distant. The man was next seen to descend from the cart, to stand, then to stagger and fall. The horses stood still. In a few minutes, smoke again appeared from the

ground, when the boy ran down and found the body lifeless, black, disfigured, and burning." With the aid of another person water was procured and the fire extinguished. The clothes were all consumed, except the lower part of the legs of the trowsers, and a small portion of the shirt, frock, and hat. The pipe was found lying below the body, *with the cap on*, apparently as it had been put into his hands. *None of the hay was burned.*(q)

The following case was communicated to Dr. Beck by Wm. Dunlap, Esq., of New York: "Hannah Bradshaw, aged about 30 years, had lived about a dozen years in the city. She was a healthy, hearty-looking woman, remarkably industrious and neat in her person and manner of living, but bore a bad character with respect to chastity and sobriety. On account of her robust appearance and bold behaviour she had obtained the name of *Man of War Nance*. She resided in an upper room, which had no connection with the rooms below, occupied by a family. On the evening of the 31st of Dec., (1771,) she desired a young woman who worked for her, and was going home, to come again early the next morning; and about seven o'clock the same evening, another acquaintance parted from her, at which time she seemed to have drank a little too freely. She was neither heard nor seen of again, until the next morning, when the young woman returned to her work; after knocking and calling, and having waited until past eleven o'clock, this person, by the aid of a man who lived below, got in through a back window and opened the door. On looking within a screen, which went quite across the room, and was fitted to reach the ceiling, she discovered the mutilated remains of Hannah. The body, or rather the bones, were lying near the middle of the floor, wherein a hole of about four feet in diameter was burned away, and the bones were on its bottom, about a foot beneath that part of the floor. The flesh was entirely burnt off the bones of the whole body, except a small part on the skull, a little on one of the shoulders, the lower part of the right leg and foot, which was burnt off at the small almost as even as if cut off and left lying on the floor. The stocking was burnt off as far as the leg and no farther. The bones, some of which were black and others white, were so thoroughly burnt, as to crumble to dust between the fingers. The bowels remained unconsumed. One of the sleepers which lay under the shoulders, was burnt almost through; part of the head lay on the planks at the edge of the hole, and near it was a candlestick, with part of a candle in it, thrown down, but it did not appear to have touched any part of the body or to have set any thing on fire. The tallow was melted off the wick, which remained unscorched by the fire, as also the screen which almost touched the hole. The leg of a rush-bottomed chair, and about half the bottom were burnt, so far as they were within the compass of the hole in the floor and no further. The ceiling of the room, which was white-washed plaster, was as black as if covered with lampblack, as also part of the walls and windows; and the heat had been so great as to extract the turpentine from the boards and the wainscot. After all these operations, the fire went entirely out, so that when the body was found not a spark remained."(r)

(q) Ed. Monthly Jour. of Med. Sci. Dec. 1852. p. 555.
(r) Beck's Med. Jur. Vol. II. p. 99.

A well known and privileged beggar, of 60 years of age, and quite corpulent, accustomed to hard drinking, came on a Christmas evening into a tavern, already intoxicated. There, for a wager, he drank four bottles of brandy, and being entirely overcome by it, was carefully deposited on the floor behind the German stove, but some distance from the latter, with his head resting on his sack containing bread, in order that he might sleep away his debauch. The remaining guests soon retired. Early in the morning, the landlord was awakened by a penetrating, insupportable smell; he arose and approaching the public room found the smell still more powerful. The room was cold, and the fire had long before died out. The unfortunate beggar was found nearly reduced to ashes, a portion of the face and occiput remained, and the legs below the knee were not burnt, the shoes and stockings being also untouched. His pouch of bread was not consumed but was covered with a fœtid soot. The whole room was filled with the same, and no cleansing afterwards availed to destroy the odour.

An old lady of corpulent habit, and 70 years of age, was accustomed to have herself bathed with cologne water and alcohol, and every night before retiring took a so-called sleeping potion of spirituous liquor. Early one morning, as in the preceding case, the neighbors and servants were awakened by a fearful smell, proceeding from the old lady's room. On entering it, her body completely carbonized, was found upon the floor by the bed; only the hands and feet remained. The floor was not burnt nor the furniture, but every thing was covered with a fœtid, black, and fatty soot.(*s*)

A case of *partial* self-combustion is reported, in which it would appear that the burns produced upon the face were made by the vomited contents of the stomach. The man was an incorrigible drunkard, and was left by his companions upon the floor of his room, stupid from drink. It is positively stated, that there was no light in the room nor means for procuring it.(*t*)

Other cases might be cited of equal authenticity with the foregoing, but these, we think, depict with sufficient clearness the phenomena attending this peculiar mode of combustion.

§ 876. In striking contrast with them is the process of *ordinary combustion*, by the prolonged application of fire to the human body. The phenomena attending it are familiar to every one, and have been already described in the foregoing chapter. The effects are purely local, being confined in extent to that portion of the body exposed to the heat, and they cease with the withdrawal or extinction of the burning material, finding no self-sustaining combustible principle in the body itself. The cause is always evident, and the extent of injury is in proportion to the amount of the fire.

§ 877. If again this have been designedly kept up, the quantity of fuel required for such a destruction of the body as is related in the foregoing instances, is enormous. The history of the death-scene of those who have perished at the stake, and the widow-burning in India, sufficiently attest this fact. We might add here the evidence given in the

(*s*) Beiträge zur gericht. Medicin, (with two original observations,) by Dr. Schneider, of Fulda. Henke's Zeitsch. E. H. 32.

(*t*) Schmidtmüller, Henke's Zeitsch. 1842. p. 225.

Webster case upon this point. Dr. Strong said, "In the pursuit of my anatomical studies, I have had considerable experience in burning up or getting rid of human remains by fire. Where I had my office, at an early day, in Cornhill, I had poor accommodations for dissecting, and it was frequently necessary to burn up the remains of a subject. Once in particular, I had a pirate given me by the United States' Marshal, for dissection; and it being warm weather, I wanted to get rid of the flesh, and only preserve the bones. He was a muscular stout man, and I began upon it one night, with a wood fire, in a large old-fashioned fire-place. I built a rousing fire and sat up all night, piling on the wood and the flesh, and had not got it consumed by morning. I was afraid of a visit from the police; and by eleven o'clock they gave me a call, to know what made such a smell in the street. I finished it up, somehow, that forenoon; but I look upon it as no small operation to burn up a body."(*u*)

Recently the case of Stauff, tried for the murder of the Countess of Goerlitz, gave rise to a discussion of the question of spontaneous combustion, in the course of which certain experiments were conducted by Dr. Gräff, for the purpose of ascertaining the amount of fuel necessary to effect an equal destruction with that observed in that case. The result of these trials was, that as much as one hundred pounds of wood was required to produce even a partial combustion of a human body. In the case of the Countess of Goerlitz, whose body was found in her apartment partly consumed by fire, the heat must have been intense. The secretary near which the body lay, was half burned; several chairs further removed from it than was the body, took fire, and the floor underneath it was burned. A mirror on the opposite side of the room, nearly twenty feet distant, was cracked by the heat, and was still so hot when the room was broken open that the hand could not be borne upon it. The heat developed by the burning of the secretary was so great, that articles of gold and silver, and also of iron, had been melted by it. Yet with such a degree of heat as this, and the body only two feet distant from the burning secretary, the traces of fire did not extend below the breast; the head, neck and upper extremities being the parts which were chiefly destroyed.(*v*)

(*u*) Bemis' Report of the Webster case, p. 69.

(*v*) The following abstract of the trial of John Stauff, for the murder of the Countess of Goerlitz, we have condensed from an admirable report in the Prague Quarterly Journal of Practical Medicine, (vol. 28, p. 108,) from several accounts in Henke's Zeitschrift, and from a translation of Dr. Gräff's Memoir, in the London Medical Gazette, (1850. Vol. II.)

On the 13th of June, 1847, the partially burned body of the Countess of Goerlitz was found at 11½ o'clock at night in her chamber. She was known as a person of active, industrious, and somewhat parsimonious habits, and enjoyed good health. She was frequently known to retire to her own apartments and shut herself up there for half a day at a time. She lived on good terms with the Count, but their apartments were on different floors. On the day of her death she was last seen by her servants at 4 o'clock in the afternoon, in good health. Between 4 and 5 o'clock there was no one in the house but herself and the valet Stauff. On his return in the evening, the Count knocked at the door of the ante-room, but received no answer, when he went out again. This was about 7 o'clock; at 9 P. M. he returned. During his second absence a bright light, which speedily disappeared, had been noticed at the closet window of her apartment, which looked to the south, and also a thick smoke from a chimney, which corresponded with the stove in the parlor. (These rooms adjoined each other.) At 9 P. M. the servants who had returned, were sent in search of their mistress by the Count, and Stauff

§ 878. Such cases as these are entirely unlike those well authenticated cases of combustion, where the body has been found destroyed in a greater or less degree by the action of fire, without any apparent external cause, or, at most, with one which has been entirely disproportioned to the effect produced. Could the phenomena in the two sets

himself was sent after the locksmith to open the door of her apartment. He returned and said that the locksmith was sick and could not come until morning. In the meantime smoke was seen issuing from the rooms, and finally doors and windows were broken open. On this being done flames burst out simultaneously from the hangings, and a writing-desk and the floor underneath it. The dead body of the Countess was found a foot distant from the writing-desk, with the feet towards the middle of the room, and the head towards the window.

After the fire had been extinguished, which was done without much difficulty, it was found that the writing-desk had burned from below upwards, the lower drawer being entirely burned, the two upper ones not so much, and the floor under it was burned through to the joists. Its contents of a combustible character were mostly destroyed, and in the ashes underneath were found keys, melted gold ornaments, pearls and diamonds, much injured by the fire, and papers partly burned lay scattered about the room. A mirror on the opposite wall, fifteen feet distant from the desk, was cracked and covered with a brownish yellow ammoniacal soot. The bell-rope on the left side of the door was broken. A divan in the adjoining closet or cabinet was burned in a large oval hole in the centre, and one of the slippers of the Countess was found on the floor near it. The remaining slipper was found on one of the feet of the corpse.

The dress on the upper part of the body was almost wholly consumed. The head exhibited the form of a nearly shapeless black mass, in which the mouth was imperfectly distinguishable, with the charred tongue protruding from it. The body lay on its left side, the head and chest retracted, the neck everywhere blackened and charred, as were the skin and muscles on the fore and upper parts of the chest, the former thus being affected to within an inch of the pit of the stomach. The marks of the action of fire did not extend quite so far along the back part of the trunk. The joints of both upper extremities were flexed and their surfaces charred, except at the hands. The left shoulder and the right elbow-joints were laid open. From the former of these the blackened humerus, and from the latter the heads of the radius and ulna, protruded. The skin in the vicinity of the left knee was slightly acted on. The body exhaled an empyreumatic odour. The further examination of it was objected to and was not carried out at that time. After carefully cleansing the head, a fissure about half an inch long was found in the temporal bone.

The key of the apartment could nowhere be found. It was not, until the subsequent proceedings, remarked that Stauff was not present at the above examination of the body, while every one else gave all the assistance in their power. He was observed to be in an exceedingly tremulous and frightened condition until the body was buried, and his subsequent conduct was very suspicious. He was not, however, taken into custody until some months afterwards, when he was detected in an attempt to poison the Count.

The proceedings in this case unfortunately were complicated, by the suggestion that this lady had possibly met her death by spontaneous combustion. Naturally enough the facts of the case did not support this idea, and in consequence unmerited discredit, we think, was thrown by the eminent examiners, Liebig, Bischoff, and others, upon the possibility of this phenomenon under any circumstances. Nevertheless this suggestion gave rise to protracted debates and experiments by burning dead bodies, which do not appear to have resulted in the development of any important facts not before known. The conclusion, however, to which the medical commission to whom the case was referred, came at last, was, that the Countess had been assaulted in her room, that in her effort to call for help she had broken the bell-cord, and that the murderer had then dragged her into the cabinet, and there killed her by a blow upon the head, and by strangulation; and to conceal his crime set fire to the combustible materials in the room. At the diet of the assize, on the 11th of April, 1850, John Stauff was found guilty of the murder of the Countess of Goerlitz, and of the subsequent arson, and attempt to poison, and sentenced to imprisonment for life. He afterwards confessed his crime. He declared that he had entered the room of the Countess, to announce to her that he was going out, when, finding no one in the room, he was tempted by the articles of value he saw there to commit a robbery. When doing so the Countess came in, a struggle took place, and he seized her by the throat and strangled her. He afterwards placed the body on a chair, and putting round it a quantity of combustible articles set fire to them.

of cases be properly designated by the same name, it is difficult to conceive how in one, the ashes of a pipe, a few smouldering coals, or the flame of a lamp, could cause a greater destruction of the human body, with an immunity of surrounding objects from the action of fire, than in the other the hottest fire was not able to produce. Evidently there must be in one case some self-sustaining principle of combustion, a præter-natural inflammability of the body, which does not exist in the other. When this has been said, we believe that all has been said which the present state of our knowledge permits.

§ 879. Some authors have fallen into the error of attempting to explain by chemical theories the phenomena of spontaneous combustion, but they have hereby given their opponents the opportunity, not only of easily refuting these speculations, but furnished them with a plausible pretext for denying the correctness of the facts. M.M. Liebig and Bischoff have, perhaps disproved the accuracy of the doctrines which attribute the origin of spontaneous combustion to a saturation of the body with alcohol, unusual corpulence and the development of inflammable gases. They allege that as the watery element of the body constitutes seventy-five per cent. of its bulk it must first be dissipated before the latter can burn, that alcohol can not be present in the tissues without coagulating their albumen, and that it may burn without communicating its flame to the flesh, and, finally, that the evolution of inflammable gases in the living body is either not a fact, or if it were so, could not explain the alleged process of spontaneous combustion.(*w*)

Yet, admitting that the phenomena of spontaneous combustion, so called, are incongruous with the laws of combustion so far as they are known, it does not follow that we should, with these chemists, reject as unworthy of belief the many curious and authentic facts on record. These may be true, although incorrectly accounted for. Indeed, there are many examples of the spontaneous combustion of organic and inorganic matter, which chemistry is yet unable satisfactorily to explain. But the number of cases now known, amounting to between forty and fifty, (some of them, perhaps, indeed fictitious,) the uniformity in the description of the event, and of the age and habits of the persons attacked, require us to regard them as scientific facts yet unexplained. The following characters are those generally described:—

1st. The extent and gravity of the burns is altogether out of proportion to the apparent external cause.

2d. The persons have been inordinately addicted to the use of spirituous liquors.

3d. Women are more frequently attacked than men.

4th. The great majority were aged and corpulent.

5th. The combustion of the body has been nearly total, while the adjacent objects have been only slightly or not at all injured.

6th. The flame has been difficult to extinguish.

The deposit of a fat and fœtid soot upon surrounding objects cannot be considered as peculiar to this form of animal combustion.

(*w*) Henke's Zeitschrift. Bd. 60, p. 162. Ann. d'Hygiène. T. XVI. p. 383. See also an "Essay on the use of Alcoholic Liquors," by John Chadwick, M. D., London, 1849, where proof is given of the presence of alcohol in the brain of drunkards after death.

CHAPTER IX.

HEAT. SUN-STROKE. LIGHTNING.

§ 880. The frequency with which, in this country, fatal results are observed from exposure to heat or the direct rays of the sun, renders necessary some notice of the prominent symptoms and post-mortem appearances characterizing sudden illness or death from these causes. The report of the City Inspector of the city of New York, alone, shows two hundred and sixty deaths from *coup de soleil* during the summer of 1853, without including many cases designated as "congestion of the brain," and the "effects of cold water." In the city of Philadelphia, during the months of June, July and August, of the same year, the number of deaths reported under this head amounted to fifty-seven; a number which is also certainly much below the true mortality.

Rapid or sudden insensibility after exposure to the intense heat of the sun in summer usually occurs in those who are engaged in some laborious out-door occupation, but the same condition may result after exposure to artificial as well as solar heat. Dr. Swift, of New York, in his "Observations on Exhaustion from the effects of Heat,"(*x*) states that eleven patients were admitted into his hospital from the laundry of one of the principal hotels in that city, and that several were brought from a sugar refinery, where, after working several hours in a close and over-heated apartment, they fell down suddenly in a state of insensibility. Upon a comparison of the symptoms and lesions of these with those of the patients who had become exhausted after laboring in the sun, no distinction could be perceived.

§ 881. The immediate cause of the symptoms or of the death of those who are said to be "struck" by the sun is not always the same. In the majority of cases the affection is one depending upon exhaustion from heat with, most probably, some molecular change in the blood, the character of which is not now understood, but which is ascribable to intense heat and prostration from fatigue. In other cases, however, which are comparatively few, inflammation of the brain or its membranes is the result of exposure to the sun's heat, and, occasionally, apoplexy is produced. The symptoms vary therefore, but a neglected case of the first variety may pass into the second. For interesting details relative to the mode of distinction between exhaustion from heat and *insolation*, we would refer the reader to the paper already quoted, and to a discussion on the subject in the Philadelphia College of Physicians.(*y*)

§ 882. *Post-mortem appearances.*—In four cases (those of exhaustion) examined by Dr. Pepper, "the brain exhibited no indications of congestion, and nothing, in fact, of an unusual appearance." Dr. P. was, however, struck with the appearance of the heart. In all of the four

(*x*) N. Y. Jour. of Med. July, 1854.

(*y*) Transactions Coll. Phys. Vol. III. pp. 99, *et seq.*; also, Trans. of Med. Soc. of Pennsylvania, Vol. IV. p. 112.

subjects it was pallid, flaccid, and softened, while the other muscles of the body were florid and firm. The lining membrane of the heart and of the large blood-vessels was of a very dark, almost purple color. The cavities of the heart contained but little blood, and no coagulum. The examinations were made from six to eight hours after death.

The following may serve as an example of death from the direct cerebral disturbance:—"Two women were washing clothes in the sun. One fell down in a state of insensibility, and remained so for twenty-four hours, but finally recovered under free depletion. On recovering, she described her sensation, when attacked, as though she had been suddenly struck upon the head. In the other case, the attack was precisely similar. The patient died in twelve hours. Upon examination after death, blood was found effused beneath the membranes of the brain.

Lightning.

§ 883. Cases of sudden death from this cause are quite common; and there can rarely, if ever, be any doubt of the agency by which the person is killed. This is usually sufficiently attested by the circumstances. The person may be found dead either in an open place or in a building. The fact of a thunderstorm having occurred will, of course, be generally known, and the traces left by the electric fluid upon the body and surrounding objects can hardly be misunderstood.(*z*) The clothes are torn and burnt; metallic articles upon the person, if in the track of the fluid, are fused; and there will be found upon some part of the person, usually about the head or shoulders, a reddened spot, a lacerated puncture, or a discoloured streak, indicating the point at which the electric fluid has entered the body. The amount of visible

(*z*) It is not impossible that the stroke of lightning should have been neither preceded nor followed by rain and wind, as is usual in thunder-storms. On Sunday, the 2d of July, 1843, about 3 o'clock, P. M., five negroes were simultaneously prostrated by a single stroke of lightning, on a plantation in Georgia. "The sun was shining brilliantly at the time, and a greater portion of the visible hemisphere presented the usual serenity of the summer sky. A singular, and rather angry-looking, cloud had, for a short time previously, been observed near the verge of the south-eastern horizon, from which occasionally proceeded the low rumblings of very distant thunder. But nothing in the appearance of the heavens betokened the immediate proximity of a thunder-storm, or prepared them for the terrible electrical explosion which followed. Not a drop of rain had yet fallen, and the earth was quite dry. Such was the condition of things, when suddenly the whole atmosphere in the neighborhood was momentarily illuminated by what appeared to be an universal flash, which was accompanied or rather succeeded by a single astounding report. No dust was observed to rise from the ground, nor any other evidence of mechanical violence. No thunder was heard after this explosion; the cloud quickly dispersed, precipitating only a little rain a few minutes after the accident; and in the course of an hour the atmosphere resumed its usual tranquillity. The five negroes were taken up in a state of insensibility amounting to apparent death." Three of them had been instantaneously killed. In two no marks of injury were discovered; in the third there was a burnt spot of the size of a dollar, under the right axilla. The other two recovered. One of these was a woman aged 70 years, and the singular fact is stated that in her the catamenial discharge, which had, in the ordinary course of nature, ceased for more than 20 years, was completely, and thus far, (about a year afterwards,) permanently re-established. For this and many curious cases and ingenious speculations, we beg leave to refer the reader to *Le Conte on the Effects of Lightning.* New York Jour. of Med. Vol. III. p. 295. Also, Hist. Med. de la Foudre et de ses Effets Sur l'homme, &c. par M. Boudin. Ann. d' Hygiène, 1852.

injury is generally trifling, and it is said that occasionally no marks whatever are perceived. In the latter case, the person is probably killed by the agency of the *returning stroke* or electric shock, his body being the conductor by which the positive electricity of the earth is transmitted to a cloud which has come in near proximity to it. The absence of any external mark of injury may indeed leave us in doubt of the mode by which death has been produced, but it at the same time equally negatives the suspicion of homicidal violence. In such cases death can therefore be attributed only to natural causes, or to those poisons which act rapidly. A post-mortem examination can hardly fail to show to which of these it is due, and if required a chemical analysis may be made of the contents of the stomach. These suggestions are however of but little practical importance, since attendant circumstances will, as we have already intimated, enable us to dispense with any examination of the body.

§ 884. *Post-mortem appearances.*—In the examination of the bodies of two women, one 32 years of age and the other 17, who were struck instantly dead by a flash of lightning as they were seated spinning near the fire-place, the following observations of the *external* appearances were made by Dr. Martin twenty hours after death. In both bodies putrefaction had begun, the abdomen was already distended and of a bluish color, and dissolved blood flowed from the mouth and nose. On one of them the whole surface of the neck and breast was covered with reddish-brown spots, under which, however, the arborescent tracks of the electric fire could be traced, until uniting into three larger branches, they ended in the left lumbar region, in an oblong burn, of a dark-red color, six inches long and three broad, and penetrating into the substance of the true skin, under which, however, there was no lesion discoverable. The skin was here and there, in the course of the marks, of a parchment-like consistence. On the other body, which was that of the young girl, the electric fluid appeared to have entered over the left temple, as here a tolerably deep scorched spot was to be seen; the eyebrows and lashes on this side were burnt. The skin was striped and spotted, exactly as in the preceding case. The neckkerchiefs worn by both these females were torn to rags, but did not exhibit the slightest trace of combustion, nor was any other part of their clothing, or of the furniture of the house, burnt in the least degree.(*a*) Sometimes, however, there is considerable external injury, the skin being contused and lacerated, but it does not appear that there is ever any direct burning of the skin, unless the clothes have been set on fire by the electric current. The idea that the blood remains fluid in persons struck by lightning, and that putrefaction occurs at a very early period, is not sustained by the observation of all authors upon the subject, but it is probable that such is the general rule in the human subject.

(*a*) Henke's Zeitschrift, 1844, p. 193.

CHAPTER X.

COLD. STARVATION.

§ 885. Where the body of a person is found who is supposed to have perished from exposure to cold, the chief inquiries which require attention are, whether the cold was the sole cause of death, and if not, what were the additional causes, or whether the disease or injury, if any, was not in itself suddenly fatal; the cold having had nothing to do with the result.

The effect of intense cold upon the human body is too familiar to need illustration. After prolonged exposure to its influence, the whole body becomes benumbed, the respiration oppressed, and the head heavy. Perception and sensation are obtunded, the mind wanders, an invincible lethargy steals over the senses, the limbs become paralyzed, and the unfortunate person, overcome with drowsiness and exhaustion, sinks down into apparent death. Unless speedy relief is afforded, this condition soon merges into real death. According to Larrey, death is preceded by a general pallor, stupor, difficulty of speech, dimness of sight, and sometimes a total loss of these functions. In the retreat from Moscow, some men, he says, led by their comrades, were able to march for a considerable time in this condition. But their limbs soon refused to support them, they reeled like drunken men, and fell benumbed and lethargic, and soon expired. Almost all the men who perished in this manner were found lying with their faces to the ground.

§ 886. The *post mortem* examinations which have been made of persons dying from cold, have shown that the most constant appearance, is an extreme congestion of the venous system in the principal organs of the body, but especially in the brain. Serous effusion into the ventricles, or under the arachnoid, is also met with. Dr. Kellie observed it in two cases, and Professor Blosfeld mentions it in three of six cases of death by cold.(*b*)

Such are the only positive results of *post-mortem* investigations. Unless the examiner knew the circumstances in which the body was found, which favored the supposition of death from cold, he could not possibly assert from these signs, that death had resulted from this cause. Practically, therefore, they are of little importance except in those cases in which, from the absence of other injuries, and of serious disease, and from a knowledge of the circumstances under which the body was found, the cause of death is already rendered probable. Adults, who perish in this manner, are generally either intoxicated or else helpless and infirm. The intemperate, the aged, or those whose nervous energy is exhausted by long watching, fatigue, hunger, or depressing emotions, succumb to this form of death much more speedily than the temperate and vigorous. Children, and above all, infants, can sustain only a

(*b*) Beck's Med. Jour. Vol. II. 68; Henke's Zeitschrift. 1845, p. 245. One hundred legal autopsies made in the Institute for instruction in Forensic Medicine in the Russian University at Kasan.

moderate degree of cold. Hence intoxication, old age, and privation, as well as actual disease, must be enumerated as predisposing causes of death from cold.

§ 887. If marks of violence be found upon the body, they must be judged according to the rules already laid down in the chapter on wounds. If necessarily mortal, the influence of cold need not be considered, but in all other cases, it is obvious that cold must have greatly accelerated the fatal result. The same remarks are applicable when the subject is very young. It must be remembered, however, that cold itself may here be more readily employed as a homicidal agent, and that possibly the other marks of ill-treatment may be few or none. An atrocious case of murder by cold has been frequently quoted, on account of the rarity of examples of the kind. A man and his wife, at Lyons, were tried for the murder of their daughter, a girl aged eleven, under the following circumstances. On the 28th of December, at a time when there was a severe degree of cold, the female prisoner compelled the deceased to get out of her bed, and place herself in a vessel of ice-cold water. The deceased complained of exhaustion and dimness of sight; the prisoner then threw a pail of iced-water upon her head, soon after which the child expired.(*c*)

Starvation.

§ 888. A person may starve himself to death; he may perish from the want of food, being unable to procure, to swallow, or to digest it, or he may be deprived of it by force. Medical evidence can only attempt to establish the fact of death by starvation, and can, in many cases, indicate the physical cause of it, but cannot, of course, determine whether the act was voluntary or homicidal. In the case of young children, however, homicidal intentions may be inferred, while in adults, on the contrary, starvation is mostly a suicidal act. The *mode* of starvation is not always the same. Sometimes the privation of suitable nourishment is gradual, and death ensues only after a considerable period; at others, while no solid food is swallowed, life is prolonged by the use of a little water, and in others, again, after a variable period of total abstinence from food or drink, the imperative demands of nature are gratified, perhaps too freely and too late to save life.

§ 889. The *period* at which *death* ensues after starvation, is therefore dependent not only upon the age and constitutional powers of the individual, but also upon the foregoing varieties in the manner in which it is effected. It cannot be determined with precision. Wonderful examples of prolonged abstinence may be found in abundance in the older works, and are not wanting in our own day. But the numerous instances in which trickery has been detected, should make us wholly incredulous of their genuineness. Instances of abstinence for months, and even years, are gravely related; but it is probable that there is no well-authenticated case of entire abstinence from food and drink for more than thirty days, while on the other hand it is highly probable, that in the majority of cases, death takes place within a week or ten

(*c*) Ann. d'Hyg. 1831, p. 207.

days. Dr. Gadermann reports a case, however, in which for twenty-three days all liquid or solid nourishment was refused, the person being bent upon self-destruction. At the end of this time he ate and drank greedily, which did not however avail him; he died shortly afterwards. The body was almost a skeleton. In this case the author says, there could not be the slightest suspicion of deception.(*d*) Professor M'Naughten has published a case where a man lived fifty-four days on water alone.(*e*) In another case, of a prisoner at Toulouse, who resorted to starvation to avoid punishment, life was prolonged to the fifty-eighth day. He drank water occasionally. Valentin refers to the case of a woman who lived seventy-eight days on water and lemon-juice.(*f*) In another case a man lived sixty days on a little water and syrup of orgeat.(*g*) A man aged 65 years was accidentally shut up in a coal mine. He remained there *twenty-three* days before he was discovered, almost completely exhausted. He had been able to procure a small quantity of dirty water during the first ten days of his confinement. Notwithstanding every effort was made to recover him, he died three days after he was found.(*h*)

Two very interesting cases of prolonged abstinence in persons afflicted with slight mental derangement, or melancholy, are related by Dr. Taylor of Ohio. In one, after two periods of fasting, of ten and fourteen days respectively, during the last of which he took neither food nor water, this gentleman, on the fifteenth day, took a little water, and at intervals afterwards a small quantity of milk in it. He died about one hundred days afterwards, having lived in "an almost constant state of abstinence." In the other, a little water was taken on the twelfth day after complete abstinence from food and drink, and a gill every twenty-four hours afterwards for thirty-nine successive days, when he died. For the last seventy-two days prior to his death, he had no fecal evacuation, but passed urine in small quantities every three or four days.(*i*)

§ 890. *Symptoms.*—"Dr. Donovan gives the following description of those who suffered from the Irish famine in 1847. They described the pain of hunger as at first very acute, but said, that after twenty-four hours had been passed without food, the pain subsided, and was succeeded by a feeling of weakness and sinking, experienced principally in the epigastric region, accompanied with insatiable thirst, a strong desire for cold water, and a distressing feeling of coldness over the whole body. In a short time, the face and limbs became frightfully emaciated, the eyes acquired a most peculiar stare, the skin exhaled a peculiar and offensive fœtor, and was covered with a brownish, filthy-looking coating, almost as indelible as varnish. The sufferer tottered in walking, like a drunken man; his voice became weak, like that of a person in cholera; he whined like a child, and burst into tears on the slightest occasion. In respect to the mental faculties, their prostration kept pace with the general wreck of bodily power; in many there was

(*d*) Henke's Zeitschrift, 1848. 3 H.
(*e*) Am. Jour. Med. Sc. VI. 543.
(*f*) Lehrb. der Physiol. Vol. I. p. 218.
(*g*) Archiv. gen. XXVII. p. 180.
(*h*) Lond. Med. Gaz. XVII. 389.
(*i*) Am. Jour. Med. Sci. Jan. 1851. In the same place will be found some references to remarkable cases of abstinence by the editor, Dr. Hays.

a state of imbecility; in some, almost complete idiotism; but in no instance was there delirium or mania, which is often described as a consequence of protracted abstinence among shipwrecked mariners."(*j*)

§ 891. *Post mortem appearances.*—In a child, six months old, which was starved to death by its mother, the following conditions were observed. Excessive emaciation; the body weighed only six pounds and a half, and the thickest part of the thigh measured only an inch and a quarter in diameter. There was no fat anywhere to be found, not even in the omentum, and only a small amount of blood in the body. There was no food in the stomach or intestines. A trifling quantity of old and hardened fæces remained in the rectum. Extreme contraction of the stomach and all the intestines existed.(*k*) Wildberg examined the body of a man 50 years of age, who died of hunger, seven days after being buried in the ruins of a falling house; he was known to have been healthy before the accident. The body was extremely emaciated, being reduced almost to a skeleton; the eyes stood open, and were highly injected, the mouth and tongue exceedingly dry; and the abdomen so flat, that the anterior wall lay almost in contact with the spine. Although the body was still fresh, it exhaled a peculiar penetrating fœtor, different from that of putrefaction. The lungs were shriveled and of a yellowish white color, the heart small and flaccid, and a small quantity of loosely coagulated and highly offensive blood was found in it and in the great vessels. In the abdomen there was not a trace of adipose tissue remaining; the stomach was very much shrunken, and contained a little dark and viscid liquid. The mucous surface was corroded in several places. The intestines were pale and contracted, and entirely empty, with the exception of a little greenish fluid in the small intestine, and in the large a very small quantity of dry excrement.

The liver was pale, the gall-bladder very much distended, with thick, dark-brown bile, which, exuding through its coats, had tinged all the neighbouring viscera. All the other abdominal organs were small, flaccid, and contained but little blood; in the bladder, the internal coat of which had an inflamed appearance, there was found a little dark and fœtid urine. The brain and its membranes were extremely anæmic, and the former firm and dry. In addition to this description, it may be stated that Dr. Donovan found, in some cases inspected by him, during the Irish famine, a peculiarly thin condition of the small intestines, "which, in such cases, were so transparent, that if the deceased had taken any food immediately before death, the contents would be seen through the coats of the bowel; on one occasion (at an inquest) he was able to recognize a portion of raw green cabbage in the duodenum of a man who had died of inanition." The above description, from Wildberg, coincides very closely with the statements of other observers, and may probably be assumed as correct when there is no other cause of death present. It is further substantiated by the observation

(*j*) Taylor, Med. Jur. from Donovan, Dub. Med. Press, Feb. 1848.
(*k*) Rothamel, Henke's Zeitsch. 1845. 3 H.

of Casper, in a case where, from occlusion of the mouth by disease, death took place from hunger.(*l*)

§ 892. In estimating the value of the post-mortem appearances, as evidence of death from starvation, it should be remembered, that unless there is absence of disease sufficient to have induced the emaciation and anæmic condition described, death cannot be attributed to starvation as its cause. There are many diseases which would produce a similar condition of the body—some by mechanical obstruction to the ingestion or chylification of the food, and others by their baleful effect upon the system generally. Hence, the medical witness should be extremely cautious in attributing, upon the grounds of a post mortem inspection alone, the death of the individual to starvation, especially if the person have been the subject of any chronic disease.

CHAPTER XI.

SUFFOCATION.

§ 893. Although the general definition of this word may not improperly include all those modes of death in which the respiration is mechanically prevented, yet, as hanging, strangulation and drowning require a separate consideration, it remains for us here to speak only of those modes of suffocation not elsewhere discussed. These are exceedingly numerous, and comprise all those cases in which by any means air is excluded from the larynx, or the chest prevented from expanding to receive it.

§ 894. *Post mortem appearances.* Lividity and turgescence of the face, fluidity of the blood, and sanguineous engorgement of the thoracic and abdominal viscera are the general and most constant features. There is sometimes also an effusion of blood under the conjunctiva, bloody froth issuing from the mouth and nose, and the tongue is often found protruded. Cases of undoubted suffocation have occurred in which some of the most striking of these signs have not been found, as, for instance, the lividity and turgid condition of the face, and the protruded tongue. This fact may sometimes be explained by the nature of the suffocating cause, but at others it cannot be satisfactorily accounted for. It will be observed, also that the above signs are those merely of asphyxia in general. In hanging, strangulation and drowning, there are one or more signs characteristic of the agent by which life is extinguished, the presence of which together with the general signs of this kind of death is almost if not quite conclusive. But in other modes of suffocation, if any trace of the instrumentality by which death was produced is found, it will be most probably due, in homicidal cases, to haste on the part of the assassin, and yet cannot afford any addition to the medical evidence. Thus, if a person have been smothered with the bed-clothes, or suffocated by a hand held before the mouth, or by compression of the chest, a distinct and satisfac-

(*l*) Casper, Gericht. Leichenöff 2tes. Hundert. Fall 99.

tory indication of the fact will seldom be had. For this reason the medical examiner will often be at a loss whether to ascribe the death to natural or to violent causes. The case may be one of apoplexy, of faucial disease, or of pulmonary congestion, or may be due to a variety of accidental causes, not apparent without a careful inspection of the body. This must, therefore, in all cases where it is important to remove doubt, be conducted in the most careful and searching manner. The absence of any characteristic mark to indicate the mode of death gives a latitude to conjecture, and to the proposition of general questions, which, in case of trial, will seriously embarrass the physician. If no accidental cause, such as a foreign body in the larynx, nor any evidence of fatal disease by the production of asphyxia be discovered, the physician should still be guarded in his opinion, and leave the explanation of the manner of the death to those whose duty it is to investigate the collateral evidence. This is of greater weight than the medical testimony, for while the physician has merely to declare the probability of the person having died suddenly by suffocation, the collateral evidence must establish the instrumentality by which the act was done. In cases where marks of other violence are found upon the body, or the hands and feet are tied, these facts will, of course, require an interpretation from the medical witness.

§ 895. *Accidental suffocation.*—The modes in which accidental suffocation occurs are very numerous. In those cases in which persons are buried alive under banks of earth, covered up in the ruins of falling houses, or in any way confined in a narrow space in which the air becomes unfit for the sustenance of life, they perish by suffocation. They bear, however, only upon the question of survivance.

Those, however, in which a foreign body becoming impacted in the air passages causes death by suffocation, are more important, because often the cause of death is not at all suspected. This accident happens usually from over haste in eating, but an instance has been lately reported in which it occurred probably during the act of vomiting. The case was an unusual one, from the fact that the man who fell a victim to the accident, was entirely alone at the time of his death. Hence, a suspicion of violence might have been entertained, had not the evident cause of death, the vomited food, been found in the larynx.(*m*) Children are peculiarly liable to accidents of this kind arising from the introduction of peas, marbles, &c., into their mouths. In the great majority of these cases, however, as well as in those of sudden death from diseases which leave the aspect of suffocation upon the body, the cause of death will be known, and no examination required. Cases also sometimes occur in which persons, helpless from age, infirmity, or intoxication, are found with their face buried in dust, snow, and other such substances. The cause of death is here self-evident, since the slightest effort would have enabled the person to escape. Still another

(*m*) Henke's Zeitsch. 1853, 4 H. A similar case may be found in the Ed. Med. and Surg. Jour. April, 1844, p. 390. In a case related in the Lancet (March, 1850, p. 313), a person having died suddenly after eating, previous to which he had been engaged in a scuffle, the man with whom he had been fighting was arrested on a charge of manslaughter. A post-mortem examination disclosed the cause of death to be a piece of meat wedged in the throat. The prisoner was therefore discharged.

form of accidental suffocation, may be mentioned as occurring to young children, in being overlaid by persons with whom they sleep.(*n*)

§ 896. *Suicidal suffocation.*—The possibility of suffocation being a voluntary act, is undoubted; but this mode of suicide must be extremely uncommon. The only manner in which, without the aid of others, it has been accomplished, is either by retroversion of the tongue (a power which few possess,) or by a mechanical obstruction of the mouth and fauces, with various articles. In the latter case, the presumption will, of course, be in favor of homicide.

One of the most remarkable cases of suicidal suffocation occurred lately in Germany. It is related by Dr. Roth, and the following is an abridgment, in the Lond. Med. Gazette, from the original, in Henke's Zeitschrift:—

The deceased was well formed, about the middle height, and about 25 years of age. She had been seen to retire to her sleeping-room, at nine o'clock one evening, in her usual state of health and spirits. The apartment was only separated by a partition from the one in which her master and mistress slept, and was over a room occupied by others of the household. At half-past five o'clock on the following morning, the master knocked against the partition to awaken H., but receiving no answer, supposed she had risen and gone out to her work. On getting up, however, he found all the doors and windows of the house closed, when he went into the servants' room, but did not find her there. On the bed was an axe of a peculiar shape, employed in that part of the country for clipping off branches from the trees, and which used to hang behind the door. The blade of the axe rested against the back of the bed, and the handle on the bed. Beside it lay the best bonnet, which she used to keep in her chest. The bed appeared to have been slept on. After searching the well, lest she had drowned herself, H.'s father was sent for, from a neighboring village. On his arrival, he suggested that the chest should be opened to learn in what trim his daughter had left the place. Finding the chest locked, and the key missing, a blacksmith was got to force it open, when the body of the servant was discovered in the chest, lying in a prone position, on the left side, with its knees drawn up, the upper extremities flexed, and the missing key grasped in the woman's right hand. The chest was about four and a half feet in length, and of proportionate depth. It locked itself on the fall of the lid, and could not have been opened from the inside. The corpse was nearly dressed, and the vest (camisole) was put on with its inner side out. On the following day, the body; which had been removed and laid on a bed, was viewed by the reporter. The cuticle was abraded and reddish-brown at seven or eight points, about the centre and upper part of the forehead. The largest of these abrasions corresponded with the thick part of the axe, and underneath them, the integuments were slightly swollen and bluish. The face and upper part of the chest were mottled with cadaveric lividities, the ears were blue, the eyelids closed, the conjunctivæ injected, and the pupils dilated. There was bloody froth about the lips and nostrils, partly dry, partly

(*n*) The Prussian penal code provides punishment by imprisonment for mothers and nurses who take children under two years of age to bed with them.—Casper.

fresh, and giving this part of the face a blood-stained appearance. Bloody froth was issuing at the time from the right nostril. The mouth readily opened, showing the tongue in its natural position. The key was still grasped in the right hand. With the exception of the abrasions on the forehead, no traces of injury were detected on the body. The clothes were entire.

From the foregoing circumstances, the reporter was of opinion that the deceased had employed the axe which hung in her room, to kill herself, in the way she had seen others slaughter oxen, and that, failing in the attempt, and, perhaps, ashamed of the injuries on her forehead, she had then shut herself up in her chest, and perished by smothering. This conclusion satisfied the law authorities so completely, that they decided that there was no necessity for making a *post-mortem* inspection.

§ 897. *Homicidal Suffocation.* Those who are usually the victims of this form of murder, are infants and the aged, or those who are otherwise helpless. So slight a degree of resistance is necessary to defeat the purpose of the assassin, that a great disproportion of strength must exist for the attempt to be successful. Yet, nevertheless, those miserable wretches, Burke and his accomplices, reduced murder by suffocation to a system, choosing it as the mode of death most likely to leave no marks of crime behind it. The murderer bore with his whole weight upon the breast of his victim, and with his hands covered forcibly the mouth and nostrils till death came on. The body of one of the victims presented, according to Dr. Christison, so few traces of injury, that without the assistance of proof from other sources, it would have been impossible to have declared that the death was not a natural one. In a recent case related by Dr. Casper, the body of a rich old lady, who lived in one of the most frequented streets of Berlin, was found one morning, in her bed, her head buried among the pillows, and heaped over with bed-clothes. Her hands were tied fast behind her back, and her legs bound together by a band, including also her under clothing. The room being warm, the body was rapidly decomposing, the head was blackish green, and the epidermis was loose. At the same time the eyes were prominent and injected, and the tongue swollen and protruding. Some marks were found upon the neck, which, being hard and distinct in color from the surrounding skin, were thought to indicate an attempt at strangulation. Every thing was in the greatest disorder in the chamber, the drawers and cabinets being rifled of their contents. The opinion of the examiners was that death resulted from asphyxia, produced both by strangulation and suffocation.(*o*)

(*o*) The following is an extremely interesting case in this connection; it is reported by Dr. Charles A. Lee, in the N. Y. Journal of Medicine, July, 1844.

"A case of trial for murder, by *suffocation*, lately came before the Court of Oyer and Terminer of the city of New York, Judge William Kent presiding; in which William Leitga, the prisoner, was accused of thus destroying his wife, and afterwards setting fire to her bed, by which the body was considerably burned before the fire was discovered and arrested. It appeared in evidence that they had lived very unhappily together, both being addicted to habits of intemperance, and had been quarrelling at one or two o'clock in the morning on which the fire took place, (it being discovered about six o'clock,) the deceased was found lying on a cot, a little on her right side, with a large pillow over her feet, but not covering the whole head: the arms bent up and lying across the breast under the pillow, which was partly burnt—her limbs were burnt to the knees,

§ 898. Still another circumstance under which death may be accomplished by suffocation, will be found in some cases of rape. An instructive example of this kind will be found in a recent German case.

and also her right arm, the rest of the body not much burnt—the countenance was distorted, the eyes open, and the tongue protruded from the mouth nearly an inch. The cot on which she lay was about four feet from the stove; there was no appearance of fire between the cot and the stove; but everything showed that the fire had commenced at the foot of the cot and worked up: an empty lamp lay on the floor about three feet from the foot of the cot—bed clothes were lying about the room, and everything indicating that there had been a violent quarrel. As the testimony of Dr. Rogers contains the principal facts in the case, we present it in detail.

Dr. James L. Rogers testified, that "he saw the body about 8 o'clock on the morning of October 29th, 1843; the body was slightly inclined to the right; the arms were up, inclining to the breast, but not on it; the lower part of the right arm and hand were burnt to a crisp; the hair was burnt off the top of her head; the left cheek was burnt on a place about as large as half a dollar; the transparent part of the left eye was scorched; the body was burnt across the stomach down; below the knee the flesh was burnt almost entirely off—above the knees to the abdomen, it had the appearance of a ham being smoked; there was no burn on any other portion of the body except the left ear; the mouth was not burnt; the tongue protruded; the countenance perfectly calm; no mark was perceptible about the neck or any other place, except a small flesh wound in the right side of the eye. On dissection, the brain was found perfectly natural—stomach also healthy, containing about two spoonfuls of liquid matter; the bowels were perfectly healthy, as were the kidneys, except that they all appeared somewhat congested; the lungs and heart were healthy, but the vessels of the lungs were deluged with dark venous blood, as was the right side of the heart; the left side of the heart was nearly free of blood." The District Attorney asked, what was his opinion of the cause of death. Witness—"In the absence of all natural causes, of which there were none, I should say she died from stoppage or prevention of air from the lungs; it may be called *suffocation:* the same appearances would be produced, either by the breath being stopped by something placed over the nose and mouth, or by drowning. I observed no appearance of intoxication; I think I never examined a body where there was a more healthy appearance than that presented. Where there is a dense smoke of carbonic acid gas from the burning of charcoal, the same appearances of the lungs and heart would exist in some measure, but not so fully, as the air in such cases continues partially to have effect. The fact that one eye was burnt, the placid state of the countenance, (this was denied by other witnesses who first saw the body, and can hardly be presumed from the protruding of the tongue, &c.) and the position in which she lay, led to the conclusion that she must have died before the fire. The probability is, that if the person had been alive when the fire reached her, she would have shut her eyes, and one of them would not have been burnt. There was no blister in the eye as there would have been, had it been burned during life. There was also no red line on the body to where the fire came, which is also a very certain sign of burning before death."

Cross-examined.—"In the case of a person who dies of suffocation there is a congestion of the brain; the eye balls are distended, and there is at all times" (in drunkards dying thus) "a smell of alcohol in the stomach and brain."

Mr. Brady asked the witness, if a person got intoxicated and in a position to prevent respiration, whether the same appearances would not be presented, as in the present case?

Witness.—"It would depend upon this position. If the head was down and respiration stopped there might be a paralysis; it is very difficult for persons to suffocate themselves. If paralysis did occur from intoxication, the brain would show it; but there was no appearance of the kind in the present case at all. There was hardly the usual quantity of water in the brain."

Brady.—"Could not this woman have got so beastly drunk, that she might have got in a position to suffocate?"

Witness.—"Such might have been the case, but it would show itself in the brain."

Brady.—"Would you say, that she did not go to bed drunk that night?"

Witness.—"In the absence of all appearance or symptom to that effect, we were induced to believe that there was nothing to justify a supposition of the kind. If a person died of intoxication, the brain would show it, and in persons habituated to intoxication, there would be a morbid appearance about the stomach and lungs—a bloated countenance and other marks which would distinguish it. Suffocation and apoplexy present different appearances after death; in the first case the lungs cease their functions for want of air, yet the blood passes to the brain and returns, as there is nothing in the

In it, the subsequent confession of the criminal, confirmed the accuracy of the opinion given by the medical officer, which was, that after a struggle the woman had been overpowered and forcibly compelled to

neck to prevent it; but in apoplexy or strangulation, as in the case of a cord round the neck, the blood stops and the brain exhibits the effect. In suffocation, the breath may be stopped in a minute or half a minute, so that a person would cease to struggle, and in ten minutes be dead. There was an indentation of a key on the left breast of the deceased, which might have been made by a heavy arm pressing on it."

Dr. Putnam testified to nearly the same effect. He said, "that none of the viscera exhibited any marks of intemperance; that if death had been so caused, the brain, stomach and countenance would show it; the brain particularly would be congested. In death by strangulation, there would probably be proof of violence perceptible about the neck, and the tongue would ordinarily protrude; it generally produces apoplexy. Suffocation may be produced by stopping the respiratory organs, or by inhaling gases. To distinguish which of these causes, one must know the attending circumstances. A person dying of suffocation by inhaling carbonic acid gas, would exhibit some change of countenance. I saw nothing in the body externally or internally, that could account for death. Taking everything into consideration, I conclude the death to have happened from suffocation. A pillow laid over the nose and mouth, produces such death in two or three minutes, without external marks. I believe the fire to have been communicated to the body after death."

Cross-examined.—"My opinions have been formed from reading: never attended but four post-mortem examinations: never of one who died from suffocation from any cause. Congestion of the brain would certainly be found after death from intoxication: so would also inflammation of the stomach. Post-mortem examination was made at 11 o'clock, A. M. Stomach appeared as if she had not eaten for six or eight hours; had she gone to bed drunk at one or two o'clock the night before, should expect to find evidence of the fact. I should not expect to find a morbid state of the stomach in the case of a person who drank *moderately*, that is habitually, but not to intoxication; never read of a case of strangulation without marks of external force: whether the tongue protrudes or not, depends upon the peculiar way in which the exterior force is applied. Suffocation may happen accidentally, by getting into a position in which it is impossible to breathe; this is the case often with infants: it is not impossible that this might occur in the case of an adult, in a case as helpless as a child, but the probability is against such an occurrence. In the case of a person in a room where there was smoke, or gas, or corrupt air of any kind, a drunken person's death might be much expedited. In cases of death by noxious gases, the tongue is usually more or less protruded, and there is more or less frothy appearance about the mouth. In ordinary suffocation, not by gases, &c., it is rare that the tongue protrudes; in cases of violent suffocation it is not common; difficult to say, on a post-mortem examination, whether the person died from violent or accidental suffocation."

Physicians, as usual, were called on *behalf* of the prisoner, and some conflicting if not opposing opinions were advanced.

Dr. Archer, (Coroner.)—"Thought that the burns had been inflicted after death; saw the stomach, thought it did not look entirely healthy, as there was a turgid appearance of the vessels, showing that it had been a good deal stimulated. There was no pink margin around the burns; never found an exception of death from burning that there was an absence of the pink margin; did not consider it a sign of suffocation that the tongue protruded; thought the eye was burnt after death. In death from carbonic acid the countenance is generally placid, and it is not common for the tongue to be protruded; the brain and lungs are more or less congested; if there are no external marks, no person can say positively whether the persons died from natural causes or from violence. If a person dies after a debauch, I should expect to find evidence of it in the brain or stomach. It is impossible to say how long after a person has been drinking, its traces would be lost from the system; when the effect is gone, however, the liquor is gone."

Dr. Ramson testified that "he had attended post-mortem examinations in cases of death from suffocation, and lately, where two persons were suffocated by charcoal; their countenances were swollen, and the eyes somewhat protruded: there was a distortion of features (one more than the other, as the patient lay on his face;) in cases of suffocation, the brain is generally congested and the blood blacker in the different vessels than in ordinary cases, and the lungs more or less congested; countenance more or less distorted; in such cases should judge more from the blood in the arterial system, than from the brain; there is no particular condition of the heart, except there is black blood."

The testimony of Dr. Middleton Goldsmith was to the same effect.

In summing up the case, Mr. Warner, the counsel for the accused, among other re-

submit to the desires of her ravisher; who at the same time held his hand over her face to prevent her crying for help. In doing so, however, he had, according to his own story, unintentionally suffocated her. The body of the deceased in this case, presented the signs of asphyxia in a marked degree, the face being purple and turgid, the eyes injected, the lips and tongue swollen and livid, and the fingers convulsively clenched. The lungs were perfectly black with blood, and so distended that upon incision, the blood escaped in profusion; the vena cava and right side of the heart were also gorged with dark, but *coagulated* blood. The cerebral veins and sinuses were not remarkably full. If the crime had in this instance been unconnected with rape, it is probable that some marks of violence would have been found, but the weight of the man's body, no doubt, as well as other causes, contributed to the ease with which the suffocation was accomplished.

A curious case of suffocation, unintentionally produced, is given in a late number of the Lancet. A lad, eighteen years of age, was, by way of joke, forced head downwards into a sack containing about a bushel of bran, by two of his fellow-laborers on the farm. According to the testimony of one of the parties, who were at the same time the perpetrators, and the only witnesses of the outrage, the mouth of the sack was tied with rope-yarn round the legs of the lad. This was almost immediately cut, and the boy released from the sack. He was reported to be black in the face and frothing at the mouth, but became sufficiently sensible to drink a small quantity of water. He breathed, however, with great difficulty, remained insensible, and lived only twenty minutes after being extricated from the sack. Upon post-mortem examination, it was found that sixteen hours after death the thorax and abdomen retained a considerable degree of warmth. At the bifurcation of the trachea a large quantity of bran was found; the left bronchus was entirely filled with it, and the right nearly so, and their sub-divisions, as far as they could be traced into the substance of the lungs were full of the same material.(*p*)

In infants, murder by suffocation is undoubtedly very common, it being very rapidly produced, and leaving no characteristic traces behind it. Death, thus criminally produced, has often been attributed to convulsions.

marks, said, that the medical testimony did not agree, and that it was filled with doubts and uncertainty. "The positiveness," he observed, "with which medical men give their testimony, is to be ascribed to the care they have of their own reputation in their profession, and to the fear they have of seeming ignorant of their profession. These witnesses disagree as to the indications of intemperance presented by the stomach of the deceased. Dr. Archer alone said any. The fact will appear abundantly that she was very intemperate," &c. *Mr. Brady* quoted from Beck's "Medical Jurisprudence," where it is stated that most physicians are not competent to make post-mortem examinations, and hence argued that those who made the dissection in the present case, were probably incompetent! *Judge Kent*, in his charge, came to the conclusion, after a full recapitulation of the testimony, that, first, *nothing positively certain was shown as to the cause of death: and second, nothing positively excluded the idea that it was occasioned by suffocation—the probability being in favor of the latter.* The judge also instructed the jury that unless they found the death was occasioned by *smothering*, no matter in what way effected, they could not find the prisoner guilty; although they might come to the conclusion that the deceased perished from burning, or in some other manner, not stated in the indictment, and by the hands of the prisoner. *Verdict—Not Guilty.*

(*p*) Another case in many respects similar to this one is reported by Raymond and Devergie. Ann. d'Hyg. July, 1852.

CHAPTER XII.

STRANGULATION.

§ 899. The *cause of death* in simple strangulation is, as in that which is complicated with suspension, an interruption of the access of air to the lungs, and secondarily congestion of the brain from the impediment to the return of the blood to the heart through the jugular veins. The first of these causes, is in hanging, the efficient and principal one, but in strangulation, owing to the more complete constriction of the neck, especially where a cord is used, the cause last mentioned certainly greatly accelerates the fatal result. The aspect of a person who has been strangled resembles therefore more closely that which was formerly described as characteristic of hanging, viz., a livid and swollen condition of the face, staring eyes with dilated pupils, and protruded tongue. The internal post mortem appearances are those of death by asphyxia. The lungs and right cavities of the heart are filled with dark fluid blood, the abdominal organs and especially the liver and kidneys are congested, as are also the mesenteric veins, and finally the vessels of the head are usually engorged. In young children much reliance is placed by Dr. Casper upon a sign observed by him, viz., petechial ecchymoses upon the pulmonary pleura, the heart and aorta. Actual extravasation of blood upon the brain is, however, of very rare occurrence, if, indeed, it ever appears as a direct result of the strangulation. This fact is of considerable importance in many cases, since in death by apoplexy, the turgor and discoloration of the countenance may occasionally lead to a suspicion of homicidal strangulation, especially if any questionable traces of constriction be discovered upon the neck.

§ 900. *Marks of violence upon the neck.* These are far more evident and important than in hanging, because in homicidal strangulation more force usually is employed than is necessary to accomplish the object of the murderer. If the strangulation have been effected with the hand, the marks of the fingers will be found upon the front of the neck; if by a cord or other ligature, the mark will be nearly horizontal, more or less distinct, and generally ecchymosed. Sub-cutaneous extravasation is not always found. In a case of suicidal strangulation examined by Dr. Casper, in which the ligature consisted of a packthread wound thrice around the neck and tied fast over the larynx, the impressions left were but slightly depressed, only one line broad, white, and here and there tinged with blue.(*q*) The subjacent parts will present traces of injury, corresponding to the violence which has been used.

§ 901. *Was the strangulation effected before or after death?* This question is one of but inferior practical importance. The object of any one in applying a ligature around the neck after death, would be,

(*q*) Gericht. Leich. 2tes Hund. 1854. Fall. 59.

of course, to convey the idea that the person had committed suicide. As, however, this mode of self-destruction is extremely uncommon and usually attended with circumstances which betray it, the presumption in the case of a person found strangled, is that the deed was committed by another. Hence the probability of suicide, which obtains in hanging, from the frequency with which this mode of self-destruction is chosen, is, in cases of strangulation not to be entertained, unless moral and circumstantial evidence support it. Moreover, the cases in which it may be possible to admit the suspicion of suicide, are not those in which any doubt can be entertained, because, if the cord have been placed upon the neck merely for the purpose of concealing the fact of murder, the means by which life really has been taken will not fail to be revealed. Thus, marks of fatal violence will be found upon some part of the body, or traces of poison in the stomach. Yet, if any doubt should still remain of the truth of these considerations, it only remains that the signs of death by strangulation cannot be closely imitated after death. We have seen above, that when death has resulted from this cause, not only will the marks of the fingers or of the constricting band be found of various depths and of different degrees of discoloration, but also that the aspect of the countenance taken in connection therewith as well as the internal signs of death by asphyxia will indicate the mode of death. Although the experiments made upon dead bodies by Dr. Casper show that if the attempt to imitate the mark of strangulation were made six hours after death, it would be unsuccessful, yet, as the attempt would most probably be made *immediately* after death, and even before life was quite extinct, it is evident that any satisfactory conclusion can be drawn only from an examination of the mark, *in connection* with the other signs of asphyxia. These cannot be produced after death, and we may, therefore, be certain where we find a mark indicating strangulation, and, at the same time, the face purple and congested, the tongue protruded, the eyes prominent and the other indications of death by apnœa, that the individual has been strangled during life. This will lead us to the question,

§ 902. *Was the strangulation accidental, homicidal or suicidal?* A few cases of accidental strangulation are upon record. Dr. Taylor relates that a girl was accidentally strangled in the following way:— "She was employed in carrying fish in a basket at her back, supported by a leathern strap passing round the fore part of her neck, above her shoulders in front. She was found dead, sitting on a stone wall; the basket had slipped off, probably while she was resting, and had thus raised the strap, which firmly compressed the trachea. A similar case is recorded by Watson (Homicide.)" Should the body not have been removed from the position it occupied at the time of death, or the evidence of veracious and disinterested witnesses relative to this fact can be obtained, there will seldom be any hesitation in according belief to the possibility of the accident.

The allegation may, however, be made for the purpose of concealing crime. A person who, in a state of helplessness from intoxication or other cause, has fallen into a position in which his throat becomes compressed by a tight cravat may possibly thus die accidentally of strangulation. But if marks of constriction be found upon the neck it

is much more probable that they were caused by criminal violence than that they were due to accident. As in courts of law, undue stress, medically speaking, may be laid upon the possibility of strangulation marks being accidentally produced, the medical witness will do well to compare closely the impressions upon the neck with the ligature supposed to have produced it, as in many cases an important and conclusive discrepancy will be found.

§ 903. *Suicidal strangulation.* Were there not a sufficient number of well attested cases of suicide by strangulation upon record, it might fairly be doubted whether it were possible for persons voluntarily to destroy themselves in this manner. But the annals of legal medicine abound with examples of the most determined tenacity of purpose, and the most singular choice of modes of death upon the part of suicides. Without dwelling upon this fact, it may be stated that in this mode of death, an infirmity of purpose is less likely than in many others to frustrate the intentions of the suicide. Unconsciousness steals in such an insidious but rapid manner over the senses that the will and power to escape are speedily lost.

The instrument used by those who thus destroy themselves, is generally chosen from those articles of dress which lie nearest at hand, as cravats, garters, and the like. The knot will most probably be found in front or a little to the side, and the mark left will convey the idea of less violence than will that made in homicidal cases, where no other injury has been inflicted.

A remarkable instance, showing the rapidity and ease with which self-strangulation may be effected, is the following: A gentleman was placed in a private insane asylum. His relatives desired the superintending physician to use every endeavor to prevent him from committing suicide as he had repeatedly attempted it. In consequence of this request, two attendants were placed near the gentleman. Fatigued with the long journey he had made, the patient desired permission to retire to bed; the two attendants remained at his bedside. A short time after, at his pressing solicitation, these men were directed to leave his bedside; but still remained in the room keeping a close watch upon him. In two hours afterwards the physician paid a visit to his patient. The attendants remarked that he had been and was still sleeping quietly and had not stirred. Upon approaching the bed, however, and proposing a question to the gentleman no answer was received, and to their horror and surprise he was found to be dead. He had torn a strip from the bottom of his shirt, rolled it into a cord and simply tied it around his neck.(*q*)

Mr. Pollock, in his evidence in the case of *Drory*, gave the following case: "Pizzala, an Italian about fifty years of age, employed as a porter, was found dead, in the forenoon of the 3d of January, 1851, in an attic of the house of his employer. He had been missing from his employment thirty hours. When found he was lying on his back, rather inclining to the left side, with a piece of ordinary sash-line coiled *four times* around his neck,—two of the coils so tight and imbedded therein, that there was some difficulty in undoing it. The right

(*q*) Ann. Méd-psycholog. Tome IV. p. 113.

hand held one end of the line, and the left hand the other, with a turn of line around each, to hold it the more securely. The right arm was extended, the left flexed. I made a *post-mortem* examination of the body, on the fourth day after it was found. Externally the face was swollen and purple; the vessels of the conjunctivæ were injected, the tongue protruded towards the left side, bloody froth issued from the mouth, and the lower jaw was slightly twisted to the left side. The skin of the neck was abraded in a nearly continuous line around it, about five-eighths of an inch in width, and presenting the appearance of being produced by two coils of the line. There was considerable ecchymosis above and below the line of abrasion. Each hand retained the impression of the line being coiled around it. *Internally* the vessels of the brain and its membranes were greatly congested. The evidence before the coroner left no doubt of this having been a suicidal act. This case proves that a person may strangle himself, and that he may accomplish strangulation by pulling the two ends of a cord coiled several times round the neck; and that some degree of local violence to the neck may thus be produced by the ligature used."(*r*)

§ 904. We should not expect to find the mark of fingers upon the neck in suicidal strangulation. It has, indeed, been supposed that a person might endeavor to strangle himself with his hand, and, failing in it, afterwards resort to other more effectual means. We have not, however, met with any case which would bear out this view, and must consider such an attempt as highly improbable. In case an intoxicated person should fall into such a position that his cravat or the collar of his shirt impedes his respiration, he may instinctively carry his hand to his throat to remove the constriction, but it is more reasonable to suppose that his effort would be to draw *aside* and *away* from the larynx the collar which was pressing upon it, or unfasten it in any way than that he should imprint his fingers so deeply into the skin as to leave a visible mark.

An interesting case of suicidal strangulation is related by Dr. Simeons,(*s*) in which a sabre was used to tighten the ligature. The latter consisted of a cotton handkerchief tied in a hard knot on the side of the neck. The sabre had been inserted into a loop in front and evidently twisted several times upon its axis, so that the neck became very firmly constricted. The constriction indeed was so great that the sabre could not be extricated from the loop, until it had been drawn out of the sheath, which was compressible. When the handkerchief was removed, it was found that a broad deep and ecchymosed impression had been left, which was still more marked and attended with excoriation in the point corresponding to the knot. The borders of the mark had a parchment-like appearance. The individual was a corporal, remarkably robust in constitution, and destroyed himself in consequence of having been put under arrest for neglect of duty. Collateral evidence rendered the fact of suicide unquestionable.

Mr. Thorpe, in his evidence in the case of *Drory* already referred to, mentioned the case of a man who effected self-destruction in the following manner: "He passed a noose of cord over his head and then inserted a stick, about fourteen inches long, between the cord and his

(*r*) Taylor, Brit. and For. Med. Chir. Rev. April, 1852.
(*s*) Henke's Zeitschrift. 1843. 1 H. p. 335.

neck. Having done so, he, with the assistanee of the stick, twisted the end sufficiently tight so as to cause almost immediate suffocation. Still it appeared that there was time for him to insert the lower end of the stick in the inner side of the waistcoat, and the upper end was accurately adapted to the internal jugular vein and and carotid artery." Other cases in which a stick was employed are on record. In this way General Pichegru died in prison, and was supposed to have been strangled by the orders of Napoleon. But the case was most probably one of suicide. The question of suicide will, however, seldom rest upon an estimate of the evidence from such circumstances as these alone, but rather upon the absence of marks of violence and other signs of homicidal interference.

§ 905. *Homicidal strangulation.* The characteristics of homicidal strangulation will be found in the great amount of violence, the marks of which will be seen either upon the neck or elsewhere. The marks upon the neck will be either simply broader, deeper and more ecchymosed than those which are met with in the rare cases of suicide, or will be attended with other local injury which could result only from the application of a rude and sudden force. A case is related by Casper(*t*) in which there was not only a brownish-yellow groove with reddened edges upon the neck, but also three ecchymosed spots, two at the angle of the jaw on the left side, and one on the right side of the jaw. These could only have resulted from outward compression, and they were supposed to indicate a grasp of the throat by the hand, the thumb leaving its impression on the one side and two of the fingers on the other. Without doubt, the murdered woman had been first seized by the throat, and then, after having been rendered senseless, was strangled by the ligature, the mark of which we have described. In a case communicated to Dr. Taylor by Dr. Campbell, of Lisburn, there was a mark on either side of the larynx, under which, also, in the substance of the muscles, coagulated blood was found. The thyroid cartilage, which was partly ossified, was fractured through the ossified portion. The case was clearly one of homicidal strangulation with the hand.

A very interesting case is related by Dr. Gräff,(*u*) in which a woman was murdered by strangulation, and the assassin had taken great pains to convey the impression that the act was one of suicide by hanging. The body was found lying close to a door, with a string passed twice around the neck and fastened in a slip knot behind. The impression made by it upon the neck was deep and, for the most part, of a dark brown color, particularly on the sides. It was perfectly *horizontal.* The free end of the string looked as if it had been broken. There was a peg in the door over the body, on which a towel was hanging, not in the least disarranged; the peg itself was slight and incapable of bearing the weight of the woman's body. Furthermore, there was no portion of the string attached to it. An over-turned chair lay near the body; and on a writing table in the room, a paper was found declaring the intention of suicide, and purporting to have been written

(*t*) Gericht. Leichenöffnungen, 1tes Hundert. 1853. Fall. 49.
(*u*) Henke's Zeitschrift. 1846. p. 145.

and signed by the deceased. It was clearly proved, however, that this document was not in her handwriting, nor correctly signed, and the fact of her having been murdered was abundantly shown by these attempts at deception, other marks of violence upon the body, and the subsequent discovery that robbery had been committed.

One of the most interesting cases of homicidal strangulation is that given by Dr. Taylor, in Guy's Hospital Reports for 1851. The prisoner was found guilty, and before his execution made a confession, in which he stated that he met the deceased by appointment, that they talked and walked about, after which, at her suggestion, they sat down on a bank. She had come to urge him to marry her. He passed a rope, which he had previously secreted, gently around her neck as they were sitting, and had got the end of it in a loop before she perceived it. She jumped up at once, and put up her hands to save her throat, but he pulled hard and she fell without a struggle. We have thought this case of sufficient interest to present a tolerably full abstract of it in the note, since it offers many incidental suggestions worthy of consideration.(*v*)

(*v*) "At the Chelmsford Lent Assizes for 1851, Thomas Drory was tried for the murder, by strangulation, of a female named Jael Denny. He was the son of a farmer of great respectability, and resided within a short distance of the cottage where the deceased lived. Both were about twenty years of age, and the girl who was pregnant by the prisoner, had reached the ninth month of her pregnancy. On the afternoon of Saturday, October 12th, 1850, the prisoner and deceased were seen conversing together for about twenty minutes, in the neighborhood of the prisoner's cottage. This was about half-past five, P. M. The evidence respecting *the deceased* showed, that about six o'clock on this day, she had tea with her parents as usual, appearing to be in good health and in high spirits. She told her mother that she had made an appointment with the prisoner to meet him at a stile very near their cottage, *at half-past six o'clock*, and the prisoner, it was supposed, had led her to expect that at this interview, he would make some arrangement regarding his marriage with her. At, or about this time, the deceased left her tea half-finished, dressed herself hastily in some of her mother's clothing, left the house, and was not again seen alive. She was found next morning, at or about *eight o'clock*, lying dead in a field at a short distance from the stile, at which she said she had made an appointment to meet the prisoner on the previous evening.

"When her body was found, the head was cold, and the arms and legs cold and stiff; but the body (the abdomen) was perceptibly warm to the hand. It will be remarked, that from the time the deceased was last seen alive, thirteen and a half hours had elapsed.

"The attitude of the body when found, is thus described by the different witnesses: The deceased was lying on her face, a little inclined on one side, owing probably to the prominence of the abdomen. Her lower clothes were arranged in a straight and orderly manner, and her fur-tippet was lying on the ground, two or three yards from the body. Her bonnet was on her head, but much crushed and broken. It was flattened in front as if from pressure from behind, while the deceased was on her face. Her face was flat on the ground, and her nose pressed down tightly. The nose is described as being quite flattened, and turned a little to the left side by pressure; it was impossible in the opinion of one witness, that the mere weight of the head could have produced either this degree of pressure, or the indentation observed in the ground. The features were so altered, that although this witness had known the deceased for four or five years, he could not recognize her. When the body was turned over, blood escaped or bubbled from the mouth, nose and eyes; and the face was observed to be black, and much swollen. There was half a tea cupful of blood on the spot where the face lay—under the mouth; and more blood in another spot about a foot from the head; the hair was matted together with blood and dirt. The right arm was lying bent at a right angle underneath the body, and pressed down by its weight; the left was raised, with the hand directed towards the left shoulder, but partly covered by the body. There was a cord on the neck, which was twisted round it three times. One of the witnesses took the third turn from off the neck, and observed that this turn was a little loose; but on putting his finger to the throat, he found a knot of cord lying in front of the neck. The remainder of the

§ 906. In conclusion, the fact should not be overlooked that, even where the body has lain a considerable time in the ground, and is advanced in putrefaction, the marks of strangulation, if this have been

cord was very tight, a portion being actually imbedded in the neck, and the cord was drawn so tightly, that the skin of the neck had swollen up between the coils. From other evidence it appeared, that the knot which formed the loop of the rope was pressing on the front part of the neck, while the bite of the noose was at the back part, a little behind the left ear. There were *three coils and a half* of rope round the neck, and with the exception of the last half coil, all were tight; the two innermost coils being so tight as to indent and cut the skin. The end of the cord went over the back of the left shoulder, and about an inch of its extremity was lying loosely (without being grasped,) between the thumb and finger of the *left* hand of the deceased, which was raised towards it. One witness described this hand as being stretched out a little, so that the end of the cord could be seen lying in the hand, before the body was moved or turned over. The deceased was *right handed;* there was no mark of grasping, laceration, or indentation on either hand; and from the position of the bite of the noose and the direction of the coils, the cord could have been tightened only by pulling to the *left* of the deceased. The cord was stout, and of the thickness of a window sash-line. At the part where the noose had been tightened, the pressure had been so great that the cord was condensed to about half its thickness, and some of the fibres had been cut through by the force used. There was no blood upon it, except just at the end, where there was a small spot. The second coil had, at the back part, tightly locked in a portion of the apron of the bonnet and handkerchief of the deceased.

"A woman who undressed the deceased, six hours after the body was found, stated that she examined her face and found the mouth bubbling with blood; her tongue protruded out of her mouth, and was clenched very tightly with her teeth. Blood oozed from her eyes, mouth and ears. Her body, from her head to the shoulders, was very black (livid.) There were two marks where the cord went round the neck, quite lacerated through the skin. Upon the back of her left wrist were marks, apparently of a bite from both rows of teeth;—the impressions were quite distinct before they were washed, and blood was oozing from them. On the right elbow a piece of skin had been taken off, about the size of a shilling, and the patch was very black. The elbow had a bruised appearance.

"A *post mortem* examination of the body of the deceased was made by Mr. Williams, surgeon, of Brentwood, on the second day after it was found. The eyes were much distended and suffused with blood and the pupils were dilated. There was a general lividity and swelling of the face; and the tongue which protruded from the mouth, had been bitten by the teeth. There was a superficial laceration of the skin, covering the lower part of the throat on both sides; and there were two deep marks, as if from two cords, or from two impressions of one cord, tied tightly round the neck. The two impressions were both situated over the trachea, and the skin had swollen up between them. The trachea had been flattened by strong pressure, but had regained its shape; it had a bruised appearance in the parts corresponding to the two marks on the neck, and its structure there was softer than natural. There was extreme ecchymosis on the upper part of the chest, such as might have been produced by a heavy blow, or by the pressure of a person kneeling upon it. There was a contraction of the fingers, which were drawn into the palms of the hands. There was an abrasion of skin at the back of the right elbow. There were marks, apparently of teeth, on the back of the right wrist, and there were also scratches on the back of the left arm and hand. On opening the head, there was great congestion of the whole of the brain. The heart was healthy, but much distended on the right side with blood in a coagulated state. The lungs were congested to an unnatural degree; the right pleura was adherent,—a result of previous inflammation. The stomach contained ordinary food, and the coats were in a healthy condition. The intestines were healthy. On opening the uterus, it was found to contain a male fœtus in the ninth month; and this was probably alive at the time of the deceased's death."

For the defence, two surgeons, Mr. Thorpe and Mr. Pollock, deposed,—the first that he thought there was a *doubt* as to whether the deceased committed suicide or not; the second, that he would feel *considerable difficulty* in forming an opinion as to the cause of death, whether suicide or homicide. Both of these opinions were founded upon cases which they had met with, but which, as they had no similarity with the present case, may here be omitted. Dr. Taylor, however, gave a decided opinion that the case was one of homicide, and his observations which are remarkable for their minuteness and logical accuracy, we here subjoin.

forcible, will occasionally be recognized. An instructive case is upon record, in which, after a lapse of thirty-eight days from the interment, a corpse was, by order of the authorities, disinterred. The body was

"1. The deceased was *right* handed, and on the hypothesis of suicide, she must have made the tension with her *left* arm and hand. From the position of the loop or noose, any traction to the right would not have tightened, but have loosened the cord.

"2. That, supposing her to have exerted such a traction at all, she must have been in the erect or sitting posture. The force used, indicated by the great local violence to the neck, could not have been exerted by a person attempting to tighten a cord by drawing it to the left while in a recumbent posture, whether prone or supine. This hypothesis would, besides, leave wholly unexplained the flattening of the nose, (obviously from direct pressure, not from a fall,) and the fact that the deceased had bled in *two* places, one spot being a foot from the other.

"3. That the cord must have been pulled with excessive violence in a horizontal direction by *one end only*, as the mark was *circular* around the neck. The other end of the cord formed a noose or loop, and was tightly fixed at the back of the neck. Thus then, all the force of traction must have been exerted to the left, in which direction the right hand of a right handed person could not act horizontally, so as to produce the amount of violence found on the soft parts of the neck.

"4. That the fact of their being three coils and a half of rope round the neck, formed an obstacle to the tightening of the cord, by pulling one end to the left so as to imbed the two inner coils in the skin, and to leave the outer or third coil loose. On the supposition that the deceased produced the constriction by her own act, it follows that the three coils must have been round the neck at one time, and the two inner coils sufficiently loose to allow of respiration before traction was commenced.

"5. The double indentation found on the trachea could not have been produced by the two inner coils, (on the supposition of suicide,) except by the great tightening of the outer coil.

"6. As insensibility and loss of power must have immediately followed the complete compression and obliteration of the trachea by the two inner coils, the outer coil ought not to have been found loose or unconnected with the object by which the force of constriction had been produced.

"To suppose that the deceased could have produced the intense constriction by the first coil, and afterwards retained sufficient power to pass a *second* coil from right to left around her neck, indenting the skin and flattening the trachea as much by the second as by the first coil, involves, in my judgment, a physiological impossibility. There was, therefore, on the suicidial hypothesis, no explanation to resort to,—but that all three had been placed at once round the neck *loosely*,—that one end only of the cord had then been so pulled to the *left* as to produce the great amount of violence found, and to tighten equally the two inner coils; while the outer coil and extremity of the cord, by which this immense force must have been applied to the two inner coils was found lying loosely, without any attachment either to the hand of the deceased or to any other fixed point.

"7. To have indented the neck, compressed and bruised the trachea in two distinct places, to have caused effusion of blood to the amount of a cupfull from mouth, nose and ears,—this effusion being found in two distinct places, a foot distant from each other,—would have required a very considerable tension of the outer coil, and, at the same time, a *continued* tension, lasting sufficiently long for the head to move a foot after a cupfull of blood had been lost as a mechanical result of the first constriction.

"8. Admitting such conditions of the body and cord to be compatible with suicide, the act could only be conceived to be possible in this case, by the fact of the end of the cord being found tightly wound round the left hand of the deceased.

"9. On the suicidial hypothesis, it would undoubtedly have required a very firm grasp of a rope to produce such effects as were here observed; and from the rapid production of unconsciousness by the compression of the trachea and the arrest of respiration, it would have been impossible, on the part of the deceased to relax the grasp. Hence the cord should have been found, either firmly held in the hand in the rigidity of death, or wound round it in a state of tension. Unless we adopt this view, we must suppose that after having used an enormous amount of violence by a rope in the left hand, the dead body had the power of relaxing the grasp, of loosening the outer coil of cord, and so moving the hand that the end of the cord should be found lying between the finger and thumb, and barely touching the palm. Such a condition is not only physiologically, but in this case, as it will be presently shown from the length of the cord, physically impossible."

already greatly decomposed, but the evidence of strangulation was obtained chiefly from the fact of the striking contrast of the integuments of the neck with those of the rest of the body. There was observed a white and shriveled space over the larynx, half an inch in breadth, and extending back on each side of the sterno-cleido-mastoid muscles, from which also, to the nape of the neck over the second vertebra, there ran a groove of a blackish-brown color, and parchment-like appearance. It was very difficult to cut through this condensed skin, which, upon incision, gave the sensation of old dry leather, and its section was yellowish-white, and perfectly dry. Another remarkable case occurred in Paris, where, after the body of a female had lain several years in the ground, and was reduced to an almost perfect skeleton, an examination made by M. Boys de Loury, Orfila, and other medical jurists, proved that the woman had perished by strangulation. The third, fourth, fifth, and sixth cervical vertebra, as well as the right clavicle were held together by a blackish mass, in the composition of which there could not be recognized any tissue. This mass was surrounded at its lower point by several twists of a cord, two lines in diameter; the cord was in a very decayed condition, and no knot could be found upon it; its direction was exactly horizontal.

CHAPTER XIII.

HANGING.

§ 907. In hanging, death is caused mainly by the pressure of the cord upon the wind-pipe, by which the access of air to the lungs is cut off. The individual is therefore strangled, he dies more rapidly, but in the same manner, physiologically speaking, as do those who are suffocated by drowning, or who are placed in any irrespirable medium. If,

10. (This refers to the absence of any marks of the cord upon the hands, as would have been the case, if forcible traction had been made by them.)

11. "The length of the cord renders it impossible to suppose that such a force could have been exerted by the deceased herself. The length of the cord was fifty-nine and a half inches. The three coils and a half must have consumed at least fifty-two and a half inches, leaving only seven inches for the traction. 'This,' says Dr. Taylor, 'was barely enough to reach the finger and thumb of the raised left hand, and not enough to allow of such a firm grasp by the hand as would be necessary to the production of so much violence to the soft parts of the neck. I find, by measurement, that the circumference of a small female hand in the adult, is rather more than *seven inches*. This measurement includes only the palm of the hand without the thumb, and embraces the part of the hand around which a coil would be placed, when the object of a person was to produce firm traction. Hence, then, the hypothesis of suicide involves one of these physical conditions. Without a firm hold of the cord, which could not have been had with less than one coil round the hand, it is impossible to conceive that such violence to the neck could have been produced by the act of the deceased; and if one coil had been thus spontaneously wound round the hand, it would have consumed the whole length of the cord up to the last half coil, and left no portion whatever to give a purchase for pulling with so much violence. Either condition is a physical impossibility; and no theory will suit the facts, or explain them, excepting that which admits that the act was not the result of suicide, but of manual violence applied by another person."

"The evidence by which the crime was fixed upon the prisoner Drory, it is not necessary here to relate. The chain of evidence was complete and irresistible, and, as has been stated in the text, the criminal made a confession previous to his execution."

however, the air be not completely cut off from the lungs, as in those instances in which the cord presses upon a portion of the larynx which is ossified, or where, as in some public executions, the noose slips from its proper position and catches against the lower jaw, death does not ensue with the same rapidity. In these cases other secondary causes aid in the extinction of life, the veins of the neck being compressed or the cervical vertebræ injured.

§ 908. The signs of hanging are therefore, in general terms, the same as those of asphyxia from other causes, but will vary in intensity according to the position of the body and the suddenness of death. While, in some cases, the face is swollen and livid, the eyes prominent, and the tongue protruded between the contorted lips; in others, these striking signs of struggling are absent, and the features remain placid or unchanged. This latter condition is more frequently observed in persons whose death has been voluntary, but a greater or less congestion of the face is found in the majority of cases of hanging. Dr. Burrows(*w*) explains the difference observed in executed criminals by the unequal pressure of the cord in different cases. He says, "the knot of the rope is usually adjusted on one side of the neck, and it is found after death, beneath the ear resting on the mastoid process. It has been often observed, in the dissection of such criminals, that the cheek and integuments on this same side of the head are not near so livid and congested as on the other side. The pressure of the rope has not completely obstructed the return of blood through the external jugular vein on the one side, though it has effectually stopped the current on the other. In such cases, it is probable that the deep-seated internal jugular vein on the one side, has been only partially compressed and has permitted, to a certain extent, the return of blood from the internal parts of the cranium. Another efficient cause is the subsidence of fluid blood after death, while the body is yet suspended, through the cervical vessels, which are not completely obliterated by the pressure of the cord. Other channels not at all affected by the pressure of the rope, are the vertebral sinuses and the spinal plexus of veins." In addition to the marks of congestion in the head and face, the shoulders and upper part of the trunk are often livid. The hands and lower parts of the arm are also frequently of a purple color, the arms are usually straight and rigid, and the fingers clenched. A bloody froth is sometimes seen issuing from the mouth, and there are various marks of violence upon the neck, dependent, however, upon the nature of the ligature and the force employed. To these we will presently refer, in detail. The urine and fæces are not infrequently passed involuntarily, the genital organs become turgid, and the semen in the male is said to be discharged.

§ 909. When a person is found dead, suspended by a cord or other ligature, the first question which arises is, whether the act was his own or that of another. Before, however, this question can be satisfactorily answered, we must endeavor to determine whether the person was *living at the time he was hung*. Now, the fallacy of relying upon any one medical sign as indicative of death from a given cause, is nowhere more

(*w*) "Diseases of the cerebral circulation." 1846.

apparent than in death by hanging. A partial consideration of the signs of death from this cause, or a too confident reliance upon one or more of the phenomena usually observed in authenticated criminal cases or in public executions, will often lead the physician to an erroneous judgment. However strong the presumption may be that life was destroyed in this manner, rarely, if ever can a perfect conviction be acquired by medical evidence alone. On the other hand, the moral and circumstantial evidence is, in a large majority of cases, so significant that medical testimony is superfluous. This will at once be evident, when it is remembered that hanging is mostly a suicidal act. As however, cases occur, where life is first destroyed by other means and the person afterwards hung, in order that it may be supposed that he committed suicide, it becomes necessary to consider what assistance can be rendered by medical facts to the evidence derived from other sources.

§ 910. *Mark of the cord.*—In persons who are hung while living, the cord leaves always some impression.(*x*) This may be deep or superficial, according to the strain upon it and its thickness and firmness. The skin under this mark acquires a peculiarly dense and tough character, and has been aptly compared, for this reason and from its color, to old parchment. It resembles exactly the desiccated skin, from which the epidermis has been detached, and which has been exposed to the air. This appearance is more marked a few hours after death, if the cord has been removed; its color is yellowish brown, and the cellular tissue underneath is likewise condensed and presents a silvery appearance.

(*x*) The following is certainly an anomalous case. The facts were observed at a public execution. The rope used was ten lines in diameter; the knot was large, formed of three turns of the rope, and on the noose being tightened by the executioner, corresponded to the occipital protuberance. The bolt being withdrawn the man fell through a space of seven feet and a half. "The body fell with a tremendous jerk, and oscillated for a few minutes; the arms and legs became rigid; the forearms flexed on the arms, the fingers upon the palms, and the thighs abducted and slightly drawn up towards the abdomen; the sterno mastoid muscles were affected with spasms, and the hands became livid. After a short time the limbs relaxed; the legs approached each other, the toes pointing downwards; the hands became pale, fell down by the side, and the fingers became relaxed. The body, having been suspended for forty-five minutes, was cut down, and the cord removed from the neck. There was *not* any protusion or unnatural suffusion of the eyes; the upper and lower teeth were half-an-inch apart, and the tongue was indented by them: the lips were rather livid, and the face *pale;* a *slight* depression marked the position of the rope; there was not any discoloration of the integuments of the neck, breast or shoulders; the thumbs and fingers were flaccid; the cap in which the head had been enveloped was slightly stained by bloody mucus, which had flowed from the mouth and nose; the bladder was empty, the criminal having made water a few minutes before his execution; the penis appeared as if it had been recently erect; it lay upwards against the abdomen, and a thin transparent fluid had stained the shirt," numerous spermatozoa in it were detected under the microscope. Eighteen hours afterwards, the body having in the meantime lain upon its back, it was found to be rigid, the face, lips and ears were purple, the shoulders, and upper and front part of the chest also; the mark of the rope was scarcely perceptible, there being only in one place, for about the extent of a quarter of an inch, a *slight* parchment discoloration of the skin. The portion of the skin covered by the rope having been removed, there was not found the slightest extravasation of blood, nor any peculiar silvery white appearance of the areolar tissue, and none of the blood vessels or muscles were at all injured; the thyroid cartilage was slightly flattened but not broken, and there was no dislocation or fracture of the vertebral column or injury of the ligaments or spinal cord. The brain, lungs and right side of the heart were congested with blood, and the mucous membrane of the larynx was of a bright red color.—(*On Death by Hanging, &c.* By Charles Croker King, M. D., M. R. I. A. Professor of Anatomy and Physiology, &c. Dublin Quarterly Journal, Aug. 1854.)

§ 911. This color must not be confounded with that resulting from an extravasation of blood under the skin, the latter being livid or purple. In cases which present this parchment-like appearance, there is often no ecchymosis, or this is confined to a slight line of lividity upon the margins of the depression. In cases, however, where much violence has been used, as in the execution of criminals, a livid mark is frequently observed. The two conditions are sometimes united, an ecchymosis existing upon the fore part of the neck, and the burnt appearance at the sides. Late writers agree that ecchymosis is of much rarer occurrence than was formerly supposed. Devergie collected fifty-two cases of hanging, of which *three* only presented traces of ecchymosis. These cases are taken from Klein, Esquirol and from his own observation. The result is confirmed by Orfila, Dr. Taylor and Casper.

§ 912. The impression of the cord, whether ecchymosed or not, is, however, not positive evidence that the person was hung when alive, since it has been shown beyond dispute that the same marks may be designedly made by hanging *after* death, while the body is yet warm. Orfila(*y*) suspended the bodies of persons of different ages at various periods after death, from the moment life was extinct up to twenty-four hours afterwards. In every one he found the same brown and parchment-like furrow, which has been described as produced in the living. Devergie made similar experiments with a like result. Those performed by Dr. Casper,(*z*) in addition, prove that when the bodies of persons have been hung within two hours after death, the mark upon the skin may be also slightly ecchymosed. In one case, the first of his series, a man was suspended by a double cord passed above the larynx, *an hour* after death from typhus. In about twenty-four hours the body was cut down and examined. "Around the neck between the larynx and os hyoides, was a double parallel mark, about three lines deep, *of a brown color, with a slight tinge of blue.* There were traces of cadaverous ecchymosis about the body. The whole appearance was such, that any individual, not acquainted with the circumstances, would have supposed that the deceased had been hanged while living. Some spots on the right side of the neck were strongly colored. The skin of this part was hard like leather, and in patches slightly excoriated. There was no extravasation of blood in the cellular texture, but the muscles of the neck beneath were of a deep violet color. In the two next cases, the body of a young man, aged twenty-three, suspended *an hour* after death from phthisis, and that of a man, aged seventy, two hours after death from dropsy, each by a double cord, and the bodies examined on the following day, the appearances were similar; there was a double depression around the neck, and of a *yellowish brown color without ecchymosis.* The cutis was as if burnt and like parchment, both when felt and cut. There was no blood extravasated in the cellular tissue beneath." In other cases in which the body was hung at later periods after death, there was neither ecchymosis nor the parchment-like appearance, the mark of the cord being merely a slight depression in the skin. In the case, however, of a child, a year and a half old, on whose neck, *the day* after

(*y*) Annales d' Hygiène. T. XXVII.
(*z*) Brit. and For. Med. Rev. Vol. V. p. 615.

death, a small cord was tightly drawn, a small bluish-colored mark was produced. There was no blood, however, extravasated beneath it. The nature of the ligature, as whether it be a cord or some soft material, such as a handkerchief, does not make much difference in the character of the mark, except, of course, that where a cord is used, it is better defined in every respect. The yellow and parchment-like appearance may, however, be produced by either kind of ligature.

The unavoidable inference from the experiments above referred to, is, that the mark left by the cord is not a reliable sign of the hanging having taken place while the person was alive, since it may present the same characters, if the body have been suspended shortly after death. If this mark, which, at first sight, would appear to afford the most palpable evidence of death by hanging, is open to this objection, much more so are those inconstant signs, derived from the state of the countenance, position of the tongue, and discoloration of the skin. Turgescence and lividity of the face, ecchymosis upon the trunk, and protrusion of the tongue, may render probable death by hanging; but as they may all occur in any other mode of death by suffocation, are not indubitable proof that the body was suspended during life. Besides, these signs may be altogether wanting in persons who have evidently perished by hanging. Protrusion of the tongue is far from being invariable in hanging, and depends probably upon the position of the cord, and in some cases of the execution of criminals the face has been observed to remain quite pale.

In those cases where much injury has been done to the neck, as where the muscles are found lacerated, the cartilages broken, and the ligaments torn, while blood is extensively effused in the soft parts and in the spinal canal, there can remain, of course, no probability of these injuries having been produced after death. Such cases are, however, exceptional, being rarely met with except among executed criminals.

§ 913. *A rupture of the internal and middle coats of the common carotid artery* is occasionally found. Amussat was the first who observed it. Devergie examined the bodies of thirteen persons who had died by hanging and found it only in one case. Dr. Mildner(*a*) has lately reported an instance in which he discovered it, and refers to another published by a German physician. At the same time, he states the important fact that in his case the internal coats of the artery gave way very easily by stretching, as was proved by experiment upon the corresponding vessel on the other side. The experiment, moreover, was tried upon the carotids of persons of various ages, and the result obtained was, that the rupture occurred only in those taken from old persons, where the artery had already lost its natural elasticity. Hence when a division of the inner coats of the artery is found it may be very correctly ascribed to a pathological condition. Its importance therefore, in a medico-legal point of view, is very trifling. The only mode of making a distinction as to the occurrence of this rupture before or after death, would be in noting the signs of effusion in the adjacent cellular tissue.

(*a*) Vierteljahrschrift, f. prakt. Heilkunde. 1850. Prag.

§ 914. *Tumefaction of the genital organs, and a discharge of semen in the male* are regarded by some authors, but principally by Devergie, as characteristic of death by hanging. There are many manifest objections to this sign, were it even constant in its appearance, which it is not. It will suffice, however, to refer to the testimony of Orfila(*b*) upon this point. According to this eminent observer:

1st. Spermatic animalcules may be found in the urine, up to twelve hours after emission.

2d. They may be found in the urethra of persons dying of various diseases.(*c*)

3d. Congestion of the organs of generation may be produced by hanging persons after death. One of the cases was that of a man 50 years of age. Three hours after death, the penis was found to measure three inches and a line in circumference, and neither it nor the scrotum was discolored. The orifice of the urethra was full of a viscid liquid, containing seminal animalcules. The body was *then* hung, and eight hours afterwards the scrotum and penis had acquired a violet color, the circumference of the latter had increased by seven lines, and the meatus still contained spermatozoa. In another case the body of a man aged 49, was hung five hours after death, and left suspended three hours and a half. The penis, which, before, was slightly turgid, was now erect and formed almost a right angle with the abdomen; it had increased nine lines in circumference, was of a violet color, and all the veins about it were very much distended. The vesiculæ seminales were very full and at the orifice of the urethra, there was a drop of viscid fluid, containing a great number of spermatozoa, of which many were alive. Congestion of the genital organs and an ejaculation or discharge of the seminal fluid, having thus been observed in those dying from other causes, and in those who have been hung *after death*, cannot be looked upon as a sign of death by hanging, unless these two objections are first satisfactorily answered. That the phenomenon does occur in persons who have hung themselves or been hung while living, by the instrumentality of others, is very certain, although the fact is by no means constant. Thus, in seventy-seven cases collected by Casper,(*d*) the seminal discharge was observed in nineteen only, and in thirty-five cases reported by Remer, congestion or ejaculation was found only in fifteen. In some observations upon suicide by strangulation, Dr. Brierre de Boismont, states that he has found the fact of ejaculation mentioned in one *seventh* of the cases (the whole number being 114,) and of erection in one *tenth*. In one case in which the traces of the emission were very abundant, there was a dislocation of the second vertebra upon the first.(*e*)

§ 915. *Was the hanging suicidal or homicidal?* The probability is always in favor of the former, not only from the known frequency with

(*b*) Bulletin de l'Acad. Roy. de Med. 1839.

(*c*) Klein observed the penis in a state of erection in a man who had committed suicide by shooting, Schlegel observed freshly effused semen in a youth who had thrown himself from a church tower and fallen upon his head; and a case of poisoning with prussic acid, is related by Merzdorf, in which the penis was found in a state of semi-erection with the spermatic fluid effused. Vid. Siebold Handbuch, der Ger. Med. § 343.

(*d*) Brit. For. Med. Rev. Vol. V. p. 615. (*e*) Ann d'Hyg. Juillet, 1848.

which this method of self-destruction is chosen, but also from the evident difficulty of accomplishing murder in this way. The distinction between them seldom rests entirely upon medical grounds. Taken alone, the medical signs will rarely be sufficient to determine the question. They can afford often only a probability which must be confirmed by moral and circumstantial evidence. The latter, indeed, is not always beyond the cognizance of the physician, for he may be called upon to state the verisimilitude of the inferences drawn from it. Thus, if the body of a person found hung, exhibit traces of violence externally, or some poisonous substance be discovered in the stomach, the opinion of the medical expert may be required not only in reference to the possibility of death having resulted from these causes, but also whether they were immediately fatal, or whether there did not remain sufficient time and strength for subsequent self-destruction by hanging. Questions of this nature can be answered only upon general principles, it being impossible to lay down any positive rules which would be applicable to all cases that may arise. We can, therefore, in the ensuing remarks, allude to them in only a cursory manner. The chief facts upon which the physician will base his decision, are the position of the body, the marks of violence, both external and internal, and finally, both of these elements in connection with the ordinary signs of hanging heretofore enumerated.

§ 916. 1st. *Position of the body.* Experience has fully demonstrated the fact, that a *complete* suspension of the body is not necessary to produce death. The tenacity with which those who are bent upon suicide await the catastrophe, from which they could, with ease, escape, will afford a key to the explanation of the cases of death by incomplete suspension. It is, moreover, not improbable, from what is known of the sensations produced by a constriction of the throat in those who have experimented upon themselves, or who have been restored after apparent death by hanging, that consciousness and sensation are very speedily lost or first give way to an indescribable feeling of pleasure. Dr. Schneider, who succeeded in restoring a man, who had attempted suicide by this means, states that his patient was quite angry at being awakened from the delicious slumber into which he had fallen.(*f*) Wepfer and Morgagni relate, that having interrogated certain criminals as to their sensations, who had been hung, but had been afterwards restored to life; they answered, that they had not suffered at all, but had simply remained without sensation and plunged, as it were, in a profound sleep. Mr. Fleischmann in experimenting upon himself, found that when the cord pressed upon the trachea, or between the principal cartilages of the wind-pipe, consciousness was almost immediately lost, but that if the obstruction to the entrance of air into the lungs was not so great, by constriction, for example, upon the thyroid cartilage, the effect was less rapid. We may, therefore, explain the fact of death in cases of incomplete suspension by a want both of the will and the power in the person to escape.

§ 917. Dr. Duchesne,(*g*) from an examination of fifty-eight cases,

(*f*) Henke's Zeitschrift, 1851. 43 Erg. H.
(*g*) Ann. d'Hyg. Tom. XXXIV. pp. 141 and 346.

arrived at the conclusion that suicide by strangulation may be admitted, whatever the position in which the body may be found, and even if resting upon the feet. Devergie also, from a review of a very large number of cases, states that suspension followed by death may take place with the feet or knees resting upon the ground, or with the body in an almost horizontal posture, and that the weight of the shoulders and breast is sufficient to exercise a fatal constriction upon the neck. Dr. Taylor(*h*) says, "I have now before me the reports of eleven cases of suicidal hanging or strangulation, which have occurred within the last few years. In three, the deceased were found nearly recumbent; in four, in a kneeling posture,—the body being more or less supported by the legs; and in four, the persons were found sitting." A case has been recently reported, in which the body was entirely supported by the bedstead, while the neck rested in a loop of leather, depending from the bed-post. The case was evidently one of suicide.(*i*) Many other similar cases are on record, which it would be tedious to enumerate. The facts here stated derive their importance chiefly from the prevalent notion, that if the body were not completely suspended, the suspicion of homicide would be strengthened. This opinion was held and urged by some medical jurists in the case of the *Prince de Condé*, who was found hanging in his room from the curtain-rod, with his toes touching the floor. The attitude in which the body was found, raised some suspicion of foul play, and a most accurate investigation of all the circumstances connected with the event was instituted, from which it appeared to have been a case of voluntary suicide. In the journal where this case is reported will be found also several instances of self-destruction by hanging, where the bodies were found in the most extraordinary situations and attitudes, accompanied with plates of the same.(*j*)

§ 918. The inference to be drawn from the position of the body is, therefore, that, *in itself*, it proves neither homicide nor suicide. A person may hang himself from a high beam or the branch of a tree, or may choose to strangle himself by simply placing his neck in a noose or loop, and lean forward against it until he loses his consciousness. On the other hand, a murderer may find it more convenient to hang his victim imperfectly than to suspend him from an elevated position. In either case, the position in which the body is found is neither a safe criterion of its position at the moment of death, nor an index of the voluntary or involuntary character of the act. The cord, in many cases, slips or stretches by the weight of the body or the momentum of the fall, so that the latter will come to occupy a lower position than at the moment when unconciousness was produced by constriction of the neck. And, even were this not the case, the more or less imperfect suspension of the body cannot, as we have already seen, enlighten us with respect to the question of homicide.

§ 919. It is hardly necessary to state that, if the hands or feet are found tied, the inference is not necessarily warranted that the act was homicidal. In such cases, the opinion of the physician will be guided, in a measure, by the remaining indicatory evidence. Thus, if an in-

(*h*) Med. Jur. Am. ed. p. 505.
(*i*) Med. Times, Aug. 7, 1852.
(*j*) Ann. d'Hyg. Tom. V. p. 165.

dividual is found suspended from a position which he could not easily have reached, or to attain which there were no obvious means, the fact of the hands or feet being tied will afford certainly a strong presumption of homicide. But if, on the other hand, chairs or tables or any other means of support are found near the deceased, this presumption will no longer hold, since it is evident that the person may have, himself, applied these ligatures, and then hung himself by thrusting his head through the noose and over-turning or pushing away these means of support.

§ 920. It is, however, of importance to observe whether the ligatures upon the wrists, are tied in such a manner as could have been done by the person himself. The following remarkable case(*k*) may be cited in illustration. "John Robinson, a married man, aged thirty-four, was admitted into the asylum of the workhouse on the 24th of November last, having been in a desponding, melancholy state some time, caused by religious delusions. He had attempted to destroy himself several times, by throwing himself out of the window, and rushing into the fire, and said he had a desire to hang himself. On admission, his hands were found much burnt. He refused his food for some days, but continued gradually to improve for the ensuing six weeks, and went to bed in a tranquil state on the evening of the 5th inst., about nine, P. M. He was found next morning at half-past six suspended to a bar of the window of his cell, by means of the bandage which he had taken from his hands and folded double. His wrists were fastened together behind his back, by a piece of bandage, in which two running nooses had been made and slipped over his hands, and then pulled tight. His ankles were tightly fastened together, and his night-cap was pulled down over his face, below his nose. The toes almost, if not quite, touched the ground; the body hanging between the bed and a night-chair, with the face towards the wall. On cutting him down, it was apparent from the coldness and rigidity of the body, that he had been dead some time. The features were quite composed. No discoloration of the face; eyes in the natural position, if anything, a little depressed; no froth at the mouth or protrusion of the tongue, or lividity of the neck, but, on the right side, extending nearly from the angle of the jaw to the commencement of the thyroid cartilage, the skin was cut through, as if with a blunt knife, to the depth of nearly a quarter of an inch. The hands and feet were extended and pointed downwards. No erection of the penis, or emission of semen, urine, or fæces. The body, in fact, presented the appearance of that of a person dying from other causes, and being afterwards suspended. It was only the absence of suspicion of any kind that made the cause of death appear satisfactory. He must have first taken the bandages from his hands and cut them into suitable pieces, then stood on the night chair, then tied his legs, then fastened the noose around his neck and pulled the cap over his face, and, lastly, slipped his hands behind his back, put the nooses over his wrists, and then jumped off. His friends would not permit a post mortem examination, and the coroner did not consider any medical evidence requisite."

(*k*) Lond. Med. Gaz. Vol. XIV. p. 388, by Mr. J. H. Taylor.

§ 921. *Marks of violence.*—Under this denomination may be included all those injuries which affect the question of homicide. For the sake of practical convenience, the various injuries to the neck, consisting of those which affect the wind-pipe as well as those of the cervical vertebræ may be classed together. Under the former are embraced, fracture of the os-hyoides, of the cartilages of the larynx, and laceration of their intervening membranes and ligaments; under the latter, fracture and displacement of the vertebræ, and rupture of their ligamentous bands and intervertebral substance. The consequences in both cases are extensive laceration of and effusion of blood into the structure of the neck; and in the injury to the spine, compression of the spinal marrow, either by the displaced vertebræ, or by effused blood. It is at once apparent that a great degree of violence will be required to produce such extensive and serious accidents, and will therefore in almost every case exclude the idea of suicide.

§ 922. The injuries above enumerated are sometimes made in criminal executions, where the fall is great, and the body at the moment of the execution is violently rotated by the hangman, but even in these cases the luxation and fracture of the vertebræ is of rare occurrence. Orfila states that, in the bodies of fifty persons who had been hung, he met with a fracture of the os-hyoides in only one case, while he had *never* met with fracture and luxation of the vertebræ. In the bodies of persons which were hung after death, for the sake of experiment, he succeeded, in some cases, in producing a rupture of the yellow ligaments of the spine, and the intervertebral substance. In one case the odontoid process was broken but not displaced, and in another the second vertebra was broken horizontally. In all of these experiments, however, both the extending and rotating force was extremely great, such, indeed, as can hardly be conceived in a case of suicide.

Dr. Houston, of Dublin, in an account of the appearance found in two executed criminals, says, "The cervical vertebræ were unbroken, and the spinal marrow and brain presented no trace of injury. In both, the sterno-mastoid muscle on the right side (the opposite to that on which the rope was applied) was ecchymosed, contused, and broken; that of the left side was only slightly bruised. The os-hyoides and thyroid cartilage were completely severed from each other." A few shreds of the small muscles of these parts alone remained, and nothing, in fact, but the skin interposed between the rope and the cavity of the pharynx.(*l*)

§ 923. There are only two well authenticated cases of suicide by hanging in which injury to the cervical vertebræ has been met with, and in these it was far less important than in any of the experiments referred to, or in cases of judicial or homicidal hanging. One is reported by M. Ansiaux, of Liege. He found in the body of a woman who had hung herself, that the posterior ligaments of the spine between the first two cervical vertebræ were ruptured, and the transverse ligament of the atlas so stretched that the odontoid process of the second vertebra was locked against the articular surface. The perpendicular and oblique ligaments were not injured. The two first cervical vertebræ were con-

(*l*) Dublin Hosp. Reports, Vol. V. p. 317.

siderably separated behind, the spinal marrow was injured, and extravasated blood found at the place of separation. The deceased was a stout woman; when discovered, she was hanging from a beam of the ceiling, and her feet were about a foot and a half above the ground. Near her there was a chair overturned.

Another case is reported in the Lancet by Mr. Campbell de Morgan.(*m*) "A married woman, aged fifty, worn out and exhausted by disease, was found hanging quite lifeless from the rail of a bed, which was not more than five feet eight inches from the ground. The front of her body was turned round towards the bed, the head thrown forcibly back—the knot of the ligature, an old silk handkerchief, being placed in the middle of the under side of the chin. Her heels were about three inches from the ground, the knees being on a level with the bedframe, and resting against it. The body was seen by a medical man, about an hour after it was cut down—the features were perfectly calm, and there was no trace of congestion about the face; it was pale and in all respects natural. There was no lividity; the eyes were neither injected nor prominent; the tongue pale, lying far back in the mouth, and without any mark of indentation. The cord-mark well defined, and, like parchment, dry, brown, and hard, without any ecchymosis, but with a thin line of congestion at the upper edge of the groove—it was very deep at the back of the neck, just over the atlas, probably owing to the head hanging backwards. The mucous membrane of the stomach was pale; the lungs natural; no congestion of the large veins, or of the cavities of the heart; the two ventricles contained about an equal quantity of blood. These appearances seemed to show that death was not caused either by asphyxia or by cerebral congestion. Neither the trachea nor the great vessels of the neck could have sustained any pressure or constriction. The deep muscles over the second and third cervical vertebræ were ecchymosed; this ecchymosis extended to the sheath of the spinal marrow; and on the left side, and exterior to the sheath there was an extensive effusion of blood firmly coagulated. There was no displacement of the second or other vertebræ, and the ligaments were sound; but between the third and fourth vertebræ, there was unusual mobility, as if they had been stretched. In this case, the body was not heavy, and the fall, if any, could have been but trifling. The effusion on the spinal marrow was the cause of death; and its origin was sufficiently explained, by the falling back of the head and sudden bending of the cervical vertebræ. Her husband and family were in an adjoining room, but heard no noise; it was only by accident that the deceased was discovered."

In a case of suicide, reported by Dr. Mildner,(*n*) the left *corner* of the os-hyoides was broken and the adjacent soft parts infiltrated with dark and fluid blood. The person was a robust and heavy woman of forty-eight years of age. The indentation, which was of a yellowish-brown color, and of a parchment-like and desiccated appearance, was also excoriated and deeper on the side corresponding to the fracture.

§ 924. It is well known that manual strangulation is one of the most

(*m*) Lancet, Aug. 10, 1844, quoted by Taylor, Med. Jur. p. 503.
(*n*) Prag. Vierteljahrsch. f. d. praktische Heilkunde, 1850. Bd. III. p. 157.

frequent complications of homicidal hanging, and hence the injuries to the neck here referred to, will throw much doubt upon the idea of the act having been voluntary. A murderer who strangles his victim, will commonly use more violence than is necessary for his purpose, and thus produce some of the serious injuries to the neck, which have been described. But in such cases we are seldom left without a guide to the nature of the deed. The thumb and fingers will have left their traces upon the throat, differing widely from the uniform discolored furrow left by the cord. Or if the act of strangulation has been accomplished with any thing in the nature of a cord, the direction of the mark will be, if not horizontal, at least not oblique in the same manner as that produced by suspension. This distinction manifestly only applies to those cases in which the person is fairly hung, and in which the cord has formed but one noose around the neck, because if it had been twisted twice around it, the lower mark will generally be circular and horizontal. Hence if the marks of fingers upon the throat, or a *horizontal* discolored impression upon it be found, there will be good reason to believe, even if the person be found hung apparently with a single noose, that it was an act of violence committed by another upon him. The probability of this will be much increased by the existence of serious injury to the subjacent parts of the neck. A full confirmation of the fact, can however only be obtained from other moral and collateral evidence, into which it is rather the province of the jury than of the physician to inquire. In the following case, the evidence of homicide was derived from various sources. "The deceased was found sitting in a corner of her room, with a narrow tape around her neck, hung loosely and singly over a small brass hook, about three feet above her head. Her clothes were placed smoothly under her, and her hands stretched out by her side. There was a severe bruise on the right eye, and there were marks of blood on the tape, as well as on the floor and wall of the room, at a distance from the body. There was a stain of blood on the knot of the tape where it passed over the hook; and there was no blood on the hands of the deceased. The wind pipe for about an inch and a half was lacerated longitudinally in its rings, and there was a deep mark round the neck in the course of the doubled tape, as if from great pressure applied by some person, or from the weight of the suspended body. The latter hypothesis was untenable. The body of the deceased did not weigh less than 126 pounds, while the tape found round her neck broke with a weight of 49 pounds; hence the deceased never could have been suspended by it." The prisoner confessed the crime.(*o*)

§ 925. *Other marks of violence* are found in every variety upon the the person of the hanged. We subjoin three cases, one of homicide and two of suicide by hanging, to illustrate the nature of the evidence required for the settlement of doubtful cases.

A game keeper thirty-two years of age, robust and hardy in his constitution, was found hanging upon a tree in the forest, three days after he had left home in pursuit of poachers. The deceased was suspended by his cravat, to the branch of a young oak tree, and so near to the branch that the right side of his face was in contact with it. His feet

(*o*) Taylor Med. Jur. 5th. ed. 754.

were rather more than three feet from the ground, which bore no traces of a struggle. The tobacco-pipe of the deceased was found about forty paces distant from the tree, but his hunting-knife and rifle were nowhere to be found. The cravat had left the following mark upon the neck: a groove from a half to three quarters of an inch wide, the skin in it brown and parchment like, and over the thyroid cartilage three quarters of an inch deep. The indentation was more superficial upon the left side. The direction of the mark was horizontal to the back of the neck, and thence upwards on the right side to the angle of the jaw. At this point, corresponding exactly to the knot of the noose, the skin was very deeply ecchymosed, and also excoriated. The right ear was greatly discolored as well as the integuments around it. The skin of the face and head was excoriated in many places, and bruised and lacerated also. There were, moreover, a great number of small lacerated wounds upon the hands and arms, and bruises on the knees; no other external injuries of serious character were found. The os-hyoides was broken, and the muscles and soft parts of the neck, infiltrated with blood. The horizontal direction of the mark upon the neck, the extreme tightness with which the cravat was fastened upon it, the fracture of the hyoid bone, together with the large number of trifling wounds, led the examiners to give their opinion that the deceased had been overpowered by numbers, thrown down, strangled and afterwards hung.(*p*) Another remarkable case, in which the *suicidal* nature of the act was clearly determined, is reported by Dr. Heyfelder; it occurred in the prison at Sigmaringen, in Germany.(*q*) One of the prisoners who, a few hours before, had been left by the turn-key in his cell, of which the latter alone had the key, was found hanging from the jamb of the door. The ligature used was his own silk cravat twisted into a cord, three and a half feet long, two inches broad, and four lines thick. His head was sunk upon his breast, his face pale and without expression, the lips blue, eyes, tongue and mouth unchanged in position and appearance. The arms were brought forward over the stomach, and were rigid, the fingers were bent, and the feet extended and touching the ground. *The mouth of the deceased was stopped with his own handkerchief.* The mark of the cord was oblique, commencing between the os-hyoides and thyroid cartilage, and ran upwards and backwards to the occiput. The skin was brown, and in some places shriveled, but there was no ecchymosis. Five contused and lacerated wounds were found upon the sides of the head; the right ear also was lacerated, and a portion of the head and face covered with blood. On the sharp edge of the window sill, which was only two feet from the floor, traces of dried blood and hair were found, and on the wall below the window there were several lines of dried blood running towards the ground. Had this case occurred in any other place than in a locked prison cell with a single occupant, the wounds upon the head and the handkerchief thrust into his mouth, would have raised a very strong presumption of homicide, and perhaps involved the life of an innocent person.

We would refer the reader here to another case of hanging, singular

(*p*) Henke's Zeitsch. 1835. H. 3. (*q*) Ibid. 1849. 1 H.

and important from the fact of the woman having previously inflicted upon her own head with a hatchet no less than *fifty-five* wounds, some of which penetrated to and fractured the bone. Besides these, there were twenty-six superficial incised wounds upon the breast and stomach, done from three to four days previously, as they were in a state of suppuration. The loss of blood must have been very great, being estimated at three pounds, yet this woman had been able to leave the room where she had committed this violence upon her own person, and proceed to a stable at the back of the house, and there, mounting upon a milking stool, attach the cord to a beam and consummate the act of self-destruction. In this case the indentation of the cord left a discoloration of the skin, probably owing to the loss of blood. The deceased had long been melancholy, and this, together with other facts and circumstantial evidence which came out upon investigation, left no doubt that the act was suicidal.(*r*)

§ 926. The influence which the discovery of wounds and marks of violence upon the body of a person found hung, will exert in the determination of the voluntary or passive character of the act, must be decided, in each case, by the light obtained from an inquiry into the possible motives for suicide, into all the circumstances connected with the act, and into those general principles elsewhere referred to for the discrimination between self-inflicted and homicidal wounds. In some cases the injury may have been of accidental origin, as indeed may the hanging itself, but the case is hardly conceivable, in which the true nature of the latter could not be ascertained, or the former not rendered probable. In conclusion, we would repeat the statement, that hanging is pre-eminently a suicidal mode of death, and strong evidence, both medical and other, will be required in any given case to overthrow this presumption, it being far more likely that a person should inflict barbarous injuries upon his own person, and then hang himself, than that a murderer should resort to so difficult and unusual mode of assassination. This form of homicide can hardly be regarded as practicable, unless there be an exceeding disproportion between the strength of the murderer and that of his victim. It can only be taken into consideration, when the body found hung is that of a very young or feeble person, or one whom infirmity or temporary intoxication may have rendered helpless.

CHAPTER XIV.

DROWNING.

§ 927. The immediate cause of death in drowning has been the theme of considerable discussion. At present, however, from the numerous experiments made to determine this point, there can be but little doubt that the true cause of death in drowning is, *suffocation.* By this word is meant, the prevention of the ingress of air into the lungs. The truth of this statement will be apparent, by a considera-

(*r*) Henke's Zeitschrift. 1840. H. 1. (Krügelstein.)

tion of the external and internal condition of the body after death from this cause.

Before, however, proceeding to describe the post-mortem appearances in the drowned, the act of drowning demands our attention. A person who falls alive into the water and is unable to swim, sinks at once below the surface. Presently, the impossibility of respiring, forces him to struggle to reach the air, and the effort to respire is instinctively repressed until this is accomplished, when he gasps convulsively and takes in, with the air, a certain quantity of water also, which is unavoidably swallowed. Sinking once more, the air in the lungs is partially expelled by an act of expiration, and bubbles are seen to rise to the surface. New, and probably involuntary efforts to breathe are made, and water being thus drawn into the lungs, instead of air, brings on an act of coughing, by which water and air are both expelled. These efforts alternate for a few moments; if again successful in reaching the surface, the death struggle is a little prolonged, but the privation of air soon benumbs both the mental and physical faculties, and with gradually lessening effort the unconscious and exhausted body sinks lifeless to the bottom.

The physiological explanation of this manner of death, is found in the fact that, in consequence of the privation of air, the blood ceases to undergo in the lungs those changes indispensable for the maintenance of life. Hence the functions of the brain and nervous system are paralyzed, and presently the muscular and respiratory movements also. The heart continues to pulsate feebly for a short time after the stoppage of the other functions of the body, but the blood having become completely venous, is not long capable of affording the necessary stimulus to this organ.

§ 928. The rapidity with which life is extinguished by drowning, depends upon the frequency and completeness of the renewal of the air in the lungs. If the individual have come several times to the surface of the water and breathed, he will, of course, not die so quickly as one who has not had this opportunity; but it is probable that, in cases of drowning where the person has not been able to support himself above the water by any extraneous aid, life is extinct within five minutes. Where the submersion has been complete from the beginning, life can scarcely be prolonged more than two minutes. "Mr. Woolley, the surgical attendant at the Receiving House of the Royal Humane Society in Hyde Park, believes that very few lives are preserved after four minutes of complete submersion. In the year 1840, however, he met with a case, in which a person recovered, although there was reason to believe that he had been five minutes under water, and a similar instance has since come under his observation."(*s*) In an account of the pearl fishery by the Rev. Mr. Corder, who resided several years at Columbo, he says, "that he observed with attention the time during which many of the divers remained under water at the depth of seven fathoms. Some of them performed the dip within the space of one minute; others came up in one minute and twenty seconds. Some persons who have frequently attended the fisheries and accompanied

(*s*) Brodie's Lectures on Pathology and Surgery.

the divers to the banks consider one minute and a half to be the longest period during which any diver remains under water. Other gentlemen, who are willing to allow the greatest latitude, say that they certainly never knew a diver to exceed two minutes."(*t*) The same observation was made by Dr. Lefevre of Rochefort, relative to the Navarino sponge-divers; he says, that there was not one who could remain entirely submersed for two consecutive minutes.(*u*) Nevertheless, some cases, said to be authentic, have been reported, in which recovery has taken place after a much longer period of submersion.(*v*) The only exception to this rapid death in complete submersion, is when the person falling into the water is in a state of syncope. As it is known that one may remain without respiration and circulation in a state of apparent death for a few minutes, or even longer, it may be admitted that occasionally a person falling or thrown into the water may suddenly faint from terror, and be rescued before respiration has returned. In illustration of this fact, a case related by Plater is often cited. A woman, condemned to be drowned for infanticide, fainted away at the moment she was thrown into the water. She was left in it a quarter of an hour, and upon then being drawn out recovered her senses.

§ 929. *The time at which a drowned body will float*, or rise again to the surface after having once sunk, appears to be subject to considerable variation. It depends upon the rapidity of the access of decomposition, and the body rises therefore sooner in summer than in winter; upon the density of the water itself (whether salt or fresh); upon the age and sex of the individual,—children, females, and fat persons being comparatively buoyant; and also upon the fact of whether or not the body is clothed. The question is one not merely of scientific interest, but, as will be seen in the following case, may have important legal bearings.

"*Voltan and Adams* vs. *The National Loan Fund Life Assurance Company.*

"The action was brought by the plaintiffs, as assignees of this policy, to recover, on a policy of insurance, issued by the defendants upon the life of one Conrad Shoemaker. The insurance was for $10,000, and the policy was issued on the 15th of May, 1850. The premium on the policy was payable quarterly in advance.

"On the 23d of August, 1850, Shoemaker paid the premium for the quarter ending on the 15th of November, 1850. On the 4th of September, 1850, the plaintiffs alleged that Shoemaker was drowned, while on a fishing excursion, with one Ottman, a German, in the waters of the bay of New York, about opposite to Hoboken, and nearest to the New Jersey shore. The theory of the defence substantially was, that Voltan, Martin, and Shoemaker (Germans) had entered into a conspiracy to defraud the insurance company, by causing an insurance to be effected for a large amount on the life of Shoemaker, and subsequently secreting and disposing of him.

"To obtain a recovery, of course, it was necessary that the plaintiffs

(*t*) Brodie's Lectures on Pathology and Surgery. (*u*) Med. Gaz. XVI. 608.
(*v*) Vid. Assoc. Med. Jour. April 22, 1853; Med. Gaz. Vol. XXI. p. 448; Ibid. XXIX. 78, and Med. Times, Dec. 2, 1848, p. 125.

should satisfy the jury of the death of Shoemaker. This they attempted to do; 1st. By the testimony of Ottman, who swore to the circumstances of his drowning, and of the time and place, which was on the 4th of September, 1850, about dusk, in the Hudson River, opposite Hoboken, and near midway of the river. 2d. By showing that a body *found floating* on the *river* near Jersey City, on the 7th of September, 1850, was the body of Shoemaker.

"This body was examined by the coroner of Jersey City, soon after being discovered. The skin was somewhat bleached, and the face disfigured; a part of the lips being eaten off by crabs, lobsters, or fish of some kind. After examination, it was interred by direction of the coroner.

"It was not attempted to identify this as the body of Shoemaker, except from some of the clothes found on it, and particularly the handkerchief on the neck. The handkerchief on the body was the half of a black silk one, with stripes, and cut from its mate diagonally. It was shown by a witness that Voltan, a short period before the alleged drowning, had purchased a handkerchief for his son, and at the suggestion of Voltan's daughter, it was cut in two, and half of it given to Shoemaker, after being hemmed by her; the other half to the son. The part retained by the son, and the part found on the neck of the body were exhibited in court and found to match in color and stripes, and when laid together, formed a square, and although cut across the stripes, matched in the run and character of the stripes. The pantaloons were also shown to be of the same general character worn by Shoemaker, about the time of his alleged death.

"To rebut the presumption that this was the body of Shoemaker, a number of witnesses were sworn on the part of the defence, with the view of showing that, as a general rule, bodies will not rise and float, even when the water is of the temperature that it is in the month of September, under from six to ten days. As Shoemaker was alleged to have been drowned on the 4th of September, the body was found floating on the 7th of September, three days afterwards; if it were universally true that bodies do not float until decomposition takes place, in the waters of the Hudson, under from six to ten days, then this could not be the body of Shoemaker.

"The first witness sworn on the subject was *Dr. Barent P. Staats.* He testified that he had had occasion, in the course of his professional reading, to examine the subject as to how long a body will remain in the water before rising and floating. That it depends on the time of year, and the temperature of the water, and the size and make of the man. When the temperature is 65°, he did not think any body would rise in from less than seven to ten days. On his cross-examination, he said he did not know that he could point out any book that he had consulted.

"*Dr. Benj. Budd* was the next witness called. He testified that he was assistant coroner in New York—has had occasion to see many drowned bodies—some one hundred and fifty. Never knew a body to rise in less than six days, unless some mechanical means were used to raise it. Should judge the body found at Jersey City to have been in the water from ten to twenty days. Has never known a body to be in

the water less than seven days that was mutilated by fishes. Bodies that have been hooked up in three, four, or five days, have not that peculiar bleached appearance as those present that come up from seven to ten days. The body will not rise until decomposition has commenced. He is twenty-five years of age, and has only studied the book of experience.

"*Dr. Seth Geer* was then called. He testified that he was coroner in New York for eighteen months, during which time he had examined between three and four hundred drowned bodies. The general rule as to the rising of drowned bodies in the harbor of New York, is from eight to ten days. In his judgment, from the description given, the body found at Jersey City, had been in the water two or three weeks. Never knew a body that had been in the water but three days, mutilated by fishes. The hotter the water, the sooner the body would bleach.

"*Andrew Blakeley* was then called. He testified that he was deputy coroner in New York a little over two years, during which time he examined rising two hundred and fifty drowned bodies. Drowned bodies would rise in the summer months on an average of from six to ten days, as he found out by experience. He did not remember any case of rising when the body had been in the water but three days. He never saw a drowned body that had laid in the water but three days eaten by fishes. On his cross-examination, he stated that he had never read any medical book on the subject, nor did he know, except from testimony taken as coroner, of a body lying under water seven days. It takes a body from six to eight or ten days to get bleached. He means by bleaching, a soaking of the body—a general softening and whitening of the body.

Henry C. Van Wie was called on the part of the plaintiffs. He testified that he was coroner of the County of Albany for four years. Has held a good many inquests on drowned bodies. Has known two or three instances where the bodies have risen in three or four days. In warm or sultry weather they will rise in from three to four days. They will bleach out directly in warm weather. They will be mutilated by fishes directly after decomposition takes place. Remembers an instance of holding an inquest on a body that drifted ashore, and had been drowned four, five, or six days. (This witness related the startling fact of holding, in one season, inquests on fifteen infants under three months old, found floating in cigar-boxes near the city of Albany,—cases, doubtless, of infanticide.)

Henry C. Allen, called for the plaintiffs. He testified that he had been coroner of Albany County for twelve or fourteen years. He never could make up his mind as to any definite time that a body would remain under water. He knew an instance of a girl of fourteen years of age, who was drowned on Friday at 12 o'clock, and floated on Sunday at 12 o'clock. She was drowned at Greenbush Ferry. Has known instances of bodies rising in five or six days; sometimes sooner. Knew of one man, by the name of Moreton, who floated on the fourth or fifth day. The girl spoken of had turned a dark livid color. Females float sooner than males.

George E. Cutler called by plaintiffs. He testified that he was coro-

ner of Jersey City. He knew of the case of a young man who was drowned on Sunday, about 7 or 8 o'clock in the morning, and on Tuesday or Wednesday succeeding, about 11 o'clock, he was found floating about two miles from the place where he was drowned. He knew of a female by the name of Smith, was seen alive on Wednesday evening, about 7 o'clock; on Wednesday, about 4 o'clock, P. M., he was called to view the body floating. A person of temperate habits will bleach very quick; those who have been inveterate drinkers never will bleach.

John Osborn called by plaintiffs. He testified that he was coroner of Albany County three years. Had occasion frequently to reclaim drowned bodies. Had known bodies to come up in two days, others not in several months. Had a case of an Irish girl. She had been drowned some two or three days; it might have been four. Had another case of a man, McCarregan, an Irish auctioneer, who rose in four or five days.

"*Silas M. Benton* called for plaintiffs. He testified that he was acting coroner in 1847, 1848, and 1849, in New Haven (Conn.) He knew a case of a person, whom he saw on Friday, was missed on Saturday, and found floating in the water on Sunday. The man was a German, and a baker by trade.

"The verdict of the jury was in favor of the plaintiffs."(*w*)

In two cases mentioned by Dr. Taylor, bodies floated in a much shorter time. In one, a woman who was seen on the banks of a river at half-past eleven in the evening, was found drowned at eight o'clock in the following morning. The body was floating on the water with the face downwards. In another, in the month of December, a factory girl fell into a river while walking along the bank in the evening. The body was found floating on the surface of the water the following morning. The bodies in these cases were clothed, and this, it is supposed, may have rendered them more buoyant.(*x*)

§ 930. *Signs of Death by Drowning.*—In the enumeration of the evidences of this mode of death, it is assumed that the inspection is made shortly after the act has occurred and before putrefaction has commenced.

The *countenance* of the drowned is usually described as being natural and composed; the face is pale, but very soon becomes livid and swollen on exposure to the air, and especially in warm weather; the eyes are half open, and the pupils dilated; a fine froth is observable about the mouth and nostrils, and the swollen and livid tongue reaches to the margin of the lips. These signs are not exclusively characteristic of death by drowning,—they merely render the cause of death by suffocation probable.

§ 931. *Paleness and coldness of the skin, and cutis anserina.*—The first are ascribable merely to the presence of the body in a colder medium than the air, and are altogether destitute of significance as to the cause of death. The corrugated appearance of the papillæ of the skin, commonly called goose flesh, is deserving of more attention, for although it may have been caused by the coldness of the air, yet it cannot be produced upon a body already dead, by the chill of the water, unless,

(*w*) Am. Jour. Med. Sci., July, 1853, p. 263. (*x*) Med. Jur., 5th ed. p. 696.

possibly, the body be thrown in while yet warm. Löffler very justly remarks, upon this sign(*y*)—"If we should find in a body drawn out of the water in the summer time, the *cutis anserina*, on certain parts of the body not covered with the clothing, we would be fully warranted in the conclusion that it was due to the *sensation* of cold, and consequently that the individual was living on entering the water." A singular case is reported in the second series of Casper's observations, in which the opinion that a child two and a half years old was living when thrown into the water, rested partly upon this circumstance. The *cutis anserina* was very evident upon the right side of the body and upon one of the thighs. The head having been enveloped in a cloth, neither froth was found in the lungs nor water in the stomach. The fluidity of the blood and the *cutis anserina* were, therefore, the only *medical* signs present.

§ 932. *Abrasion of the hands, mud and sand under the nails, and substances grasped in the hands.*—In the struggles made by a drowning person to save himself, he clutches wildly at every object in the water; hence, if it is not very deep, or the drowning person be near the bank, the fingers will most probably bear the marks of the sand or gravel, and weeds, sticks, &c., will remain firmly grasped in the hands. Unless the substances found in the hands be such as are peculiar to the water, the other marks of injury upon them may have been received in a struggle upon the shore, or in a fall down a precipitous bank. Or, indeed, they may be produced after death by the hands striking against substances at the bottom of the stream. Again, in many instances, these signs are not found at all,—a fact which may be explained by the absence of struggling when the person enters the water in a state of unconsciousness from intoxication or other causes. Likewise, if the waters be very deep, the body will not have reached the bottom until all its energies are lost and life is extinct.

§ 933. *Water and froth in the Lungs.* The fact that water is drawn into the lungs by persons, who die by drowning, is, as a general fact, perfectly well established. It is found, either in substance, or mixed with air and mucus constituting froth. When found in substance, it may have been imbibed during life or penetrated after death. If it have entered during life, it must be identical with the medium in which it is presumed the person was drowned, and sometimes it will contain mud, sand or gravel, which has been dissolved or suspended in the water. Devergie relates a case in which sand and gravel were found in the trachea, and another is reported by Blumhardt,(*z*) of an epileptic who, having fallen into a shallow brook, was drowned, and on *post mortem* examination, his trachea was found to contain from three to four drachms of sand and gravel. Metzger(*a*) examined the body of a new born child that was drowned in the drain of a slaughter-house. The whole of the trachea to its bifurcation was filled with the liquid refuse. The presence of water in the lungs, is not, however, a proof that it was taken in while the person was living. The fact that water will penetrate the lungs of a dead body, which is submerged, rests

(*y*) Henke. Zeitsch., 1844, 3 H. p. 6. Der Tod durch Ertrinken.
(*z*) Wurtemb. Med. Correspond. Bl. IV. No. 1. (*a*) Pyl's Aufsätze, St. 6. Fall. 5.

mainly upon the authority of Orfila, who made experiments which fully demonstrate its possibility. It is, indeed, true that most other experimenters have not succeeded, but they have made their trials, either with dead animals or with still-born children. Löffler, however, in his experiments upon puppies, found that if the head were kept in a more or less elevated position, and the jaws separated by a piece of cork, the water readily penetrated after death, into the lungs. The observations of Orfila being upon the dead human body, are more to the purpose. He found that, by placing the body in a bath tub and coloring the water with lamp black or indigo, the colored water could afterwards be found in the subdivisions of the bronchial tubes. In one case even, in which the body, thirty hours after death, was placed *upon its stomach* in the colored water, the water had penetrated as far as the middle of the trachea. Perhaps as a general rule, water will not be found in the lungs, if the person have not perished by drowning but have been thrown in after death, because the head by its weight, falls back and an obstacle is thus placed to the entrance of the water. But where a body has been thrown into a well, or is otherwise found in a posture favorable to the ingress of the water, the discovery of this fluid in the respiratory passages, may with plausibility be assumed to be of post-mortem occurrence.

The *absence of water* from the lungs, is certainly not sufficient evidence that the person was not drowned, because it is not invariably present in cases where the person has undoubtedly perished in this way. Moreover, it may have drained away, especially if such manœuvres have been used to resuscitate the person as by rolling him on the ground or suspending him by the heels. It may also disappear by transudation when the body remains a long time in the water.

§ 934. *Froth in the Lungs* has on the other hand, greater significance as to the cause of death. Although found to a certain extent in other modes of suffocation, such as hanging and in epilepsy and extensive bronchitis, it does not present in these cases the same distinctive characters by which it may be recognized in death by drowning. In the cases referred to, it is very small in quantity, often bloody, and being composed entirely of the mucous secretion of the trachea mixed with air, is viscid, in larger bubbles and closely adherent by mucus to the sides of the tube. The watery froth of the drowned is on the contrary abundant, foamy, made up of an infinite number of small bubbles which are easily separable, and which soon dissolve on exposure to the air. It often extends from the mouth to the smaller bronchial tubes, but is generally more limited in extent.

The *absence of froth* from the lungs cannot, however, be assigned as a proof that the person did not die from drowning. Experiments have shown that in certain cases of drowning it is not formed. These cases are those in which, from any cause, the person has not risen to the surface to breathe. Piorry, Orfila and others, have shown that when animals are completely immersed in the water and forcibly held there until dead, no froth is found in their lungs; but if on the contrary, they are allowed to struggle and come to the surface it is formed abundantly. Again, from its very nature, this sign is evanescent. If the body have lain for several days in the water, if it have been re-

moved from the water with the head depending, or finally, if the inspection be not made soon after its removal, especially if the weather be warm, the froth that may possibly have existed, will no longer be found. In Dr. Ogston's observations, the watery froth in the lungs was not found later than fifty-five and a half hours after drowning in summer, and the fourth day in winter. This author states also, that he met with a case of poisoning with laudanum, in which a light watery froth like that of the drowned was found in the trachea.(*b*)

§ 935. Hence we may conclude, that the more extensively the froth is found in the respiratory passages, the greater will be the probability of death having taken place by drowning, and of the struggle having been active and prolonged before the extinction of life. Unless there are marks of strangulation upon the body, pathological proof of bronchial catarrh, or evidence that the person has been subject to epilepsy, the sign is positive and conclusive of death by drowning. If, on the other hand, no froth is found, this circumstance is no proof that the person did not die by drowning, unless the inspection was made soon after death, the body having been carefully removed from the water, or unless other injuries sufficient to have caused death were discovered.

Water in the stomach. Water is always swallowed in greater or less quantity, by a drowning person who retains sufficient consciousness to make a struggle for life. It will not, however, always be found, if the inspection have been delayed for a long while, or if the popular means have been employed to restore him to life, by getting rid of the water in the stomach. Furthermore, there are certain cases in which the person falls into the water already asphyxiated, or stunned by a blow or a fall, in which case, consciousness not existing, no struggle will be made, and consequently, no water swallowed. When, however, water *is* found in the stomach, it may have been swallowed immediately before the presumed accident. Casper(*c*) relates an interesting case in which a child two years old, playing in the neighborhood of a stream, being thirsty, drank eagerly a large quantity of water given to him by his nurse. She left him for a moment and on her return, found that he had fallen into the water and was already drowned. In this case, the usual signs of suffocation were wanting, there was no watery froth in the trachea or bronchia, but the blood was remarkably fluid, and the stomach filled with water. Hence it is necessary to observe whether the fluid in the stomach is identical with that in which the person apparently was drowned, for although the result will frequently be a negative one, yet it is often possible to detect sand, gravel, parts of water-plants, &c., in the œsophagus and stomach, which it is highly improbable would have been voluntarily swallowed. If the individual be discovered lying in a morass, a stagnant pool, or a privy well, there will be, of course, no difficulty in recognizing the liquids from such places, if found in the stomach.

§ 936. The objection to the evidence from the presence of water in the lungs, that it may have penetrated thither after death, cannot be applied to the sign under discussion. Experiments by Riedell, Champeaux and Faisolle, Maschka, Viborg, Kanzler, Orfila, and Piorry, on

(*b*) Lond. Med. Gaz. 1851, p. 762. (*c*) Gericht. Leichen öffnungen. Fall. 77.

the dead bodies of animals and men, have fully established the certainty, that water does not enter the stomach *after death*, unless putrefaction is far advanced. Hence the conclusion is warranted, that if the water can be recognized as identical with that in which the individual apparently was drowned (unless it was drunk previous to submersion) he must have swallowed it in his drowning struggles.

§ 937. *The general signs of death by asphyxia* are found on drowned persons. Contrary to the once prevailing opinion, that apoplexy was the cause of death in drowning, an extravasation of blood in the brain is rarely met with in the drowned. Those who are predisposed to apoplexy, and who suddenly enter cold water, particularly when the stomach is full, may be struck with apoplexy; or those who fall on the head, from a height into the water may rupture one of the cerebral vessels, but the reader should bear in mind that this is not a usual or necessary condition in those who simply die from drowning. Even a congestion or fullness of the vessels of the brain is not constantly observed, and the appearances often described as such are most probably cadaveric, and due to the depending position in which the head is generally found.

The amount of congestion of the brain depends usually upon that of the thoracic viscera. The lungs appear fuller and more voluminous than usual, sometimes overlapping each other in the anterior mediastinum, but do not contain much blood.(*d*) The heart contains always in its right half, fluid or loosely coagulated blood, and is distended with it if the lungs be at the same time overloaded.

According to some authors, the blood is always completely fluid, but this statement is liable to exceptions, as coagulated blood has been found in some well authenticated cases of drowning, and also in experiments upon animals who have been killed in this way.(*e*) The abdominal organs are usually found much congested, especially the liver and kidneys. If the drowning have taken place during the process of digestion, the stomach, as observed by Orfila, acquires a violet color. The bladder sometimes contains urine, at others not; as a sign of drowning, it is of the most complete insignificance.

§ 938. *Marks of violence.*—The first point to be determined in all cases where marks of violence are discovered upon the bodies of persons found in the water, is, whether the individual was really drowned. This is rendered necessary by the fact that persons are not infrequently thrown into the water dead, or supposed to be dead, after criminal violence has been employed, and it is hoped in this way to conceal the cause of death. Moreover, suicides endeavor sometimes to destroy themselves by drowning, when they have failed by other means. If it can be shown, from an absence of the signs of drowning before enumerated, that the person was probably dead at the time of submersion, it will, of course, not be necessary to consider the possibility of the injuries having been accidentally received at that time. The character and extent of the wounds or other injuries will often enable us to determine very nearly at what period they were received. Indeed, it is only by a careful examination of these, and a comparison of them with those which could possibly be

(*d*) Bock. Gericht. Sectionen. p. 44.
(*e*) Taylor. Med. Jur.

made accidentally in drowning, or immediately afterwards, that we can hope to approach to a correct judgment of the case. A person falling from a height into the water, may sustain various severe injuries, especially if the water be shallow, and he fall upon the head. Fractures and even dislocations have been produced by this means. The first may be caused by sudden, violent contact with some hard body in the water, or at its bottom; the second is illustrated in the case of a man who for a wager jumped from the parapet of London Bridge, and dislocated both arms, probably in consequence of holding them in a horizontal position. Besides these injuries, various contusions and lacerations may occur in drowning or immediately after it, from accidental violence, sustained by the person in his drowning struggles, his body being possibly thrown against projecting rocks, roots of trees, or sharp pieces of wood or iron. Sometimes a mark, similar to that made in hanging, is found upon the neck of persons who have been accidentally drowned, and caused by the pressure of the collar or fastening of the dress rendered tense by the imbibition of water.

A case is recorded(*f*) in which the body of an old man who had voluntarily drowned himself, was drawn out of the water by means of a rope fastened round the neck for the purpose. This was done probably half an hour after death. The thyroid cartilage was broken into several pieces, and there was a distinct ecchymosis over it, made by the rope.

It is the province of the physician to determine whether these injuries could have been produced in this fortuitous manner, but most of the circumstances which throw light upon these doubtful cases come properly under the cognizance of the jury. There are some injuries, on the other hand, which are of such a nature as to indicate that they were inflicted previous to drowning. They are such as cannot be attributed to any cause incidental to drowning, but must have been either self-inflicted or homicidal. They are stabs, gunshot wounds, incised wounds of the neck, &c. In estimating the cause, nature, and effect of these injuries, the physician will be governed by the facts referred to in the chapter on Wounds, since evidently the fact of subsequent immersion will not materially affect the distinction between homicide and suicide. If, however, the body have lain long in the water, and especially if the process of putrefaction have begun, the information derivable from the marks of violence upon the body will be greatly impaired in value. Not only will the coagula, wherever the water has gained access, be dissolved and washed away, but the size, direction, and color of the wound will be altered. The cause of this fact will be fully apparent from a consideration of the structural changes made by the process of decomposition.

§ 939. A body which is taken out of the water presents a pale and bleached appearance, which is more striking the warmer the temperature of the water. In summer it is observable in a few hours; in winter, not until several days after death. After the body has been removed from the water, and while still fresh, the face and head, the neck and the breast as far as the middle of the sternum, acquire one

(*f*) Henke's Zeitschrift. for 1844. H. I.

after the other a brick-red appearance. But the putrefactive process very soon begins, and spots of a bluish-green color appear in the midst of this redness, and generally are first evident upon the temples, ears and nape of the neck, and then on the neck and breast. These spots mingle together, and more rapidly when the body has lain long in the water, so that in summer, after eight to twelve days, and in winter, in twelve to fourteen days, the whole head, neck, and somewhat later the breast also have acquired a dirty-green color, with interspaces of dark red. Casper says that it is not unusual to see bodies of the drowned which exhibit this striking putrefactive change, while at the same time the rest of the body, particularly the abdomen and extremities, retain their pale color. In water of the temperature of 50° @ 54° Fahr., the body becomes rigid in a few hours. The skin assumes a yellowish-white color, the lips become blue and the joints inflexible.

§ 940. After the lapse of three to ten days, the condition of the body undergoes a marked change. The development of gas becomes so great as to cause the body to float, and in the course of the second week, the skin becomes emphysematous, the cuticle loose, and the parts of the body which are above the surface of the water acquire tints of green, blue and brown and become dry and parchment-like. If the body has rolled about in the water, as will be the case where the current is rapid, these changes take place more gradually. If taken out of the water about this time, the features become in a few hours scarcely recognizable, in consequence of the swelling and discoloration, the latter being blackish-green; the whole of the body is swelled and puffy, and the scrotum often distended to the size of a child's head. The penis, on the contrary, is very much shrunken. The internal organs, with the exception of the brain, are comparatively fresh in their appearance. If the body, however, have remained in the water, and the weather be cool, few changes worthy of note take place during the next six or seven weeks. But about the third or fourth month the skin has become so much eroded in various places, but especially over the inguinal region, that perforations will be found leading to the various cavities of the body. In consequence, the gases generated by decomposition escape, and the body sinks again in the water. The skin and the muscular tissue become transformed into incrustations of adipocire, and the bones are so loosely held together, that portions of the skeleton are apt to be separated. The time which a body has lain in the water cannot be determined with any precision, after the process of putrefaction has once commenced. The rapidity and character of the alterations which it undergoes vary according to age, sex, habit of body, temperature of the water and the air, depth of the water and whether salt or fresh, stagnant or running, the attacks of fish and birds of prey, and finally whether the body is clothed or not.

Hence, it may be inferred from these remarks, how easily, after the body has lain some time in the water, the external features of wounds and other injuries may be masked by the progress of putrefaction and the imbibition of water by the skin.

§ 941. Infants and the infirm and aged may be accidentally drowned in very shallow water, as may also, indeed, adults who fall into it, the mouth downward, in a fit of epilepsy or helpless from intoxication.

A man was in the act of leaving a privy, when he was seized with an epileptic fit and fell with his face in a piece of dirty water, which did not exceed a foot and a half in breadth with a depth of from three to four inches. When discovered after death, only his mouth and nostrils and one cheek were found to have been under water.(*g*) Moreover, persons bent on suicide, have been known to destroy themselves in this way; a case is related by Dr. Smith in which a woman thrust her head into an opening which she had made in the ice and so perished. Where, however, persons are found drowned in shallow water, the natural presumption will be that they have been forcibly held there by one or more murderers. It is only by the absence of any marks of violence, that we may infer that the act may have been suicidal or accidental.

§ 942. The presence of ligatures upon the hands and feet, and of weights attached to the body, rebuts the presumption of accidental drowning, but does not prove that it was homicidal. In a case which occurred in Paris, the body of a man was found in the river, his neck, legs and hands being fastened together by a cord furnished with slip knots. It was proved that he had died by drowning, and had himself secured the cord, to ensure a more speedy death.(*h*) If, however, as is remarked by Mr. Taylor, the limbs bear evidence of violent constriction from the cord, and especially if these marks are found on the fore part of the neck or on *both wrists*, the presumption of murder becomes very strong. In another case, the body of a man was found in the water, with his legs tied together, over the trowsers, below the knee. The right wrist was fastened in a noose, and the free end of the cord, after passing around the body, was loosely tied or wrapped around the left. This latter circumstance, together with the absence of marks of violence, rendered it probable that this also was a case of suicide.(*i*)

CHAPTER XV.

MEDICO-LEGAL EXAMINATIONS.

§ 943. The physician who is called upon to make an examination of a person found dead under suspicious circumstances, has devolved upon him

(*g*) Dr. Ogston, Med. Gaz. May 2, 1851. Dr. Taylor, in his critique of the medical evidence in the case of Kirwan, (Dublin Quarterly Jour. Jan. 1853,) says, "Persons while bathing, or exposed to the chance of drowning, are often seized with fits which may prove suddenly fatal, although they may allow of a short struggle; the fit may arise from syncope, apoplexy or epilepsy. Either of the last conditions would, in my opinion, reconcile all the medical circumstances of this remarkable case. It is the result of twenty years' experience in the investigation of these cases, that the resistance which a healthy and vigorous person can offer to the assault of a murderer, intent upon drowning or suffocating him or her, is in general such as to lead to the infliction of a greater amount of violence than is necessary to insure the death of the victim. The absence of any marks of violence or wounds on the body of Mrs. Kirwan, excepting such small abrasions as might have resulted from accident, may be taken in support of the only view which, it appears to me, can be drawn, namely that the death was not the result of a homicidal drowning or suffocation, but most probably of a fit resulting from natural causes."

(*h*) Ann. d'Hygiene, 1833. I. 207.

(*i*) Casper's Vierteljahrschrift, 1854, I Heft. p. 167.

a task of no little gravity. He therefore should endeavor to come to it prepared to acquit himself of his duty in such a manner, that he will afterwards not have to regret having imperfectly discharged it. Not only is familiarity with anatomical dissection required, but a far greater carefulness, and a more searching examination than in cases of death from disease, since in these latter, the object of the investigation is into the nature of the morbid cause of death, and the acquisition of greater familiarity with pathological facts. Moreover his attention must be given to many circumstances which, in these, it is not necessary to observe, viz: all those matters which may throw light upon the mode of death, such, for instance as the position of the body in relation to surrounding objects, and the locality in which it is found. The duties of the examiner, and the facts necessary to observe may be arranged under the following heads:

1st. *Locality.*
2d. *Identity.*
3d. *Indications of violence or unnatural death.*
4th. *Manner of conducting the autopsy.*
5th. *Natural aspect of the organs at different ages.*
6th. *Mode of drawing up Reports.*

§ 944. 1st. *Locality.*—The chief points for notice under this head are those, which by indicating the situation in which the body is found, may afford a clue to the detection of the manner in which it came there. Thus in cases of infanticide an accurate description of the locality in which the child's body is discovered is of the utmost importance in the subsequent investigation of the mode of death. Or, a person may be murdered and the body afterwards transported to a considerable distance for concealment, or the deceased may have had sufficient strength after receiving his mortal wound to follow the steps of the assassin, and yet finally perish at a point more or less remote from the place where he was attacked, and where the indications of a struggle will be found. It is proper also in case of exhumations, but here has a closer bearing on the determination of the next point, viz:

§ 945. 2d. *Identity.*—This subject we have treated in detail in another chapter. It is only necessary to state here that the knowledge of the identity of the deceased in cases of recent death, is as far as the medical evidence is concerned, secured by a careful notice of the clothing, the stature and apparent age, physical development, deformities, color of the hair, eyes, &c., scars, marks of tattooing and peculiarities indicating the habitual trade or occupation.

§ 946. 3d. *Indications of violence or unnatural death.*—All indications of a struggle in the vicinity of the body should be carefully observed, such as traces of blood, fragments of clothing or hair upon the ground, and anything that may have served as a weapon, or been the accidental cause of death. The hands of the deceased should be carefully examined; if they hold a weapon it should be noted whether it is loosely or firmly grasped, and also if there are portions of hair or clothing contained in them. In many cases of poisoning from prussic acid, the vial from which the poison has been taken will be found in the hands or pockets, or lying near the deceased; and in other cases when poisoning is suspected, the room in which the body is found should be carefully

searched for poisonous substances, or for vessels which may have contained them. If wounds are discovered upon the body, their nature and extent must be ascertained, and if lacerated, incised or punctured, the weapon, if any is found, carefully compared with them. The examiner should not omit to ascertain whether there are any fractures or dislocations present, and whether any foreign bodies are to be found in any of the natural openings of the body. In the case of females, in addition to the above, the signs of recent or previous delivery (as elsewhere detailed,) must be observed, and the vulva should be examined for traces of injury which might otherwise go unnoticed.

§ 947. 4th. *Manner of conducting the autopsy.*—The physician should be assisted at the examination by one or more persons, the duty of one of whom should be to write down the observations as they are dictated by the other. The exterior of the body should be examined if possible before it is moved from the position in which it is found, and in case circumstances permit, it is better that the examination should be made on the spot, than that the body should be transported elsewhere. The time elapsed since death should be approximately estimated by a consideration of the state of rigidity or flaccidity of the body, and the degree of putrefaction. The order in which the internal organs should be examined admits of some variety, although on the whole it is better where time and circumstances allow, to commence with the head and proceed therefrom to the other organs in regular succession.

§ 948. To open the cranium, the best method is to begin by making an incision vertically from the root of one zygomatic process to that of the other; a few strokes of the scalpel will loosen the attachment of the scalp to the pericranium, and by a slight effort the two flaps may be inverted, the one over the face, the other over the occiput. After removing the temporal muscles from their attachments, the cranium may be opened speedily and safely by the saw, which should be used first on either side and then behind and in front. A chisel used carefully as a lever will then easily detach the calvarium. In young children a pair of strong scissors will suffice to cut the bone, with less risk of injuring the subjacent parts. A triangular block with rounded edges, placed under the neck will much facilitate these operations. The integrity of the calvarium having been first noted, we then proceed to the examination of the contents of the cavity of the head. The dura mater may be divided around the edges of the skull, and then being cut free from its connection with the *crista galli* thrown back over the occiput. The other membranes after being examined *in situ*, may be observed with reference to their other connections when the brain is itself examined. This should be done partly in and partly out of the cranium. The upper half should be removed on each side, by a horizontal incision which shall leave the Thalami Optici untouched in laying open the lateral ventricles at the same time. Placing the fingers of the left hand under the anterior lobes of the brain, the remainder of the encephalon should be removed by cutting successively through the nerves, the tentorium and the medulla oblongata as far as the knife can conveniently penetrate. The various parts may be then examined by horizontal incisions made regularly in parallel lines. The state of the sinuses should also claim attention.

§ 949. Previous to the examination of the *neck*, the block should be removed and the head thrown back, in order to make the neck tense. An incision is then made in the trachea, and prolonged carefully upwards, with the precaution to hold the knife in such a manner as not to injure the posterior wall of the trachea or larynx. This done, the tongue, if it seem necessary, may be taken out by an incision following the inner circumference of the lower maxilla, and by dividing the posterior pillars of the fauces. The examination of the neck should not, however, be commenced until the cavities next to be examined have been prepared for inspection. A longitudinal incision, commencing at the top of the sternum, may now be made and extended to the pubis, and a transverse one passing across the abdomen and intersecting the first at the umbilicus. These incisions should not penetrate more deeply than through the skin.

§ 950. The *abdominal cavity* may now be opened by carefully dissecting in the epigastric region until the peritoneal cavity is reached; through the hole thus made, two fingers of the left hand may be introduced, and holding the edges of the incision stretched apart, the incision may be prolonged by the knife in the other hand down to the pubis, without injury to the intestines. The transverse incision is then made through the muscles, and the four flaps thrown back. Grasping the upper flap on the side on which the operator stands, and drawing it tensely back over the margin of the costal cartilages, an incision should be carried along the edge of the thorax a sufficient distance in order to separate the abdominal muscles from their attachments. The dissection should now be continued upwards, in order to expose the sternum and cartilages as far up as the clavicle, and laterally exposing an inch or two of the ribs. The same operation is to be repeated upon the opposite side. In case of wounds passing through any portion of the parts thus noticed, they should be first circumscribed by a circular incision, and thus isolated, so that their relations with the subjacent parts can be known.

It is not advisable to use much force in cutting through the cartilages of the ribs, on account of the risk of wounding the lungs or pericardium. The best plan is to begin with the fifth or sixth rib, and divide first those which lie below on each side; then taking hold of the fragment attached to the sternum, to divide the diaphragm between the two incisions of the costal cartilages and these up to the clavicle. In order to separate the sternum from the clavicle without wounding the large veins, take hold of the lower part of the sternum with one hand, and follow the articulation with the scalpel; *i. e.*, make the incision upwardly and outwardly, and then inwardly. The thoracic and abdominal cavities being now laid open, it is optional with which to begin.

§ 951. It is perhaps better and more systematic to examine first the *Thorax*. Having first observed the relative position of the organs and such of their qualities as may be judged of by the eye alone, the pleural cavities should be explored. In order to remove the lung without injury, the safest mode, especially where pleural adhesions exist, is to detach the costal pleura,—an operation which can be easily, although it must be slowly done. In this way we preclude entirely the possibility of lacerating the pulmonary substance, and have subsequently no doubts to contend with as to whether certain lacerations of substance

are the result of disease, injury, or of our own mismanagement. The lung is less easily handled when separated from the body, than when it is left with its natural attachments. It is, therefore, always better in the beginning at least, after having drawn it out and laid it upon the thorax, to preserve its connections. Its roots may be afterwards divided, if it should be necessary to make a minute and protracted investigation. An incision which will lay open as great a surface as possible of the interior of the lung, is to be preferred, and this is one commencing at the apex and dividing it completely through to its base. Afterwards, incisions at right angles with the first one, will most probably reveal any structural disease or injury that may exist. The bronchia should be laid open with an appropriate pair of scissors, and an examination of the bronchial glands should not be omitted.

The *Pericardium* should be opened in such a manner as to prevent the escape of the fluid contained within it until its quantity and character has been first ascertained. The examination of the heart for the purpose of detecting diseased structure, need not here be dwelt upon. If gunshot or other wounds be found in its substance, their direction, extent, and character must be carefully examined, and search made here, or in the pericardial or pleural cavities, for any foreign bodies, such as balls, wadding, or fragments of weapons.

§ 952. In the examination of the *abdomen*, where poisoning is suspected, it is better that the stomach and duodenum should be each separated by double ligatures and removed, with their contents, from the body, for subsequent anatomical and chemical examination. In this case, they should be put into perfectly clean vessels of porcelain, glass, or wood, and without the addition of any preservative liquid. The vessels should then be closely sealed and put away in a secure place. In other cases, these organs may be opened by the enterotome, the stomach along the lesser curvature, and the intestines close to their attachment to the mesentery. The liver in many cases of poisoning, particularly by arsenic or mercurial preparations, must be reserved for chemical investigation. The state of the bladder should be also observed. In the female, the internal organs of generation require particular attention, with a view to the determination of questions of abortion, rape, &c. Finally, the examiner should not forget that, although there may be strong reason, from circumstances, to suppose that the individual has met with a violent death, yet he may unexpectedly meet with some lesion, such as strangulation of the intestines, rupture of an aneurism, intestinal perforation, &c., which is in itself sufficient to explain the symptoms which preceded the death of the individual. Hence, he cannot be too careful in examining systematically and minutely every part of the body, and making accurate notes of all that he observes.

§ 953. 5th. *Natural aspect of the internal organs.*—The following summary we have taken, with some alterations, from the valuable work of Prof. Engel:(*j*)—

The *dura mater* is in children and adults drawn tensely over the surface of the brain; in old persons, however, it is wrinkled and sinks in between the convolutions, it increases in its consistence with age, is

(*j*) Entwurf einer Pathol. anatomischen Propadeutik, Wien. 1845.

in children semi-transparent, and of a pale, bluish-gray color, white and less transparent in the adult, and assumes a yellow tinge in advanced life. The under surface is smooth and polished. In old age, the *dura mater* is frequently perforated by the glands of Pacchioni, and contains often, especially over the falx major, needle-like splinters of bone. These phenomena are of no pathological importance, except in early life, and even then when uncombined with distinct lesions are of little significance.

The *arachnoid and pia mater* are in infants, thin, easily torn, colorless and transparent, their larger veins generally filled with dark blood; the amount of blood is in mature years relatively less, and in old age, the membranes have become thick and tough, lose much of their transparency, and assume a white or yellowish white color.

The turbidness or milky appearance of these membranes does not in advanced life deserve much attention, except when over a large surface, and is then naturally connected with other symptoms of disease. It is always accompanied with increased consistence, appears first on the edge of the fissures and the upper surface of the cerebellum. In youth, however, it is a pathological sign of much importance. The arachnoid is chiefly concerned, the plexus choroides being the only part of the pia mater which is affected. The vascularity of these membranes is within the normal limits subject to very great variation, as it depends upon the general amount of blood in the circulation. But it would be certainly a symptom of disease, if in a case of a general anemia or general plethora, the amount of blood in these membranes should be such as is found in health. It can only then be considered in relation to the amount of blood in the rest of the body, and it ought to be remembered that in early life it is proportionally larger than in its later periods. The quantity of blood should be determined not by observation of the large vessels, but of the smaller ones, for the finer the vessels which are seen to be injected, the greater is the amount of blood, and the same remark may be made of their tortuosity.

The amount of watery secretion in the internal membranes is also subject to much variation, and depends upon the age of the individual and the condition of the blood. In infants it is comparatively more abundant than in adults, and in these latter, less than in old persons. A large amount of watery effusion may have caused no symptom during life if it depend upon general dropsy, if however it have occurred in the course of some acute general disease, it will have given rise to striking symptoms. When there is but a small quantity of water present, the arachnoid is not raised by it in its passage over the spaces between the convolutions; a large quantity will render it tense, and in cases of abundant effusion, the space between the membranes is filled every where with it, and they become thickened and tumid. But the amount of effusion does not warrant by itself, without the presence of other symptoms, any conclusion.

§ 954. The *brain* in newly born children is of a gelatinous consistence, and throughout of a grey or reddish grey color. Some of its inferior portions, as for example the medulla oblongata, are white and firm. The lateral ventricles contain a few drops of clear, slightly yellowish fluid. It undergoes putrefaction very rapidly. The consistence of the *adult brain* is much greater, it can be broken up in the direc-

tion of its fibres, and there is a marked difference in color between the medullary and cortical portions. When a section is made through the substance of the brain, the blood contained in it appears upon the surface in red watery points; more than this is generally indicative of disease. The normal amount of liquid in the ventricles varies from one half of a drachm to four drachms, according to the greater or less consistence of the brain. It is clear and colorless, contains no albumen and the lining membrane of the ventricles is generally not dissolved by it, until the lapse of several days. In most cases where a softening of the cerebral substance around the ventricles is found, it may be regarded as a cadaveric change. In old persons, the volume of the brain is somewhat diminished; hence the dura mater will often be found in folds. The substance of the brain is tough and elastic, and the medullary portion has a yellowish white color. The ventricles are dilated and contain sometimes as much as an ounce and a half of clear, colorless, slightly albuminous liquid. There is but little blood in the brain and the arteries at its base contain fibrinous clots.

§ 955. In newly born children the cartilages of the *larynx* are thin, elastic, its mucous membrane pale, smooth, and covered with a puriform epithelial layer, which is found in the most normal conditions, and particularly in the ventricles of Morgagni. The antero-posterior diameter of the larynx and trachea is less than the transverse. The bronchia are membranous and their mucous coat pale; they contain a whitish mucus, a circumstance which should not be supposed, as is too often done, to indicate catarrhal inflammation. After the age of puberty the air passages acquire an increased volume and altered form, the antero-posterior diameter exceeds the transverse in length, the cartilages become firmer, the tracheal glands become prominent, and the posterior wall of the trachea often appears injected. No fluid is to be found except in the ventricles of Morgagni, which contain a thick whitish mucus consisting of the destroyed epithelium. The bronchial mucous membrane is wrinkled, of a pale grey color or reddish, the finer bronchia have a perfectly colorless and transparent wall, and contain only a small quantity of a colorless, watery fluid.

In old persons the cartilages of the larynx, trachea, and the larger bronchia are often found ossified; this is not the case in women, however, except sometimes the thyroid cartilage. The mucous membrane appears almost dry. The air passages are more capacious than in adult life. Their contents are not always the result of the secretion from the mucous membrane itself, but from the deeper parts of the lungs.

§ 956. The *lungs in children* who have not breathed, are found in the posterior part of the thorax, the rest of this cavity being filled with a yellowish, glutinous, watery fluid. The edges of the lungs are rounded, and their length greater than their breadth. They are dense, and resemble in their granular structure and reddish brown color, the liver. They are specifically heavier than water. To distinguish from hepatization those parts which not having been dilated by the air present this appearance, the inflation of the lungs will suffice, as it will not cause the first to disappear but will do so with the latter. Again, to discover whether the fluid contained in the chest is a pleuritic exudation which may have so compressed the lungs as to cause them to resemble their

fœtal condition, we must be guided by the quantity of albumen and spontaneously coagulable constituents, and the form also of the lungs, which in pleuritic exudation are pressed flat against the vertebral column, and are not empty of blood, but rather, on the contrary, gorged with it.

The lungs of children *who have breathed*, occupy the greater part of the thorax, their edges are sharp and slightly curved; here and there tongue-like processes project, caused by a partial increased force of inflation; the surface retains the impression of the finger, and by strong pressure the air is all expelled and the lung falls together like a riband. The tissue is elastic, and if not containing much water or blood, tough. The cellular structure is not visible to the naked eye on the incised surface, but, through the pleura, numerous very small air bubbles may be seen, corresponding to the pulmonary vesicles. The color is greyish white at the edges, in the front and outer parts a spotted rosy red, in the under and posterior parts an intense purple. The same differences are observable upon incision. But little blood exudes upon incision, and that chiefly in the posterior portions. The pleura is thin, colorless, and transparent, and but a few drops of a watery fluid are found in its cavity.

The *lungs of adults* sink upon opening the thorax an inch or two from its anterior wall; their borders are somewhat inflated, pale, dry, containing but little blood, and the pulmonary vesicles are visible through the pleura; the middle part of the upper lobes is of an ashen or reddish grey color, variegated with patches of white and blue, in some spots bright red, the parenchyma is tough, and frothy serum exudes upon pressure. Bloody serum is not found, but sometimes streaks of blood from the larger vessels mix with the frothy serum which is pressed out. The lower part of the upper lobes, as well as of the under, with the exception of the borders of the latter, are more easily lacerated, denser, elastic, and have a purple hue on the surface, and when cut a brownish red color; bloody serum mixed with bubbles of air exudes spontaneously upon the cut surface. Coagula are often found, but chiefly in the large vessels, but fibrinous coagula only when the agony has been long, and in inflammations of the lung. The parenchyma is more lacerable and denser in proportion to its contents of blood or serum, and the greater the quantity of air contained in it the longer it retains the impression of the finger; the color depends in its varieties upon the amount and character of the fluids contained. The pigment spots are a normal occurrence, they are rarely found earlier than the tenth or twelfth year, but are constantly found in adults. The amount of blood contained in the lungs depends upon that in the heart. The pleura is at this period clear, colorless, shining, and transparent. The normal amount of fluid in this sac, varies within the normal condition between one and six ounces.

The lungs in *very old persons*, when the chest is opened, occupy only the posterior part of the thorax, so that their anterior portion is distant about a hand's breadth from the front of the chest. They have a peculiar feel, retain the impression of the finger, are tough, and easily deprived of the air contained in them by pressure, falling together into a thin, membranous, wrinkled form. The color is of a dark grey owing to the quantity of pigment, intermingled with bright red patches; the lower

portions are of a dirty brownish red color. The tissue is mostly dry, the posterior part alone moderately moist with a pale, brownish fluid; in the pulmonary blood vessels, a very small quantity of fluid blood is found. Any increase in the quantity of air, blood, or water, is in this age of more importance than in younger persons. The pleura is somewhat thicker and less transparent, and numerous deposits of pigment are found underneath it. The products of past diseases are frequently to be observed.

§ 957. The *heart in children* is firm and of a darker color than the other muscles. The comparative thickness of the right side is greater than in adults, as also that of the auricles relatively to the ventricles. The endocardium is thin and transparent, the fine edge of the ventricular valves soon becomes fringed in consequence of early commencing maceration. Both sides contain nearly the same amount of blood with a few coagula. The pericardium is transparent and more closely attached to the heart than in adults, containing from a few drops to a scruple of water of a yellow color, albuminous, dissolving soon the epithelium of the pericardium, and thus acquiring a turbid appearance, and rendering it possible to mistake it for an inflammatory exudation. The heart has a pyramidal shape in adults, but is more four-sided in old people. The endocardium in the former has a tendinous appearance; in the latter particularly in the auricles it is thick, wrinkled, opaque and yellowish in appearance, and in spots marked with the so-called atheroma. The fine edge of the valves is in them, also involuted, thickened, almost cartilaginous, and there is but a small amount of blood found in the cavities, while in adults, and chiefly in the right ventricle, coagula of blood and fibrin are found (almost) constantly. The pericardium becomes opaque in adult life, and contains from one to two ounces of a yellowish serum. The pulmonary artery and aorta are of nearly equal calibre; *in children* the former being somewhat the largest, but in *old persons* the latter.

In young persons there is relatively a large amount of blood contained in the *veins*, and chiefly in those of a medium size, the longitudinal sinus of the dura mater, contains in children a large amount of blood, but in adults generally only coagulated fibrin.

§ 958. The *peritoneum* is characterized by the same differences in the three periods of life as have been mentioned of the pleura. A few ounces of serous fluid in the peritoneum are not pathological, on the other hand the dryness of this membrane is doubtless a morbid symptom as are also deposits of granular pigment in old age.

§ 959. The *liver in young children* is relatively larger than in adults; the upper surface more convex, the under more concave; the parenchyma thick and tough, and indistinctly granular; its color is very dark, and it contains a large amount of dark viscid blood. In anœmia the color is of a light yellow, the edges translucent, and the parenchyma contains a reddish serum. In adults, the structure is inelastic, distinctly granular, and in anœmia retains the impression of the finger. In old people the volume of the organ is diminished, the borders become sharper, the capsule becomes wrinkled, the tissue firmer, tougher, and dryer, of a brownish or greenish yellow, or soft and putty-like, containing a dirty reddish fluid, and an increased quantity of fat. In advanced age numerous vessels become obliterated, and the portion to which they belong atrophied.

The *bile* is, in *new-born children*, viscid, clear, or of a sap-green color; in adults thinner, and of a bright yellow, or viscid and reddish brown, and in aged persons, scanty, but very thick and dark, and leaving a thick sediment.

§ 960. The spleen in the early years of life is dense, granular, and of the consistence of liver, dark red in color, and when incised, yields no fluid blood. But in *adults* it presents within the normal limits some important varieties. Its size is variable, depending upon the general amount of blood. It is easily lacerable, and its substance is thick, and in color greyish-red. In the increase of volume depending upon augmentation in the amount of blood, it is softer in its substance, harder under the opposite condition. In *old persons*, this organ is small, its surface wrinkled, it retains the impression of the finger, is broken down by pressure, and is of a clear reddish-brown color. The *pancreas* and other salivary glands are of a greyish-yellow color, firm, not easily lacerable, and granular in structure. Upon pressure a small quantity of a glutinous fluid exudes.

§ 961. The *intestinal tract* presents important differences at the different periods of life. Its mucous membrane is, in early life, tender, transparent, without redness or injection, except that of the mouth, which is of a pale greyish-red; of the stomach, which is red in points, and of the ileum which is injected around the aggregated follicles. The stomach is without rugæ, and those of the small intestine are few and imperfect. The isolated follicles of the small intestine are numerous and well developed; also in the duodenum and stomach, but fewer in number. The internal surface of the duodenum has a finely granular feel. The mucous membrane of the large intestine is smooth and white, its follicles prominent, opaque, and more numerous at its lower extremity. In the cavity of the mouth is found a scanty fluid secretion, but little also in the œsophagus. The stomach contains a small quantity of a stringy, clear fluid, in the small intestine (after the meconium is passed) a bright yellow, flocculent muciform substance. In the large intestine, a greenish-yellow or brownish pasty fæcal matter. Besides this the intestine always contains gas.

In *adults* the mucous membrane of the *stomach* is sometimes rugose, and covered with a thick, tough, pale-grey mucus, but at other times is quite smooth, and contains only a small quantity of thin mucus. The color is generally of a pale grey, but if there be present any ingesta, it will be red in points, or if stimulating substances, such as pepper, tartrate of antimony, &c., there will be vascular injection. The mucous membrane of the fundus is often softened in a degree corresponding to the quantity of fluids contained in the stomach; but this softening does not penetrate into the deeper strata of the sub-mucous cellular tissue. The lining membrane of the duodenum has a somewhat granular surface, owing to the projecting glands, it contains a thick and turbid liquid, tinged with bile. This membrane, through the whole of the small intestine, has a velvety appearance under water, is very thin, and cannot be stripped off in pieces of any size. The solitary and agminated glands may be seen with the unassisted eye in the ileum. The mucous membrane of the large intestine is white and polished, and covered with a layer of thick transparent mucus, which is very adherent. The transverse

colon usually contains much gas, the rest of the large intestine is contracted. When fœcal matter has been a long time in contact with the mucous membrane, it acquires a bluish-grey appearance or sometimes a red injection. The glands of the rectum may be prominent and opaque without necessarily being morbid. In old people the deposit of pigmentary matter in many parts of the intestine must be regarded as a normal appearance.

§ 962. The *kidneys* of newly born children are comparatively thick, their surface nearly uniform, and adherent to the capsules; the color is of a dark greyish-brown, and the tubular only distinguished from the cortical substance by the direction of its fibres. In the *tubuli uriniferi* may be remarked sometimes a reddish sediment, and out of the papillæ may be expressed a turbid reddish urine. The mucous membrane of the pelvis of the kidney and the ureter is smooth and white. The bladder is generally contracted, its lining membrane of a rosy white, with here and there vascular injection In *adults*, the kidney can be easily turned out of its capsule, the tissue is inelastic, the cortical substance is of a lighter color than the tubular. Vessels disposed in a stellated manner are seen upon the surface, and when cut, reddish points. The pelvis of the kidney is enveloped in a dark granular fat, the mucous membrane of this, the ureter and urethra is smooth and polished. The bladder is generally contracted. In old persons the kidneys are usually diminished in size, and surrounded with fat and a thick capsule, the surface is granular and uneven, the substance firm and tough, the color of the cortical substance is a pale reddish-brown or greyish-red. There are but few malpighian bodies to be seen, but on the other hand minute vesicles filled with fluid. The tubular substance does not differ from the cortical in its color; hyperæmia, and anemia of the kidneys commence in the former, diminution of consistence in the latter.

§ 963. 6th. *Reports.*—It has been already stated, that careful notes should be taken during the progress of the autopsy. These should be preserved, and as soon as possible afterwards, a report drawn up embracing all the medical facts resulting from the inspection. The utmost precision is requisite in these reports and the avoidance as far as possible of technical terms is desirable. The report of the chemical analysis should be appended to the general report; and at the conclusion, the opinion as to the cause of death may be given, together with the general inferences resulting from the facts observed at the examination. Where written reports are not required, it is nevertheless advisable that the physician should prepare one for his own use, since by this means he cannot fail to gain a more intelligent view of the whole case.

The reader will find in the following remarks, selected from "Suggestions for the Medico-Legal Examination of Dead bodies, by Professors Traill, Christison and Syme (with additions by A. Watson, M. D.,") more minute directions upon some points than we have thought necessary to give above:

"It is desirable that the Medical Inspectors shall have an opportunity of viewing the body before it is undressed or moved from the spot where it was first found. If the body had been previously removed or meddled with, they ought to inform themselves accurately as to its original position. In many cases it is material that they personally

visit the place where it was first seen; and they should inquire minutely into all the particulars connected with the removal of it.

"5. In cases where the body has been buried, and disinterment becomes necessary, it ought not to be removed from the coffin, except in presence of the inspectors.

"6. Where a considerable period has elapsed between death and disinterment, the inspection must in all cases be proceeded with, although the body be found in a state of decay, unless the inspectors can positively say, that the progress of decay is such as to render the examination nugatory in relation to its special objects. The degree of decay which will justify such an opinion, will differ with a variety of circumstances which cannot be properly specified here. It may be observed, however, that where the injuries of the bones are to be looked for, or the traces of certain poisons, it is scarcely possible to assign the limit at which an inspection must of necessity be fruitless. It is of moment to remember, that the internal organs are often in a great measure entire, although the external parts are much decayed. The inspection, where the body is much decayed, will be rendered greatly less annoying to those present, by frequently washing the parts successively exposed with a solution of chloride of lime, of the strength of one part in forty: but this must be carefully kept clear of any parts which may afterwards require to be examined for poison.

"7. No one should be allowed to be present at the examination out of mere curiosity. But especially every individual, not of the medical profession, ought to be excluded, who is likely to be a witness either in the precognition or trial; and consequently, any one who attends to give information, if likely to be a witness, should remain in an adjoining room. The reason for this rule is, that the medical inspection often furnishes good tests of the value of otherwise doubtful evidence of a general nature; and it is, therefore, necessary that the general witnesses should not have an opportunity of knowing what is observed in the dissection of the body.

"8. The examination and dissection of the body should not be undertaken, if possible, except with sufficient daylight in prospect to allow the whole inspection to be made without artificial light.

"9. While the one inspector conducts the practical details of the examination, the other should take notes of its successive steps,—indicating all the points inquired into, with the observations made, and appearances presented, negative as well as positive, and stating simple facts only without either generalizations or opinions. These notes should be looked over by both inspectors before the body is sewed up, so that omissions in the notes or in the inspection itself may then be supplied; and the notes, properly signed, dated and sealed, must be lodged with the law-authorities, a copy being preserved, if thought advisable by the inspectors.

"10. The inspectors must deliver to the same authorities, and within two days, where no further examination is required, a distinct report containing their opinion on the case, with the reasons succinctly and clearly stated. They must understand that they cannot found their opinions on any facts represented to have been ascertained by themselves during the inspection, which are not specified in their notes.

"11. Great attention must be paid not to express any premature opinion of the nature of the case, from appearances presented on a partial examination; because, the real cause of death often turns out very different from what it seems in the first instance to have been. In cases of injuries or apparent drowning, hanging, strangling, burning and the like, it should always be remembered, that the appearances of such death may have been accidently induced or purposely contrived after death, while the actual cause of death is different, and only to be detected by a careful and thorough inspection of the whole body.

"12. It is a good general rule, that all injured or diseased parts should be removed and preserved, wherever this is practicable. Soft parts, except what are to become the subject of analysis in the search for poison, are best preserved in a concentrated or strong solution of common salt.

"13. When any portions of the body, or any substances found in or near it, are to be preserved for further examination, they ought never to be put out of the custody of the inspectors, or of a special law-officer. They must be locked up in the absence of the person who keeps them. When they are to be transmitted to a distance, they should be labelled, and the labels signed by the inspectors; and, after being properly secured and sealed, they should be delivered by the inspectors themselves, or the special law-officer, at the coach-office by which they are to be forwarded.

SECTION II.—*Necessary Implements.*

"14. Besides the ordinary instruments used in common dissections, the inspectors should be provided with a foot-rule, and an ounce-measure graduated to drachms, for measuring distances and the quantities of fluids,—a few clean bladders for carrying

away any parts of the body which it may be necessary to preserve for future examination,—and, in cases of possible poisoning, three or four bottles, of 8, 12 and 16 ounces, with glass stoppers or clean corks for preserving fluids to be analyzed. [It is also necessary to be provided with paper, pens, ink, and sealing-wax.]

"15. All distances, lengths, surfaces, and the like, whose extent may require to be described, ought to be actually measured; and the same rule ought to be followed in ascertaining the volume of fluids. Where large quantities of fluids are to be measured, any convenient vessel may be used whose capacity is previously ascertained by the ounce measure. Conjectural estimates and comparisons, however common in medico-legal inspections, are quite inadmissible.

"16. The importance of the external examination, and the particulars of it to be chiefly attended to, will vary in different cases with the probable cause of death. It comprehends, 1. An examination of the position of the body when found. 2. Of the vicinity of the body, with a view to discover the objects on which it rested [might have fallen upon, or been suspended from], marks of a struggle, signs of the presence of a second party about the time of death, or after it, weapons, or other objects the property or not the property of the deceased, the remains of poisons, marks of vomiting; and, where marks of blood are of importance, and doubts may arise as to their really being blood, the articles presenting them must be preserved for examination. 3. Of the dress; its nature and condition, stains on it of mud, sand, or the like, of blood, of vomiting, of acids, or other corrosive substances, in the case of suspected poisoning; marks of injuries, such as rents and incisions: and where injuries have been inflicted upon the body, care should be taken to compare the relative position of those on the body and those on the clothes; and where stains apparently from poison are seen, the stained parts are to be preserved for analysis. 4. Ligatures, their material and kind, as throwing light on the trade of the person who applied them, the possibility or impossibility of the deceased having applied them himself, their sufficiency for accomplishing their apparent purpose, &c."

* * * * * * * * * *

SECTION V.—*Examination in cases of Wounds and Contusions.*

"33. The most approved mode of examining injuries is, if they be not situated over the great cavities, to expose the successive layers of muscles in the manner of an ordinary dissection, observing carefully what injuries have been sustained by the parts successively exposed before they are divided. No advantage will be derived from previous injection of the blood vessels, even supposing this were always attainable. Careful dissection, with a knowledge of the structure and relation of the parts, is a safer guide.

"34. The seat of wounds must be described by actual measurement from known points, their figure and nature also carefully noted and their direction ascertained with exactness.

"35. Before altering by incisions the external appearance of injuries, care must be taken to consider what weapon might have produced them; and, if a particular weapon be suspected, it should be compared with them.

"36. Apparent contusions must be examined by making incisions through them; and the inspectors will note whether there be swelling or puckering of the skin, whether the substance of the true skin be black through a part or the whole of its thickness, whether there be an extravasation below the skin, and whether the blood be fluid or coagulated, generally or partially; whether the soft parts below be lacerated or subjacent bones injured, and whether there be blood in contact with the lacerated surfaces. By these means the question may be settled whether the contusions were inflicted before or after death.

"37. In the case of wounds, too, the signs of vital action must be attended to, especially the adhesion of blood to their surfaces, or the injection of blood into the cellular tissue around, or the presence of the signs or sequelæ of inflammation.

"38. Where large arteries or veins are found divided, care must be taken to corroborate the presumption thus arising by ascertaining, in the subsequent dissection, whether the great vessels and membranous viscera be unusually free of blood.

"39. In the course of the dissection of the wounds, a careful search must be made for foreign bodies in them. Where fire-arms have occasioned them, the examination should not be ended before discovering the bullet, wadding, or other article lodged; and whatever is found must be preserved. Where the article discharged from fire-arms, or indeed any other weapon, has passed through and through a part of the body, the entrance wound and exit wound must be carefully distinguished by their respective characters.

"40. When wounds are situated over one of the great cavities, they ought not to be particularly examined until the cavity is laid open; and, in laying open the cavity, the external incisions should be kept clear of the wounds.

"41. The organs in the abdomen furnish the best source of information as to the sign of bloodlessness in presumed death by hemorrhage. [The state of the brain is also a good criterion."]

SECTION VI.—*Examination in cases of Poisoning.*

"42. In examining a body in a case of suspected poisoning, the inspectors should begin with the alimentary canal, first tying a ligature round the cardiac end of the stomach, and two round its pyloric end; then removing the stomach and whole intestines: next, dissecting out the parts in the mouth, throat, neck, and chest, in one mass; and, finally, dissecting the gullet, with the parts about the throat, from the other organs of the chest. The several portions of the alimentary canal may then be examined in succession.

"43. In all their operations they ought to make sure that the instruments, vessels, and bladders used are quite clean.

"44. In cases of supposed poisoning, a minute inquiry must, in the first instance, be made into the symptoms during life,—their nature, their precise date, especially in relation to meals or the taking of any suspicious articles, their progressive development, and the treatment pursued. It is impossible to be too cautious in collecting such information; and, in particular, great care must be taken to fix the precise date of the first invasion of the symptoms and of the previous meals. The same care is required in tracing the early history of the case, where the inspector happens to visit the individual before death; and if suspicion should not arise till his attendance has been going on for some time, he ought, subsequently to such suspicions, to review and correct the information gathered at first, especially as to dates. All facts thus obtained should be immediately committed to writing, and ought to form part of the narrative of the inspection to be delivered to the law authorities.—(See § 9, 10.)

"45. Before inspecting the bodies, the inspectors, after ascertaining the history of the case, should proceed, if they see cause, to search, in company with the proper law officer, for suspicious articles in the house of the deceased. These are suspected articles of food, drink, or medicine; the vessels in which they had been prepared or afterwards contained, the family stores, or the articles with which suspected food, &c., appears to have been made. All such articles must be secured, according to rules in § 13, for preserving their identity. In this examination, the body, clothes, bed-clothes, floor, and hearth should not be neglected, as they may present traces of vomited matter, acids spurted out, or spilled, and the like.

"46. When a medical man is called to a case, during life, where poison is suspected, he ought as soon as possible to follow the instructions laid down for securing articles in which poison may have been administered.

"47. In the same circumstances, it is his duty to observe the conduct of any suspected individuals, were it for no other reason than to prevent the remains of poisoned articles from being put out of the way, and to protect his patient from further attempts.

"48. The whole organs of the abdomon must be surveyed, but particularly the stomach and whole track of the intestines, the liver, spleen, kidneys, and the bladder; and, in the female, the uterus and its appendages. The intestines should in general be slit up throughout their whole length; and it should be remembered that the most frequent seat of disease of the mucous membrane is in the neighborhood of the ileo-cœcal valve.

"49. In cases where the possibility of poisoning must be kept in view, the contents of the stomach should be preserved; also, sometimes, those of the great and small intestines, and occasionally even those of the gullet.

"50. It is generally necessary to ascertain whether any spiritous fluid [or opium] be contained in the stomach. This may sometimes be done by the odor of its contents, but oftener not; so that, where the point is one of evident consequence, it may be necessary to search for alcohol by distilling the contents [if any] and examining the distilled liquid as directed in works on poisons.

"51. The intestines may be examined at once by laying open their whole course. The parts where appearances are most frequently found in poisoning are, the duodenum, upper part of the jejunum, lower part of the ileum, and rectum. Care should be taken to preserve their contents in a bottle, and the intestines themselves in a bladder, if they present any unusual appearance which will keep. The stomach should be taken out entire, and its contents emptied into a bottle. The smell proceeding from its contents should be observed when it is first laid open, as this often alters speedily. If the stomach present any remarkable appearance, its examination may be reserved, if convenient, till a future opportunity; but in every circumstance it must be preserved and carried away. The throat and gullet may be examined at once, and preserved with their contents, which, if abundant, may be kept apart in a bottle.

"52. No person ought to undertake an analysis in a case of suspected poisoning, unless he be either familiar with chemical researches, or have previously analyzed with success a mixture of organic substances, containing a small proportion of the poison suspected.

"53. The inspectors will learn from the law authorities, whether, in the event of the discovery of poisoning by them, it is probable that the opinion of some other person practised in toxicological researches may be required; and, in that case, they will take to use only one-half of the several articles preserved for analysis. They will remember that the stomach itself is one of the articles for analysis, because poison may be found there, though not present in the contents. The identity of the subjects of analysis must be secured by the rules of § 13."

SECTION VII.—*Examination in cases of Suffocation.*

"54. In cases of suspected drowning, the inspectors will observe particularly whether grass, mud or other objects are clutched by the hands, or contained under the nails; whether the tongue, be protruded or not between the teeth; whether any fluid, froth or foreign substances be contained in the mouth or nostrils in the trachea or bronchial ramifications; whether the stomach contain much water; whether the blood in the great vessels be fluid. When water, with particles of vegetable matter or mud, is found within the body, these must be compared with what may exist in the water in which the body was discovered. Marks of injuries must be compared diligently with the objects both in the water and the banks near it.

"55. In cases of suspected death by hanging, strangling or smothering, it is important to attend particularly to the state of the face as to lividity, compared with the rest of the body; the state of the conjunctiva of the eyes, as to vascularity; of the tongue, as to position; of the throat, chin and lips, as to marks of nail scratches, ruffling of the scarf-skin, or small contusions; the state of the blood, as to fluidity; the state of the membranous organs in the abdomen, and of the lungs, as to congestion. The mark of a cord or other ligature round the neck, must be attentively examined; and here it requires to be mentioned, that the mark is often not distinct until seven or eight hours after death, and that it is seldom a dark livid mark, as is very commonly supposed, but a pale, greenish-brown streak, if made with a rope, representing in general no ecchymosis, but the thinnest possible line of bright redness at either edge, where it is conterminous with the sound skin. Nevertheless, effusions of blood and lacerations should be also looked for under and around the mark, in the skin, cellular tissue, muscles, cartilages, and lining membrane of the larynx and trachea. Accessory injuries in other parts of the body, more especially on the chest, back and arms, must be looked for; as likewise the appearance of coagulated blood having flowed from the nostrils or ears, and the discharge of feces, urine or semen."

SECTION VIII.—*Examination in cases of Burning.*

"56. In supposed death from burning, the skin at the edge of the burns should be carefully examined for redness, or the appearance of vesicles containing fluid."

SECTION IX.—*Examination in cases of Infanticide.*

"57. In cases of suspected infanticide, certain peculiarities must be borne in mind. The cavity of the head should be laid open with a pair of scissors. In opening the abdomen the incision may be carried through the whole parietes at once; and the navel should be avoided, so that the state of the vessels of the navel string may be examined correctly.

"58. The inquiry in cases of infanticide should be conducted with a distinct reference to the five following questions:—1. The probable degree of maturity of the child. 2. How long it has been dead? 3. Whether it died before, during or after delivery, and how long after? 4. Whether death arose from natural causes, neglect or violence? 5. Whether the suspected female is the mother of the child?

"59. The points to be attended to for ascertaining the probable degree of maturity of the child, are the state of the skin, its secretions, and its appendages, the hair and nails: the presence or absence of the pupillary membrane; the length and weight of the whole body; the relative length of the body and its members; and the point on the abdomen corresponding with the middle of the length of the body; the relative size of the lungs and heart; the relative size of the liver, indicated by the position of its margin; the situation of the meconium in the intestines; the position of the testicles in the case of males.

"60. The points of chief importance, in reference to the period which has elapsed after death, are those specified in the last clause of section 17.

"61. The circumstances which indicate whether the child died before or during parturition, and how long after it, are the signs of putrefaction within the womb; the marks of the crown, feet, buttocks, shoulders, &c., indicating presumptively the kind of labor; the state of the lungs, heart and great vessels, showing whether or not it had breathed; the nature of the contents of the stomach, and of the intestines; the presence or absence of urine in the bladder; the presence of foreign matters in the windpipe; the state of the umbilical cord, or of the navel itself, if the cord be detached.

"62. In order to examine properly the state of the lungs, heart, and great vessels, with a view to determine whether or not the child had breathed, the inspection should be made in the following order: Attend first to the situation of the lungs, how far they rise along the sides of the heart,—to their color and texture,—and whether they crepitate or not. Examine next, but without displacing them, the condition of the ductus venosus and umbilical vessels. Then secure a ligature round the great vessels at the root of the neck, keeping clear of the ductus arteriosus, and another round the vena cava above the diaphragm. Cut both sets of vessels beyond the ligatures, and remove the heart and lungs in one mass; which must be weighed and put in water to ascertain whether the lungs, with the heart attached, sink or swim. In the next place, put a ligature round the pulmonary vessels, close to the lungs, and cut away the heart by an incision between it and the ligature. Compare now the relation of the diameter of the ductus arteriosus to that of the pulmonary trunk and of the pulmonary branches, and look for any indication of partial contraction in the duct towards its aortal end. Lastly, ascertain the weight of the lungs; their relative weight to that of the whole body; whether they crepitate when handled; whether they sink or swim in water; whether blood issues freely or sparingly when they are cut into; whether any fragments swim in the instances where the entire lungs sink; and, in every instance of buoyancy, whether fragments of them continue to swim when well squeezed in a cloth.

"63. The points to be considered in relation to the cause of death, are the signs of natural death before parturition, and of natural, accidental, and violent death during parturition as well as after delivery. The most frequent forms of violent death during labor are, puncture of the fontanelles, orbits, or nucha; twisting of the neck after delivery of the head; compression of the head; detruncation of the head; strangling and smothering. The chief varieties of violent death after delivery are: smothering by overlaying or otherwise; hemorrhage from the umbilical cord; simple exposure; starvation; injuries of the head from falls, blows, or compression; wounds of the throat; puncture of the fontanelles, nucha, orbits, cribriform plate, spine, ears, or heart; laceration of the great gut, or of the internal parts of the throat, by instruments thrust in the anus or mouth; drowning; poisoning; burning; strangling with the hand or a ligature; choking by foreign bodies thrust into the back of the throat, or by dividing the frænum linguæ and doubling back the tongue.

"64. The circumstances noticed in § 59, 61, 62, compared with the signs of recent delivery in the female, will lead to the decision of the question, whether the suspected female be the mother of the child. These are the signs of the degree of maturity of the child; the signs on the body of the kind of labor; the signs which indicate the date of its death, and the interval which elapsed both between its birth and death, and between its death and the inspection."—*Watson on Homicide.*

THOS. STEWART TRAILL.
R. CHRISTISON.
JAMES SYME.

Jan. 19th, 1839.

BOOK VI.

LEGAL RELATIONS OF HOMICIDE, FŒTICIDE, AND INFANTICIDE.

PRELIMINARY ANALYSIS.

A. ELEMENTARY DEFINITIONS, § 964.
- I. MURDER, § 966.
  - General definition of, § 966–7.
  - Malice the essential ingredient, § 968.
  - Malice either express or implied, § 968.
  - When malice to be presumed, § 968.
    - 1st. Murder from general malice, § 968.
      - When homicide is committed from general malevolence it is murder, § 968.
      - But when from wantonness, but manslaughter, § 968.
    - 2d. Murder from individual malice, § 969.
      - (1.) In reference to the party killed, § 970.
        - How such malice to be proved, § 970.
        - In what it consists by the civil and common law, § 970.
          - (*a*) Intent to kill, § 971.
            - In this case the offence is always murder, § 971.
            - How such intent may be proved, § 972.
            - Declarations and acts of defendant admissible for this purpose, § 972, 1133, 1150.
          - (*b*) Intent to do bodily harm, § 973.
            - In this country such homicide generally is murder in the second degree, § 973.
            - The grade therefore depends on the intent, § 973.
      - (2.) In reference to the party killed, when the blow falls on the deceased by mistake, § 974.
        - When in an attempt to produce abortion, the mother is unintentionally killed, § 974.
    - 3d. From collateral malice, § 975.
      - This includes those cases where the malice is directed to an object other than that of human life or limb, § 975.
- II. MANSLAUGHTER, § 976.
  - General definition of, § 976.
  - Involuntary manslaughter, § 977.
- III. EXCUSABLE HOMICIDE, § 978.
  - 1st. Where a man doing a lawful act, without any intention of hurt, by accident kills another, § 978.
  - 2d. Where a man kills another in self-defence, § 978.
    - The distinction between excusable and justifiable homicide, is in this country merely theoretical, § 979.
- IV. JUSTIFIABLE HOMICIDE, § 980.
  - 1st. When committed by unavoidable necessity, § 980.
  - 2d. When committed in advancement of public justice, § 980.

V. Murder in the Second Degree, § 981.
Object of distinction is the restriction of capital punishment to those cases only in which there is an intent to take life, § 981–2.
The distinguishing feature between the two degrees is a specific intent to take life, § 982–3–4–5–6.
Homicide by poisoning not necessarily murder in the first degree, § 987.
Homicide collateral to rape, robbery, &c., is necessarily murder in the first degree, § 985.
Homicide of A., when the intent was to kill B., is murder in the second degree, § 986.
Specific intent to take life to be inferred from circumstantial evidence, and from declarations, &c., § 987.

B. CORPUS DELICTI.
I. That a Death took place, § 988.
Universal rule of civil and common law, that the fact of death should be proved, § 988.
Identification of dead body—see ante, § 473, &c.
Cases of conviction of innocent parties, from neglect of this precaution, § 988–990.
Exceptions to the rule, § 991.
1st. Possession of body is unnecessary when decease is proved by eye-witnesses, § 991.
2d. And so where it is proved that the body was destroyed by chemical or mechanical agents, § 992.
Webster's case reported, § 993–1068.
II. That the Death was from violence.
It must appear that it was not natural, § 833–846.
How autopsy to be conducted, ante § 947–962. p. 658. *n.*
1st. Poisoning.
(See ante, § 493–791.)
General summary of the cases, § 1067–8–9.
Chemical proof of the existence of poison in the stomach, in sufficient quantities to have caused death, though important, is not essential, to a conviction, § 1068.
Importance of chemical examination of stomach and its contents, § 1068. (See ante, as to nature and character of post mortem, § 501–503, 514, 515, 516, 522, 532, 537, 544, 563, 582, 622, 646, 649, 654, 669, 684, 700, 716, 731, 746, 748, 768, 772. p. 658. *n.*
When, however, this is prevented by the accused, he cannot set up the want of it, § 1069.
On the other hand, neglect by the prosecution to procure it, if in its power, is a powerful presumption in favor of the accused, § 1069.
Summary of reported cases in the common law courts:
Donellan's case, 1781, § 1071.
Donnall's case, 1817, § 1073.
Anonymous, 1835, § 1074.
Chapman's case, 1831, § 1076.
Tawell's case, 1845, § 1077.
Graham's case, 1845, § 1079.
Bocarmé's case, 1851, § 1081.
Hartung's case, 1854, § 1127.
2d. Wounds or blows, § 1132.
Legal definitions of wounds, § 1132.
Medical definition—see ante, § 792.
3d. Hanging, § 907–928.

C. INTENT AND DESIGN, FROM WHAT TO BE INFERRED, § 972, 1133, 1150.
I. Prior attempts, preparations and threats, § 1133.
Evidence of such always admissible, § 1133–1150.
And so as to obtaining instruments of mischief, and possession of them, § 1134.
Cases illustrative of this, § 1135–6.
Threats to be received for the same purpose, § 1137.
Cases illustrative of this, § 1137.
II. Marks of violence, § 1138.
Presumptions to be drawn from such, § 1139.
Presumptions to be drawn from nature of gun-shot wounds, § 811.
It must appear that the alleged violence was the cause of death, either in part or in whole, § 1140.

Distinction between wounds made before and after death, § 798, 804, see p. 657–8, *n.*
Blood stains, § 820–831.
Suicidal or homicidal, § 810, 816.

III. INSTRUMENT OF DEATH, § 1141.
The use of a lethal instrument leads to the presumption that death was intended, § 1141.
Suicide may be inferred from the position of the weapon, § 1142.
Other presumptions to be drawn from instrument of death—§ 819, 1143–5.

IV. LIABILITY OF DECEASED TO ATTACK, § 1146.
1st. Possession of money, § 1147.
Avarice and ambition, § 1147.
2d. Old grudge, § 972, 1133, 1150.
3d. Jealousy, § 1151.

V. POSITION OF DECEASED, § 946, 1152.
Presumption to be drawn from this as to suicide, § 819, 1152.
In cases of hanging, § 907, 926.
In cases of drowning, § 938.
In cases of poisoning, § 1152.

VI. MATERIALS APPROPRIATE TO BE CONVERTED INTO INSTRUMENTS OF CRIME, § 1154.
Importance of indicatory evidence in this respect, § 1154.
Purchase of poison and powder; preparation of other materials, § 1154.

VII. DETACHED CIRCUMJACENT BODIES, § 1155.
Dress of deceased. Footprints. Presumptions to be drawn from the latter, § 1157–8–9.
Detached articles of clothing, § 1158.
Wadding of gun, &c., § 1156.
Cases illustrative of the importance of this species of evidence, § 1162, 1169.

VIII. POSSESSION OF FRUITS OF OFFENCE, § 1170.
Illustration of the general value of indicatory evidence, § 1171—1212.

D. INFANTICIDE AND FŒTICIDE, § 1213. (See for the Medical view of this subject, ante, § 335, 355.)

I. HOW FAR FŒTICIDE IS EFFECTED BY THE DEGREE TO WHICH GESTATION HAS PROCEEDED, § 1213.
At common law destruction of an unborn infant is a misdemeanor. Late differences of opinion as to whether there must be a quickening. Better opinion is, that all attempts of this character are misdemeanors, no matter what be the stage of gestation, § 1213–14.

II. HOW FAR THE OFFENCE IS AFFECTED BY THE FACT OF BIRTH, § 1215.
When a child dies *after* birth, from a wound inflicted before, the offence is murder; when the death takes place *before* birth, it is at common law but a misdemeanor, § 1216–17.

III. TESTS OF VIABILITY RECOGNIZED BY THE COURTS, § 1217.
Viability medically considered, § 356, 378. p. 659, 660.
Time of gestation—see ante, § 310, 327.
Difference of opinion as to actual degree of birth which is requisite to constitute the legal offence, § 1218.
General propositions of law bearing on this topic:
(1.) Where there is a malicious wound inflicted on an infant, with intent to produce death, and death ensues *after birth*, the offence is murder, § 1218.
(2.) Where there is a malicious exposure of an infant, with intent to produce death, and death ensues after birth, it is murder, § 1218.
(3.) Where there is a wanton exposure of an infant, without the intent to procure death, but with the expectation of shifting the support of the infant upon some third person, and death ensues after birth, it is manslaughter, § 1218.
(4.) Where there is an exposure resulting from necessity, ignorance, or insanity, and death ensues after birth, the offence is excusable homicide, in which, in accordance with American practice, the defendant is entitled to an acquital, § 1218–20–21.

IV. CORPUS DELICTI IN INFANTICIDE, § 1221.
Difficulties arising in this respect from
(1.) The uncertainty of the fact of pregnancy, § 1221. See ante, § 310, 329.
(2.) The uncertainty of the time of death, § 1221.
(3.) Uncertainty of presumptions, § 1221.
(4.) Casualties of gestation and delivery, § 1221. See this subject medically considered, ante, § 379, 398, p. 659–660.

§ 964. The learning of the law of homicide has been elsewhere abundantly set forth,(*a*) and neither the object nor the compass of the present treatise requires its exhibition in anything more than outline. Homicide may, in this light, be considered as follows:—

I. Murder.
II. Manslaughter.
III. Excusable Homicide.
IV. Justifiable Homicide.
V. Murder in the Second Degree.

§ 965. The distinction between excusable and justifiable homicide, as will presently be seen, is one which, however well marked in theory, is, in this country, obliterated in practice, since here the uniform course is to acquit wherever either an adequate excuse or a justification is proved.

I. Murder.

§ 966. Murder is where a person of sound memory and discretion unlawfully kills any reasonable creature in being, in the peace of the commonwealth, with malice, prepense, or aforethought, either express or implied. The distinguishing feature in this definition, as will at once be seen, is that of *malice*. By this term, at common law, is meant to include not only special malevolence to the individual slain, but a generally wicked, depraved, and malignant spirit,—a heart regardless of social duty, and deliberately bent on mischief. And, in general, says Sir Wm. Russell, any formed design of doing mischief may be called malice; and, therefore, not such killing only as proceeds from premeditated hatred or revenge against the person killed, but also, in many other cases, such killing as is accompanied with circumstances that show the heart to be perversely wicked, is adjudged to be of *malice prepense*, and consequently murder. Malice is *express* or *implied*. When one person kills another with a sedate, deliberate mind, and formed design, it is said to be *express*. Of this the usual evidence is circumstantial; such, for instance, as lying in wait, antecedent menaces, former grudges and concerted schemes to do the party some bodily harm, and, in general, any deliberate, cruel act committed by one person against another, however sudden; as where a man kills another suddenly, without any, or without a considerable provocation, and where a man willfully poisons another. And where one is killed in consequence of such a willful act as shows the person by whom it is committed to be an enemy to all mankind, the law will infer a general malice from such a depraved inclination to mischief. Where the act is committed deliberately, and is likely to be attended with dangerous consequences, the malice requisite to murder will be presumed; for the law infers that the natural or probable effect of an act deliberately done is intended by its actor. The killing proved, even though nothing else be shown, it has been repeatedly held in Massachusetts that the offence is murder; the burden of extenuation being then thrown on the defendant,—and such is undoubtedly the general rule. In Ohio, the presumption of killing alone is that of murder in the second degree,

(*a*) See Wharton on Homicide, and Wharton's Criminal Law, 372 *et seq.*

and so also is held to be the law in Virginia. In the latter State, however, it is said that where the mortal wound is given with a deadly weapon in the slayer's previous possession, there being no evidence of provocation, the case is *prima facie* murder in the first degree: and so also is the rule in Pennsylvania. Malice once ascertained is presumed to continue down to the fatal act. Thus, where it appeared that the deceased had threatened the prisoner about three weeks before that he would kill him, that they met in the street on a star-light night when they could see each other, that the deceased pressed for a fight, but the prisoner retreated a short distance, that when the deceased overtook him the prisoner stabbed him with some sharp instrument which caused his death, and that at the time of this meeting the deceased had no deadly weapon; it was held that in such a case, to mitigate the offence from murder, it must appear, from the previous threats and the circumstances attending the rencontre, that the killing was in self-defence,—the presumption being that the killing was malicious. Malice may be exerted against a party in his absence: as where A. lays poison for B. in his victuals, which B. afterwards takes, and dies. So where A. procures an idiot or lunatic to kill B., which he does. In both instances, A. is guilty of the murder as principal.

There may be a class of cases, to use the words of Chief Justice Shaw, "when, if reasonable doubt arises as to the matter of malice, the court would properly instruct the jury to find manslaughter; as where a mother exposed her infant child in a garden, and it was devoured by a kite, or where the death of a pauper was produced by constant shifting, on the part of the overseers of the poor, from parish to parish.(*b*)

§ 967. Malice is either *general*, *individual*, or *collateral*, and will be considered successively in each relation.

§ 968. 1st. *General.* When an action, unlawful in itself, is done with deliberation, and with intention of mischief or great bodily harm to particulars, or of mischief indiscriminately, fall where it may, and death ensue against or beside the original intention of the party, it will be murder. But if such an original intention doth not appear, which is a matter of fact, and to be collected from circumstances given in evidence, and the act was done heedlessly and incautiously, it will be manslaughter, not accidental death; because the act upon which death ensued was unlawful. Thus, if a person breaking in an unruly horse, willfully ride him among a crowd of persons, the probable danger being great and apparent, and death ensue from the viciousness of the animal, it is murder. For how can it be supposed that a person willfully doing an act so manifestly attended with danger, especially if he showed any consciousness of such danger himself, should intend any other than mischief to those who might be encountered by him. So, if a man mischievously throw from a roof in a crowded street, where passengers are constantly passing and repassing, a heavy piece of timber, calculated to produce death on such as it might fall, and death ensue, the offence is murder, at common law. And upon the same principles, if a man, knowing that people are passing along the street, throws a stone likely to do injury, or shoot over a

(*b*) See Wharton on Hom. 35, and cases cited.

house or wall with intent to do hurt to people, and one is thereby slain, it is murder on account of previous malice, though not directed against any particular individual: it is no excuse that the party was bent upon mischief generally. The line of this species of homicide is very important to preserve intact; for, as has been lately pointedly observed, "particular malice has the limited bounds of the person who is the object of it, and who may be on his guard against it: but general malice has a wider scope, and falls on the unsuspecting. Is a man who fires a pistol at an individual against whom he has ill-will, less criminal than one who fires a pistol at a crowd of an hundred people, against whom he has ill-will as a body, or as a part of the community? The absence of the personal animosity really aggravates the crime. In cases of particular malice, the sophistry of the passions often gives the act the character of a wild retribution, and the assassin persuades himself that he is getting rid of a monster who is a curse to society. This reasoning is perverse and dangerous; but is the state of mind less detestable in which no wrongs, real, exaggerated, or imaginary, inflame the passions against the individual, but in which the knife is driven home to his heart simply because he wears the form of a brother man? Which would argue the higher degree of depravity, the resolution—"I will kill A. and B., who have insulted or injured me," or "will I kill the first man I meet, be he who he may?"

§ 969. 2d. *Individual*, which may be considered (1) in reference to the party killed, and (2) to a third party, when the blow falls on the deceased by mistake.

§ 970. (1.) *In reference to the party killed.*

So far as concerns the individual killed, malice is either express or implied. Express malice is defined to be, where one person kills another with a sedate, deliberate mind, and formed design. Such formed design may be evinced by external circumstances, discovering the inward intention: as lying in vait, antecedent menaces, former grudges and concerted schemes to do the party some bodily harm. And malice is implied by law from any deliberate cruel act committed by one person against another, however sudden: thus, where a man kills another suddenly without any or without a considerable provocation, the law implies malice: for no person, unless of abandoned heart, would be guilty of such an act upon a slight or no apparent cause. And, as will be seen presently, where one is killed in consequence of such a willful act, as shows the person by whom it is committed to be an enemy to all mankind, the law will infer a general malice from such a depraved inclination to mischief. It may be indeed treated as a general rule, that all homicide is presumed to be malicious where an instrument, likely to cause death, is used.(*c*) It should not be forgotten in this connection, that the legal meaning of the term *malitia* or malice, is different from its popular meaning which makes it synonymous with spite. Thus, Lord Holt says, "Some have been led into mistakes by not well considering what the passion of malice is; they have construed it to be a rancor of mind, lodged in the person killing for some considerable time before the commission of the fact: which is a mistake, arising

(*c*) Wh. C. L. 360.

from the not well distinguishing between *hatred* and *malice*. *Envy*, *hatred* and *malice*, are three distinct passions of mind.(*d*) Amongst the Romans, and in the civil law, *malitia* appears to have imported a mixture of fraud, and of that which is opposite to simplicity and honesty. Cicero speaks of it as,(*e*) "*versuta et fallax noncendi ratio*:" and in another work(*f*) he says, "*mihi quidem etium veræ hæreditates non honestæ videntur si sint malitiosis*, (i. e. according to Pearce a *malo animo*, *profectis*) *blanditiis officiorum; non veritate sed simulatione quæsitæ*." And in the Pandects,(*g*) in speaking of a banker or cashier, giving his accounts it is said, "*Ubi exigitur argentarius rationes edere tunc punitur cum dolo malo non exhibit. Dolo malo antem non edit, et qui malitiose edidit et qui in totum non edit.*" At common law, malice is a term of law importing directly wickedness, and excluding a just cause or excuse. Thus, Lord Coke, in his comment on the words, *per malitiam*, says: "If one be appealed of murder, and is found by verdict, that he killed the party *se defendendo*, this shall not be said to be *per malitiam*, because he had a *just cause*."(*h*) And where the statute speaks of a prisoner on his arraignment, standing *mute of malice*, the word clearly cannot be understood in its common acceptation of anger or desire, of revenge against another. Thus, where the 25 Hen. VIII c. 3, says, that persons arraigned of petit treason, &c., standing "mute of malice or froward mind," or challenging, &c., shall be excluded from clergy, the word *malice*, explained by the accompanying words, seems to signify a wickedness or frowardness of mind, in refusing to submit to the course of justice: in opposition to cases where some just cause may be assigned for the silence, as that it proceeds from madness, or some other disability or distemper. And in the Statute 21 Edw. 1, *De malefactoribus in parcis*, trespassers are mentioned, who shall not yield themselves to the foresters, &c., but "*immo malitiam suam prosequendo et continuando*," shall fly or stand upon their defence. And where the question of malice has arisen in cases of homicide, the matter for consideration has been, whether the act was done with or without just cause or excuse: so that it has been suggested, that what is usually called malice implied by law, would perhaps, be expressed more intelligibly and familiarly to the understanding, if it were called *malice in a legal sense*. Malice, in its legal sense denotes a wrongful act, done intentionally, or without just cause or excuse.

§ 971. Malice in this intent, may be considered under the following heads:—

(*a*) Intent to kill.

(*b*) Intent to do bodily harm.(*i*)

(a) *Intent to Kill.*

§ 972. This head admits of no question in its primary sense. Of course, where there is a deliberate intent to kill, unless it be in the discharge of a duty imposed by public authorities, the offence must be murder at common law.(*j*) And it should be observed, that an intermediate

(*d*) Kel. 127. (*e*) De Nat. Deor. Lib. 3, s. 30. (*f*) De Offic. Lib. 3, s. 18.
(*g*) Dig. Lib. 2 Tit. 13, Lex. 8. (*h*) 2 Inst. 384.
(*i*) See Wharton on Hom. 39. (*j*) Wh. C. L. 2d. Ed. 361.

provocation immediately after the happening of which the offence occurred, forms no defence.(*k*) The reason of this is obvious, for if all that is necessary for a man to do to relieve himself from the guilt of murder, is such provocation, there would surely be a case of homicide without it.

In a leading case on this point, the prisoner, with the deceased and another brother, and some neighbors were drinking in a friendly manner at a public house, till growing warm in liquor, but not intoxicated, the prisoner and deceased began in idle sport to pull and push each other about the room. They then wrestled, one fell and soon afterwards they played at cudgel by agreement. All this time, no token of anger appeared on either side till the prisoner, in the cudgel play, gave the deceased a smart blow on the temple. The deceased thereupon grew angry, and throwing away his cudgel, closed in with the prisoner, and they fought a short space in good earnest; but the company interposing, they were soon parted. The prisoner then quitted the room in anger, and when he got into the street, was heard to say, "damnation, seize me if I do not fetch something and stick him;" and being reproved for using such expressions, he answered, "I'll be damned to all eternity if I do not fetch something and run him through the body;" the deceased and the rest of company continued in the room where the affray happened: and in about half an hour the prisoner returned, having put off a thin slight coat he had on when he quitted the room, and put on one of coarse thick cloth. The door of the room being open into the street, the prisoner stood leaning against the door-post, his left hand in his bosom, and a cudgel in his right, looking in upon the company, but not speaking a word. The deceased seeing him in that posture, invited him in to the company; but the prisoner answered, "I will not come in." "Why will you not?" said the deceased. The prisoner replied, "perhaps you will fall on me and beat me." The deceased assured him, he would not; and added, "besides, you think yourself as good a man as me at cudgel, perhaps you will play at cudgels with me?" "I am not afraid to do so, if you will keep off your fists." Upon these words, the deceased got up and went towards the prisoner, who dropped the cudgel as the deceased was coming up to him. The deceased took the cudgel and with it, gave the prisoner two blows on the shoulder. The prisoner immediately put his right hand in his bosom, and drew out the blade of a tuck sword, crying, "Damm you, stand off, or I'll stab you:" and immediately without giving the deceased time to step back, made a pass at him with the sword, but missed him. The deceased thereupon, gave back a little, and the prisoner shortening the sword in his hand, leaped forward towards the deceased and stabbed him to the heart, and he instantly died. The judges unanimously agreed, that there were in this case, so many circumstances of deliberate malice and deep revenge on the defendant's part, that his offence could not be less than willful murder. He owned that he would fetch something and stick *him*—to run *him* through the body. Whom did he mean by him? Every circumstance in the case showed that he meant his brother. He returned to the com-

(*k*) Ibid.; Russell on Crimes, 515.

pany, provided, to appearance, with an ordinary cudgel, as if he intended to try skill and manhood a second time with that weapon; but the deadly weapon was all the while carefully concealed under his coat, which, most probably he had changed for the purpose of concealing the weapon. He stood at the door refusing to come nearer, but artfully drew on the discourse of the past quarrel; and as soon as he saw his brother disposed to engage a second time at cudgels, he dropped his cudgel, and betook him to the deadly weapon, which, till that moment, he had concealed. He did indeed, bid his brother to stand off, but he gave him no opportunity of doing so, before the first pass was made. His brother retreated before the second; but he advanced as fast and took the revenge he had vowed. The circumstance of the blows before the sword was produced, which probably occasioned the death, did not alter the case, nor did the preceding quarrel; because all circumstances considered, he appeared to have returned with a deliberate resolution, to take a deadly revenge for what had passed.(*l*)

Malice can never or rarely be directly proved, and the evidence of it, therefore being circumstantial, any facts which go to afford an inference of its existence, are admissible. But it would seem that the malice proved, must be directed to the particular act for which the prisoner is tried, as otherwise the issue might become much encumbered. Thus it was held in Tennessee, that on a trial of an indictment for murder, evidence that the prisoner, a short time before the murder, had set fire to the house of the deceased in the night time, was inadmissible for the purpose of proving that the prisoner had committed the murder—where, however, there is established a settled purpose of revenge on the part of the prisoner, such evidence would seem to be admissible if it appeared to be one of the manifestations of such spirit. Evidence, that the prisoner had beaten his wife, and forced her to abandon the house and seek refuge under the protection of the deceased, has been held proper proof of malice prepense on the part of the prisoner. Malice of this kind, it is well stated by Mr. Greenleaf, may be shown from the circumstances attending the act, such as the deliberate selection and use of a lethal weapon, knowing it to be such; a preconcerted hostile meeting, whether in a regular duel with seconds, or in a street fight mutually agreed upon, or notified or threatened by the prisoner; privily lying in wait; a previous quarrel or grudge; the preparation of poison, or other means of doing great bodily harm or the like.(*m*)

(b) *Intent to do Bodily Harm.*

§ 973. At common law the intent to do bodily harm, followed up by homicide, constitutes murder; though such an offence falls in this country, in those States where the distinction exists, under the head of murder in the second degree. Homicides of this kind are numerous, and it is easy to suppose of homicide in a duel that may be so ranked, *e. g.* where the intention is to *maim* and not to *kill*. The distinction in a case of this kind, is undoubtedly very delicate: and where a statutary line must be drawn, it would, perhaps, be wiser to say, that when the

(*l*) Wharton on Hom. p 40. (*m*) Ibid. p. 41

damage intended, was such as would probably result in death, it is murder in the first degree, even though death may have been but incidental to the offender's purpose. Although A. intends only to beat B. in anger, from preconceived malice, and happens to kill him, it will be no excuse that he did not intend all the mischief that followed: for what he did, was *malum in se*, and he must be answerable for its consequences. He beat B. with an intention of doing him some bodily harm, and is therefore answerable for all the harm he did. So, if a large stone be thrown at one with a deliberate intent to hurt, though not to kill him, and by accident it kill him, or any other, it is murder. But the nature of the instrument, and the manner of using it as calculated to produce great bodily harm or not, will vary the offence in all such cases. In a more recent case, it appeared that the deceased being in liquor, had gone at night into a glass-house, and laid himself down upon a chest, and that while he was there asleep, the prisoners covered and surrounded him with straw, and threw a shovel of hot cinders upon his belly, the consequence of which was, that the straw ignited, and he was burnt to death; there was no evidence of express malice, but the conduct of the prisoners indicated an entire recklessness of consequences, hardly consistent with anything short of design. Patterson, J., adverted to the fact of there being no evidence of express malice, but told the jury, that if they believed the prisoner really intended to do any serious injury to the deceased, although not to kill him; it was murder. But if they believed their intention to have been only to frighten him in sport, it was manslaughter.(*n*)

§ 974. (2.) *In reference to a third party when the blow falls on the deceased by mistake.*—Where an injury, intended for one person, mortally affects another, as where a blow aimed at one person alights upon another, and kills him, the inquiry will be whether, if the blow had killed the person against whom it was aimed, the offence would have been murder or manslaughter. For, if a blow intended against A. and lighting upon B., arose from a sudden transport of passion, which, in case A. had died by it, would have reduced the offence to manslaughter, the fact will admit of the same alleviation if it shall have caused the death of B.(*o*) And, on the same principle, A. having malice against B., strikes at and misses him, but kills C.; this is murder in A.: and if it had been without malice and under such circumstances that, if B. had died, it would have been manslaughter, the killing of C. also would have been but manslaughter.(*p*) Again, A. having malice against B., assaults him and kills C., the servant of B., who had come in aid of his master; this is murder in A.: for C. was justified in attacking A. in defence of his master who was thus assaulted. In another case, if A. gave a poisoned apple to B., intending to poison her, and B., ignorant of it, gave it to a child, who took it and died, this is murder in A. but no offence in B.; and this, though A., who was present at the time, endeavored to dissuade B. from giving it to the child.(*q*) So where Plummer and seven others opposed the king's officers in the act of seiz-

(*n*) See Wharton on Hom. p. 42.

(*o*) Fort, 262.

(*p*) 1 Hale, 379, 439, 466; Dyer, 128; Bd. 111, 112, 117; Pult de Pace, 1246; Foot, 261; 1 Hawk. C. 31, 542; State *v.* Cooper, 1 Green, N. J. R.; State *v.* Benton, 2. Dev. and Bat. 196.

(*q*) 1 Hale, 230; 2 Plowden's Com. 474.

ing wool. One of those persons shot off a fusee and killed one of his own party. The court held, in giving judgment upon a special verdict, that, as the prisoner was upon an unlawful design, if he had in pursuance thereof discharged the fusee against any of the king's officers that came to resist him in the prosecution of that design, and by accident had killed one of his own accomplices, it would have been murder in him. As if a man, out of malice to A., shoot at him, but miss him and kill B., it is no less a murder than if he had killed the person intended. And, again, where the prisoner had fired a loaded pistol at a person on horseback, and declared that he did so only with the intention to cause the horse to throw him, and the ball hit another person and killed him, it was held that the crime was murder. If a man have a sudden quarrel and fight with A., by which his passions are strongly excited, and while his passions are thus excited, he, without any real or supposed provocation, kill B., who is an utter stranger to the whole affair, and has not interfered in the quarrel nor been in any way connected therewith, even in the party's own suppositions, it will be murder. But where the prisoner having had a quarrel with his wife, and aimed a blow at her with an axe which fell on the head of his infant son then in her arms, by which it was instantly killed, it being shown that the prisoner was ignorant of his child's position, and was at the time in the heat of blood, seeking to avenge himself on his wife for a supposed injury, it was held that as the case was to be considered as if the wife had been the victim, the same grade of homicide would attach to the killing of the child as it would have done to that of the wife, had she been killed. But in this, as in cases of malice prepense and express, if the blow intended for one would in law have amounted to manslaughter, it will still be the same, though by mistake or accident it kill another. Thus, in an old case, a quarrel arising between some soldiers and a number of keelmen at Sandgate, a violent affray ensued, and one of the soldiers was very much beaten. The prisoner, a soldier who had before driven a part of the mob down the street, with his sword in his scabbard, on his return, seeing his comrades thus used, drew his sword and bid the mob stand clear, saying he would sweep the street; and on their pressing on him he struck at them with the flat side, and as they fled, pursued them. The other soldier in the meantime had got away, and when the prisoner returned he asked whether they had murdered his comrade; and being several times again assaulted by the mob, he brandished his sword and bid them keep off. At this time, the deceased, who from his dress might be mistaken for a keelman, was going along about five yards from the prisoner; but before he passed, the prisoner went up to him and struck him on the head with his sword, of which he presently died. This was holden manslaughter: it was not murder, because there was no previous provocation, and the blood was heated in the contest; nor was it self-defence, because there was no inevitable necessity to excuse the killing in that manner.(*r*)

A widow finding that one of her sons had not prepared her dinner as she had directed him to do, began to scold him, upon which he made her some very impertinent answers, which put her in a passion, and she took up a small piece of iron used as a poker, intending to frighten him,

(*r*) Wharton on Hom. 43.

and seeing she was very angry, he ran towards the door of the room, when she threw the poker at him, and it happened that the deceased was just coming in at the moment, and the iron struck him on the head and caused his death. Parke, J. A. J., said to the jury, "No doubt this poor woman had no more intention of injuring this particular child than I have, but that makes no difference in the law. If a blow aimed at an individual unlawfully—and this was undoubtedly unlawful, as an improper mode of correction—and strikes another and kills him, it is manslaughter; and there is no doubt if the child at whom the blow was aimed had been struck and died, it would have been manslaughter; and so it is under the present circumstances."(*s*)

Under this head may be classed the cases where medicine is administered or an operation performed with an intent to produce an abortion, and where the mother dies under the process. At common law this has been held to be murder.(*t*) If there is mixed up in the offence an intent to do bodily harm to the mother, the same result follows.(*u*) In a late case in Maine it has been said, that as the general principal of law is that homicide, with an intent to commit a misdemeanor, is but manslaughter, so in this case, if the destruction of the *fœtus* be but a misdemeanor, the offence is only manslaughter.(*v*) This, however, is not the received doctrine,(*w*) by which the offence is treated as murder, the destruction of an infant, *en ventre sa mere*, being, even at common law, in some respects felonious, and the act in its nature malicious and deliberate, and necessarily attended with great danger to the person on whom it is practiced.

§ 975. (3.) *From Collateral Malice.*—Malice may be said to be collateral when it is directed to an object other than that of human life or limb; as, for instance, when the object is to commit a felony or a misdemeanor, in the pursuit of which human life is incidentally taken. At common law, when a party in the attempt to perpetrate a felony takes life, he is guilty of murder, though the taking of life was the result of mere accident,—*e. g.*, where he shoots a tame fowl with the intention of killing it, and the ball aimed at the fowl strikes a child and kills it. By statutes which obtain in most of the States this principle, so far as concerns the higher grade of felonies, has been definitely established, it having been enacted that all murder committed in the perpetrations of, or the attempt to perpetrate any burglary, rape, robbery, or arson, shall be murder in the first degree. Where, at common law as well as under these statutes, the unlawful act to which death is incidental is a mere misdemeanor, the homicide is but manslaughter. Thus if the attempt is to poach on another man's premises for the purpose of shooting wild game, and a stranger is accidentally killed, this is but manslaughter; and so if death ensue in the prosecution of an unlawful game.

II. Manslaughter

§ 976. Is the unlawful and felonious killing of another, without

(*s*) R. *v.* Couner, 1 C. & P. 438.
(*t*) 1 Hale, 90; Com. *v.* Chauncy, 2 Ashmead 227; Smith *v.* State, 3 Redding, 48.
(*u*) Ibid. (*v*) Smith *v.* State, 3 Redding, 48.
(*w*) Wh. C. L. 3 ed. 537; 1 Hale, 90; Com. *v.* Chauncy, 1 Ashmead, 227.

any malice either express or implied.(*x*) Manslaughter differs from murder in this, that though the act which occasions the death be unlawful, or likely to be attended with bodily mischief, yet the malice either express or implied, which is the very essence of murder, is presumed to be wanting, the act being imputed to the infirmity of human nature; and the punishment is proportionately lenient.(*y*) It is no defence to an indictment for manslaughter that the homicide therein alleged appears by the evidence to have been committed with malice aforethought, and was therefore murder; but the defendant in such a case may notwithstanding be properly convicted of the offence of manslaughter.(*z*)

Manslaughter at common law is of two kinds. 1st. Voluntary manslaughter, which is the unlawful killing of another without malice, on sudden quarrel or in heat of passion. Where, upon sudden quarrel, two persons fight and one of them kills the other, this is voluntary manslaughter, and so if they, upon such occasion, go out to fight in a field; for this is one continued act of passion. So, also, if a man be greatly provoked by any gross indignity, and immediately kills his aggressor, it is voluntary manslaughter, and not excusable homicide, not being *se defendendo;* neither is it murder, for there is no previous malice. In these and such like cases, the law, kindly appreciating the infirmities of human nature, extenuates the offence committed, and mercifully hesitates to put on the same footing of guilt, the cool deliberate act and the result of hasty passion.

§ 977. 2d. Involuntary manslaughter, where a man doing an unlawful act, not amounting to felony, by accident kills another. It differs from homicide excusable by misadventure, in this: that misadventure always happens in the prosecution of an unlawful act, but this species of manslaughter in the prosecution of an unlawful one. Where a person does an act lawful in itself but in an unlawful manner, this excepts the killing from homicide excusable *per infortunium* and makes it involuntary manslaughter. In general where an involuntary killing happens in consequence of an unlawful act, it will be either murder, or manslaughter, according to the nature of the act which occasioned it: if it be in prosecution of a felonious intent, or in its consequences naturally tended to bloodshed it will be murder; but if no more was intended than a mere civil trespass, it is manslaughter.(*a*)

§ 978. III. EXCUSABLE HOMICIDE is of two kinds: 1st. Where a man doing a *lawful* act, without any intention to hurt, by accident kills another; as for instance, where a man is hunting in a park, and unintentionally kills a person concealed. This is called homicide *per infortunium*, or by misadventure. 2d. *Se defendendo* or in self-defence, which exists (to adopt the definition of Mr. Greenleaf),(*b*) where one is as-

(*x*) 1 Hale, 449; 1 Hawk. c. 30, s. 3; Parker J., Selfridge's Trial, 158; State *v.* Norris 1 Hay. 429.

(*y*) *Ex parte* Taylor, 5 Carver, 51; King *v.* Com. 2 Ma. Cas. 78; Com. *v.* Bob. 4 Dall. 125; State *v.* Lorkey, 2 Kell. 8 C. Dig. 104; Penn *v.* Levin, Addison 279; State *v.* Travers, 2 Wheel. C. C. 506; Com. *v.* Mitchell, 1 Va. Cas. 716; Parker J. Selfridge's Trial 158; 1 Hale 449, 450, 466; 3 Inst. 55; 1 Hawk. c. 30, s. 2, *vide* R. *v.* Mawgridge, Kel. 124; Fost. 290, *vide* Lord Cornwallis' case, Dom. Proc. 1678; 2 St. Tr. 730.

(*z*) Com. *v.* McPike, 3 Cush. 181.

(*a*) 4 Bl. Com. 191.

(*b*) 3 Greenleaf Ev. § 116.

saulted upon a sudden affray, and in the defence of his person, where certain and immediate suffering would be the consequence of waiting for the assistance of the law, and where in such case, there being no other means of escape, he kills the assailant. To reduce homicide in self-defence to this degree, it must be shown that the slayer was closely pressed by the other party, and retreated as far as he conveniently or safely could, in good faith, with the honest intent, to avoid the violence of the assault. The jury, as will be presently seen more fully, must be satisfied that unless he had killed the assailant, he was in imminent and manifest danger of either losing his own life, or of suffering enormous bodily harm.(*c*) By the older text-writers, this species of homicide is sometimes called chance medley, or *chaud medly*, words of nearly the same import; and closely borders upon manslaughter. In this case, as well as that of manslaughter, the theory is, that passion has kindled on each side, and that blows have passed. The distinction, however, is that in manslaughter, it must appear that either the parties were actually in mutual combat when the mortal stroke was given, or that the slayer was not at that time in imminent danger of death; but that in homicide excusable in self-defence, it must appear, either that the slayer had not begun the fight, or that, having begun, he endeavored to decline any further struggle, and afterward being closely pressed by his antagonist, he killed him, to avoid his own destruction.(*d*) The same right of self-defence is extended to the relations of master and servant, parent and child, and husband and wife; and to those cases where homicide is unavoidably committed in the defence of the possession of one's dwelling-house, against a trespasser, who, having entered, cannot be put out otherwise than by force; and where no force is used, and where no instrument or mode is employed than is necessary and proper for that purpose. Under the same general head of excusable homicide may also be enumerated that class of cases, where two persons are reduced to the alternative, that one or the other or both must certainly perish, as, where two shipwrecked persons are on one plank which will not hold them both, and one thrust the other from it, so that he is drowned, the survivor is excused.

§ 979. The distinction, in result, between justifiable and excusable homicide is now practically exploded. In former times, in the latter case, as the law presumed that the slayer was not wholly free from blame, he was punished, at least by forfeiture of goods. But in this country, this rule is not known ever to have been recognized; it having been the uniform practice here, as it now is in England, where the grade does not reach manslaughter, for the jury, under the direction of the Court, to acquit.

§ 980. IV. JUSTIFIABLE HOMICIDE(*e*) is that which is committed either, 1st. By unavoidable necessity, without any will, intention or desire, or

(*c*) Bl. Com. 182; 1 Russ. on Crimes, 666, 661; Whart. Am. Crim. Law, 385, 397. Qui cum, aliter tueri se non possunt, damni culpam dederint, innoxii sunt. Vim enim vi defendere omnes leges omniaque jura, permittant.—Dig. lib. 9, tit. 2, l. 45, § 4. Is, qui aggressorem vel quemcunque alterum in dubio vitæ discrimine constitutus occiderit, nullam ob id factum calumniam meruere debet.—Cod. lib. 9, tit. 16, l. 2.

(*d*) 4 Bl. Com. 184; 1 Russ. on Crimes, 661; State *v.* Hill, 4 Dev. & Batt. 491.

(*e*) United States *v.* Wiltberger, 3 Washburn, 515. And see State *v.* Rutherford, 1 Hawks. 457; State *v.* Roane, 2 Dev. 58.

any inadvertence or negligence in the party killing, and, therefore, without blame; such as, by an officer, executing a criminal, pursuant to the death-warrant, and in strict conformity to the law in every particular; or, 2dly. For the advancement of public justice; as, where an officer in due execution of his office, kills a person who assaults and resists him; or where a private person or officer attempts to arrest a man charged with felony and is resisted, and in the endeavor to take him, kills him; or if a felon flee from justice, and in the pursuit he be killed, where he cannot otherwise be taken; or, if there be a riot, or a rebellious assembly, and the officers or their assistants, in dispersing the mob, kill some of them, where the riot cannot be otherwise suppressed; or, if prisoners in jail, or going to jail, assault or resist the officers, or their aids, in repelling force by force, kill the party resisting; or, 3dly. For the prevention of any atrocious crime, attempted to be committed by force; such as murder, robbery, house-breaking in the night time, rape, mayhem, or any other act of felony against the person.(*f*) But in such cases, the attempt must not be merely suspected, but apparent, and the danger must be imminent, and the opposing force or resistance necessary to avert the danger or to defeat the atttempt.(*g*)

§ 981 V. MURDER IN THE SECOND DEGREE. As already observed, statutes exist in most of the United States, dividing murder as it stood at common law into two degrees, to the first of which is attached the penalty of death, and to the second imprisonment. The origin of this distinction was the reluctance felt to attach death to any other offences than those in which death was intended. The *Lex Talionis*, as well as the necessities of human society, would require, it was thought, a continuance of capital punishment in cases of deliberate homicide; but it seemed hard, as well as unnecessary, to take the life of the offender where the offence for which he was tried was one which he had never premeditated. To obviate these difficulties the statutes were passed, which, while they differ among themselves in phraseology, unite in the general principle, that where murder is *intentional*, or where it is committed in the perpetration or the attempt to perpetrate any burglary, arson, rape or robbery, or where it is by poison, it is murder in the *first* degree; when not falling under either of these heads, murder in the *second* degree.

§ 982. By judicial interpretation the following propositions may be considered as established:

§ 983. 1st. *A specific intent to take life* is the distinguishing test by which murder in the first degree may be determined. Where it exists

(*f*) 4 Bl. Com. 182; 1 Russ. on Crimes, 657–660.

(*g*) The above definition is taken from Mr. Greenleaf (3 Greenl. on Evid. 315), who refers to 4 Bl. Com. 178–180; 1 Russ. on Crimes, 665, 660; Whart. Am. Crim. Law, 299. The Roman civil law recognized the same principles. Qui latronem (insidiatorem) occederit, non tenetur, utique si aliter periculum effugere non protest.—Inst. lib. 4, tit. 3, § 2. Furem nocturnum, si quis occiderit, ita demum impune feret, si parcere ei sine periculo suo non potuit.—Dig. lib. 48, tit. 8, l. 9. Qui stuprum sibi vel suis per vim inferentem occidit, dimmittendum.—Dig. lib. 48, tit. 8, l. 1, § 4. Si quis percussorem ad se venientem gladio repulerit, non ut homicida tenetur; quia defensor propriæ salutis in nullo pecasse videtur.—Cod. lib. 9, tit. 16, l. 3. In the cases mentioned in the text, if the homicide is committed with undue precipitancy, or the unjustifiable use of a deadly weapon, the slayer will be culpable.—See Alison's Crim. Law of Scotland, p. 100; Id. 132-139.

the capital offence is consummated. Where it is wanting, no matter how long may have been the premeditation, how decided the willfulness, or how pointed the malice, it is but murder in the second degree. Thus, if a man designedly beat another to a jelly, from which death results, this is but murder in the second degree, if it appear that the intent was merely to inflict bodily harm. And so if in a riot, in the wildness of collision, fire arms are discharged with intent merely to maim an antagonist, or to redress some imaginary wrong, and life is taken, it is but murder in the second degree.(*h*)

§ 984. 2d. Homicide by poisoning is not necessarily murder in the first degree. The statutes, it should be recollected, use the term, all "*murder*,") (not all "*homicide*,") by poison, &c., is murder in the first degree. Hence, if the poisoning would have been manslaughter or misadventure at common law, it will not be raised to murder in the first degree by the mere force of the statute. Thus, if poison be laid for the purpose of unlawfully killing game, or for the purpose of effecting any other misdemeanor, or if a poisonous drug be negligently administered by a quack, and death result, this would be manslaughter at common law; and not being "murder," is not affected by the statute which applies to "murder" alone.(*i*) Hence, a verdict of murder in the second degree will not be disturbed, even though it appear that the case was one of deliberate poisoning.(*j*)

§ 985. 3d. When the murder is collateral to any arson, rape, robbery, or burglary,—and in Tennessee, larceny,—it is necessarily murder in the first degree.

§ 986. 4th. When in the pursuit of the life of A., B. is unintentionally killed, the general opinion is, this is murder in the second degree, though as to this there has been some doubt.(*k*)

§ 987. 5th. The specific intent to take life, which is the distinguishing feature of murder in the first degree, may be inferred from the same circumstances from which design in other cases is presumed. If one man shoot another through the head with a musket or pistol ball,—if he stab him in a vital part with a sword or dagger,—if he cleave his skull with an axe or the like,—it is almost impossible for a reflecting and intelligent mind to come to any other conclusion, than that the perpetrators of any such acts of deadly violence, intended to kill. Where the defendant deliberately procured a butcher's knife, and sharpened it for the avowed purpose of killing the deceased; where he concealed a dirk in his breast, stating, shortly before the attack, that he knew where the seat of life was; where he thrust a hankspike deeply into the forehead of the deceased; the presumption was held to exist that the killing was willful. But it is not necessary, to warrant a conviction of murder in the first degree, that the instrument should be such as would necessarily produce death. Thus, where the weapon of death was a club, not so thick as an axe handle, the jury, under the charge of the Court, rendered a verdict of murder in the first degree, it appearing that the blow was induced by a deliberate intention to take life. The same presumption of intention is drawn with still greater strength from the declared purpose of the defendant, which is always

(*h*) Wharton on Hom. 386. (*i*) Ibid, 359. (*j*) Ibid, 359,360. (*k*) Ibid, 362,363.

admissable in evidence for such a purpose. Thus, where the prisoner, a negro, said he intended "to lay for the deceased, if he froze, the next Saturday night," and where the homicide took place that night; where it was said, "I am determined to kill the man who injured me;" where the prisoner declared, the day before the murder, that he would certainly shoot the deceased; where, in another case, the language was, "I will split down any fellow that is saucy;" where the prisoner rushed rapidly to the deceased, and aimed at a vital part; where a grave had been prepared a short time before the homicide, though the deceased was not ultimately placed in it, the whole plan of action being changed; in each of these cases it was held murder in the first degree.

B.—Corpus Delicti.(*l*)

§ 988. I. That a death took place.

"I would never," said Lord Hale, "convict any person of murder or manslaughter, unless the fact were proved to be done, or at least the body found dead."(*m*) The civilians are no less emphatic. "Diligenter cavendum est judici, ne suppliciump ræcipitet, antequam de crimine constiterit."(*n*) "De corpore interfecti necesse est ut constet."(*o*) Numerous cases attest the necessity of this check. Thus we are told of a Frenchman who was convicted on his own confession, of the murder of a widow, who, two years afterwards, returned to her home, and had never received any injury whatever. And as Bunyan tells us:—"Since you are entered upon stories, I also will tell you one, the which, though I heard not with my own ears, yet my author I dare believe. It is concerning one old *Tod* that was hanged about twenty years ago, or more, at *Hartford*, for being a thief. The story is this: At a Summer Assize, holden at *Hartford*, while the Judge was sitting upon the bench, comes this old *Tod* into the court, clothed in a green suit, with his leathern girdle in his hand, his bosom open, and all in a dung sweat, as if he had run for his life; and being come in he spake aloud as follows: *My Lord*, said he, *here is the veryest rogue that breathes upon the face of the earth; I have been a thief from a child; when I was but a little one, I gave myself to rob orchards, and to do other such like wicked things, and I have continued a thief ever since. My Lord, there has not been a robbery committed this many years, within so many miles of this place, but I have either been at it, or privy to it.* The Judge thought the fellow was mad; but after some conference with some of the justices, they agreed to indict him, and so they did, of several felonious actions; to all of which he heartily confessed guilty, and so was hanged with his wife at the same time." And yet in this case, the guilt, if not imaginary in fact, was so in law, so far as concerned all the purposes of the trial.

§ 989. A case occurred at Ratisbon, in 1849,(*p*) of which the following is a brief abstract: A girl 20 years of age, was arrested on the supposition that she had committed infanticide. Being brought before the examining magistrate, a few days after the alleged commission of the crime, she made

(*l*) See as to Identification of Dead Body, *ante*, § 473, &c.
(*m*) 2 Hale, P. C. 290, and see Tyner *v.* State, 5 Hump. 383.
(*n*) Matth. de Crim. in Dig. lib. 48, tit. 16, ch. 1.
(*o*) Matth. Probat. ch. 1, n. 4, p. 9.
(*p*) Henke's Zeitschrift, E. H. 41.

the following statement: "I was a domestic in the house of the brewer L., but was dismissed from his service on account of being far gone in pregnancy, and near my confinement. After returning to my home in the country, I came back to the town to get my clothes. But on the way, as I came near the bridge, I felt severe pains, and soon became sure that labor had commenced. My situation was distressing; I was entirely alone and helpless. Meanwhile it became dark, the pains became more and more severe, and about midnight I was delivered of a boy. The child was living when it came into the world, for it cried, and when I put my finger in its mouth it sucked; in truth at first I had great joy over the child; soon, however, I could not bear to look at it; the fear of shame and exposure, and the thought that perhaps I would never be able again to obtain a situation, got the better of me;—I ran, without further hesitation to the bridge, with the child in my arms, and threw it over into the deepest part of the river, where it soon disappeared." She afterwards gave still more minute details, relative to her pregnancy and the birth of the child, all of which were perfectly consistent and natural. Upon the physical examination, (which is directed by the Bavarian penal code,) it was discovered that she had not been pregnant! She was taken to the hospital and leeches freely applied to her head, under which treatment she soon recovered her reason and her usual bodily health. Very probably the delusion might have become a fixed one, had this rational treatment not been adopted at the proper time.

§ 990. An equally singular case in this country is that of two brothers, named Boorns, who, on being charged with the murder of another, were convicted and sentenced to death, chiefly on their admissions, but were fortunately relieved from execution by the re-appearance of their alleged victim. To the same effect is a case in Illinois, in 1841, where three brothers named Trailor, were arrested on the charge of murdering a man named Fisher, who, when last seen, had been in their company. Strong circumstantial evidence was produced, showing the traces of a death struggle, where the homicide was alleged to have been committed; and the case was fortified by expressions alleged to have been subsequently used by one of the brothers as to his having become legatee of the deceased's property. The examination had scarcely finished before one of the three defendants made a confession, detailing circumstantially the whole transaction, showing the previous combination, and ending with a direct statement, under oath, of the homicide. "To the amazement of the whole country, however, the deceased made his appearance in just time enough to intercept a conviction; and the only way of accounting for the confession which had been produced, was, that the party who made it, in the desperation of impending conviction, took this method of cutting short suspense.(*r*)

§ 991. To the general rule, however, two qualifications may be recognized. In the first place, when the decease is proved by eye witnesses, inspection of the body is unnecessary. Thus in a case in England, the prisoner, a seaman on board of the ship Eolus, was charged with the murder of his captain. The first count of the indictment alleged the murder to have been committed by a blow from a

(*r*) See *ante* § 473, &c.

large piece of wood, and the second by throwing the deceased into the sea. It appeared in evidence that, while the ship was lying off the coast of Africa, where there were several other vessels near, the prisoner was seen one night take the captain up in his arms and throw him into the sea, after which he was never seen or heard of; but that near the place on the deck where the captain was seen, was found a billet of wood, and the deck and part of the prisoner's dress was stained with blood. On this, it was objected by the prisoner's counsel that the *corpus delicti* was not proved, as the captain might have been taken up by some of the neighboring vessels; but the court, although they admitted the general rule of law, left it to the jury to say upon the evidence, whether the deceased was not killed before the body was cast into the sea, and the jury being of that opinion, the prisoner was convicted and executed.

§ 992. So also when it is shown that the body was destroyed by any chemical or mechanical agents it is, of course, unnecessary that the existence of the remains should be proved. Mr. Bentham very naturally asked whether Lord Hale's rule would not have necessarily to be relaxed whenever a part of the guilty plot was the decomposition of the body in lime, or in any of the other known chemical menstrua, or of its being submerged in an unfathomable part of the sea. And the late trial of Dr. Webster furnishes an apposite answer to this inquiry. Some portions of the deceased's body, it is true, were in this case recovered, and these enough to ensure its identification, but had this not been the case, and had there been adequate positive evidence of the fact of guilt *elsewhere*, it is not likely that the result would have been different. That an entire destruction of the body is practicable was lately illustrated by a case but too familiar to the professional mind in this country. A gentleman of much respectability was accidentally caught under the rafters of a burning building, and when, a few hours after, his remains were sought for, nothing could be found that afforded the slightest index of identity. And still more complete would be the obliteration of this species of evidence by the method suggested by Mr. Bentham, of submerging in an unfathomable part of the sea. Murders on shipboard must generally be of this class, and yet the books abound with cases where this species of homicide has been punished. And the testimony taken in the Webster case, which will in a moment be reported in full, shows that by means of chemical *menstrua* there could be an entire immunity secured to guilt if the production of the remains were insisted on. Thus Dr. Jackson said "that the flesh of a human body, if cut up into small pieces and boiled in potash, might be dissolved in two or three hours. Next to this the best substance to use in dissolving or disposing of a human body would, I think, be nitric acid, and the difficulty or danger attendant upon its use, so far as the evolution of noxious vapor is concerned, would depend upon the degree of heat applied." Since then the destruction of the body is practicable, and since, if the production of the body be necessary to conviction, the worst species of homicide would go unpunished, it is obvious that the continued existence of the body cannot be considered, as is popularly supposed, essential to the judicial establishment of guilt. And, in fact, an examination even of Lord Hale's dictum, which is most relied on

for the contrary opinion, shows that the "finding of the body dead" is only given as an alternative to "proving" that the fact was done." But when the *fact of death* is not positively and indisputably shown there should be the severest scrutiny applied and the most conclusive evidence afforded, in order to make a conviction justifiable.

§ 993. If the circumstances connected with the homicide of Dr. Parkman by JOHN W. WEBSTER do not of themselves place that case in the front rank of those in which the value and nature of indicatory testimony are determined, the admirable manner in which the case was tried, both by the prosecution and the defence, and the elaborate and perspicuous character of the report published by Mr. BEMIS, combine to secure to it that position.(*s*) According to the introductory summary by the Attorney General, in which the evidence as subsequently developed is stated with great exactness and fairness, Dr. George Parkman, a well known and highly respectable citizen of Boston, was living in that city in good health and cheerful spirits, on the twenty-third day of November, 1849, and was engaged in his usual occupation on that day, up to fifteen minutes before two o'clock, at which time he was last seen alive entering the Medical College in Grove Street. He did not return to his dinner on that day; a fact which, on account of his well-known habits of punctuality, was of itself calculated to excite uneasiness in his family. It will appear that he had, at that time, an invalid daughter to whom he was tenderly attached; and upon that day, with a view, probably, of procuring a delicacy agreeable to her taste, he had purchased a quantity of lettuce—a rare plant at that season—which he left at a shop near the Medical College, with the intention, as the evidence indicates, of returning and taking it home with him upon going to his dinner. At the Medical College, the defendant, Dr. Webster, was then possessed of apartments used by him as a laboratory, and offices connected with his professorship. At that shop he made certain purchases, went from thence towards the Medical College, saying he would return in a few moments. He did not return. His family and his friends became alarmed. They waited, however, until the next morning before making any public movement in relation to his absence. On that day, which was Saturday the 24th, his relatives, those who had been in his employment, those who knew him and knew his habits, were informed of his disappearance, and a general search, though conducted with somewhat less of publicity than was afterwards resorted to, was commenced.

§ 994. The police were applied to, to aid in that search; and in the evening papers of Saturday, notices were published, calling the attention of the public to the fact of his disappearance. Rumors of his having been seen were rife. When brought to the knowledge of those who conducted the search, they were promptly traced out, and were found in every instance to be entirely unfounded. His friends and the police heard so many confident statements of his having been seen in different parts of the city, that in one of the advertisements which was published at a very early period after his disappearance, he was represented by them as having been seen in or near Washington Street on Friday afternoon at five o'clock.

(*s*) Rept. of case of J. W. Webster, Boston, 1850.

§ 995. On tracing this rumor and others like it to their source, it was satisfactorily ascertained by those who had the deepest interest in following up this search with assiduity, vigilance, and care, that the persons from whom these rumors proceeded, in every instance, were either mistaken in respect to the time when he was seen, or the identity of the person. The entire police force of the city were brought into requisition: handbills were issued offering the most liberal rewards;—one of them a reward of three thousand dollars. When these rewards were offered to the public, and no tidings of him were obtained, whatever might have been the hopes and expectations of those who had looked for his re-appearance, those hopes and expectations gave way; and the apprehensions which had begun to be entertained by his friends, the police, and the public, deepened into certainty that he was no longer in the land of the living. In the course of Sunday, the day following the first publications in the newspapers, the family of Dr. Parkman learned from Dr. Webster that, on the Friday previous, Dr. Parkman had been in his company, at the Medical College, at half past one o'clock.

§ 996. The search was continued through Monday, Tuesday, Wednesday, Thursday, and up to Friday of the week following his disappearance; and although those who were engaged in it did occasionally hear, as I have already remarked, that he had been seen after the time when he was represented by the prisoner to have been in his rooms at the Medical College, and although they pursued every report, and followed up diligently every rumor which came to their knowledge—going to Salem, East Boston, to different parts of the city where he was reported to have been seen,—yet no reliable information could be obtained respecting him. Handbills were circulated in every direction. The river was dredged.

§ 997. The yards, the out-buildings, the dwelling-houses in the west part of the city, where he was known to have had a large property, were thoroughly and faithfully searched. And beyond the city, for an extent of sixty miles throughout the adjacent towns, the most diligent inquiries were set on foot by the chief of police. And although there was some floating evidence that Dr. Parkman had been seen after he had entered into the Medical College, upon a critical examination of this evidence, it was found to rest on no such data, as to time, as to secure for it any confidence. On Monday and Tuesday there was a search at the Medical College; but, while in other portions of the building the search was prosecuted with extreme thoroughness, the examination of Dr. Webster's apartments was a mere formal one,—no suspicion on the part of the police then having attached to him; and such a suspicion, of course, being very unlikely, unless upon some strong grounds, to be fastened upon him by any one. On Friday, the thirtieth of November, in a vault of the privy connected with the prisoner's laboratory at the Medical College, were found certain parts of a human body answering to the description of Dr. Parkman. They consisted of a pelvis (or the hips and the portion of the body included between them), of the right thigh, from the hip to the knee, and of the left leg from the knee to the ankle; and with them were found certain towels marked with the initial of the prisoner's name, and similar to those used by him in his laboratory. On Friday evening and Saturday morning were also found in an assay furnace of the laboratory, fused

with slag and cinders, a great number of fragments of human bones, and certain blocks of mineral teeth; portions of the bones fused in with the residuum of the coal, still adhering to the sides of the furnace,—thus demonstrating that they had been subjected to the action of the fire in that furnace.

§ 998. Small quantities of gold which had been melted, and other substances, including a shirt button, were also found in the same place, the details of which will be disclosed to you by the testimony. In the course of the day on Saturday, there was found in a remote corner of the laboratory, in a place which had been noticed but not examined on the Tuesday previous, by one witness, who will state the circumstances under which he observed it, a tea-chest, containing imbedded in a quantity of tan, and covered with minerals, the thorax or chest of a human body, the left thigh, from the hip to the knee, and a hunting knife of a peculiar description. Around the bone of the thigh was tied a piece of twine or marline, with a ball of the same species of twine found in one of the private drawers of the prisoner. These remains of a human body, found in the privy and tea-chest, were subjected to the examination of competent medical and scientific men. They were put in opposition with each other, and were found to resemble, in every respect, *and in no respect to differ from*, the corresponding portions of the body of Dr. Parkman. There were missing from this human body, when thus placed in opposition, the head, the arms, the hands, the feet, and the right leg from the knee to the ankle. The evidence showed that they belonged to a person about the age of Dr. Parkman, which was sixty years.

§ 999. The height of this body, five feet ten and a half inches, corresponded to the height of Dr. Parkman, which was precisely five feet ten and a half inches. The evidence shows that he was of a peculiar form and shape, and that this body had the same peculiarities, and that the hair on these remains was similar to his. Of the bones found in the furnace, not a fragment was discovered, which is a duplicate of any one found in the vault or tea-chest; showing, that unless there existed a miraculous coincidence, the bones found in the furnace, the parts found in the tea-chest, and the parts found in the vault, all constituted portions of one human body. There was also some evidence that some of the bones of the cranium, found in the furnace, were fractured before they had been subjected to the action of fire.

§ 1000. A block of mineral teeth was found in the furnace, resting upon the grate, so near the bottom of the furnace, that it took the current of cold air, whereby its original form was singularly preserved. This block of teeth, two accomplished dentists, Dr. Keep, and his assistant Dr. Noble, testified, were the teeth of Dr. Parkman, made for him in 1846, upon an occasion which they distinctly remember. Dr. Keep had in his possession, and produced before the jury, an exact mould of the entire jaws of Dr. Parkman, taken at the time he had made this set of mineral teeth. By that mould it appeared that Dr. Parkman's jaws had a peculiar conformation; so peculiar, that unless through some caprice of nature, their precise counterpart could not exist. It also appeared, that these mineral teeth must have been thrown into the furnace, and subjected to the action of the fire in con-

nection with the head. Beyond this there was exhibited to the jury the bones of the right lower jaw, found in that furnace, with the broken and serried edges, which will be put together, showing that they belonged to one and the same jaw; and the conformation of that jaw, when the fragments are thus put together, was found precisely corresponding in all its striking peculiarities with the mould of Dr. Parkman's jaw taken by Dr. Keep. The thorax found in the tea-chest exhibited a perforation as to which there was evidence tending to show that it was a wound which penetrated between the ribs, severing a portion of the membrane that covers them, and entering the region of the heart.

§ 1001. It appeared that there had been chemical applications of strong alkalies made to these remains, as demonstrated by an accomplished chemist. The inference was, that these were not the remains of a subject for dissection in the medical college, for two reasons: one, that there was no injection of the veins with any preservative fluid, which is the invariable mode of treating such subjects there; and secondly, that all such subjects are accounted for independently of this, by the Demonstrator of Anatomy, who keeps an accurate record of them. Evidence was then introduced to show the relations subsisting between the prisoner and the deceased: beginning mainly with a loan in 1842 of money, made by Dr. Parkman to Dr. Webster. Since that time, Dr. Webster had been always embarrassed in his financial affairs, and often reduced to great straits for money. On the other hand, Dr. Parkman was a large property holder, accustomed to making loans to others. He was a liberal man in his donations, and kind, benevolent and considerate towards those whom misfortune rendered unable to meet their engagements with him. At the same time he was scrupulously just in all his business dealings, and severe in cases of any suspected imposition.

§ 1002. In 1842 he loaned the prisoner $400, for which he took his note, secured by a mortgage on certain personal property. This note was unpaid in 1847, at least not paid in full, when Dr. Parkman made one of a number to loan Dr. Webster a certain sum of money, to meet demands then pressing against him, arising out of, or connected with these transactions. Dr. Parkman, in January, 1847, took from Dr. Webster a note for $2,432, secured by a mortgage on all his personal property, including his household furniture and his cabinet of minerals. This note was for the amount of advances then made by Dr. Parkman and others, and embraced also a balance of $342.83, then due on the note of 1842. In April, 1849, a friend of Dr. Webster had an interview with Dr. Parkman, and subsequently furnished Dr. Webster a statement, showing that the amount then due to Parkman, on the mortgage note, was $456.27, while a further amount of about $600 was also due upon it to the other parties who had contributed in making the advances for which it was originally given. About this period Dr. Webster made an application to Robert G. Shaw, Esq., a brother-in-law of Dr. Parkman, to raise money, representing his necessities to be so great, that an officer was about entering his house to attach his household furniture, and offered to sell to Mr. Shaw those very minerals which were then under mortgage to Dr. Parkman. Mr. Shaw, commisserating his condition, and having no knowledge that his brother-in-

law had a mortgage on the property, agreed to advance Dr. Webster the sum of $1,200. He did advance this amount, partly in cash, and partly by his note, which was discounted for Dr. Webster at the Charles River Bank: and received from Dr. Webster a clear bill of sale of the cabinet of minerals. Dr. Parkman, learning subsequently, that these minerals had been conveyed to Mr. Shaw, was greatly incensed at what he considered an act of fraud, on the part of Dr. Webster, and avowed his determination to compel him to pay his debt.

§ 1003. From this period it appeared that Dr. Parkman pursued Dr. Webster, as a creditor who felt that his confidence had been violated, and who regarded his debtor as a dishonest and fraudulent man. The evidence was, that he not only entertained this opinion, but that very recently before his disappearance he had communicated it in a message to Dr. Webster himself. It also appeared that Dr. Webster obtained further delay from Dr. Parkman, under a promise that he would pay him from the proceeds of the sales of tickets to his lectures at the Medical College.

§ 1004. Dr. Webster's connection with the Medical College was independent of his professorship in the university at Cambridge. He was a professor in both. His compensation for services in the Medical College depended upon the sale of his lecture tickets to the students. The professors had made an arrangement with a Mr. Pettee, a clerk in one of the banks in Boston, to collect for them the moneys paid for these lecture tickets. These lectures commenced on the 7th of November. On the 9th, Dr. Parkman having in view the purpose he had avowed of compelling Dr. Webster to pay his debt, and having also in his memory the promise of the latter to pay it from the proceeds of the sales of his tickets, called on Dr. Webster, and insisted on the payment. Dr. Webster stated that he had not then received the money for his tickets, and requested Dr. Parkman to wait a further period. At that time Dr. Webster had in fact received a considerable portion of his money, which had been appropriated to other purposes than the payment of his debt to Dr. Parkman.

§ 1005. There were other debts hanging over him; one of which, a note to Dr. Bigelow, one of the medical professors, for about $230, was paid from this fund. Not satisfied with his statement, Dr. Parkman, on the 12th of November, called on Mr. Pettee, the collecting agent, to ascertain what was the condition of Dr. Webster's funds in his hands. Two days afterwards he again called, and threatened a trustee process, or spoke of one to Mr. Pettee, as the only mode of getting his pay from Dr. Webster, and then sent a message by Mr. Pettee to Dr. Webster, that he considered him a dishonorable and dishonest man. On Monday evening, the 19th, after these repeated subterfuges on the part of Dr. Webster, he called on him again, and declared with some asperity that "to-morrow something must be done." On the next morning, Dr. Webster sent to Dr. Parkman a note, the contents of which did not transpire. On Thursday, the day before his disappearance, the latter rode out to Cambridge to have another interview with Dr. Webster.

§ 1006. Such were the relations of these parties on the morning of Friday the 23d of November. The one party being an incensed and, perhaps, remorseless creditor, the other a fraudulent debtor, perfectly willing to

evade and dupe, but unable to pay. At about eight o'clock on that morning, Dr. Webster called at the residence of Dr. Parkman in Walnut Street, and there made an appointment for Dr. Parkman to call at the medical college to receive his pay at half past one o'clock. He did not call at Dr. Parkman's house to pay him there, but to appoint a meeting at the Medical College at a time when his rooms would be vacated by the students, between the hours of one and two, his lecture terminating at one. About nine o'clock on that morning, Mr. Pettee, anxious to get out of his hands the balance of money due to Dr. Webster, in consequence of Dr. Parkman's threats of a trustee process, which he wished to avoid, waited upon Dr. Webster and paid him a balance of ninety dollars, in a check on the Freeman's Bank. He then informed Dr. Webster of Dr. Parkman's repeated inquiries respecting the state of his funds, and his threats of a trustee process. Dr. Webster thereupon remarked to Mr. Pettee, "You will have no further trouble with Dr. Parkman, *for I have settled with him.*" It appeared that not one dollar of that money could have gone to Dr. Parkman, the $90 check received on the morning of the day of the disappearance, was in the prisoner's possession the next day, and was deposited by him to his own credit in the Charles River Bank.

§ 1007. Dr. Webster's lecture days were Tuesday, Wednesday, Thursday and Friday; the longest interval during the week when his official engagements did not call him to the college was between Friday and Tuesday. It appeared that on Friday the 23rd, he remained at the College until after candle-light; that he was there on Saturday and again on Sunday, which was unusual; that all the doors of his rooms, which ordinarily had been left unfastened when he was absent from the College, were fastened; and that the key of one door which he had kept deposited in a certain place up to that period, and to which one witness, who had occasion frequently to go to his rooms, had access, was carried away by Dr. Webster from the building; and that on Saturday, which is cleaning day in the College, the janitor who had charge of the rooms, went into Dr. Webster's back rooms and attempted to go down into the laboratory for the purpose of cleaning, when Dr. Webster ordered him out through the lecture-room door. It appeared that Dr. Webster received one of the papers containing the advertisement which has been already noticed. His relations to certain members of the family of Dr. Parkman were somewhat intimate.

§ 1008. He had been a parishoner of the Rev. Dr. Francis Parkman, a brother of the deceased. A short time previous to this event the latter visited Dr. Webster's family to perform a pastoral office of friendship, and their families had been on terms of considerable intimacy. The first disclosure that an interview had taken place between Dr. Webster and Dr. George Parkman—the first intimation of that interview received by the family, although they had been in a state of intense anxiety from the Friday previous—was made by Dr. Webster to Dr. Francis Parkman, about four o'clock on the afternoon of Sunday. The manner of making that communication was such as to excite the surprise of Dr. Francis Parkman and his family.

On the afternoon of Sunday, Dr. Webster made a similar communication, differing however in some particulars, to several other persons.

Substantially his statement was, that Dr. Parkman came to the Medical College by appointment at half past one o'clock on Friday, to receive payment of his debt; that he came into the lecture room, where Dr. Webster paid him the money, stating the precise amount; that he received it and started immediately to go out, without leaving any evidence of the note having been paid, or that the mortgage was cancelled; that on Dr. Webster's reminding him of this, he turned back and dashed his pen over the signature on the note, telling Dr. Webster that he would see to the cancelling of the mortgage at Cambridge; that he then went out with the money in his hand, going up the stairway two steps at a time; and that he (Dr. Webster) had no recollection of the denomination or amounts of the bills which he paid him. Some evidence was then submitted showing contradictory statements by the defendant as to the character of the notes by which the payment was made. Thursday, the 29th of November, was Thanksgiving day. It was a week of vacation at the College, no lectures having been given after Tuesday; yet, during that week, Dr. Webster was at the College, locked into his rooms, daily, and at unusual hours. He directed that no fires should be made in his room that week, and yet he had fires kindled by himself, of a more intense heat than had ever been made there before.

§ 1009. On Tuesday, he purchased several large fish hooks, which were afterwards found upon the premises under circumstances which probably connected them, to some extent, with the remains; they were made into a grapple, being fastened to a staff by a peculiar species of twine or marline, a ball of which was also found in one of his private drawers, and around the thigh bone found in the tea chest, was tied a piece of the same description of twine, the identity of which with that found upon the grapple was testified of by an expert in its manufacture. On Tuesday, Mr. Kingsley, the business agent of Dr. Parkman, went through Dr. Webster's rooms with several police officers, and Mr. Littlefield, the janitor, accompanied by Dr. Webster. The officers when asking about the privy, were replied to by Mr. Littlefield, in the presence of Dr. Webster, that it was the private privy of Dr. Webster's, who had the key of it in his possession; that thereupon they suffered themselves to be called off from the privy by Dr. Webster to another room, they entertaining no suspicion of him, and having, indeed, already informed him that their examination was a mere matter of form.

§ 1010. It was proved that there was a fire in the assay furnace at the time, and that the tea chest, in which the remains were found imbedded in tan, was then observed by one of the witnesses, with the minerals upon it. On Monday, Dr. Webster gave instructions to the Cambridge express man, who had always before had free access to his apartments, and had been used to deposit all the packages which he brought *inside of the laboratory*, to carry certain faggots, a box, and a bag of tan, from Cambridge to the College, and leave them in the entry *outside the door of the laboratory;* and on Wednesday the same express man, Mr. Sarvin, carried two boxes to the College, and left them in like manner, outside the door, being unable to find the key in the place where Dr. Webster had usually kept it.

§ 1011. In the course of that week, Dr. Webster, in conversation with several persons, endeavored to impress them with the belief, that

Dr. Parkman had been seen going over to Cambridge, after the time when it was stated by him that he had been at the Medical College, and went so far as to urge upon one of the witnesses, Mrs. Coleman, the declaration that she saw Dr. Parkman on the afternoon of Friday; she having stated to him that it was on Thursday. On Friday morning he went to a respectable mechanic in Boston, and ordered a tin box to be made very strong, in such a manner that he could solder it up himself perfectly tight; and in the course of his interview with this mechanic, he stated that it had been discovered by certain mesmeric agencies, that Dr. Parkman's body had been carried off in a cab, and that the cab had been found saturated with blood. On Thursday, in consequence of suspicions which had been conceived in the mind of Mr. Littlefield, the janitor of the College, certain steps were taken by him to make an examination of the privy vault under the laboratory.

§ 1012. During the previous examination of the Medical College, by the police officers, on Tuesday, it had been ascertained that there was no mode of access to this vault, except through the privy above, of which Dr. Webster himself kept the key. On Thursday, Littlefield attempted to open that vault, which, with the exception of Dr. Webster's private room, was the only part of the building that had not been examined, and to which there was no access save through the laboratory, where Dr. Webster himself was locked in a larger portion of the time. He commenced breaking through the wall on Thursday, and found it much more difficult than he had anticipated; he continued it, however, till he had penetrated through two or three courses of brick, there being five or six courses in all. On Friday morning he communicated his purpose to two of the professors, Drs. Jackson and Bigelow; and following up their suggestions, he continued his labor. While at work he set his wife to watch for Dr. Webster's approach to the building, and to notify him of it by a certain signal; but directed no one to disturb him if any of the other professors came.

§ 1013. At one time Mrs. Littlefield having mistaken another person for Dr. Webster, gave the appointed signal, and he suspended his operations. On discovering the mistake he resumed his work, and near the close of the day, on Friday, effected an opening into that vault, and there discovered a portion of the remains. That night and the following day the discovery was followed by others of more importance, made by the police, without the aid of Mr. Littlefield; namely, the bones and mineral teeth in the furnace, and the other portions of the remains, in the tea-chest. In Dr. Webster's private room were found a pair of pantaloons, marked with his name, and a pair of slippers, which, on examination by a scientific expert, were shown to have been spotted with blood. There were towels nearly new, marked with the initial letter of his name found, in the privy vault where the tide ebbed and flowed, which gave ingress to the sea, but not to any solid substance.

§ 1014. A large number of skeleton keys were found in his laboratory, fitting nearly every door in the College, which he had stated he had found in the street, and carried to his own room. There was found on his person at the time of his arrest the key of the privy; though when asked by one of the officers where that key was, he pointed to

one hanging upon a nail in his private room, saying, "there it is;" which, on being tried, did not fit the lock of the privy door. After his commitment by the Police Court, he wrote a note to a member of his family, which, according to the usage at the jail, could not be sent to its destination without inspection by the proper officers; and which, upon examination, was found to contain an injunction to another member of his family, not to open a certain bundle which he had deposited with her, but to keep it just as she received it. This suggested to the police a suspicion that what he sought to conceal might be important; and a messenger was immediately despatched to his residence at Cambridge, who obtained the package. It was found to contain the two notes given by Dr. Webster to Dr. Parkman, in 1842 and 1847, and the paper, showing the amount of Dr. Webster's indebtment to Dr. Parkman, in April, 1849, with a statement of interest upon that amount in pencil, in Dr. Webster's own hand-writing, which made the aggregate amount of his indebtedness the sum of $483,64.

There was also testimony tending to show that certain letters were written by the prisoner after the disappearance of Dr. Parkman, calculated to draw the public off from the Medical College to other places, and to divert public opinion in other directions.

The following passages from the medical testimony, as given to the jury, are of general interest:

Winslow Lewis, Jr., sworn—Examined by Mr. Bemis.—I am a practicing physician in this city. I was called on the Saturday afternoon succeeding Dr. Webster's arrest, to the Medical College, to examine some portions of a human body which had been found there. I found Dr. Martin Gay and Dr. Charles O. Jackson there. I was sent for by Coroner Pratt. I think I had got there at three o'clock. I called on Dr. George H. Gay and Dr. James W. Stone, to aid me in the matter; and also advised the coöperation of Professor Jeffries Wyman. We met next day, Sunday, in the morning. It was arranged that Doctors Gay and Jackson should make the necessary chemical investigations; Professor Wyman should take charge of the bones, and the articles supposed to have spots of blood on them; and Doctors Gay, Stone and myself should prepare a detailed report upon the fleshy portions of the body which we particularly examined. We accordingly drew up such a report, and made it in writing under oath, to the Coroner's jury.

[The report was here produced, and read to the jury by Mr. Bemis, and explained by Dr. Lewis as he proceeded, by means of a diagram prepared by Professor Wyman. The same diagram was used in connection with Professor Wyman's testimony. It was a drawing of the human skeleton, exhibiting, by means of various coloring, the parts of the body covered with flesh, the bones found in the furnace, and the absent parts not accounted for. Questions of explanation were also asked of Dr. Lewis, as he proceeded, by the counsel for the government, in connection with different parts of the report.]

§ 1015. *Report of the Medical Committee.*—Winslow Lewis, Jr., George H. Gay, and James W. Stone, having been directed to make a post-mortem examination, at the Medical College in North Grove street, attended to that duty December 2d, 1849, at ten o'clock A. M., and examined five portions of a human subject, viz: a thorax, a pelvis, two

thighs, and a left leg. The thorax and thigh were discolored apparently with tan and some caustic substance. The three remaining ones were white, fair, and appeared as if they had been soaked in water. The cartilage on the head of the left thigh bone was colored black.

The following is a description of the five portions separately:—

1st. *Remains of thorax*, and parts attached to it: which consisted of all the bones, except the sternum or breast bone. Fracture of the fifth right rib, apparently recent, and about four inches from the junction of this rib with the sternum. Both clavicles and scapulæ, present: the clavicles large. Both lungs, present, but collapsed: left lung had plural adhesions: structure of lungs apparently healthy. Anterior thoracic muscles, cut up from the ribs, about six inches from the centre, on each side, and with the skin thrown back: posterior portion of the integuments, from left scapula to right lumbar region, of a dark mahogany color, and hardened: remaining portions of integuments, generally of a natural appearance, except a little greenness under the right axilla, (probably from commencing decomposition), and some blueness under the left axilla,—leaving the skin soft, and easily broken, through artificial action exerted upon the hair and skin, as far forward as the section in the medium line. An opening slightly ragged, about one and a half inches in length, under the left nipple, between the sixth and seventh ribs, extending into the cavity of the chest. Remains of thoracic aorta and thoracic œsophagus, present. Heart and diaphragm wanting. Trachæ, divided through cicroid cartilage. Spleen contracted, externally granulated, and internally red. Left kidney, in its natural position, and contracted. No liver, right kidney, pancreas, stomach or intestines.

§ 1016. *Nota bene.* The right kidney much contracted and discolored, was discovered on the next day, and given to us.

Sixteen vertebræ present—consisting of three lumbar; twelve dorsal; and the greater portion of the seventh cervical which appeared to have been sawed through the upper part.

2d. *Pelvic portion:*—consisting of the bones of the pelvis, two of the inferior lumbar vertebræ, all the integuments, muscles, organs of generation, and the pelvic viscera, generally. All the intestines remaining, were about six inches of the rectum, through the anterior and external portion of which a section had been made, and the mucous coat separated from it, four or five inches, throughout the whole circumference, but not cut off at the lower end. Hair upon this portion, of a sandy gray. Both thighs severed from it in a very irregular manner. Integuments and muscles divided down to the pubis, in the median line. On placing the pelvic portion in apposition with the thoracic, the third and fourth lumbar vertebræ corresponded precisely.

§ 1017. The spinous process of the third lumbar vertebræ, with a portion of the transverse processes of the same, was absent from the thoracic portion, but was found attached to the fourth lumbar vertebræ which was on the pelvic portion.

3d. *Right thigh:*—on being placed in apposition to the pelvic portion, the bones, muscles, and skin corresponded perfectly. Good muscular development, with but little of fatty matter. Patella attached; some ossification of femoral artery.

4th. *Left thigh*,—had a string about two and a half feet long, tied just above the condyle, leaving loose ends. Patella attached. On being placed in apposition with the pelvis, the bones corresponded; but some portion of the skin and flesh appeared to have been removed, or contracted from artificial means. On the anterior surface of the thigh, and somewhat on outer parts there were the appearances of the action of fire or some caustic matter.

§ 1018. 5th. *Left leg*,—of natural appearance—fair size; and on being placed in apposition with the left thigh the articulation corresponded.

MEASUREMENTS.

	Inches.	Inches.
Thoracic portion (length)		17¼
" circumference below axilla	30	
Pelvic portion (length)		9¾
" circumference below crest of ilium	30½	
Both Thighs (of the same length)		18
" circumference of the largest part of each	18¾	
Left Leg (length to outer malleolus)		16
" circumference of largest part	12¾	
Total,		61
Deduct distance from bottom of pelvis to top of acetabulum		3¾
		57¼
All the parts being placed in apposition the distance from the top of the seventh cervicle vertebræ to the outer malleolus		57½
Difference		¼
Total length of parts discovered		57½
Distance from sole of foot to the outer malleolus on another subject		3
Distance from top of head to seventh cervical vertebræ		10
Total height—five feet, ten and a half inches, or		70½

The foregoing described portions appeared to belong to a person between fifty and sixty years of age. The muscular system was well developed, and there was very little of adipose matter.

WINSLOW LEWIS, JR.
GEORGE H. GAY.
JAMES W. STONE.

Attest: J. L. ANDREWS, Secretary.

§ 1019. *Dr. Lewis resumed.*—The head had been separated from the trunk just below what is called Adam's apple, by sawing through the upper vertebræ. The external granulation or roughness of the spleen, showed the application of some chemical agent; and the internal redness, that the application had penetrated to the interior. All the bowels and stomach were gone. I should not think that the dissection

of the thigh from the hip, necessarily evinced the possession of anatomical knowledge, on the part of the person dissecting this body; but think that a degree of anatomical skill would have been requisite to have separated the sternum (or breast-bone) from the collar-bone. The ossification of the artery, would serve somewhat to designate the age of the subject, but not within ten years, with precision.

I had known Dr. Parkman for many years. There was nothing in these remains dissimilar from what I should have expected to find in his body. There was nothing in the mode of separation of the parts, which indicated that it had been done for anatomical purposes; nor was there any thing in the condition of the blood-vessels, which showed that it had been a subject for dissection. If it had been such a subject, I should have expected to find some of the preserving fluid, which anatomists use to inject them with. These preparations affect the color of the vessels; and I saw in these parts no such alteration in color. There is not the least doubt, that the five parts belonged to one and the same human body.

§ 1020. Coroner Pratt handed me a block of mineral teeth, perhaps two inches long. I kept them at my house that night; and next day, when Dr. Keep, the dentist, my neighbor, returned to town, I handed them to him.

§ 1021. *Cross-examined by Mr. Sohier.*—I had known Dr. Parkman thirty years, I should think, and quite intimately. If I had not been told that he was missing, I should not have spontaneously conceived the idea, that this was his body. There were no peculiar marks, that I discovered, about the remains. The original height of the body in a case of this kind, can be ascertained, very nearly;—within half an inch. I could not say that the hole in the left side was a stab. It was in the region of the heart; but the muscles and flesh had been much affected by some chemical application. It was in a friable state, easy to be torn, and the opening might have been made by pushing a finger through. I could not say whether it had been made before or after death. I discovered no signs of the use of a knife: and we looked pretty carefully at the hole.

§ 1022. A body, of the size of Dr. Parkman, might contain two gallons of blood, when alive; after death, perhaps two quarts might be found in the cavities. I cannot say how long it would take to consume a human head by fire; in such a furnace as that in the laboratory, where the bones were found:—perhaps two hours. But this would depend upon the kind and quantity of fuel used. As to the time requisite for consuming the remaining portions of the body, it would be impossible to tell, with any accuracy. There were no marks to fix the age of the subject, any nearer than I have stated, within some ten years. There was more muscular development of the lower extremities of the body, than I should have expected to find, from the size of the other portions. While the upper part of the body was thin and narrow, the lower limbs were full and round, and showed that they had been well developed by exercise.

To the Attorney-General.—If the person had been stabbed through the hole in the side, he would have been more likely to bleed internally than externally. I make the statement in regard to the time requisite for

burning up the head, with very great hesitation, and as worthy of but little reliance. The flow of blood from the arteries cease very shortly after death: from the veins, in perhaps twenty-four hours.

§ 1023. *George H. Gay sworn—examined by Mr. Bemis.*—I signed the report which has just been read, and concur in it, generally.

Woodbridge Strong sworn—examined by Mr. Clifford.—I am a practising physician in this city, and have been such since 1820.

§ 1024. I have always given a special attention to the subject of anatomy. When I was a student, (with the late Dr. Nathan Smith,) I took every opportunity to practice dissection; and, after commencing practice for myself, when not much engaged, devoted a good deal of time to the pursuit of that branch of the profession. One winter, in particular, I occupied most of my time in dissecting, sometimes continuing at it from eight o'clock in the morning till twelve at night. I have had a subject on my table for three months together. For several years I attended the hospital; also other medical institutions; have taken part in numerous post mortem examinations; and, in general, I may say, have had a good deal of taste for the study of anatomy. In the pursuit of my anatomical studies, I have had considerable experience in burning up, or getting rid of human remains by fire. When I had my office, at an early day, in Cornhill, I had poor accommodations for dissecting, and it was frequently necessary to burn up the remains of a subject. Once, in particular, I had a pirate given me by the United States Marshal, for dissection; and, it being warm weather, I wanted to get rid of the flesh and only preserve the bones. He was a muscular, stout man, and I began upon it one night, with a wood fire, in a large, old-fashioned fire-place. I built a rousing fire, and sat up all night piling on the wood and the flesh, and had not got it consumed by morning. I was afraid of a visit from the police, and by eleven o'clock they gave me a call, to know what made such a smell in the street. I finished it up, somehow, that forenoon; but I look upon it as no small operation, to burn up a body. It needs the right sort of fuel to begin with. Wood is better than coal; and the lighter the kind of wood the better. Pine kindlings would be good for the purpose. You need frequently to stir the fire up; and you must have something that the flesh will not quench or put out. There is always a difficulty in getting rid of human remains by fire, on account of attracting suspicion by the smell. I have been called upon by my neighbors or the police, several times, on this account.

* * * * * * * *

§ 1025. I never burned up a body in a furnace; but I think the intensity of the heat would be as great in a stove, as in the furnace which I saw in Dr. Webster's laboratory. That appeared to me the most inconvenient place for such a purpose. The stove which I saw in the same room would have answered better. I have used a common cylinder stove, with an anthracite coal-fire, to consume human flesh when dissecting; but do not think that coal is so good a fuel as wood for that purpose. I have overloaded my fire, at times, with pieces of flesh so as to extinguish it, and have been obliged on that account to rekindle it.

§ 1026. Death might ensue immediately from such a wound as I

supposed to have occasioned the hole, and the bleeding have been wholly internal. This might follow from the shape of the wound, which might collapse; and also by the sudden stopping of the circulation of the blood, such as would follow the cutting of the aorta.

§ 1027. *Charles T. Jackson sworn—examined by Mr. Bemis.*—I am a chemist by profession; have given attention to the science of chemistry and its practical application, for many years. I was called to the Medical College after the discovery of the remains. I went there on Saturday afternoon, December 1st., with the late Dr. Martin Gay, and met Dr. Winslow Lewis, jr., with whom we made an arrangement for conducting the examination. Dr. Gay and myself undertook the chemical part. There were shown to us parts of a human body, and the contents of a small assay-furnace, about ten inches square. The parts of the body were turned over to the other gentlemen. I am, myself, acquainted with anatomy, having had a medical education. I took some notice of the remains. I saw no indication of their having been used for anatomical purposes. I thought, also, that they indicated the possession of anatomical knowledge, on the part of the person who had dissected them. The manner of opening the body, and the separation of the sternum, showed some skill on the part of the operator. The latter had been done by a clean cut. There was no hacking, also, about the thighs; they had been disarticulated neatly. I have heard the report made upon the remains by Dr. Lewis and others, and coincide generally with their conclusions.

* * * * * * * *

The time requisite for dissolving a human body, by means of potash, if a suitable apparatus could be had, would depend upon circumstances. The flesh, if cut up into small pieces, and the potash boiled, might be dissolved in two or three hours. For this, it would take of potash, half of the weight of the body, I should think; and, if the whole were done at once, a very large kettle. I examined Dr. Webster's laboratory, when there, after his arrest, but with no special reference in seeing what vessels were there. The largest kettle which I saw, was a tin boiler with a copper bottom, such as is used for washing clothes,—some twelve or fifteen inches square. I did not see this at first, but have taken notice of it more recently. I have seen nothing larger than this about the premises. That would not have been of sufficient size to hold a body, unless it were the mere flesh all cut off from the bones, and would not admit of a thorax, or even a thigh, in its original state.

§ 1028. Potash would be the best substance to use in dissolving or disposing of a human body, because it could be used in common vessels. Next to this, I should think, would be nitric acid. This would require, however, a vessel of porcelain or glass, or some material which would not be acted upon by it. To dissolve a body—bones and all—in this acid, I should think it would take about an equivalent weight of acid. The difficulty or danger attendant upon such an operation, so far as the evolution of noxious vapor is concerned, would depend upon the degree of heat applied. If a gentle heat were used, very little nitrous acid gas would be given off; but if the acid were boiled, there would be a great deal. The dissolution of the body would be most rapid at a boiling

temperature. The odor of this gas is very disagreeable, and noxious to health if inhaled in any quantity. I think an open vessel might be used for the purpose in question, if connected with a proper draught of a chimney. I saw no apparatus about the laboratory large enough to dissolve any considerable quantity of matter. I noticed some nitric acid, and also muriatic acid, in several bottles, by the window in the lower laboratory; but think that, altogether, there was not more than ten pounds of nitric acid.

§ 1029. I noticed when at the Doctor's apartments, on the sides of the walls, particularly on the stair-case leading to the lower laboratory, green drops of fluid, and spots. They were still liquid, and stood out from the wall. I sent and got some filtering paper, and Dr. Gay absorbed into the paper, from the walls, a quantity of this green fluid, and carried it away. Since, I have had the things in my possession which Dr. Gay took from the Medical College, I have examined this paper (which I recognize), and find the green fluid to be nitrate of copper. These spots were very abundant, and extended all down the stair-case, from top to bottom. They have since dried, but when I saw them, were fluid.

There were also dark spots or stains on the stairs, and these green spots seemed to correspond to the stains. That is, wherever there was a spot there would be a spattering of this green fluid; and this was more abundant at the bottom, or towards the lower landing, than at the top. It had the appearance of having been spilt on each stair separately, and then of having spattered back upon the sides above; it did not seem to have been spilt at the top and then to have run down. [The witness pointed out, on the model, the locality of these spots, which had previously been called to the attention of the jury on the view.]

§ 1030. The nitrate of copper is a deliquescent salt, contracting moisture from the air, and will remain moist and fluid a long time. The taste is astringent, like verdigris, and caustic. I have been requested to make some observations on the effect of this salt upon human blood, but have referred the subject to Dr. Wyman.

I was at the College, on Sunday afternoon, I think, when a pair of pantaloons and a pair of slippers were discovered, with what seemed to be blood on them. I told the officer who found them, to keep them, and hand them over to Dr. Wyman, as I considered the microscope the best means of discovering the actual presence of blood. I was there afterwards, when Dr. Wyman cut pieces from the pantaloons and slippers, which had spots on them resembling blood, for the purpose of making the examination. The punch-pieces, or pieces of copper found in the ash-hole, which appear to have been originally refuse pieces, punched in making holes at the coppersmith's, are the same article as those found new in the drawers of the back room, up stairs. Those taken from the ash-hole have, undoubtedly, been used for the purpose of making nitrate of copper, as they show the action of the acid by their thinness, and still bear marks of its presence. [The witness here produced several of these pieces, of about the size of a quarter of a dollar, with the nitrate of copper still adhering to them.]

§ 1031. I cannot now find the pearl shirt button, though I am positive of having once seen it before it went into Dr. Gay's possession.

The quantity of gold which I found in a portion of the contents of the furnace submitted to me, was	45.6 grains.
Found by Dr. Gay	47. "
And in a piece brought to me by Mr. J. L. Andrews, Secretary of the Coroner's inquest,	81.05 "
Total	173.65 gr's.

§ 1032. The market value of this gold, at four cents a grain, would be $6.94. [The blocks of teeth afterwards testified of by Drs. Keep and Noble, were here exhibited to the witness.] The presence of fused gold is also visible in the melted mass of mineral teeth and cinders shown to me. There is a further quantity of gold to be obtained from the ashes, by a more careful sifting than I adopted. [The attention of the witness was here called again to the blocks of teeth, and he was asked to point out any indications which he could detect of the proximity of gold to the teeth when both were in a state of great heat.]

There is a pink color about the teeth, resembling that noticeable in other parts of the slag and cinders where the globules of gold were found,—showing the effect, as I think, of the oxide of gold. When the gold and teeth were fused together, this oxidation took place. The bones and cinders, in the state in which they were found, showed, in other respects, the application of great heat. I should think that a piece of the natural bone is now adhering to the block.

§ 1033. [The sheath knife, with silver hilt, was here exhibited to the witness.] I recognize this knife as the one I have often seen in Dr. Webster's possession, at his rooms at the old Medical College in Mason Street. I have known the Doctor for twenty-five years; attended his lectures when a medical student, and have since been in the habit of frequently calling on him. When this knife was first shown to me, at the Medical College, immediately after his arrest, it bore the appearance of having been recently cleaned. I scraped off some of the substance which had apparently been used for that purpose, and found it to be whiting, moistened with oil. The oil was still fresh, and the mixture was as soft as putty.

§ 1034. Dr. Parkman was about my height; I should think a little taller. I am five feet eleven inches in height.

The furnace in the laboratory would have carried off the odor of burning flesh if any had been consumed there. The draught is strong one, and the soapstone cover fits tightly over the top.

Cross-Examined by Mr. Sohier.—It was the nitrate, and not any other salt of copper, upon the wall.

If I had not heard that Dr. Parkman was missing, I should not have been led to suppose that the parts of the body were his. The thorax had not the appearance of having been boiled, but had been singed by fire. I am confident that it showed the action of fire. It did not appear to have been decomposed except where the potash had been applied; and this was on the top, the bottom, and the left side; also on the back. It is impossible to tell how long it had been subjected to the potash. The thigh, found inside of the thorax, had been exposed to the heat of

fire, and also to the potash, I think. The head of the bone was smoked and the skin softened, as if by the joint action of the two.

§ 1035. The time it would take to dissolve a human body in nitric acid would depend on the mode in which it was cut up. If the bones were taken out and the flesh cut into fine pieces, I should think that, with the proper quantity of acid, it might be entirely dissolved in half a day, so as to become a dense, yellow liquid. The quantity of acid I should fix at the weight of the body. We absorbed the green fluid from the walls spoken of, on Monday or Tuesday after the arrest. It was then liquid, but might have been there two weeks. The whiting which I saw on the yataghan, or sheath knife, was close to the handle. The slag in the furnace was produced from anthracite coal. I saw a part of the ashes taken out. There were wood ashes and charcoal among them.

Direct resumed.—I omitted to mention that I have tried the experiment of applying nitrate of copper to Norway Pine, such as the stairs leading to the laboratory are made of, and find that it produces a stain similar to that noticed there. [Pieces of pine thus experimented on were here submitted by the witness to the inspection of the court and jury.]

§ 1036. The following passages from the charge of CHIEF JUSTICE SHAW, are all which the limits of the present chapter will permit to be here transcribed. It may not be improper to state, however, that the law as here stated derives peculiar weight not only from the long experience and the great judicial ability of the judge by whom it was delivered, but from the fact that it was assented to by the whole of the Supreme Judicial Court of Massachusetts, whose joint views it may be held to embrace:—"But, in a case of circumstantial evidence where no witnesses can testify directly to the fact to be proved, you arrive at it by a series of other facts, which by experience we have found so associated with the fact in question, as in the relation of cause and effect, that they lead to a satisfactory and certain conclusion; as where foot-prints are discovered after a recent snow, it is certain that some animated being has passed over the snow since it fell; and from the form and number of the foot-prints it can be determined with equal certainty, whether it was a man, a bird, or a quadruped. Circumstantial evidence, therefore, is founded on experienced and observed facts and coincidencies, establishing a connection between the known and proved facts, and the fact sought to be proved. The advantages are, that, as the evidence commonly comes from several witnesses, and different sources, a chain of circumstances is less likely to be falsely prepared and arranged, and falsehood and perjury are more likely to be detected, and fail of their purpose. The disadvantages are, that a jury has not only to weigh the evidence of facts, but to draw just conclusions from them; in doing which they may be led by prejudice or partiality, or by want of due deliberation and sobriety or judgment, to make hasty and false deductions; a source of error not existing in the consideration of positive evidence.

"From this view, it is manifest, that great care and caution ought to be used in drawing inferences from proved facts: it must be a fair and natural, and not a forced or artificial conclusion: as when a house is found to have been plundered and there are indications of force and

violence upon the windows and shutters, the inference is that the house was broken open, and that the persons who broke open the house plundered the property. It has sometimes been enacted by positive law, that certain facts proved shall be held to be evidence of another fact; as where it was provided by statute, that if the mother of a bastard child give no notice of its expected birth, and be delivered in secret, and afterwards be found with the child dead, it shall be presumed that it was born alive and that she killed it.

"This is a forced and not a natural presumption, prescribed by positive law, and not conformable to the rule of common law. The common law appeals to the plain dictates of common experience and sound judgment; and the inference to be drawn from all the facts must be a reasonable and natural one, and to a moral certainty, a certain one. It is not sufficient that it is probable only, it must be reasonably and morally certain.

§ 1037. "It has been sometimes said by judges, that a jury ought never to convict in a case of homicide unless the dead body be found and identified. This, as a general proposition, is undoubtedly true and correct, and disastrous and lamentable consequences have resulted from disregarding the rule. But like other general rules, it is to be taken with some qualification. It may sometimes happen that the dead body cannot be produced, although the proof of the death is clear and satisfactory. As in the case of a murder at sea, where the body is thrown overboard in a dark and stormy night, at a great distance from land or any vessel; although the body cannot be found, nobody can doubt that the author of that crime is chargeable with murder.

§ 1038. "But, if the body can be found and identified, it goes conclusively to one of the facts necessary to be proved—the death of the person alleged to have been killed. Such proof is relied on in the present case. It is for the jury to judge of it.

"It appears then from the evidence that after the disappearance of Dr. Parkman, and an extensive and unsuccessful search elsewhere, and after several examinations of other parts of the medical college by police officers and others, in a vault under a privy connected with the lower laboratory, several limbs and a part of a human body were discovered on Friday a week after such disappearance; and that on the next day, Saturday, on a further search in the lower laboratory, other parts of a human body were found in the furnace, in the form of bones partly calcined, and still other parts in a tea chest covered with tan, with a covering of minerals or fossiles on top of the tan. I refer to places and parts of the building familiarly, because the jury, having taken a view of the building, will easily understand these references. They will recollect that what is called the vault of the privy is, in fact, a corner only of the section of the cellar of the building, and connected with the privy above by the aperture in the seat; the whole section being entirely separated from the residue of the cellar, by a solid brick wall, and including within its limits the dissecting vault, which is also walled in with its own independent walls: the privy vault having thus no separate walls of its own.

§ 1039. "Were these parts of one and the same human body, and were they so placed and disposed of as to indicate studied or designed a concealment? If they were in fact designedly concealed in order to keep them out

of view, as the person who had a motive to conceal one part, would have the same motive to conceal the others, the natural conclusion would be, that all was done by the same person. If the parts did not correspond with each other, they could not have been parts of one body; they might, perhaps, been the remains of anatomical subjects. Indeed from finding parts of a dead body in or about a medical college, where the study of anatomy is pursued, a very natural impression would be, that they were parts of a body or of bodies used for dissection. Is this in your judgment negatived by the evidence?

§ 1040. "Two physicians, Dr. Wyman and Dr. Holmes have testified as to the manner in which this body appears to have been dismembered, and are of opinion that the operation does not appear to have been performed in the manner in which it would have been by an anatomist for the purpose of demonstration. Dr. Ainsworth says, that it is his business to keep an account of all subjects brought to the college for anatomical purposes; and that, the institution having now the sanction of the law for being furnished with the means of obtaining subjects, it is necessary to keep an accurate record of them, and that they, in fact, do so. He also says, that all subjects received at the college up to that time, are accounted for, without including these remains. He also testifies that it is a uniform custom, when a subject is first brought to the college and before dissection, to prepare the body by injecting the vessels with some chemical fluid which will tend to preserve it.

§ 1041. "With a view, therefore, of ascertaining whether these remains were parts of an anatomical subject, the attention of the medical witnesses who were called to examine them, was turned to the inquiry—whether the vessels had been so injected; because it was said, this could be ascertained by chemical analysis. Portions of the blood vessels were taken out and committed to the examination of Dr. C. T. Jackson, and that late eminent chemist, Dr. Gay, and to Dr. Crossley. In consequence of the lamented death of Dr. Gay, his examinations were not finished, but have since been concluded by Dr. Jackson and Dr. Crossley. They have testified, that, in their opinions, the vessels of this body has not been so injected. Besides, there is evidence showing that there was a distinct vault, designed and adapted for the purpose, into which all remains of anatomical subjects were thrown, and in which these remains, if parts of an anatomical subject would naturally have been placed.

§ 1042. "Then as to their being parts of the same body—if those portions found in the cellar—those found in the tea chest, and the calcined portions of bone in the furnace, all coincided with each other as one body, although it would not be conclusive evidence of that fact, it would be consistent with it, and not repugnant to it. This leads to the more direct and material question whether these were, in fact, the remains of Dr. Parkman.

§ 1043. "There was evidence tending to show, that when these parts were brought together and laid in juxtaposition, measuring those which were found, and estimating the size of those which were missing, they corresponded in height and figure with those of Dr. Parkman. The result of this analysis and admeasurement are given in the testimony of the medical witnesses, especially of Dr. Wyman and the report

which without objection was submitted to you. Mr. Shaw a relative of Dr. Parkman, who had known him long and intimately, examined these remains, and says they very much resemble those of Dr. Parkman. They corresponded in height and size, and in the color of the hair on the breast and leg, and there was nothing dissimilar about them from what he knew of Dr. Parkman, and he took charge of them as his remains.

§ 1044. "Here is one of those cases to which the rules of evidence apply, to which I called your attention in speaking of circumstantial evidence. If this testimony had alone been relied on, as proof of identity, though tending to create a strong probability, it would have left that fact still doubtful; because parts of the body are wanting, such as the head, including the features and countenance,—the parts by which the identity of a person is usually established. But certainly, this is not the only mode, in which identity may be proved; and in this case, had there been marks upon the portions of the body found, and they could have been shown to have been natural or artificial marks, existing upon the body of Dr. Parkman, they would have tended to make out that point. Then the evidence arising from the teeth is relied on; and if the proof derived from this source is of a more conclusive kind, to establish the identity of these remains, with those of Dr. Parkman, then the fact that the remains corresponded in height, figure, color, and general appearance, with the person of Dr. Parkman, though not specific and direct enough of itself to prove identity, yet being consistent with, and not repugnant to it, would, to that extent, tend to make out that point and corroborate the identification.

§ 1045. "You are next called to consider the proof arising from the remains of a set of artificial teeth, found in the furnace, as bearing on this same matter of identity.

"I have already turned your attention to the question, whether these different remains were parts of one body, and whether their condition and their situation were such as to indicate designed concealment: and, if so, whether proof of the identity arising from one portion does not tend in an equal degree, to prove the identity of the others. The fleshy portions, as well as the bones of the head and other extremities, and the artificial teeth, which we are now about more particularly to consider, were all found, as you will recollect, in the same apartment, or in the appurtenances connected, with it:—I mean the lower laboratory. From the furnace standing in that apartment, the coroner and the police officers, as they have told you, took out portions of bone, some partially calcined and chiefly belonging to the head, together with parts of certain blocks of artificial mineral teeth. In the same place intermingled with the slag, ashes, and the calcined bones, they also found a quantity of gold, so far as separated from the other substances by chemical processes, amounting to about a hundred and fifty grains.

§ 1046. "It is certainly an interesting inquiry, whether teeth under such circumstances, can be identified by those who have constructed and fitted them. The investigation, is in some respects like that of fossil remains, the study of which has led to such wonderful discoveries. Through the pursuit of comparative anatomy, such a minute and exact knowledge of the peculiarities of the lower orders of animals has been attained, that persons are able, from the examination of a single bone,

to determine the character of the animal to which it belonged. This is carried still further in human anatomy; and it has been testified to you by Dr. Wyman, who has a high reputation in this branch of science, that, from a small piece of bone, it is practicable to determine the part of the head or body to which it belonged. He has exemplified this by placing together and showing, in the manner which he has particularly described to you, the connection of many of the small pieces of bone, belonging to the human head, especially the parts of the jaw, found in the furnace.

§ 1047. "In connection with a similar kind of inquiry, your attention may now be properly called to an examination of the evidence arising, from the discovery of these mineral teeth. It comes mainly from Dr. Keep and Dr. Noble.

"Dr. Keep testifies, that about three years ago, he made and fitted, a set of teeth for Dr. Parkman, a set for each jaw, consisting of manufactured artificial teeth, formed in combinations of three blocks to each jaw, and set upon gold plates, fitted and adjusted to the jaws. He states that several natural teeth and stumps remained, to which, as well as to the natural shape and peculiarities of the jaws, it was necessary that the plates should be adjusted and fitted. The gold had melted away; but the teeth, composed of a material not easily acted on by fire, remained, preserving more or less of their original shape. Dr. Keep, had also retained, and has produced here, marked with Dr. Parkman's name, the metallic moulds in which the plates were formed.

"But it is not necessary to re-state Dr. Keep's testimony particularly. The question is, whether he is able by these means, and by his own memory to identify them as the teeth which he fitted for Dr. Parkman. He is of opinion that he can; and he gives you the means which he used, and generally, the ground and reasons for his opinion that these are the teeth of Dr. Parkman. You will judge of their weight, and of the credit due to this testimony. If it satisfies you beyond reasonable doubt that they were the teeth worn by Dr. Parkman, it would have a strong tendency to prove the identity of the remains. You will recollect the fact that Dr. Keep saw him wearing them within a week or two of his disappearance, and the evidence arising from the condition of the teeth when they were found, tending to show that they had not been exposed suddenly to the action of heat, but that they were placed in the fire surrounded by some other substance, and heated gradually; an inference tending to prove, in connection with other circumstances, that the head was placed in the furnace with the teeth then in it.

§ 1048. "Dr. Noble was an assistant of Dr. Keep at that time, and worked on the teeth which he made for Dr. Parkman; and as far as he goes, he confirms Dr. Keep. Dr. Morton was called on the other side: and on the whole, is of opinion, that there is not enough in these blocks of teeth, to enable a dentist who made them to identify them. Drs. Harwood, Codman, and Tucker, all dentists, are of a contrary opinion, and believe that the maker could identify such teeth. They all respectively give you the reasons for their opinions, which you will duly weigh and consider. You are to determine from all the evidence, whether those were the teeth of Dr. Parkman, worn by him at the time when he entered the college, and whether they belonged to the same body,

with the other remains. If you should be of opinion that they did so belong, it will have a strong tendency with the other evidence before you to prove the fact of the death of Dr. Parkman.

§ 1050. "The other positions taken by the prosecution in regard to the proof of the *corpus delicti*, are, that Dr. Parkman entered the college apparently well, intending to return immediately, and take the parcel at the grocery, on his way home to his dinner; and that, if he came to his death at the college, it was not by accident or the visitation of Providence, because there would have been no motive on the part of any body to prevent an immediate knowledge of the fact, or to conceal the body. It appears to us, therefore, that proof of the *corpus delicti*, or actual death of the party by an act of violence in the present case, must depend principally upon proof of the identity of these remains. If this is not made out to the satisfaction of the jury, beyond reasonable doubt, then there is no sufficient proof that the dead body found was that of Dr. Parkman, and the proof of the *corpus delicti*, as offered by the prosecution, fails."

§ 1051. The defence taken by the prisoner's counsel,—who, whatever may have been the popular feeling at the time among those who did not understand the difficulties of their position, have been shown by the subsequent developments to have discharged their most arduous task with consummate ability,—was chiefly a denial of the efficiency of the commonwealth's evidence to convict, coupled however with the alternative, that if the jury should be against them on this point, there was such evidence of provocation as to raise the question of degrees between manslaughter and murder. The prisoner, however, was convicted of murder, and immediately after conviction, applied to the Executive for a re-hearing, accompanying the application by a statement, in his own handwriting, in which he asseverated his innocence under the most solemn sanctions. This being denied, and the motion for a writ of error before the court having been refused, he then presented a petition for a commutation of his sentence, in which he contented himself simply with averring that the necessary ingredients of the crime of murder, viz., malice and premeditation, had never been found against him by the jury. He then proceeded to lay before the governor and council the following statement, which is of interest, so far as it throws light on the circumstantial evidence on which the conviction was had. Beyond this, however, it is entitled to very little credit.

§ 1052. "Professor Webster's confessional statement, as reported to the Council by Rev. Dr. Putnam.

"On Tuesday, the 20th of November, I sent the note to Dr. Parkman, which, it appears, was carried by the boy Maxwell. I handed it to Littlefield, unsealed. It was to ask Dr. Parkman to call at my rooms on Friday the 23d, after my lecture. He had become of late very importunate for his pay. He had threatened me with a suit, to put an officer into my house, and to drive me from my Professorship, if I did not pay him. The purport of my note was simply to ask the conference. I did not tell him in it what I could do, or what I had to say about the payment. I wished to gain, for those few days, a release from his solicitations, to which I was liable every day, on occasions and in a manner very disagreeable and alarming to me, and also to avert,

for so long a time at least, the fulfillment of recent threats of severe measures. I did not expect to be able to pay him when Friday should arrive. My purpose was, if he should accede to the proposed interview, to state to him my embarrassments and utter inability to pay him at present, to apologize for those things in my conduct which had offended him, to throw myself upon his mercy, to beg for further time and indulgence for the sake of my family, if not for my own, and to make as good promises to him as I could have any hope of keeping.

§ 1053. "I did not hear from him on that day or the next (Wednesday); but I found that on Thursday he had been abroad in pursuit of me, though without finding me. I feared that he had forgotten the appointment or else did not mean to wait for it. I feared he would come in upon me at my lecture hour, or while I was preparing my experiments for it, therefore I called at his house on that morning (Friday) between eight and nine o'clock to remind him of my wish to see him at the college at half-past one,—my lecture closing at one. I did not stop to talk with him then; for I expected the conversation would be a long one, and I had my lecture to prepare for. It was necessary for me to save my time, and also to keep my mind free from other exciting matters. Dr. Parkman agreed to call on me, as I proposed.

§ 1050. "He came, accordingly, between half-past one and two. He came in at the lecture-room door. I was engaged in removing some glasses from my lecture-room table into the room in the rear, called the upper laboratory. He came rapidly down the steps and followed me into the laboratory. He immediately addressed me with great energy: 'Are you ready for me, sir? Have you got the money?' I replied, 'No, Dr. Parkman;' and was then beginning to state my condition, and make my appeal to him. He would not listen to me, but interrupted me with much vehemence. He called me "scoundrel" and "liar," and went on heaping upon me the most bitter taunts and opprobrious epithets. While he was talking, he drew a handful of papers from his pocket, and took from among them my two notes, and also an old letter from Dr. Hosack, written many years ago, and congratulating him (Dr. P.) on his success in getting me appointed professor of chemistry. 'You see,' he said, 'I got you into your office, and now I will get you out of it.' He put back into his pocket all the papers, except the letter and the notes. I cannot tell how long the torrent of threats and invectives continued, and I now can recall to memory but a small portion of what he said. At first I kept interposing, trying to pacify him, so that I might obtain the object for which I sought the interview. But I could not stop him, and soon my temper was up. I forgot everything. I felt nothing but the sting of his words. I was excited to the highest degree of passion, and while he was speaking and gesticulating in the most violent and menacing manner, thrusting the letter and his fist into my face, in my fury I seized whatever thing was handiest,—it was a stick of wood,—and dealt him an instantaneous blow with all the force that passion could give it. I did not know, nor think, nor care where I should hit him, nor how hard nor what the effect would be. It was on the side of his head, and there was nothing to break the force of the blow. He fell instantly upon the pavement. There was no second blow. He did not move. I stooped down over him and he

appeared to be lifeless. Blood flowed from his mouth, and I got a sponge and wiped it away. I got some ammonia and applied it to his nose, but without effect. Perhaps I spent ten minutes in attempts to resuscitate him; but I found he was absolutely dead. In my horror and consternation I ran instinctively to the doors, and bolted them,—the doors of the lecture-room and of the laboratory below. And then, what was I to do?

§ 1055. "It never occurred to me to go out and declare what had been done, and obtain assistance. I saw nothing but the alternative of a successful removal and concealment of the body, on the one hand, and of infamy and destruction on the other. The first thing I did, as soon as I could do anything, was to drag the body into the private room adjoining. There I took off the clothes, and began putting them into the fire that was burning in the upper laboratory. They were all consumed there that afternoon,—with papers, pocket-book, or whatever else they may have contained. I did not examine the pockets nor remove anything except the watch. I saw that, or the chain of it, hanging out; and I took it and threw it over the bridge as I went to Cambridge. My next move was to get the body into the sink, which stands in the small private room. By setting the body partially erect against the corner, and getting up into the sink myself, I succeeded in drawing it up. There it was entirely dismembered. It was quickly done, as a work of terrible and desperate necessity. The only instrument used was the knife found by the officers in the tea chest, and which I kept for cutting corks. I made use of no Turkish knife, as it was called at the trial. That had long been kept on my parlor mantlepiece, at Cambridge, as a curious ornament. My daughters frequently cleaned it: hence the marks of oil and whiting found on it. I had lately brought it into Boston to get the silver sheath repaired.

§ 1056. "While dismembering the body, a stream of cochituate was running through the sink, carrying off the blood in a pipe that passed down through the lower laboratory. There must have been a leak in the pipe, for the ceiling below was stained immediately around it.

§ 1057. "There was a fire burning in the furnace of the lower laboratory. Littlefield was mistaken in thinking there never had been a fire there. He had probably never kindled one, but I had done it myself several times. I had done it that day for the purpose of making oxygen gas. The head and viscera were put into that furnace that day, and the fuel heaped on. I did not examine that night to see to what degree they were consumed. Some of the extremities, I believe, were put in there on that day. The pelvis and some of the limbs, perhaps all, were put under the lid of the lecture room table, in what is called the WELL, a deep sink lined with lead. A stream of cochituate was turned into it and kept running all Friday night. The thorax was put into a similar well in the lower laboratory, which I filled with water, and threw in a quantity of potash, which I found there. This disposition of the remains was not changed until after the visit of the officers on Monday.

§ 1058. "When the body had been thus all disposed of, I cleared away all traces of what had been done. I took up the stick with which the fatal blow had been struck. It proved to be the stump of a large grape vine, say two inches in diameter, and two feet long. It was one

of two or more pieces which I had carried in from Cambridge, long before, for the purpose of showing the effect of certain chemical fluids in coloring wood, by being absorbed into the pores. The grape vine being a very porous wood, was well suited to this purpose. Another longer stick had been used as intended, and exhibited to the students. This one had not been used. I put it into the fire. I took up the two notes either from the table or the floor,—I think the table,—close by where Dr. P. had fallen. I seized an old metallic pen lying on the table, dashed it across the face and through the signatures, and put them into my pocket. I do not know why I did this rather than put them into the fire; for I had not considered for a moment what effect either mode of disposing them would have on the mortgage, or my indebtedness to Dr. P. and the other persons interested; and I had not yet given a single thought to the question, as to what account I should give of the objects or results of my interview with Dr. Parkman.

"I never saw the sledge-hammer spoken of by Littlefield, and never knew of its existence: at least, I have no recollection of it.

§ 1059. "I left the college to go home, as late as six o'clock. I collected myself as well as I could, that I might meet my family and others with composure. On Saturday, I visited my rooms at the college, but made no change in the disposition of the remains, and laid no plans as to my future course.

§ 1060. "On Saturday evening I read the notice in the Transcript, respecting the disappearance. I was then deeply impressed with the necessity of immediately taking some ground as to the character of my interview with Dr. P., for I saw that it must become known that I had such an interview, as I had appointed it, first, by an unsealed note on Tuesday, and on Friday had myself called at his house, in open day, and ratified the arrangement, and had there been seen, and probably overheard, by the man-servant; and I knew not by how many persons Dr. P. might have been seen entering my rooms, or how many persons he might have told, by the way, where he was going. The interview would, in all probability, be known; and I must be ready to explain it. The question exercised me much; but on Sunday my course was taken. I would go into Boston and would be the first to declare myself the person, as yet unknown, with whom Dr. P. had made the appointment. I would take the ground that I had invited him to the college to pay him money, and that I *had* paid him accordingly. I fixed upon the sum by taking the small note and adding interest, which it appears I cast erroneously.

§ 1061. "If I had thought of this course earlier I should not have deposited Pettee's check for $90 in the Charles River Bank on Saturday, but should have suppressed it, as going so far towards making up the sum which I was to profess to have paid the day before, and which Pettee knew I had by me at the hour of the interview. It had not occurred to me that I should ever show the notes cancelled in proof of the payment. If it had, I should have destroyed the large note, and let it be inferred it was gone with the missing man; and I should have only kept the small one, which was all that I could pretend to have paid. My single thought was concealment and safety. Every thing else was incidental to that. I was in no state to consider my ulterior pecuniary

interest. Money, though I needed it so much, was of no account with me in that condition of mind. If I had designed and premeditated the homicide of Dr. P. in order to get possession of the notes and cancel my debt, I not only should not have deposited Pettie's check the next day, but I should have made some show of getting and having the money the morning before. I should have drawn my money from the bank, and taken occasion to mention to the cashier that I had a sum to take out that day for Dr. P., and the same to Henchman, when I borrowed the $10. I should have remarked that I was so much short of a large sum I had to pay to Parkman. I borrowed the money of Henchman, as mere pocket money for the day.

§ 1062. "If I had intended the homicide of Dr. P., I should not have made the appointment with him twice, and each time in so open a manner that other persons would almost certainly know of it. And I should not have invited him to my room at an hour when the college would have been so full of students and others, and an hour when I was most likely to receive calls from others; for that was an hour—just after the lecture—at which persons having business with me, or in my rooms, were always directed to call.

"I looked into my rooms on Sunday afternoon, but did nothing.

"After the first visit of the officers, I took the pelvis and some of the limbs from the upper well, and threw them into the vault under the privy. I took the thorax from the well below, and packed it in the tea-chest, as found. My own impression has been, that this was not done until after the second visit of the officers, which was on Tuesday; but Kingsley's testimony shows that it must have been done sooner. The perforation of the thorax had been made by the knife at the time of removing the viscera.

§ 1063. "On Wednesday, I put on kindlings and made a fire in the furnace below, having first poked down the ashes. Some of the limbs —I cannot remember what ones or how many—were consumed at that time. This was the last I had to do with the remains. The tin box was designed to receive the thorax, though I had not concluded where I should finally put the box. The fish-hooks, tied up as grapples, were to be used for drawing up the parts in the vault, whenever I should determine how to dispose of them. And yet, strange enough, I had a confused double object in ordering the box and making the grapples. I had before intended to send such things to Fayal;—the box to hold plants and other articles which I wished to protect from salt water and the sea air—and the hooks to be used in obtaining coraline plants from the sea. It was this previously intended use of them that suggested and mixed itself up with the idea of the other application. I doubt, even now, to which use they would have been applied. I had not used the hooks at the time of the discovery. The tan that was put into the tea-chest was taken from a barrel of it that had been in the laboratory some time. The bag of tan brought in on Monday, was not used nor intended to be used. It belonged to a quantity obtained by me a long time ago for experiments in tanning, and was sent in by the family to get it out of the way. Its being sent just at that time was accidental.

§ 1064. "I was not aware that I had put the knife into the tea-chest.

"The stick found in the saucer of ink was for making coarse diagrams on cloth.

"The bunch of "filed" keys had been long ago picked up by me in Fruit street, and thrown carelessly into a drawer. I never examined them, and do not know whether they would fit any of the locks of the college or not. If there were other keys fitting doors with which I had nothing to do, I suppose they must have been duplicates, or keys of former locks, left there by the mechanics or janitor. I know nothing about them, and should never be likely to notice them amongst the multitude of articles large and small, and of all kinds, collected in my rooms. The janitor had furnished me a key to the dissecting rooms for the admission of medical friends visiting the college; but I had never used it.

§ 1065. "The nitric acid on the stairs was not used to remove spots of blood, but dropped by accident.

"When the officers called for me on Friday, 30th, I was in doubt whether I was under arrest, or whether a more strict search of my rooms was to be had; the latter hypothesis being hardly less appalling than the former. When I found that we went over Cragie's bridge, I thought the arrest most probable. When I found that the carriage was stopping at the jail, I was sure of my fate, and before leaving the carriage I took a dose of strychnine from my pocket, and swallowed it. I had prepared it in the form of a pill before I left my laboratory on the 23d. I thought I could not bear to survive detection. I thought it was a large dose. The state of my nervous system probably defeated its action, partially. The effects of the poison were terrible beyond description. It was in operation at the college, and before I went there; but more severely afterwards.

§ 1066. "I wrote but one of the anonymous letters produced at the trial—the one mailed at East Cambridge. The little bundle referred to in the letter detained by the jailer, contained only a little bottle of citric acid for domestic use. I had seen it stated in a newspaper that I had purchased a quantity of oxalic acid which it was presumed was to be used in removing blood-stains. I wished the parcel to be kept untouched, that it might be shown, if there should be occasion, what it really was I had purchased.

§ 1067. "I have drawn up in separate papers an explanation of the use I intended to make of the blood sent for on Thursday, the 22d, and of the conversation with Littlefield about the dissecting-vault.

"I think that Pettie, in his testimony at the trial, put too strongly my words about having settled with Dr. Parkman. Whatever I did say, of the kind, was predicated on the hope I entertained that I should be able to pacify Dr. Parkman and make some arrangement with him; and was said in order to quiet Pettie, who was becoming restive under the solicitation of Dr. Parkman."

The petition was unsuccessful, and the defendant was executed on August 30th, 1850.

II. That the death was from violence.

§ 1068. 1st. *Poisoning.*(*t*) The reported trials for poisoning in England, and in this country, are by no means so numerous as those which are collected in the German and French reports. The latter class have been already noticed incidentally; the former we will presently recapitulate. Before we do so, however, it will not be out of place to notice the following principles which they go to establish.

(a.) *Chemical proof of the existence of poison in the stomach in sufficient quantities to have caused death, though important, is not essential to conviction.*—If the indictment charges poisoning, the administering of poison must be shown, either directly or inferentially. It is true that proof of the existence of poison in the body is an important item in such proof, but independently of the fact that such existence can be proved in other ways than by the absolute detection of the ingredient itself (*e. g.* by moribund appearances and peculiar pathological symptoms), the *fact* that poison was administered can be satisfactorily shown by proof of the potion being given, though there be no *post mortem* examination at all. The case may be likened to that of a gun-shot wound, received by a party on board ship, who is knocked overboard by the shock and whose body is lost. If the gun is found to have been levelled,—if it is shown to have been loaded,—if upon its discharge the party falls,—it is not necessary to show the ball in his body, or even to prove the wound. It is true that the non-production of this species of proof can only be excused by necessity: but such necessity occasionally exists in death by poisoning, as well as death from gun-shot wounds. When therefore a chemical analysis is unattainable, the rule is,—as will be seen from an examination of the cases cited hereafter, particularly that of Tawell,—that it is not indispensable to a conviction when there is satisfactory evidence of guilt *aliunde.*(*u*) And this rule peculiarly applies where those charged with guilt are the agents by whom the prevention of a post mortem was effected. Hitzig gives us a pregnant illustration of this in the case of a woman in Brussels, who, in order to cause the symptoms of the projected poison to create as little surprise as possible, gave out from time to time, beforehand, that her imbecile husband, who was the intended victim, was subject to "fits," of very much the same nature as those which she expected the poison to produce. Her object, as it afterwards appeared, was to produce in his family, who saw him but rarely, the impression that this case, when it occurred, was merely a repetition of former attacks; and she followed this up by the attempt to prevent a *post mortem.* Of course, such efforts as these, instead of *protecting* the criminal, expose him to a new and most formidable class of suspicions; for there is no *item* in indicatory evidence in cases of poisoning so strong as that which arises from an attempt to obliterate the indicia of guilt.

§ 1069. On the other hand, if it is in the power of the prosecution

(*t*) See this topic examined in its medical relations, *ante* §§ 493–791, 833–846.

(*u*) See as to nature and character of post mortem, *ante* §§ 501–505, 515–523, 537, 646–679, 748–772, 942–962, p. 658, n.

to produce before the Court the opinion of experts as to the contents of the deceased's stomach, an omission to do this, is a culpable neglect which becomes the more mischievous from the fact that it is a general rule of law, that secondary evidence is inadmissible when primary can be obtained. And even if this strict rule does not apply to cases where, instead of an examination of the stomach, which could have been had, less positive tests are offered,—and the tendency of authority is, that as a technical bar it does not,—yet the defendant, who has been excluded from this opportunity by the exclusive control of the law, can with great force ask the jury to infer that had this final test been referred to, it would have demonstrated his innocence.

§ 1070. (b.) "The moral evidence from the conduct of the accused," says Mr. Wills,(*v*) from whose summary we have drawn the statement of several of the following cases, "his antipathies and other motives—his possessions of the means of death, especially if unexplained by any circumstance to account for it upon an innocent hypothesis—his declarations—his falsehoods, subterfuges, and evasions to prevent examination of the body, or to induce premature interment—and many other suspicious circumstances, constitute very material parts of the *res gestæ*, and furnish a clue to the explanation of facts which would otherwise be inexplicable. It is perfectly clear that by the law of England all such facts afford a competent and relevant evidence, from which can be inferred the criminal administration of poison."

§ 1071. The first common law case in which the subject was minutely considered is that of John Donellan, an English gentleman of respectability, who was tried at Warwick Spring Assizes in 1781, before Mr. Justice Butler, for the murder of Sir Theodosius Boughton, his brother-in-law, a young man possessed of an estate of about two thousand pounds per annum, which, on his death without issue, descended to the defendant's wife. The evidence was, that the deceased, until the illness which resulted in his death, had been enjoying good health and spirits, his only complaint being a slight ailment, for which he occasionally took a laxative draught. The family, including Mrs. Donellan, the deceased's sister, and Lady Boughton, his mother, lived together at Lawford Hall, the family mansion.

§ 1072. For some time before the death of Sir Theodosius, the prisoner had on several occasions falsely represented his health to be very bad, and his life to be precarious. On the 29th of August, the apothecary sent him a mild and harmless draught, to be taken the next morning. In the evening the deceased went out fishing, and the prisoner told his mother that he had been out with him, and that he had imprudently got his feet wet, both of which representations were false. When he was called the following morning, he was in good health; and about seven o'clock his mother went to his chamber for the purpose of giving him his draught, of the smell and nauseousness of which he immediately complained, and he remarked that it smelt like bitter almonds. In about two minutes he struggled very much, as if to keep the medicine down, and Lady Boughton observed a gurgling in his stomach; in ten

(*v*) Circumstantial Evidence, 187.

minutes he seemed inclined to dose, but in five minutes afterwards she found him with his eyes fixed, his teeth clenched, and froth running out of his mouth; and within a half an hour after taking the draught, he died. Lady Boughton ran down stairs to give orders to a servant to go for the apothecary, who lived about three miles distant: in less than five minutes the prisoner came into the bedroom, and after she had given him an account of the manner in which Sir Theodosius had been taken, he asked where the physic-bottle was, and she showed him the two bottles. The prisoner then took up one of them, and said, "Is this it?" and being answered, "yes," he poured out some water out of the water-bottle, which was near with the phial, and shook it, and then emptied it into some dirty water which was in a wash hand-basin. Lady Boughton said, "You should not meddle with the bottle;" upon which the prisoner snatched up the other bottle and poured water into that also, and shook it, and then put his finger in and tasted it. Lady Boughton asked him what he was about, and said he ought not to meddle with the bottles; on which he replied that he did it, to taste it, though he had not tasted the first bottle. The prisoner ordered a servant to take away the basin, the dirty things, and the bottles, and put the bottles in her hands for that purpose; she put them down again on being directed by Lady Boughton to do so, but subsequently removed them, on the peremptory order of the prisoner. On the arrival of the apothecary, the prisoner said that the deceased had been out on the preceding evening, fishing, and had taken cold; but he said nothing of the draught which he had taken. The prisoner had a still in his own room, which he had used for distilling roses; and a few days after the death of Sir Theodosius, he brought it, full of wet lime, to one of the servants to be cleaned. The prisoner made several false and inconsistent statements to the servants as to the cause of the young man's death; and on the day of his death he wrote to Sir William Wheeler, his guardian, to inform him of the event, but made no reference to its suddenness. The coffin was soldered up on the fourth day after the death. Two days afterwards, Sir William Wheeler, in consequence of the rumors which had reached him of the manner of Sir Theodosius's death, and that suspicions were entertained that he had died from the effect of poisons, wrote a letter to the prisoner, requesting that an examination might take place, and mentioning the gentlemen by whom he wished it might be conducted. The prisoner accordingly sent for them, but did not exhibit Sir William Wheeler's letter, alluding to the suspicion that the deceased had been poisoned, nor did he mention to them that they were sent for at his request. Having been induced by the prisoner to suppose the case to be one of ordinary sudden death, and finding the body in an advanced state of putrefaction, the medical gentlemen declined to make the examination, on the ground that it might be attended with personal danger. On the following day, a medical man who had heard of their refusal to examine the body, offered to do so; but the prisoner declined the offer on the ground that he had not been directed to send for him. On the same day the prisoner wrote to Sir Wm. Wheeler a letter, in which he stated that the medical men had fully satisfied the family; and endeavored to account for the event by the

ailment under which the deceased had been suffering: but he did not state that they had not made the examination. Three or four days afterwards, Sir Wm. Wheeler having been informed that the body had not been examined, wrote to the prisoner, insisting that it should be done; which, however, he prevented by various disingenuous contrivances, and the body was interred without examination. In the meantime, the circumstances having become known by the coroner, he caused the body to be disinterred and examined on the eleventh day after death. Putrefaction was found to be far advanced; and the head was not opened nor the bowels examined, and in other respects the examination was incomplete. When Lady Boughton, in giving evidence before the coroner's inquest, related the circumstance of the prisoner having rinsed the bottles, he was observed to take hold of her sleeve, and endeavored to check her; and he afterwards told her that she had no occasion to have mentioned that circumstance, but only to answer such questions as were put to her; and in a letter to the coroner and jury, he endeavored to impress them with the belief that the deceased had inadvertently poisoned himself with arsenic, which he had purchased to kill fish. Upon the trial, four medical men,—three physicians and an apothecary —were examined on the part of the prosecution, and expressed a very decided opinion—mainly grounded upon the symptoms, the suddenness of the death, and the *post-mortem* appearances, the smell of the draught, as observed by Lady Boughton, and the similar effects produced by experiments upon animals—that the deceased had been poisoned with laurel-water; and one of them stated that, on opening the body, he had been affected with a biting, acrimonious taste, like that which affected him in all the subsequent experiments with laurel-water. An eminent surgeon and anatomist, examined on the part of the prisoner, stated a positive opinion that the symptoms did not necessarily lead to the conclusion that the deceased had been poisoned, and that the appearances presented upon dissection explained nothing but putrefaction. The prisoner was convicted and executed.(*w*)

§ 1073. A surgeon and apothecary, named Donnall, was tried at Launceston Spring Assizes, in 1817, before Mr. Justice Abbott, for the murder of Mrs. Elizabeth Downing, his mother-in-law. The terms on which the parties lived were such as to supply no presumption, and the only motive that could be assigned was, that the deceased was possessed of a little property, which the prisoner, who was in somewhat straightened circumstances, would receive on her death. On the 19th of October, the deceased drank tea at the prisoner's house, and returned home much indisposed, retching and vomiting, with a violent cramp in her legs, from which she did not recover for several days. On Sunday, the 3d of November, after returning from Church, she dined at home on boiled rabbits, smothered with onions, and, upon the invitation of her daughter, drank tea in the evening at the prisoner's house, with a family party. The prisoner handed to the deceased cocoa and bread and butter, proceeding towards her chair by a circuitous route; and while she was drinking the second cup, she complained of sickness and

(*w*) Will's Circumstantial Evidence, 197.

went home, where she was seized with retching and vomiting, and attended with frequent cramps; and then a violent purging took place, and at eight o'clock the same morning she died. To a physician called in two or three hours before her death, he stated that she had an attack of *cholera morbus*. The nervous coat of the stomach was found to be partially inflamed, or stellated in several places, and the villous coat was softened by the action of some corrosive substance; the blood vessels of the stomach were turgid; and the intestines, particularly near the stomach, inflamed. The contents of the stomach were placed in a jug, in a room to which the prisoner, (to whom at that time no suspicion attached,) had access; and it appeared that he had clandestinely tampered with those contents, by throwing them into another vessel containing a quantity of water. The prisoner proposed that the body should be interred the following Wednesday, assigning as a reason, for so early an interment, that, from the state of the corpse, there would be danger in keeping it longer. This representation was entirely untrue. He also evinced much eagerness to accelerate the preparations for the funeral, urging the person who had charge of it, and the men who were employed in making the vault, to unusual exertions. The physician called in to the deceased, concluded from the shortness of the illness, and the morbid appearances, that she had died from the effects of some active poison; and in order to discover the particular poison, supposed to have been used, he applied to the contents of the stomach the chemical tests of the ammoniacal sulphate of copper, or common blue vitriol and the ammoniacal nitrate of silver or lunar caustic in solution, which severally yielded the characteristic appearances of arsenic: the ammoniacal sulphate of copper producing a green precipitate, whereas a blue precipitate is formed if no arsenic be present; and the ammoniacal nitrate of silver producing a yellow precipitate, instead of a white precipitate resulting, if arsenic be not present. He stated that he considered these tests infallible, and that he had used them because they would detect a minuter portion of arsenic; on which account he considered it to be more proper for the occasion, as, from the appearance of the tests, he found there could not be much. Concluding that bile had been taken into the stomach, he mixed some bile with water and applied some tests, but found no indication of the presence of arsenic: from which he inferred that the presence of bile would not alter the conclusion which he had previously drawn. Having been informed that the deceased had been eating onions, he boiled some in water; and after pouring off the water in which they were boiled, he poured boiling water over them, and left them stand for some time, after which he applied the same tests to the solution thus procured, and ascertained that it did not produce the characteristic appearances of arsenic. The witness, upon his cross-examination, admitted that the symptoms and appearances were such as might have been occasioned by some other cause than poisoning; that the reduction test would have been infallible; and that it might have been adopted in the first instance, and might also have been tried upon the matter which had been used for the other experiments. Upon his re-examination he accounted for his omission of the reduction test, by stating that the quantity of matter left after the frequent vomitings

and the other experiments would have been too small, and that it would not have been so correct to use the matter which had been subjected to the preceding experiments, and that the tests he used would detect a more minute quantity of arsenic. It was clear, therefore, that no sufficient reason existed, why, if arsenic had been contained in the stomach, it had not been reproduced either by an original experiment, or experiments upon the matter to which the other tests had been applied, and that its dilution had not rendered the experiment by reduction impracticable, but only more dilatory and troublesome. It was deposed by several medical witnesses, called on the part of the prisoner, that the symptoms and morbid appearances, though they were such as might, and did commonly denote poisoning, did not exclude the possibility that death might have been occasioned by *cholera morbus* or some other disease; that the tests actually resorted to were fallacious, and produced the same characteristic appearances upon their application to innocent matter, viz.: the ammoniacal sulphate of copper producing the green, and the ammoniacal nitrate of silver producing the yellow precipitate, in being applied to an infusion of onions; and that the experiment with the bile was also fallacious, since, from the presence of phosphoric acid, which is contained in all fluids of the human body, the same colored precipitate would be thrown down by putting lunar caustic into a solution of phosphate of soda. It was to no purpose to urge that a docoction of onions was not the same thing as that particular preparation of onions of which the deceased had partaken, and that in the hands of the witness for the prosecution this experiment had been attended with a different result. The facts adduced by the prisoner's witnesses conclusively proved that the appearances, produced by the tests employed, might have been produced by some other cause than the presence of arsenic, and therefore, that they were fallacious and inconclusive, while an infallible test might have been resorted to. Mr. Justice Abbott told the jury that "these were two important questions: first, did the deceased die of poison, and if they should be of opinion that she did, then, whether they were satisfied from the evidence, that the poison was administered by the prisoner or by his means? There were some parts of the evidence which appeared to him equally applicable to both questions, and those parts were what related to the conduct of the prisoner during the time of the opening and inspection of the body; his recommendation of a shell and the early burial; to which might be added the circumstances, not much to be relied upon, relative to his endeavors to evade his apprehension." The learned Judge also said, "If the evidence as to the opinions of the learned persons who have been examined on both sides, should lead you to doubt, whether you should attribute the death of the deceased to arsenic having been administered to her, or to the disease called *cholera morbus*,—then, as to this question, as well as the other question, the conduct of the prisoner is most material to be taken into consideration; for he being a medical man could not be ignorant of many things, as to which ignorance might be shown in other persons; he could hardly be ignorant of the proper mode of treating *cholera morbus*,—he could not be ignorant that an early burial was not necessary; and when an operation was to be performed, in order to discover the cause of the death, he should not have

shown a backwardness to acquiesce in it; and when it was performing, and he attending, he could not surely be ignorant that it was material for the purposes of the investigation that the contents of the stomach should be preserved for minute examination." He continued, "the conduct of the prisoner, his eagerness in causing the body to be put into a shell, and afterwards to be interred speedily, was a circumstance most material for their consideration with reference to both the questions he had stated; for, although the examination of the body in the way set forth, and the experiments that were made, might not lead to a certain conclusion as to the charge stated, that the deceased got her death by the poison administered to her by the prisoner, yet, if the prisoner as a medical man, had been so wicked as to administer that poison, he must have known that the examination of the body would divulge it."

§ 1074. In a case reported by Mr. Wills, (*x*) a woman whose name is not given by him, was tried in 1835, before the Recorder of Bristol, for the murder of a widow about 60 years of age, who was possessed of considerable property in money, and after living in lodgings in various places for several years went to live with the prisoner, who kept a lodging house at Bristol. The evidence was, that in October, 1833, the deceased became indisposed from a cold, and in the evening of the 26th of that month, the prisoner gave her some gruel, into which she was observed by a young woman, hired to wait on the deceased, to put some pinches of yellow powder, which she stated to be to relieve her from pain, taking care, however, to afterwards twice wash her hands. She then told the servant not to take anything out of the vessels used by the deceased, falsely representing her to be dirty in her habits, and cautioned her not to tell the deceased that she had put anything in her gruel, representing that if she knew there was anything in it she would not take it. The prisoner carried away what was left of the gruel: and a few minutes after the deceased had taken it she complained of being poorly, and in half an hour became ill, vomiting, purging and violent pain ensued, and in about two hours she expired. The prisoner had employed a man about six days previously to purchase arsenic to poison rats, a pretext which was proved to be groundless. The deceased was buried on the 28th of October, and her friends did not hear of her death until many months afterwards. From the change which took place in the prisoner's habits and mode of living immediately afterwards, from her denial that the deceased had left any property, and from some other circumstances, suspicions were excited, and the corpse was disinterred and examined on the 24th of December, 1834, and found to be in a remarkable state of preservation.

§ 1075. "The mucous membrane of the stomach and duodenum," says Mr. Wills, "was smeared very thickly with a large quantity of yellow substance, which penetrated in patches the coats of the stomach and intestines; and where the spots had penetrated, the inside of the intestinal canal was stained to a much greater extent than the outside, so that it must have penetrated from the interior to the exterior, as would be the effect of the matter having been taken into the stomach.

(*x*) Circumstantial Evidence, 196.

The yellow powder found in the stomach was submitted to various experiments. Having been dried, some of it was triturated with carbonate of soda and charcoal, and introduced into a reducing tube, and immediately a volatile metallic body was formed, which was metallic arsenic; the metallic arsenic was then oxydized, when it sublimed into a white volatile oxide, which was characteristic of arsenious acid; a solution was then made of the oxid in two drops of water and a small portion of ammoniacal nitrate of silver was added, when there was formed the characteristic lemon yellow precipitate. In another portion a minute quantity of ammoniacal sulphate of copper was put, which immediately produced the green precipitate of Scheele. Afterwards a larger quantity was reduced, and a stream of sulpheretted hydrogen gas passed through it, and the original orpiment or sulphurate of arsenic reproduced. These various experiments were repeated five or six times, and uniformally with the same results. The stomach was then washed in water, and the substance allowed to precipitate and dried up, was weighed and found to contain seventeen grains. Lastly, the animal matter was destroyed and the arsenic dissolved, and the sulphur turned into sulphuric acid and precipitated by sulphuretted hydrogen gas, which reproduced sulphuret of arsenic. From thirteen grains of the mixed matter were obtained four grains of sulphuret of the arsenic; and there were still some portions adhering to the stomach which could not be washed off; and some had been evacuated by vomiting."(*y*) The prisoner was convicted and executed.

§ 1076. In 1831, Lucretia Chapman, otherwise called Lucretia Espos y Mina, and Lino Amalie Espos y Mina, were tried in Bucks county, Pennsylvania, before Judge Fox, the county judge, for the murder, by poisoning, of William Chapman, the former husband of the female defendant. Mrs. Chapman, which was the name that she continued to bear during the trial, notwithstanding her intermediate marriage with Mina, her co-defendant, was a woman about forty years of age, of respectable family and acquirements, a native of Massachusetts, and for many years a resident of Pennsylvania. In her earlier life she had been engaged as a teacher in one or two private schools in Philadelphia, but marrying the deceased, who was an Englishman, and who was possessed of a very successful method of curing persons having obstructions of the speech, they opened together in that city a school for this purpose, which they afterwards removed to a place called Andalusia, near the Delaware, about twelve miles north of Philadelphia. For several years before her husband's death she had assumed the main management of the institution; and the evidence showed that she had been accustomed to domineer over him with some asperity. He was then approaching sixty years of age, of good character and good habits, and possessed of generally good health. They had several children, the oldest of whom was a girl, about fifteen years old. The remaining defendant, Lino Espos y Mina, as he called himself at the time, though he had borne one or two aliases, was scarcely more than twenty-two, and made his first appearance in America, as far as could be traced, in the Philadelphia county prison, where he had been sent in 1830 for

(*y*) Wills on Circumstantial Evidence, 198.

some small larcenies. After remaining there nearly a year, he was pardoned by the Governor, on a recommendation from the inspectors chiefly induced by his own representations; and he proceeded at once, —it was the month of May,—to take up his journey northward on foot. Late in the evening he arrived at Mr. Chapman's house, where he knocked and begged food and lodging. Mr. Chapman at first refused to receive him, but Mrs. Chapman, who appeared to be a woman of kindly disposition so far as relieving the distressed was concerned, obtained permission for him to remain during the night. In the meantime, by a most absurd and yet showy system of lies, he succeeded in gaining the confidence of both husband and wife, and in due season the passionate attachment of both. Had his hosts possessed any discernment, or made any inquiry, they would soon have discovered the fraud; but so easy was the temper of the husband, and so infatuated was the wife, that they fell at once into toils which certainly were neither strong nor subtle. He told them that his father was General Mina, Governor of California,—that he had been educated in the city of Mexico, by a grandfather,—that his mother was immensely rich, owning a gold mine, —that he had been sent to Europe to travel with a physician, a friend of the family, who had died suddenly, leaving him without the means to find his way back,—that he was reduced in this way to the greatest straits,—that his want of education was to be attributed to the manner of his bringing up, having been over-indulged by a grandfather, himself illiterate,—and that immense means were at his command, if he could only obtain a temporary home to remain at until he could hear from his friends. The cupidity of Mrs. Chapman was first appealed to by a promise of several thousand dollars, as a consideration for her teaching him English; and then, when an unnatural passion was excited in her, her duty to her husband gave way before a determination to surrender herself to the object of her infatuated desires, cost what it may. Among other tricks to enforce upon her credulity and that of her husband, he resorted to the following: He induced Mrs. Chapman to drive him to the city, for the purpose of visiting the Mexican Consul, Colonel Cuesta, a gentleman of undoubted character. He managed matters so as to obtain an invitation to dinner from the latter, using his attendance on Mrs. Chapman as a pledge of his respectability, and using his invitation to dinner to impress on Mrs. Chapman a continued belief in the accuracy of his story. Stepping into a drug store he persuaded a gentleman there, who spoke Spanish, to write a letter for him, and giving his own name as Cuesta, he dictated, in the latter character, a letter to Mr. and Mrs. Chapman, thanking them for their kindness to his "unfortunate countryman" Don *Lino y Mina*. The result was, if the usual presumptions to be drawn from this species of circumstantial evidence were to be applied, and if Mina's subsequent declarations are to be credited, a sexual intimacy between Mina and Mrs. Chapman, which was accompanied by a change in her feelings to her husband from love to disgust and hatred. On the 16th of June, in this same year, scarcely six weeks after his first acquaintance with the family, Mina proceeded to Philadelphia, nominally on other business, but when there bought a quarter of a pound of arsenic, the object avowed by him being the preparation of birds. The next

day after his return, Mr. Chapman was taken sick. At first the illness was so slight that the physician who was called in did not at the time deem it necessary to visit him again. He grew better, and on the 20th, Mrs. Chapman prepared for him some chicken soup, which she took from the kitchen to the parlor, for the purpose, as she said, of seasoning it. When the soup was taken to the parlor she and Mina were the only persons left in the room. Mr. Chapman took a small quantity, and the remainder was thrown into the yard. It was a remarkable feature in the case, that it appeared in evidence that a party of about forty ducks belonging to a neighbor, visited Mr. Chapman's yard on that day, and with the exception of four, who could not get over the fence, all died. Immediately after taking the soup Mr. Chapman grew worse, complaining of burning heat in the stomach. A friend calling and seeing him in this distressed situation, advised the calling in of a physician, which the wife resisted. On the 22d he seemed much worse, and on the evening of that day a physician was called in, but ineffectually. The next day he died. On July 5th his wife and Mina were married, though privately. The fact, however, having leaked out, and other circumstances attracting suspicion, the body was disinterred, and a chemical examination had, under the direction of Dr. J. K. Mitchell, who thus stated the result:

"On the 22d of September, 1831, Dr. Hopkinson brought to my library, in Philadelphia, a jar containing a stomach, and about six inches of the intestine nearest the stomach, called the *duodenum*, which he told me was the stomach of Mr. Chapman, which he had disinterred somewhere on the Bristol road. In his and Mr. Clemson's presence, an examination of this stomach and intestine was made. The exterior appearance of the stomach differed much from that of the duodenum. The duodenum was nearly that of a white color, such as a healthy duodenum appears. The stomach was much darker, and had a reddish tint—it might be said to be a dark grey, tinged with red. The larger vessels of the stomach could be traced by a stronger red color, but of the same description of color. The smell of the whole was very peculiar, such as I have never before perceived. Upon consultation, we came to the conclusion that it most resembled the smell of dried Scotch herring. We proceeded then to open the stomach, which was tied at its upper orifice, a string being applied likewise to the other end of the intestine, so as to include the contents of the stomach. Upon laying open the stomach and intestines we found them empty; there being nothing in them but a thin layer of matter, which was attached to the sides of the stomach. Through this adhesive mucus, which lined the stomach, we could, in many places, perceive the color of the lining coat, or the internal membrane of the stomach, which, wherever it showed itself, appeared of a red color. In some places the course of larger vessels than those that give the general color could be traced by a more distinct redness. It appeared as if the blood had spread from the sides of these vessels, the deepest color being in the middle line, gradually fading until the color became that of the walls of the stomach generally. Nothing appeared remarkable in the duodenum except the pale straw-yellow color of its internal surfaces. As Mr. C. had been said to be poisoned by arsenic, and as the most usual arsenical preparation used in poisoning is not very soluble in water, I passed my finger over the

whole internal lining, feeling the mucus which lined it, for the purpose of ascertaining if anything gritty could there be found. In this manner and by examination with the eye, we failed to discover any solid body or particle, in any part of the stomach or attached duodenum. As the stomach contained nothing, and as no particles of any sort could be discovered in it, the detection of arsenic or of any other poison presented a probable difficulty. It was, therefore, thought best to scrape off from the internal walls of the stomach, the viscid mucus, with which it was lined; to subject that to one method of analysis, and the solid stomach and intestines to another. In the attempt to remove the mucus, which was done with a smooth edged bone spoon, it was found in some places to be so much attached, as to bring with it the internal coat of the stomach, which appeared in some places to have been loosened from its cellular attachments to the muscular coat, by a very thin plate of what appeared to be effused blood. A little water was passed over the inner surface of the stomach after scraping, for the purpose of the better observing its condition; that water was added to the mucus which had been scraped off. Then the stomach appeared to be less regularly red than might have been inferred from the examination before the mucus was removed. Then there appeared many red spots, especially around the first opening of the stomach, next to the gullet, and in various parts of the stomach could be perceived dark brown patches. None of these seemed to be the effect of putrefaction, for there was no smell indicative of that process. I do no recollect anything further in the appearances of the stomach and duodenum worthy of notice. To the mucus and water already mentioned, some clear water was added, and the whole boiled in a clean Florence flask for a considerable time,—everything thus treated was then thrown upon a filter. After filtration there was left on the filter a dark brown substance, which was thrown into nitric acid (filter and all) in which the stomach and intestines were undergoing solution. The liquid which had been filtered was transparent, with a very faint amber color. Very small portions of this liquid, taken separately, were subjected to liquid tests. Sulphate of copper in solution, changed the color of that portion to which it was applied to an undecided grass green. Nitrate of silver in solution, gave brownish yellow flocculent precipitate, which grew darker, and soon lost its yellowishness. Sulphureted hydrogen in its gaseous state, was passed through another portion, and deepened its yellow tint just perceptibly. Nearly the whole of the liquid was then subjected to the action of sulphureted hydrogen, thrown into a capsule, heated until its yellowishness became distinctly marked, and its transparency was gone. The whole liquid was then thrown upon a filter, and from necessity left for several hours. When it was again looked at, a transparent fluid was found in the vessel beneath the filter, and on the filter was discovered a yellow substance which could not be separated from it, being in too small a quantity, and the paper not being smooth. As the quantity was too small to look for any decided result from heating it alone, it was thrown (filter and all) into the vessel in which the stomach and intestines were in a state of solution. Every thing, then, which might be supposed to contain poison, remained to be looked for in the nitric acid solution. That was evapo-

rated nearly to dryness; heated again by nitric acid, and so on, until it was that the animal matter was destroyed. Water was also added to the residue, and boiled on it, until it was supposed that everything soluble had been taken up. That liquid was filtered, evaporated to dryness (I have on this point rather an indistinct recollection) and treated with lime water. This matter was evaporated to dryness after using the lime water, and it was presumable that if any arsenic were present, it existed in the dried mass as a salt called arseniate of lime. This was divided into three portions, each placed in the closed end of a glass tube, open at the other end. The sealed end of a tube was then placed over the flame of a spirit lamp, (the dried mass was mixed with powdered charcoal, before being placed in the tubes,) with a view to sublime metallic arsenic, if any there should be. The tube which was held by Mr. Clemson became covered on its internal surface for some distance above the material employed in the tube, with a black looking matter, which an unpractised eye might readily mistake for a metal; for although black, it was glistening. In conducting this experiment, and after these appearances had been observed, the sealed end cracked and opened, under the action of the spirit lamp; when Mr. Clemson, who was holding it, turned round and said, Is any one subliming arsenic in the room? The reply was, No,—and he called me to examine what the odor of the tube was, and I distinctly recognized what I believed to be the smell of the fumes of arsenic. The tube was subsequently heated where the shining black matter had lodged, and as the tube was open at both ends, a current of air was passing through it, and the arsenical smell was perceptible at the upper end. The other tubes were subsequently, and at different times treated in the same manner, and, with the exception of the breaking, presented similar results—a black matter covering the arsenical ring, if any was there. There was no evidence to the eye that there was any arsenic there. This is a succinct history of the proceedings in my laboratory for the detection of arsenic. Previously to entering upon the search for arsenic, some tests were used for the purpose of ascertaining whether it would be proper to search for any other poison. Corrosive sublimate and tartar emetic were thus looked for, but no indication of their presence, however slight, could be discovered. That was all that was done with Mr. C's stomach as far as I can recollect."

Mrs. Chapman was acquitted, but Mina, who was tried separately and subsequently, was convicted and executed.

§ 1077. In 1845, a man named John Tawell, about sixty years of age, was tried at Aylesbury Spring Assizes, before Mr. Baron Parke, for the poisoning of a woman who, at a prior period, had lived as servant with him for several years, and borne him two children. Upon his desiring, however, at a subsequent period, to marry, she had gone into seclusion, and had ever since received from him a regular allowance.—"The prisoner was seen by a neighbor," to take Mr. Will's statement, "to enter the deceased's house, near Slough, between four and five o'clock in the afternoon of the 1st of January preceding. Between six and seven o'clock, she heard a stifled scream in the deceased's house; she took a candle, and going to her own door, saw the prisoner coming out of it. Fearing that her neighbor was ill, she went to the gate of a small

garden which led to her house, where she met the prisoner, who seemed agitated, and could not open it, which she did for him. On getting up to the house, she found the deceased lying motionless upon the floor, her eyes fixed, foaming at the mouth, and breathing convulsively. On the table there was a bottle partly filled with porter, two tumblers, one of them half filled with porter, and the other with only a little froth in it. Medical assistance was immediately procured, and a vein was opened in the arm, from which about an ounce of blood flowed; but life was extinct. The deceased previous to the prisoner's visit had been in good health, and had intimated to her neighbors that she expected to see her 'old master' in the course of the day, and between six and seven o'clock she went to a neighboring tavern to procure a bottle of porter. After leaving the deceased's house, the prisoner was seen, about seven o'clock, running towards Slough, where he got into an omnibus which was proceeding towards Eaton: at some distance from that place, he alighted, desiring to be set down at Hershel House, where, however, he did not call. At forty minutes past seven, the prisoner had again returned to Slough, and, in two or three minutes afterwards, proceeded by railway back to London. In consequence of this suspicious circumstance, a communication was made from Slough, soon after the prisoner left, by means of the electric telegraph to the Paddington Station, where, upon his arrival, he got into an omnibus, and was watched by a police officer in plain clothes, who got up behind and acted as conductor, and traced him to the Jerusalem Coffee-house, on Cornhill, where he called about half past nine, and from thence to a lodging house, where he slept. On the following morning the prisoner was taken into custody, and on being told by the officer of the cause of his apprehension, declared that he had not been at Slough the preceding day. It was discovered that on the day of the deceased's death the prisoner had purchased a bottle of Scheele's prussic acid at a druggist's shop in London; that about three o'clock in the afternoon he had called at the Jerusalem Coffee-house for the purpose of leaving a great coat and parcels, for which he said he would call about half past nine, stating that he was going to dine at the west end; that instead of doing so, however, he went by railway at four o'clock from the Paddington Station to Slough; and that on the following morning, before his apprehension, he had purchased at the same shop where he had obtained the first quantity, a further supply of prussic acid,—having, as he said, lost that which he had obtained the day before. To the officer in whose custody he was placed during the sitting of the coroner's inquest, the prisoner stated that the deceased had formerly lived with him as a servant, and was a very good servant, but a very bad, unprincipled woman; that he had been in the habit of sending her money; that she had pestered him with letters, in which she had threatened to destroy herself if he did not send her some; that on the evening in question they had an altercation, in the course of which he had told her he would not allow her any more money; that she then asked him for some porter, which she went for and procured from a neighboring tavern; that she poured something into it from a phial and drank of it, and then began to throw herself about; and that he left, thinking her illness feigned, or else would have called some one. The prisoner attempted to explain his

possession of prussic acid by stating that he had been in the habit of using it on account of varicose veins; but no proof was adduced that he had suffered from that cause. It was proved that the deceased had been extremely ill after drinking a part of a bottle of porter, for which the prisoner had sent her out on a preceding visit about three months before, when he paid to her her allowance. On examination of the body the day after death, the brain and viscera were found to be healthy. The odor of prussic acid was perceptible as soon as the body was opened, although no such odor had been remarked upon smelling at the mouth. No deleterious ingredients were found in the porter which remained in the bottle and glass. After a portion of the contents of the stomach had been tested for several other poisons, another portion was put into a tubulated retort, to which was added a very small quantity of dilute sulphuric acid; the retort was then placed in a sand-bath, and a portion distilled off and collected, about two drachms of which were put into a test-glass, to which a grain of green sulphate of iron was added, and when this was dissolved, a small quantity of potassa. Muriatic acid being added to this mixture, Prussian blue instantly appeared, showing the presence of cyanogen in some form. It was stated that the presence of this fluid would prevent the sand-bath from decomposing the animal matters present in the contents; but to exclude all possibility of referring the poisonous matters to such decomposition, another portion of the contents of the stomach was distilled at a lower temperature by the water-bath, to which salt was added for the purpose of increasing the temperature, which, by that means, can be raised from 212° to 226°; when, on applying the same tests as before, Prussian blue was again found in considerable quantity. Nitrate of silver was then added to a portion of the fluid, for the purpose of separating the cyanogen it contained, when it threw down an insoluble, white precipitate, forming cyanide of silver, which being put into a small retort with a very small quantity of muriatic acid, and carefully distilled over into a cool receiver, yielded rather more than a drachm of diluted prussic acid, which, on being again treated with nitrate of silver, yielded the cyanide of silver. This precipitate could not be dissolved in cold nitric acid, but was dissolved by boiling nitric acid; and the gas produced by heating the cyanide of silver was then collected and burnt, producing a peculiar purple-colored flame, characteristic of the presence of cyanide of silver. The quantity of cyanide of silver actually obtained, was 1.455 grains, very slightly contaminated with chloride of silver, amounting to a quantity which could not be collected and weighed, for which allowing .025 grains, the cyanide of silver was 1.43; and as the quantity of matter operated upon was to the contents of the stomach as 51 to 180, the latter must have contained 5.047 grains of cyanide of silver, which are equivalent to 1.042 grains of hydrocyanic or prussic acid, or 50 grains of the strength of the London Pharmacopæia,—a quantity more than sufficient to destroy life. It was urged for the prisoner that the poison might have been generated from apples, of which some pulp was found in the stomach; but this subterfuge was disproved by the circumstance that prussic acid is contained only in the pips, and could not be obtained except by distillation; whereas it had been smelt on opening the body, when it was not possible that it could have been produced by dis-

tillation; and by a satisfactory experiment it was shown that from the pips of 15 apples there was obtained only an inappreciable quantity. Slight evidence was adduced of pecuniary embarrassment, and a desire to absolve himself from the burden of his allowance to the deceased was suggested as the prisoner's motive for the commission of so horrid a crime. The jury returned a verdict of guilty, and the prisoner was executed, having, before his execution, made a full confession of his guilt, as also that he had, as had been suspected, made a former attempt to poison the deceased by means of morphia, which he had mixed with the porter of which his unsuspecting victim had partaken, stating his motive to have been to prevent his criminal connection from becoming known to his wife, of which he lived in apprehension. The reports of criminal justice present no more satisfactory case of circumstantial evidence, whether as regards the scientific testimony or the moral facts; and all the circumstances conclusively rebutted the prisoner's crafty attempt to account for the catastrophe by self-destruction."(*v*)

§ 1078. The prisoner's counsel pressed in this case, with great earnestness, the position that it was a rule of law, that there should be positive proof of the mode of death, and also that such a quantity of poison was found in the body of the deceased as would necessarily occasion death. Mr. Baron PARKE, however, in accordance with the views already given, told the jury, that "if the evidence satisfied them that the death was occasioned by poison, and that the poison was administered by the prisoner,—if that," said his Lordship, "is proved by circumstantial evidence, it is not necessary to give direct and positive proof what is the quantity which would destroy life, nor is it necessary to prove that such a quantity was found in the body of the deceased, if the other facts lead you to the conclusion that the death was occasioned by poison, and that it was knowingly administered by the prisoner. You must take this fact, just the same as all the other parts of the case and see, if you are satisfied as reasonable men, whether the prisoner is guilty or not. The only fact which the law requires to be proved by direct and positive evidence, is the death of the party by finding the body: or when such proof is absolutely impossible, by circumstantial evidence leading closely to that result,—as where a body was thrown overboard far from land—when it is quite enough to prove that fact without producing the body." In a subsequent part of his charge, the learned judge also said, "There is very reasonable evidence, supposing that to be required, which I tell you is not, that the quantity of prussic acid in the stomach amounted to one grain; and although that is not necessary to be proved, the scientific evidence shows that one grain may be enough to destroy life." In reference to the argument urged by the prisoner's counsel, that the deceased might have died *from* some sudden emotion, the learned judge said, that it was within the range of possibility that a person might so die without leaving any trace on the brain: *they* were to judge whether they could attribute death to that cause, if they found strong evidence of the presence of poison, because they were not to have recourse to mere conjecture that where the result of the evidence gave them the existence of a

(*v*) Will's Circumstantial Evidence, § 180–198.

cause to which death might be lawfully attributed, they were not to *suppose* it was to be attributed to any other cause." The importance of circumstantial evidence drawn from conduct, was then recognized, and the jury were told that in considering the question, "whether or not the death was caused by prussic acid, they were not to abstain from looking at the conduct of the prisoner as part of that question; that they must look at all the circumstances in the case, and see whether the prisoner's conduct, and the thing that was in his possession would not strengthen them in the conclusion, that the scientific witnesses had properly arrived at the conclusion, that beyond all doubt in their minds, prussic acid was the cause of death;" and he added that, "when they had the fact proved beyond all mistake that prussic acid was in the stomach, they could not forget to take into consideration that this was after a violent and sudden death, for which prussic acid would account." "You must judge," said the learned baron, "of the truth of the case against a person by all his conduct taken together."

§ 1079. On the trial, in 1845, of a man, named Graham, for poisoning his wife, Mr. Baron Rolf, in his charge to the jury, dwelt with much emphasis on the indicatory evidence to be drawn from the fact that the accused was proved to have had possession of poison of the same kind with that by which the murder was effected. "Had the prisoner," said the learned judge, "the opportunity of administering the poison? that was one thing; had he any motive to do so? that was another. There was also another question, which was most important; it was, whether the party who had the opportunity of administering poison, had poison to administer? If he had not the poison, the having the opportunity became unimportant. If he had the poison, then another question arose, did he get it under circumstances to show that it was for a guilty or improper object?" The evidence by which it was attempted to trace poison to the possession of the prisoner, was, that on a certain occasion after the death of the wife, and after he himself was apprehended, the contents of the pockets of a coat, waistcoat, and trowsers, on being tested by medical witnesses, were found to contain arsenic; and that a week afterwards, another waistcoat which came into the possession of the policeman, on being examined, was also found to contain arsenic. Did that bring home to the prisoner the fact that he had arsenic in his possession in November? It was not conclusive that, because he had it in June, he had it in November. He (the learned judge) inferred from what had been stated by the medical men, that the quantity of arsenic found in the pockets of the clothes was very small. Now, if he had it in a larger quantity in November, and had used it for some purpose, being a mineral substance, such particles were likely to remain in the pockets, and finding it there in June was certainly evidence that it might have been there in larger quantity in November; but obviously, by no means conclusive, as it might have been put in afterwards. But connected with the arsenic being found in the clothes, there were other considerations which he thought were worthy to be attended to.

§ 1080. The prisoner was apprehended on the 9th of June, and he knew, long before that time, that an inquiry was going on. He was taken up, not in the clothes in which the arsenic was found, and a fort-

night afterwards a batch of clothes was given up, in which arsenic was detected. Now if arsenic had been found in the clothes he was wearing, it would be perfectly certain, in the ordinary sense, that he had arsenic in his possession. But it was going a step further to say that, because arsenic was discovered in clothes of his, accessible to so many people between the time of his apprehension and their giving up, it was there when he was apprehended, and in all probability he thought it was, but that was by no means the necessary consequence. That observation was entitled to still more weight, with regard to the waistcoat last given up to the police, because it was not given up till three weeks after the prisoner was apprehended, and had been hanging in the kitchen accessible to a variety of persons. If any one had a diabolical motive or wish to excite prejudice against the prisoner, and to create a piece of evidence against him, which did not in truth exist, he had the opportunity; and the learned counsel for the defence had pointed to the fact of three pockets containing arsenic, as one which tended to show that the poison must have been placed there by some one who had overdone the thing, in trying to bring into court too much evidence. These were matters which the jury must weigh very carefully. It was urged also that arsenic was used for cattle. It might be so, and it might be that the prisoner might innocently have had the arsenic. The circumstance of there being arsenic in so many pockets ought not to be lost sight of, for it could scarcely be conceived that a guilty person should be so utterly reckless as to put the poison he used into every pocket he had. One would have thought that he would have kept it concealed, or put it only in some safe place, for the immediate purpose of being used; and it was worthy of observation that it did not appear to have been put into the clothes in such a way as it would have been put had the prisoner been desirous to conceal it." The prisoner was acquitted.

§ 1081. The trial of the Count and Countess of Bocarmé, in 1851, for the murder of the brother of the latter, Gustavus Fougnies, cannot be passed over without notice under this head.(*v*) The Count himself was descended from a Belgian family of great eminence, but which, in consequence of a failure in its estate, had been obliged for a time to abandon its native land. His father, the former count, had been governor of Java, and the son was born at sea, when his parents were on their return voyage. Scarcely had his infancy passed,—certainly before he had acquired any efficacious moral or intellectual training,—when his father determined to visit America, and for the joint purposes of economy and the pursuit of game, to which he was devoted, determined to encamp in the wildest part of Arkansas. For two years the father and son dwelt in a wilderness unapproached by the habitations of others, their only attendants being one man servant and an Indian maid. In the meantime the father died, and the son returned to the guardianship of a mother, who, whatever might be her capacity otherwise, was scarcely qualified to assume the control over a son in whom the savage now began greatly to predominate. The young count, however, ungovernable as was his temper, and wild as were his habits, had a certain amount of mechanical talent, which enabled him soon to master the ru-

(*v*) See this case briefly noticed, *ante* § 749.

diments of his education; and to so great a degree had he acquired the art of penmanship that he could at once imitate any handwriting that might be placed before him. But this improvement of the intellectual faculties was unaccompanied by a corresponding development of the moral; and the evidence on the trial we are about to narrate, shows that the only qualities which distinguished him from the savage were used by him to make still more dangerous those which with the savage he held in common.

§ 1082. The Countess Lydia, his wife, had borne the maiden name of Fougnies, and was a young lady of much eccentricity, and in psychical if not physical constitution as extravagant as her husband. She had married much more from ambition than inclination, it being her object to use the wealth which she was supposed about to inherit, to sustain a leading position in society. Sprung from a family not itself noble, she was peculiarly anxious to vindicate her new title by participation in the wildest fashionable excitement. Family comfort was a thing which neither she nor her husband enjoyed. He carried licentiousness to such a degree that he had mistresses even within the house. His control over his wife was despotic, but rested on physical much more than moral superiority. They lived in a feudal castle of great age and splendor, which the Countess had fitted up in the most complete modern style, and made the scene of the most unbridled extravagance.

§ 1083. According to the very graphic report in the *Neue Pitaval*,(*w*) a work whose circumstantiality we will be pardoned for to some extent following, when we remind our readers that it occupies the front rank in this class of literature,—the Countess, when she came into the court at the opening of the trial, was dressed entirely in black, her face being covered with a veil. Her countenance, when opportunity was given to observe its expression, exhibited no particular marks of character or feeling, the general tone being one of stolidity, though her bearing as well as her dress were not inconsistent with her high social opportunities. The Count was evidently still a young man, and would have attracted attention any where by his high stature and marked countenance and bearing. He was slightly—so says the narrator—pock-marked, his hair was auburn, and his whole bearing was marked with that ancestral pride for which his family had been so long distinguished. But while his demeanor was in all respects striking, it could not be denied that the expression of his countenance was sinister and malign. The perfect ease with which he went through his examination, and the general elegance of his attire and address were not sufficient to relieve the bystanders from the feeling of distrust which his general bearing inspired.

§ 1084. According to the present usage of the Belgian Courts, the trial commenced with a statement by the prosecuting officer of the general grounds on which a conviction would be asked. This statement began with a recapitulation of the family relations, by which it appeared that the Count Hippolyte Visart de Bocarmé, (for this was his full name) had married, in 1843, at Peruwelz, the daughter of an aged

(*w*) Der Neue Pitaval, herausgegeben vom Criminal director Dr. J. C. Hitzig, und Dr. W. Häring, Neunzehnter Theil. Leipzig, 1852. And for a brief abstract, see *ante* § 749–*note*.

grocer, who had but two children, of whom the son, Gustavus, who was the eldest, whose right leg had been amputated, possessed a constitution so weak as to promise no very long continuance in life. At an early period of their married life the defendants looked forward to a large increase of their fortune by their brother's death. The latter, however, meditated marriage rather than death, and it was just before the act of violence which the prosecution was brought to punish, that he paid a visit to Castle Vitremont for the purpose of joining in the necessary settlement. The next morning the announcement went out that he had died suddenly of apoplexy. The position of the corpse, however, indicated an entirely different method of death. A deep contusion was found under the nostrils, and several scratches under the cheeks showing the marks of finger nails. On the chin was found an abrasion where the skin had been removed, and where the flesh seemed to have been stained and eaten into by some sharp acid. The tongue, the throat, and the palate, showed also the passage of a similar substance. The conclusion of the medical experts had therefore been that Gustavus Fougnies had swallowed, while still alive, an extremely acute and violent poison, by which this corrosion and inflammation were caused, and which had run over on his chin and neck, and had produced the injuries which was there observed. The scratches and contusion on the face were to be attributed to the violence which had been used to force the deceased to drink the poison.

§ 1085. On the 22d of November, at a subsequent examination, on the second finger of the Count's right hand was discovered a double wound, which was evidently caused by a bite, and on the under side of which the marks of two teeth were distinctly visible. At the same time there was observed on the fingers of the Count, under the nails, a red tint which might readily be associated with the scratches which had left so many marks on the deceased's face. For these as well as the other marks of violence no satisfactory explanation was given. The chemical analysis soon made it certain that the deceased had died of poison, and that this poison was, beyond doubt, *Nicotine*, an organic alkali, which is manufactured from tobacco, and which is one of the most violent poisonous agencies known.(*w*) It appeared also that the defendant had employed himself for two months in the special study of this poison, and that as a fruit of his labors he had made some days prior to the deceased's death, two small phials, which had not subsequently been seen.

§ 1086. At the time of the examination, the Countess expressly and distinctly charged upon her husband her brother's death. But although the Count admitted that he had prepared the Nicotine, he disclaimed having had any thing to do with its administration.

§ 1087. To connect him with this, the following circumstances were enumerated:

The fortune of Lydia Fougnies had been greatly exaggerated, and the extravagant habits of both herself and her husband had been such as to involve them in expenses greatly above their income. Loans to the amount of 43,000 francs were made, and property to 95,000 francs sold without any visible investment made of the produce. The smallest

(*w*) See *ante* § 747.

bills remained unpaid, and the credit of both Count and Countess was utterly gone. Their ruin was now imminent, and nothing but the expected absorption of Gustavus' property could prevent it. But this was now made still more unlikely by his proposed marriage, which both the Count and Countess did their best to prevent. The Countess wrote two letters to her brother, which were discovered after his death, and which contained certain calumnies against the lady to whom he was about to be married, which were the same with those contained in an anonymous letter received in the month of August. These movements had not the desired effect, and only one agency seemed now to remain to prevent the consummation they so much deplored.

§ 1086. It seemed that in 1849, the Count began to pay particular attention to the cultivation of plants from which poison could be manufactured, and for this purpose, in February, 1850, placed himself, under the name of Berant, as a student with Mr. Löppen, Professor in the Industrial School at Ghent. His avowed object was to be made acquainted with the most suitable instruments for the extraction of the several essential vegetable oils. The pretext was, that having been for some time a resident among the North American Indians, he had taken a particular interest in the poisons in which their arrow-heads were dipped; and was desirous of acquainting himself with the same, in order to communicate the results to friends still residing in America. He made particular inquiries as to the mode in which the essential oil of tobacco, commonly called *Nicotine*, could be extracted. Under the Professor's directions he had procured from a coppersmith an apparatus for this purpose, which was delivered to him on the 11th of March.

§ 1089. In May he returned to Ghent, and showed to Professor Löppen a test phial of Nicotine, which, however, had not succeeded. He began his operations anew, this time under the Professor's eyes, and after working two days in the laboratory, succeeded in extracting two drops of the pure oil. After a few days he returned with a second specimen, which, however, turned out no better than the first. Löppen gave him fresh directions, and on a third journey to Ghent, in the beginning of October, the scholar announced with much triumph to his teacher, that he had found out by actual experiment on animals, that the required result had at last been reached.

§ 1090. He now purchased the necessary materials and machinery in order to enable him to carry on the operation on a far more enlarged scale, and to try Schlösing's process, which Löppen had recommended to him as the best, and which Pelouze and Fremy in their work on chemistry have fully described. The necessary purchases, however, required the Count to make a journey to Brussels, which was undertaken between the 16th and the 28th of October. After he had worked without interruption ten days and two nights, he succeeded, on the 10th of November, in distilling the two phials of Nicotine which were in existence on the 20th of November, but which vanished after Gustavus Fougnies' death. No trace remained of the chemical apparatus by which the poison had been prepared. The servants in the castle could give no account of them, and it was not until after six months that they were at last discovered, hidden in a sink.

§ 1091. It was about ten in the morning, of the 20th of November,

that Gustavus Fougnies arrived at Vitremont Castle. That it was the intention of Count Bocarmé to make way with him, the Countess, if her subsequent confession is to be believed, knew perfectly well, long before his arrival. One word on her part, on her own showing, could therefore have saved him. She passed the first half of the day with him, however, without giving any warning—she even gave directions by which the execution of the intended crime would be facilitated, removing by her orders those attendants whose presence might interfere. This was industriously done by her in connection not only with her own children, but with each of the several servants who were engaged about the house. By this time Gustavus Fougnies had expressed his intention of leaving, and the Count ordered a man named Francis Deblicquy, who worked in the garden, to proceed and harness the horses. The stable, however, was locked, and the coachman, who had been sent away, had the key. Scarcely had the latter returned when the Count appeared in the kitchen and gave the same orders which he before had given Deblicquy. The coachman took his lantern and went into the stable, while the Count returned to the dining-room.

§ 1092. At this moment a servant named Justine Thibaut (whom the Countess had previously sent out of hearing) returned to bring the children their supper. As she was on the last steps of the stairway, she heard a fall in the dining-room, and Gustavus' voice, as if calling for help. The words she was able to distinguish were, "Oh! oh! Pardon, Hippolyte!" She ran from the steps into the kitchen, which was separated from the dining-room by a servants' vestibule and the great castle hall. Scarcely had she passed through these and arrived at the kitchen, when the Countess hurriedly ran into the kitchen through the same passage, and carefully shut all the intermediate doors, the result of which was that the screams were no more heard. Justine, alarmed still the more by this act, ran down a back-stairs which brought her into the court in front of the dining-room. In passing she heard one more stifled scream. Meeting there the nurse and the children, she told them in her alarm what she had heard, when the nurse went up to offer her services. But no more screams were heard, and the Countess, seeing her on the steps, ordered her back.

§ 1093. The traces of external violence, it was argued, which were afterwards found on the corpse, excluded the hypothesis of either accident or suicide. They indicated, on the contrary, that there had been a violent struggle. When it is recollected,—so it was urged by the prosecution,—that in order to coerce a swallowing of the poison, it would in the first place be necessary to open the mouth, and then to hold the head tight and firm, it was impossible but to conclude that the act was the work of two persons. It was not to be supposed that Bocarmé, whose left hand was bitten through by a double bite, and whose right hand was scarcely sufficient to hold his victim's head fast, could have managed to force down the poison without assistance. And if assistance was given it was clear that his wife, who alone was present in the room, must have been his coadjutor.

§ 1094. On the 12th of May, in the same year, Bocarmé had written to a correspondent in Paris:—"My wife has written to you to engage Berryer. Do not do so; and if it has already been done, put the

matter off until you receive new instructions from me. Keep my wife, however, under the belief that he is engaged. On this depends *her* life as well as my own. Would you believe it, that after having poisoned her brother, she can select no better plan of defence, now that we both are in prison, than to cast all the guilt upon me and to load me with the most disgraceful calumnies? Do not answer this note, which I have smuggled in the inside of a letter. You must not forget that all the letters we receive are opened. If Berryer is positively engaged to come, acquaint him with the facts which I now mention. Inform him that the hostile position which my wife has assumed towards me, is the result of a moral compulsion, induced by the peculiar situation in which she finds herself; and that her only object should in truth be to unite in a joint defence. The most fatal of all positions for her to assume is that of hostility to myself, a position which will give the prosecution overwhelming power, and bring us both to the scaffold."

§ 1095. This note, which was surreptitiously slipped in an official letter, was obviously meant only for private use. It expressed the secret thoughts of Bocarmé, which in his prior examinations he had entirely concealed. And yet at the same time it closely corresponded with another confidential communication which he had made to an inspector of the prison. On his return from his first primary hearing (confrontation) he said to the inspector, who happened then to be visiting him, That it was the Countess who had poured the poison in her brother's mouth, and that she in doing so let some of it spill on his clothes. This explained, he said, why after some moments she ran into the kitchen in order to wash her hands with brown soap,—why she then had Gustavus' clothes and her husband's put to soak in a wash-tub, and why she herself was engaged in rinsing them until the middle of the night, and then had them wrung out by the cook. This also explained why she had her brother's crutches washed off with hot water, and then had them burned under the pretext that she could not look upon anything that had ever belonged to him; why in the same way she burned his cravat and waistcoat in the moment that the police magistrate arrived at Vitremont; and why in the same evening she had the floor of the dining-room scrubbed, and the next day poured oil over the spots so that they could not be noticed, and then said to one of the servants that everything was then fixed and that all that was necessary was to bury Gustavus the next morning.

§ 1096. It appeared also that the Countess had written with her own hand all the letters to Löppen and to the coppersmith, by whom the distilling-apparatus had been prepared, signing them with the feigned name *Bérant*—she even in some of them imitating her husband's handwriting.

It was on this basis that the Attorney-General (Procurator des Königs) urged the complicity of the Countess in the guilt, which it was but too evident, had been occasioned by Bocarmé himself. He then proceeded to state in order the several classes of testimony he would adduce, the entire number of witnesses necessary to develope the whole transaction, being one hundred and one.

§ 1097. It is not within our province to go into a detail of the testimony adduced, but the examination of the Count and Countess themselves, is so interesting, as well as so illustrative of the system of

practice, now obtaining, not only in France and Belgium, but in Germany, that we translate enough of it to give a correct view of its general character.(*x*)

The President to the Countess Bocarmé.—"Do you continue to insist upon all the answers given by you to the police magistrate."

"Yes."

"Did not Bocarmé's father in the marriage articles settle on him an income of 2400 francs?"

"Yes."

"Did not your own father settle on you an income of 2,000 francs?"

"Yes." The Countess, says the reporter, spoke so low as to be hardly understood. This being mentioned by one of the jurors, she raised her voice and gradually became more audible. The Chief Justice then addressed some questions to her on the insufficiency of their joint incomes for their then scale of expenditures: a fact that was fully substantiated by subsequent parts of the testimony, which showed that they had subsequently to the death of their parents, greatly diminished the principal of their estate, and at the time of Gustavus' death, were inextricably in debt.

§ 1099. "Was your marriage with Count Bocarmé, happy?"

"No." This answer was given under much agitation.

"Was this on account of money difficulties?"

"Yes, and on account of his conduct in respect to women."

"Did he not in October, 1849, begin the cultivation of poison plants?"

"It was nearer 1850."

"Did you not yourself write to Ghent to have them sent to you?"

"Yes, he dictated the letter."

"Did you not add the signature, H. de Bury?"

"Yes, he so ordered me."

§ 1100. After the Countess had admitted the purchase of several chemical instruments, she recognized those which were placed before her as those she had seen at the castle. She admitted having under the name *Bèrant*, written to the coppersmith to order the apparatus. She declared, however, that it was under the force of compulsion from her husband, who sometimes went so far as to beat her with his fist until she complied with his order. This mistreatment she declared to have been not uncommon.

"Did you not write to Mr. Löppen, at Ghent, asking him on what day he would be able to give a lesson on the best manner of preparing Nicotine?"

"Yes, but I did not know then it was a poison."

§ 1101. She then admitted that she frequently during the night would observe the thermometer, so as to discover when the necessary degree of heat was reached, to enable the experiment to be perfected. Her husband was always present. It was on the first day of November that the Nicotine was at last obtained.

"Did your husband never say to you what was to be done with the poison?"

"Yes, he told me that it was Nicotine to finish up Gustavus," (*um die*

(*x*) We take the report in Hitzig & Härings' Neue Pitaval, Vol. 19, p. 107.

Geschichte mit Gustav abzumachen.) [At this answer, the reporter tells us, an audible shudder passed through the whole assembly.]

"Was that all?"

"He said that if he once got Gustavus under his hands he would not soon get out."

"What name did he give Gustavus?"

"That scamp, (der schuft) or something like it."

§ 1102. "Did Bocarmé never experiment with the Nicotine on animals?"

"One of the cats once vanished which he told me he had poisoned."

"Who told you of your brother's arrival on the day of his death?"

"Hippolyte. He told me that was the day when he would do his business for him, when he would be *quitte ou double.*

"Did you make no remonstrance?"

"Yes, but he then asked me whether I wanted my children to be ruined."

"Was the conduct of Mademoiselle Von Dudzeele free from reproach?"

"I have never heard anything against her."

"And yet you wrote two or three letters to your brother on this subject, which are anything but complimentary."

To this there was no reply.

"Did your husband always calculate upon your brother's death?"

"Yes."

From this point, (so says the reporter,) the Countess assumed a tone of confidence in which coolness and cold-bloodedness were equally conspicuous. She admitted that she was against the marriage, but said she had not further opposed it.

§ 1103. "Did you not on the 20th of November, say to your childrens' governess that she must spend the afternoon in her chamber, as you expected to be engaged in business with a notary?"

"The business was a real one, about some instruments Gustavus was to execute."

"Was it not your usual custom for your children to dine in the kitchen?"

"Yes."

"Did you not give orders on the 20th of November that they should dine in their own rooms?"

"I do not recollect."

"Was it not usual for the nurse (Bonne) to bring the children in to desert in the dining-room, and did you not forbid this to be done in this instance?"

"I do not recollect."

"Did you not on that day order Justine and Virginie to keep the children in the nursery?"

"I do not recollect."

"The witnesses will say so."

"Then if they do, I suppose it is so."

"Who waited on the table on the 20th of November?"

"Emerance."

"Did you not eat of the same dishes and drink the same wine with your brother?"

"Exactly the same."

"Did your husband?"

"Yes."

§ 1104. "Did the dinner pass off with the same kindliness that should be expected among relatives?"

"Yes, we talked about business."

"Were you not between *ten* (when your brother arrived) and *three*, engaged for some time in laughing and talking with him?"

"Yes, but my husband was by."

"Could you not have found a single moment before dinner to have talked with him alone?"

"No. After breakfast he got up and went to walk in the garden."

"But you passed a whole hour or more with him alone. This you confessed before the police magistrate."

"I think not. I do not recollect."

"Did you not say to Emerance, when you have carried away the desert, you can go—leave us by ourselves, we expect a notary."

"That was Gustavus. He expected him."

"What did you do after dinner?"

"We sat down round the fireplace."

"But when Emerance came in to light the candles, did not both you and your husband call out to her—no—no—not so soon?"

"I do not recollect."

She then admitted that about this time she had ordered the coachman to accompany the cook to Leuze, but that the coachman had a few moments after returned because it had got too dark to start.

"Did not your husband a few minutes afterwards go into the kitchen to say to the coachman to put to your brother's horses?"

"Gustavus wanted to go."

"When your husband returned into the dining-room, were you not talking with your brother in the door that leads to the hall?"

"Yes."

"When your husband approached your brother, did he not spring upon him and knock him down?"

"Yes."

§ 1105. "Describe the position of your husband and your brother."

With unruffled coolness and fluency, the Countess proceeded to describe the whole scene, accompanying herself with appropriate gestures and movements.

"When your brother lay on the earth, did he not cry out?"

"Yes, I heard him cry distinctly and loudly, 'Oh! oh! pardon!' and then it seemed to me as if his mouth was gagged.

"And where were you then?"

"I was in the entry."

"When did you open again the door into the dining-room?"

"When I heard a rattling."

"When you entered, was he already dead?"

"Yes."

"When was it when you went for two cups of hot water?"

"I cannot recollect."

"When you met Emerance, who was running out of the kitchen, did you not say to her to go up into the nursery?"

"Yes."

"After you had brought the hot water, did you not return to bring a cup of cold water?"

"I think not."

"Did your husband drink the hot water?"

"I did not see him."

"Did you not return and ask for brown soap, to wash your hands in a basin?"

"No, that was much later in the night."

§ 1106. "When you went into the chamber to your husband, when he had gone up stairs, how did he look?"

"Very pale, exhausted, and with his hair in great disorder. A peculiar smell arose from his clothes, and my head began to grow dizzy."

"Did not you observe the same smell in the dining-room?"

"No, that smelt of vinegar."

She admitted having ordered a glass of cold water for the nursery, but said she only did this to conceal her distraction. She had then gone with Emerance again up the stairway, and at its foot met her husband again.

"What did he say?"

"Gustavus is sick."

"Did he not say to you to call for help?"

She denied it, but then being rebuked by the Court for her supposed equivocation, declared that she could recollect nothing on this point. It appeared, however, that Bocarmé had called out, "Gustavus is sick, vinegar, vinegar," when she and Emerance went out to bring cologne water. As they returned he was no longer there, being again in the dining-room. They found him engaged in washing Gustavus' face, crying aloud, "My God, what is the matter with Gustavus!"

"Did you not run then into the kitchen and from the kitchen into the wash-house, crying, 'Help, Gustavus is sick!'"

"Yes."

She then proceeded to state that at this cry, the coachman, Emerance, and the laundrywoman came up. Bocarmé ordered the first to carry out Gustavus' body. He was so overcome that he knew not where to lay him, and the Countess advised him to lay the body on the bed in Emerance's chamber. She did not recollect whether Emerance lighted him on the way, and she appeared to have seen nothing of the carrying up of the corpse.

§ 1107. "It appears," continued the interrogator, "that when the coachman and Emerance returned, both you and your husband gave way to violent exclamations of grief, though without shedding a tear."

"We were playing a comedy," answered the Countess.

At this answer an involuntary shudder ran through the audience.

"But what were you playing a comedy for?"

"Hippolyte played it in order to make it appear that Gustavus had died a natural death."

"And you took a part in the piece?"

"I could not help myself."

"As you went with your husband into the chamber, did you not observe a peculiar odor, which rose from your husband's clothing? Did it not affect his head, and did he not call for an emetic?"

"I had in the meantime gone to the governess' chamber, and on my return found my husband in our own chamber. He said, 'Help me, I am poisoned. An emetic, quick, if you have one.' He went on to say, 'My wife, you will not let me die?' I replied, No, I will not let you die. I will do what I can! He then told me to bring water, saying all the time that he was poisoned. When I asked him how he came to be poisoned, he said 'Gustavus defended himself like a devil. I wanted to hold the bottle in his mouth, but he spurted the Nicotine out on the finger of the other hand, which I had put in his mouth to force him to swallow the poison down.' "

"Some of the Nicotine dropped then on Gustavus' clothes?"

"No, only on Hippolyte's finger. That we washed with vinegar."

§ 1108. "In what way did he direct your attention to it?"

"We had been talking, and I observed that he held his finger in. I asked him if he was wounded. He said, yes, that Gustavus had fastened on him with his mouth. He said that with one hand he gave him the poison, and with the other held his mouth. He seemed very much troubled with the wound. He had also a bruise on the forehead. It was bleeding, and he wanted vinegar poured on his hair, which I did several times in Emerance's presence."

She then went on to describe the manner in which she had destroyed the phials of Nicotine after the commission of the act. The following remarkable inquiry then followed:

"You saw how your husband washed your brother's face in the dining-room with vinegar? Did he not ask you to carry the corpse then into your sleeping room?"

"Yes. I was to wash it, and to rub the body and the clothes with vinegar. He mentioned to me the kind of vinegar—a cask that was in the cellar, and I should rub it in very hard. He said that I was to make the body swallow whole glasses of vinegar, saying it was better for me to do it, as it would attract less suspicion. I was to take particular care that neither the face nor the neck should give any trace of the violence that had been committed. He sent me off three times for this purpose, but I would not go. He became very much disturbed. He even broke out into very violent language, and struck me."

"Which of the domestics did he give orders to do the same?"

"The coachman, Gilles. He told him to pour glasses full of vinegar down the mouth. In the night he asked me why I was so much frightened, for he was perfectly confident that if the vinegar was poured well in, a subsequent chemical examination would discover nothing. He was sure of this because the poison was not reactive."

"What direction did he give as to the clothes?"

"I was to put them in a kettle and supervise the thing myself. I went with Louisa into the wash-house. There was little water there. I lit the fire, and out of the wash-house took the clothes to the large kettle. There they were steeped in soap and water."

She then proceeded to narrate the efforts made to destroy the traces

of the poison on her husband's clothes, by repeated washings, and by burning such of them as seemed most affected.

§ 1109. "What instructions did he give you in case you should yourself be arrested and examined?"

"He told me to say that I knew nothing about it. You must not sell me, was his cry. (At these words the Countess seemed moved for the first time on the trial.) That was in the vestibule, on the day of my brother's death,"

"Did he not direct what course you were to take in case information should be brought to you that he had confessed?"

"Yes. He told me not to believe a word of what I should be told of his having said, as this was the way the police used to get at the truth."

She further said, that on the night after the murder he ordered her to take from the library several letters, and two portfolios, bound in brown sheep, and burn them. The next day he was also engaged in burning papers, and destroyed in this way a large collection of volumes. She was not positive whether Orfila's Toxicology,—which it was proved he had recently bought,—was among them; but she was positive as to the letters which he had got from Gerken, in Ghent, and from Löppen.

§ 1110. The Countess then gave an account of the measures taken to drill the servants into giving a false account of the transaction, after which her examination closed. According to the reporters from whom the above has been translated, much that she said was given in so low a tone as scarcely to be heard, and so rapidly, as to make it impossible to follow it. "She expressed herself," the report goes on to say, "with great levity, though with much elegance of manner, relating the most shocking facts with the most graceful air in the world." Public curiosity, it is related, was excited to its highest pitch to discover whether on the next day, when the examination of the Count was to follow, he would turn round and recriminate his wife. His altered dress, and the shaving of his whiskers and the beard on his chin (Kinn-bart) was looked upon as one of the sleights of his defence. Not only had the peculiar character of beard he had formerly worn been associated with him, through pictures, in the public eye, but it was in it he had become familiarized as "Herr Bérant" with Professor Löppen. When he first desired to be shaved, it was supposed that his object might be to use the razor for the purpose, by a sudden stroke, of cutting his own throat, and he was consequently, during the operation, tied down on a chair in which all motion was impossible to him. In this way the task was performed, though somewhat in violation of that principle which, wherever a confrontation is to take place in a trial for the purpose of identification, forbids any intermediate alteration of appearance.

§ 1111. The next day, after the Countess had been recalled for a moment in order to explain one or two points left open the day before, the examination of the Count himself began. The stenographers, we are informed, had easier work, as the defendant spoke out distinctly and boldly, giving his answers in a voice perfectly audible. He began by giving an account of their pecuniary condition, very similar to that given by his wife. He was then, somewhat oddly, if we adopt the

common law notions, that when a party is on trial for one crime, it is not lawful to show that he is guilty of another,—interrogated at great length as to whether he had not been guilty of several collateral offences, among which were beating and other maltreatment of his wife, libertine relations with other women, and particularly with having had an illegitimate child by one of the nurses, and then having forced his wife to receive it in the castle. All these charges he denied, with the exception of the fact of his being father to the child, and this he stated his wife had voluntarily received. He did not deny the experiments he had been making with vegetable poisons and their culture, but declared his object had been to enter into a traffic with the North American Indians, with whom his father and himself had for a long time stood in business relations. His object, he stated, had been to assign Castle Vitremont to his wife and children, and to return to America.

"Lydia Fougnies," said the Chief Justice at this moment, "did your husband ever communicate this project to you?"

"Never;" answered the Countess.

"I may never have spoken of it, but that was nevertheless my intention," said the Count.

"But after you had for so many years turned your attention from chemistry, how came you thus of a sudden to begin the preparation of Nicotine?"

"I wanted to understand all the properties of tobacco." Orfila's Toxicology had been his chief guide, but at a much earlier period he had studied chemistry at Cologne. Besides Orfila, he had bought in 1836, Renaud's work on poisons, and found that a discovery had been made in France, by which Nicotine had been extracted from tobacco.

He went on to say that his father had carried on the tobacco trade to a great extent, and had met with great losses because he was unable to distinguish its peculiarities and to classify its several species. He had himself now discovered that the positive value of the leaf rose or fell in proportion to the actual quantity of Nicotine it contained. It was to enable him to test this that he procured the apparatus which had been described. He explained his dealing under a feigned name on the ground that he thought in this way to be less likely to be imposed upon than if he had dealt under his own.

A very complex cross-examination (for such it may not unsuitably be called) then followed, in which the Court succeeded in showing several contradictions in the version given by the Count of the result of his experiments, and the disposition he had made of the drug. In the course of this examination, which was certainly sufficiently elaborate, he displayed a remarkable sagacity, which those who only knew him as a wild "Indo-American," scarcely expected. This quality is still more strikingly displayed in the following, in which, after having emphatically and solemnly denied all the statements attributed to him by his wife, of his intentions to make away with his brother-in-law on the first opportunity, he said—

§ 1113. "My wife is the real cause of his death. And yet she is innocent."

"How can she be innocent? Who was it that forced her on?"

"No one."

"She must have known what she did!"

"She did not."

"How did she do it?"

"With the Nicotine which I had distilled."

"Which you had given her?"

"No."

"Which she had got herself?"

"She took it from the glass press between the chimney and the window."

"Who put it there?"

"It was the bottle that was placed in the cooler in the dining-room."

"What kind of a bottle?"

"A decanter."

"Was it placed on the table?"

"No."

"Who took the bottle out of the sideboard?"

"My wife."

"When?"

"In the moment when we passed from the large drawing-room into the dining-room."

"But it was not until Gustavus had been thrown on the ground that the poison was poured into his mouth?"

"Gustavus was never thrown on the ground. I know very well what my wife has told you. She has a perfect right so to do. I will explain. Before our arrest I told her in case we were arrested not to tell the truth,—to say that I was alone in the room; for that, if she told the truth, no one would believe her. It was when I was first pressed to the wall in this examination that I said that it was a suicide."

§ 1114. "But the preliminary hearing has entirely substantiated the fact that you knocked him down."

"As he cried out, I caught him by the left shoulder with my right hand, and placed my left hand on his mouth."

"Why?"

"To prevent his crying out and creating a scandal. Listen to me how it happened. We were looking in a secretary, for a power of attorney; we then returned into the dining-room; Gustavus asked me for a glass of wine; we went to the sideboard; my wife took out a decanter and poured out two glasses; Fougnies gave one drink and then cried out, 'Sacré nom!' I was about to put the other glass to my lips when I was arrested by his cry. I at once knew it was the poison, and cried out that it was. Gustavus was only able to cry for help. I then laid my hand on his mouth, so as to still the noise."

"What became of the decanter?"

"It was placed back on the sideboard."

"But the only decanter which was found in the dining-room has been chemically examined, and the result is, that it contained nothing but wine."

Bocarmé maintained that there had been a change, and that another decanter had been analyzed in the place of the one he described. He then went on, after a slight interruption, which it is not necessary here to detail,—"I had given the order to put the horses to Gustavus' cab-

riolet. We were together in the dining-room. We went thence into the hall, from whence we returned into the dining-room, where the scene just described took place. When Gustavus swallowed the contents of the wine-glass he fell against the etagere and cried, 'Oh! oh! Hippolyte, help me.' I laid my left hand on his shoulder, and my right on his mouth so as to prevent the crying. I then burst through the door and saw my wife, who had hurried out of the room. I exclaimed to her that she had poisoned us, and told her to bring warm water at once. I had then myself fallen on the ground from the effect of the poison."

"You say then that your wife poured out the wine?"

"Yes, but unconsciously."

"What kind of wine was she looking for?"

"White."

"But Nicotine is yellow-brown."

"Is not Madeira so also?"

"But Nicotine has a very penetrating odor. Has Madeira anything like the same?"

"By the first touch you do not observe it. It comes up afterwards."

§ 1115. He was then called upon to explain the discrepancy of his statement in this respect with his wife's. He said:

"I always told my wife to confess nothing, as the truth would not be believed. She now criminates me to rescue herself."

"But your wife has no motive to conceal a homicide that arose merely from negligence. This certainly would be no crime. The punishment for such a misdemeanor would be at the best nominal. She could readily have declared that the poisoning took place from carelessness. But she neither said so then, nor does she say so now. But instead of that she says—It was my husband who prepared the poison—who brought it out—and who compelled my brother to swallow it. *He* told me that he was determined to destroy him."

Bocarmé adhered to his former statement, that he had adjured his wife not to tell the truth, because, if she did, the circumstances were such that she would not be believed. It was when the Nicotine was actually found that he determined to explain the circumstance himself. He then, after several other interruptions, and another attempt to explain to him the contradictions between his statements and his wife's, went on:

"When I had rinsed my mouth and stomach with the warm water, I returned into the hall, where I was seized with vomiting. I then lost command over myself, a vertigo seized me, I fell against the door and struck a steel nob, and was wounded by the contusion. I had then several attacks of vomiting, when I came to again, when I succeeded in reaching my chamber. Then my wife brought me hot water. I returned to the dining-room to sprinkle the corpse."

§ 1116. "We supposed that you left the dining-room in order to throw away the phials. You certainly told your wife so."

"She says so to inculpate me."

"Lydia Fougniés, you have heard the charge your husband brings against you—give us your answer."

The Countess—"There is not one word of truth in it."

A very protracted examination followed, in which the Count, with wonderful presence of mind and dexterity, defended himself against the charges of contradiction between his own statement and that of his wife, and those given by him at his prior hearings. He persisted in the statement that the drinking of the poison was accidental,—that he had concealed the circumstances at first because he knew they would not be believed,—and that even now he expected conviction, not because his story was not true, but because it was improbable. So artfully, in fact, was his plan of defence arranged, that the most adroit management on the part of the Court, failed to entrap or surprise him into an admission inconsistent with its main features. Take, for instance, the following, which has additional interest, from its connection with the scientific questions involved:

"According to your account, Gustavus, after his sister gave him the Nicotine, drank it standing, swallowing the whole glass at a draught; but, according to the report of the experts, (Sachsverständigen,) he must have been laying on the earth when the glass was poured into his mouth."

§ 1117. "It is impossible to determine such a question by an examination three days after death."

"This is no mere hypothesis of the chemical examiner, Professor Stas, but the result of the official examination."

"A scientific error, occasioned by the fact that vinegar was poured into Gustavus' mouth. When vinegar is poured into the mouth of a person killed by Nicotine, it makes the mouth black."

"But Professor Stas' report corroborates your own statement to the jailer at Tournay, that Gustavus was lying on the ground, and that, while you held him fast, your wife poured the poison down his throat."

"There is no truth in that. I have always maintained my wife's innocence. How could I ever have said to a jailer that she was guilty! And is it probable that I could have made such a man my confidant?"

§ 1118. The Count's examination closed with the following address to him by the Court:

"Prisoner! (Angeklagter,) it appears from the report of the experts and from the chemical analysis:—

"1. That poison had been injected in Gustavus Fougniés.

"2. That this poison consisted of (a) Nicotine, an organic alkali existing in tobacco, one of the most violent of known poisons, (b) vinegar.

"3. That the Nicotine was given in so large a dose that a quarter of the amount would have been sufficient to have poisoned the strongest man.

4. That the Nicotine was given in a pure condition.

5. That the effects of the Nicotine in this instance were the same with the effects of Nicotine when administered to animals, with the exception that here these effects were modified by the application of vinegar.

6. That besides the Nicotine, a specific quantity of vinegar was found.

7. That everything being taken into consideration, the probabilities were that the injection of the Nicotine must have taken place as follows: At the moment of application, Gustavus Fougnies must have been lying

on his back, with his head turned to the right side. Convulsions must have followed and continued until death. During these convulsions his tongue must have been caught between his teeth, which will account for the deep incisions on the tongue."

"You all see, hence," continued the Chief Justice, "that the poison must have been injected while he was in a lying posture."

"Three days and nights after death, no man can determine this."

§ 1120. The Chief Justice then reminded the Count of his right to discuss these points, at a later period, with the experts themselves. The period had now arrived for the examination of the witnesses in the order arranged by the prosecution. The utmost excitement (we translate now literally from the German compiler) now prevailed, particularly at the reading of the report just given. The Countess, who had lately been sad and desponding, could no longer restrain her agitation. She burst into tears, and constantly applied her handkerchief to her eyes, while she seemed almost suffocated by the convulsive sobs which forced an utterance. Bocarmé himself continued to maintain entire composure. For a moment the Chief Justice turned to him, and said—

§ 1121. "You desired to speak when your wife was under examination. Have you anything further now to say?"

"Only that it was my wife's usual custom, when her brother was by, to send the children to the domestics."

"And do you persist in your denial of what your wife has stated?"

"Here and there was a little truth, but the great mass of it is pure fiction."

§ 1122. The Attorney General then proceeded to call the witnesses for the prosecution, beginning with those who were connected with the first official examination, and then including the servants and the parties with whom the Count had been connected in his chemical experiments and researches. The testimony thus adduced, sustained, in all its details, the opening statement of the prosecution. The only witness whose testimony it is consistent with the purpose of the present volume to notice at all, in large, is the chemical expert, Jean Stas, Professor of Chemistry in the Military School of Belgium. Even here the testimony is greatly narrowed by the fact that both sides agreed that Nicotine was the cause of Fougnies' death. According to Professor Stas' statement, the bowels of the deceased contained two poisonous substances,—viz., Nicotine and *ascidum asceticum*, a material that is to be found in vinegar. The right side of the tongue was marked by great abrasions, which the acid alone could not have produced. Fifty-two hours were consumed in the examination, which was conducted in the most prudent manner. The existence of Nicotine was indisputably shown by the taste of the fluid, its smell, and its other recognized properties. It was found in the mouth, and a large quantity in the texture of the lungs, in the tongue, and in the forehead. The internal organs were so saturated with the poison, that even after they had been washed and re-washed, they continued to exhibit traces of it. He produced before the court a small flask, which contained a fourth part of the Nicotine which he had extracted from the stomach,—this was pure Nicotine; another which was produced from the lungs and the liver; and a third which contained a portion of *acidum asceticum*. In the clothes both of the defendant and of

deceased, the chemical analysis failed to detect poison with certainty. The traces, if any, must have been washed out. On the floor, however, he discovered the substance of the Nicotine, mixed with *acidum aceticum;* in other places, blood; and in the charred newspapers, blood also. In the bowels of the cat, which it was shown had been experimented on and had died, great disorder was exhibited. As a chemist, the witness could not positively say that there were traces of Nicotine, though he believed it as a man. In none of the decanters was any trace of Nicotine to be discovered.

§ 1123. The effect of Nicotine he himself had tried upon dogs. One dog, of the strongest species, had been killed as by a stroke of lightning by the injection of two centimetres of the poison. After 40 hours were passed, the tongue exhibited the same symptoms as that of the deceased. In another dog poisoned in the same way, the same alteration and derangement were exhibited as in the body of the deceased. And a canary bird, another bird, and a dove, had died from convulsions at the mere inhalation of the odor of Nicotine placed at their beaks. The witness adhered to his former opinion, that the poison had been injected in the deceased while lying on the ground.

1. On account of the character of the location of the inflammation on the tongue.

2. On account of the traces of the liquid which was discovered on the left side of the forehead.

3. On account of the same on the right side of the neck.

The witness also stated that the odor of the poison was suffocating. The following examination then took place:—

"Could Nicotine be drank without its perfume being first observed?"

"Hardly, in a glass, though possibly out of a decanter."

§ 1124. "Would it be possible for you to pour out a glass of Nicotine, and to present it to another, without perceiving the smell?"

"Yes, if the atmosphere was heavy, but not otherwise."

"Could a man swallow a wine-glassfull without smelling the perfume or noticing the peculiarly acrid taste?"

"Scarcely."

"Would not the swallowing of a single drop cause a discovery?"

"Certainly; for the smallest drop of the liquid burns. A very slight drop, which fell on my cheek, produced at once an inner prickling and burning. I had to wash the spot several times in order to get rid of the pain."

"If a person, believing he was drinking wine, should drink part of a glass of Nicotine, could he finish the rest?"

"Not if what he swallowed was sufficient to produce instantaneous convulsions."

He then stated that extraordinary preparations and an enormous quantity of tobacco were necessary in order to distil as much Nicotine as would fill a wine glass. The Nicotine which is of a piquant and aromatic odor is always made from foreign tobacco; that from the domestic staple is piquant but sharp. The Nicotine found in the castle appeared all to have been manufactured from the American plant. He supposed that if the quantity taken be large enough at once to prostrate, it would prevent any outcry.

§ 1125. On the 13th session (June 10), the commission of physicians was called to detail the result of the post-mortem examination. Dr. Zouda gave it as his positive opinion that the poison had been injected while the deceased lay on the ground. "The contusions on the nose were deep; in the centre was a little one. We are clear that this contusion was produced by a blow, though we are unable to specify the nature of the instrument. We were unable to discover any biting on the tongue." The remainder of the physicians spoke to the same point. To a question put by the Countess' counsel, Dr. Zouda stated that he believed that, in view of the surprise and terror with which Fougnies must have been struck at such an attack, one person would have been sufficient to have injected the poison. Whether he had gained in muscular power in the shoulders and arms, since his leg had been amputated, there was no evidence.

Dr. Stas, having been recalled, stated that a champagne glass full of Nicotine, taking the present Parisian price, would cost 7500 francs.

This was followed by witnesses called by the Countess for her defence. When it is remembered how many circumstances in her favor were unexpectedly developed by the prosecution, it was to be supposed that many witnesses should be produced by her, who should declare that from her previous conduct and character, they were incapable of believing her to have been guilty of such a crime. Prominent among them, was the testimony of Katharina Coucke, the housekeeper of the prison at Tournay. The two first months of her imprisonment she had wept almost the whole time, and would take no nourishment. When the housekeeper exhorted her to tell the whole truth, she said, "I can make no confession without inculpating my husband, and that is miserable." She then wept bitterly. With one or two subsequent statements of this witness the testimony ended.

§ 1126. After the addresses of counsel,—who included some of the very first at the Parisian bar,—the final appeal prescribed by the new Belgian practice was made to the defendants as follows:

"Prisoner Bocarmé, have you anything further to say in your defence?"

"I am entirely innocent, and at peace. I await your verdict with entire confidence."

"Prisoner Lydia Fougnies, have you anything further to say in your defence?"

She arose, but made no reply.

The jury were out only an hour, though, as we learn from the German compiler, the excitement which prevailed through the court room was such, that that which existed when the trial began might be called indifference when compared with it. At half-past ten o'clock the jury entered, and spoke through their foreman as follows:

To the question, is Hippolyte de Bocarmé guilty of poisoning Gustav Fougnies, the verdict was guilty by an unanimous vote. To the question, is Lydia Fougnies guilty as principal in the second degree, (*am Verbrechen der Vergiftung Theil genommen zu haben*) in the act of poisoning, the verdict was not guilty by a vote of ten to two.

The remaining questions were four. To the last, which involved the lowest grade of guilt, whether she was guilty as accessory before the

fact to the felony, in having been conscious of its intended commission and aided the principal in his preparation, there was a verdict of not guilty by a bare majority.

The Countess, the report says, received the verdict and the consequent judgment of acquittal with perfect calmness, exhibiting agitation neither at her own discharge or her husband's conviction. The Count was subsequently executed, notwithstanding the most strenuous attempts to attain a revision of the sentence, and he died without admission of guilt, unless it were under the seal of the confessional.

§ 1127. BERNARD HARTUNG was a merchant in Magdeburg, in the beginning of 1853, and was well known for his cultivation and his apparent business success. He had been three times married, and was now living in much comfort,—though, in point of fact, laboring under great pecuniary embarrassment,—with a wife to whom he was undoubtedly much attached. Coming one evening home, he found his aunt, (his mother's sister) Emma Schröder, an unmarried woman of about forty, spending the evening with his wife. Tea was over, and after a little pleasant and cheerful conversation, in which they urged him to sit down to the table and eat, he got up, saying, he had to go out for a few minutes but would soon be back. He returned with some cakes in his hand, (baisers) of a kind which he knew his aunt was particularly fond. With a smile on his face he called for two desert plates, and put a cake on each, one of which he placed directly opposite to his wife, and the other to his aunt. The latter tasted her's first, and remarked upon something gritty, when the wife offered to change with her, which however she laughingly declined. At ten o'clock the aunt returned home, and at midnight was seized with violent pains. At dawn a physician was called in, who could do nothing more than speak of the improbabilities of recovery. Hartung was sent for, but apparently questioning the reality of the danger, he went down to his counting-room, making his partner's absence the ground of excuse. At three o'clock in the afternoon, however, the condition of the sufferer was much worse, —her breath became lighter; she had fallen into a comatose condition from which it was impossible to arouse her,—and this news being sent to him, he at last hastened to her bed-side. She was dead, having sank away in perfect calmness. He at first was overcome with a paroxysm of grief, and it was for some time before he recovered sufficiently to enable him to inquire into the circumstances of her illness. The nurse mentioned casually the cake which the deceased had eaten the previous night, which, during her illness, she had said she feared was not entirely right. Hartung did not move a single muscle. The nurse repeated the entire remark of the deceased: "Perhaps, that cake was not quite right,—perhaps it was poisoned." Hartung smiled compassionately, and said, "She was raving." So, indeed, all the by-standers thought. He then proceeded to examine into her effects. She was in poor circumstances, supporting herself in part by music teaching, and but a few hundred dollars were found, which were divided equally between Hartung and his two sisters, they being the heirs at law. The funeral was ordered in some haste, but this was attributed by Hartung to the illness of a daughter of a lady lodging in the same house. In the meantime the dying statements of the de-

ceased began to be noised about, and public suspicion rose so high, that in a few days Hartung was arrested. He opposed a bold and determined part to the officers, and indignantly demanded his discharge. He fell into the hands of a police magistrate, distinguished for his tact and experience, and it was then that a scene took place so characteristic of the present method of German procedure, that we translate it in full from the official report:

§ 1128. "It was evening. Two lights, standing in the centre of the green-covered table, lighted the office sufficiently to enable everything in it to be seen. Hartung did not know the magistrate. They saluted each other, and the magistrate, looking at him calmly but firmly in the eye, stated to him the nature of the charge as to which he was about to be examined. Hartung was unacquainted with the searching nature of the process to which he was about to be subjected, and found its solemnity and pointedness not a little oppressive. The quiet calmness with which the magistrate enumerated to him the several grounds of suspicion, threw him at last into a confusion from which he was unable to rally. The magistrate watched him narrowly, and then laid before him in a very few words the only means by which he could escape from the distressing uncertitude in which he was placed,—viz: by a free and open confession to place himself right before God and man. Hartung sank under this new appeal. He could no longer retain his former threatened bearing, and he suddenly turned and asked, "To whom have I the honor to speak?" The answer paralyzed him still more, for it gave the name of an officer famous in the detection of crime and for his skillful treatment of the accused. He asked for a private interview, when the magistrate continued to inquire whether he was conscious of guilt. "In part, in part," was the agonized reply. "A partial guilt is impossible here," said the magistrate calmly. "Are you guilty of your aunt's death, or are you not guilty." The reply was "guilty," and the magistrate seized this moment of paroxysm to draw forth a full confession. "If you confess that you poisoned your aunt, you must give your reasons?" Hartung shuddered; his pride could hardly bear this strain. "Was it your intention to have destroyed your aunt by poison?" "Yes, this was my view." "Was your motive hatred?" "No." "Did you expect to gain anything?" Hartung shuddered again, and it was with difficulty that at last he replied, "Whatever money my aunt left, I have secured—it fell to me as rightful heir." He then went on to excuse himself on the ground that his aunt was about to make a match with a person far her junior in years, whose object, evidently, was to obtain the little property of which she was possessed. He then went on to explain how he had effected the poison, which was by mixing arsenic with the sugar on the cake.

§ 1129. The next step was to fortify this confession by the examination of the corpse. The body seemed entirely unchanged, and all expression of pain was drawn from the countenance by the calm which succeeds death. Hartung was brought to view the body, and with the exception of a slight recoil, retained entire composure. The *post mortem* gave the most unmistakable evidence of the presence of arsenic. In the examination of Hartung's house, similar traces were discovered. An amount of pure arsenic was found, which was enough to have

poisoned half a city. Of this, however, Hartung denied all knowledge. The only answer he would give was that it was the refuse of what he had wanted in the store, and that it had been cast away there and forgotten. And at the close of the primary hearings, he solemnly purged himself of having been concerned in any prior similar violations of the law.

The suspicions, however, that had been excited against him now began to extend over a wider field. Cases of prior sudden death were enumerated within the circle of his immediate influence, and the following remarkable facts were brought to light, connecting him unmistakably with the poisoning of his second wife, under the following circumstances:

§ 1130. In 1850, Marie Braconier, to whom he had been shortly before married, and who was then in the freshness and fullness of early womanhood, told one of her own female friends that she was troubled with an anxious presentiment arising from her husband, who was then much embarrassed in his circumstances, pressing her to consent to have her life insured. Her feelings of dread arose, not from suspicion, but from an unwillingness to unite in a step which she could scarcely understand, and which was necessarily beset with gloomy associations. She yielded, however, but scarcely had she done so, when, on a visit to her mother, she was attacked, immediately upon leaving her husband's house, with symptoms which were attributed to the then prevailing epidemic of cholera. Her strong constitution, however, surmounted the attack, and after a few days she returned home. Scarcely had she got there, when Hartung was seized, or pretended to be seized, with the premonitories of the epidemic, manifesting great fear, resorting to every palliative in his power, and finally yielding to her anxious entreaties to be put to bed. His wife devoted herself to him, never leaving his side, and it consequently fell to her lot to administer to him a broth which he induced her to join with him in drinking. Of what took place then there was no evidence, as they were alone, except that a few hours afterwards she was seized with violent pains, which shortly after ended in her death. At first, no suspicion arose. The attending physician, Dr. Niemann, signed the usual certificate that the death was occasioned by Asiatic Cholera. The Insurance Company, however, whom her death so closely affected, began naturally enough to feel some curiosity when they were called upon to pay. This was increased by the extraordinary activity with which Hartung pressed for the payment. A voluminous correspondence ensued, in which they called for a post mortem examination, which, however, he very artfully succeeded in avoiding. At last, by threats on the one hand of exposing them as a corporation which was willing to receive premiums, but not to pay losses, and partly by an appeal to his own desolate situation after all the great losses, he succeeded in obtaining a payment in full.

§ 1131. The examination into the causes of the Aunt's death, however, led to a reconsideration of that of the wife. The exhumation of her remains was at last determined on. A commission was constructed for the purposes of a *post mortem* examination, on which was placed eminent medical experts, among whom was the physician who had attended the deceased in her last moments. Twenty months had elapsed

since death, but the degree of preservation was such as to leave no question of identity. The result of the chemical examination was decisive. An amount of arsenic was found in the stomach abundantly enough to have caused her death. Strong circumstantial evidence also existed, showing the cause of the wife's first sickness to have been the same as her last. When these facts were mentioned to Hartung, he replied merely by protesting against the prejudice that had been excited against him, but denying all agency in his wife's death.

In March, 1853, his trial came on in Magdeburg, when, to the surprise of all, he pleaded not guilty to his aunt's murder, and maintained that his confession to the police-magistrate was dictated by the desire only to get rid of a harassing and protracted examination, and to bring on a speedy trial. The result was, however, unavoidable. He was convicted of his aunt's murder, and was finally executed, having made a final confession of having poisoned both his aunt and his wife.(*x*)

2d. *Wounds or Blows.*

§ 1132. The term "wound," both medically and legally, includes injuries internal as well as external; and on the trial of an indictment charging a "wound," it is competent to introduce testimony showing an internal injury, by extravasation of blood pressing on the brain, though there was no breaking of the skin. In an English case tried before Mr. Baron Alderson in 1846, the indictment charged that the defendant "with a certain instrument called a swingle, made of wood, iron, and leather, * * * did then and there give unto her the said E. W. one *mortal wound* of the length of one inch, and the depth of half an inch, of which said mortal wound the said E. W. then and there instantly died." The surgeon who took the post mortem, stated on his examination as follows: "I found on examining the head, no external breach of the skin. I found a collection of blood on the back part of the head. The deceased died from extravasation of blood, which pressed on the brain. On examining and cutting the scalp, I found a collection of blood between the scalp and the cranium, just above the spot where, within the cranium, I found the pressure on the brain. I called that a contused wound, with effusion of blood, that is the same thing as a bruise. The internal part of the skin was broken. Medically we call the breaking of the skin, whether externally or internally, a wound." The defendant was convicted, the learned Baron holding it was unimportant whether the injuries were external or internal, and the conviction was sustained by the fifteen judges.(*y*) Upon the same principle it had been held a short time before, that an internal injury, accompanied with the breaking of a bone, produced by the blow of a hammer, was a "wound" under the statute.(*z*)

The *law* in reference to these points has been abundantly stated in the general remarks with which this chapter opens. The medical considerations attending them have been the subject of exhibition under another head.(*a*)

(*x*) Der Neue Pitaval, Bd. xxi. s. 105. (*y*) R. *v.* Harman, 2 C. & K. 179.
(*z*) 7 Wil. 481; Vict. c. 85; R. *v.* Smith, 8 C. & P. 173. See also Wh. C. L. (2d ed.) 414.
(*a*) *Ante*, § 792.

C. Intent and Design—from what to be inferred.

§ 1133. I. Prior attempts, preparations, threats.(*a*)

Prior attempts of the defendant to assassinate the deceased can always be received to prove intent, and so of former menaces or expressions of vindictive feeling.(*b*) And on the trial of a husband for his wife's murder, the prosecution may put in evidence a long course of ill treatment by the husband of the wife.(*c*) And on a trial for the same crime it has even been held that adultery with another woman could be shown for the purpose of explaining the motive.(*d*) It has been held admissible, also, to show that on the same day the deceased was killed, and shortly before the killing, the defendant shot a third person, the transactions appearing to be one.(*e*) But it is inadmissible to prove that the defendant had been guilty of murder or of attempts to murder third parties,(*f*) or that he had a tendency to commit the particular offence.(*g*) It is here, indeed, that is to be perceived the line of demarcation between the civil and the common law. By the former it is considered competent to show that the defendant was likely, from the peculiarities of his moral structure, to have committed the particular crime. In the latter, while the physical capacity and mechanical concomitants suitable for the commission of the offence, may, as will be hereafter shown, be proved, it is otherwise with regard to the moral or psychical constitution.(*h*)

§ 1134. Purchasing, collecting and fashioning instruments of mischief; repairing to the spot destined to be the scene of it; acts done with the view of giving birth to productive or facilitating causes for removing obstructions in the execution of the design, or for obviating suspicion, &c., may also be put in evidence for the same purpose.

§ 1135. A remarkable instance is presented in the case of Richard Patch, who was convicted and executed in 1806, for the murder of his friend and patron, Isaac Blight. The prisoner and the deceased lived in the same house, and the latter was one evening shot, while sitting in his parlor, by a pistol from an unseen hand. A strong and well connected chain of circumstantial evidence fixed Patch as the murderer, in the course of which it appeared that a few evenings before that on which the murder was committed, and while the deceased was away from home, a loaded gun or pistol had been discharged in the same room. This shot the prisoner represented at the time as fired at him; but there were strong grounds, especially from the course of the ball through the shutter, for believing that it must have been done by himself, in order to avert suspicion, and induce the deceased and his servants to suppose that assassins were prowling about the building. Of

(*a*) See *Ante*, 972—*post*, 1150.
(*b*) See Wh. Cr. Law, (3d ed.) 292; State *v.* Rash, 12 Iredell, 382; State *v.* Watkins 12 Conn. 47; Johnson *v.* State, 17 Ala. 618; R. *v.* Voke, R. & R. 531.
(*c*) State *v.* Rash, 12 Iredell, 382.
(*d*) State *v.* Watkins, 12 Conn. 47; Johnson *v.* State, 17 Ala. 618.
(*e*) Heath *v.* Com., 1 Robinson, 735.
(*f*) Wharton's Cr. Law, (3d ed.) 292–297. (*g*) Ibid.
(*h*) Wh. Cr. Law, (3d ed.) 382.

the same character is the case related by Dr. Hitzig, of a woman who, in order to prepare her friends for an intended crime, sent once a week for arsenic to the apothecaries, for the alleged purpose of killing rats. Possession of the instruments or means of offence, under circumstances of suspicion, are important facts in the judicial investigation of imputed crime. Where a man had in his possession a large quantity of counterfeit coin unaccounted for, and there was no evidence that he was the maker, the presumption is, that he had procured it with an intent to utter it. Facts of this kind become more indicative of guilty purpose, if false reasons are assigned to account for them; as, for instance, in the case of procuring poisons, that it was procured to destroy vermin, which is the excuse commonly resorted to in such cases. A female convicted at the Warwick Summer Assizes, August, 1831, of the murder of her uncle by poison, alleged that she had bought arsenic to poison mice, and pointed to a mouse which she said had been killed by it, whereas it was proved that the mouse had not died from poison.(*i*) To this class of facts may be referred the case of false representations as to the state of another persons health, with the intentions of preparing the connections for the event of a sudden death, and to diminish the surprise and alarm which attended its occurrence,(*k*) as was done by Capt. Donnellan respecting Sir Theodosius Boughton.(*l*)

§ 1136. It has been remarked that murderers, especially in the lower walks of life, are frequently found busy for some time previous to the act in throwing out dark hints, spreading rumors, or uttering prophecies relative to the impending fate of their intended victims.(*m*) In the case of Susannah Holroyd, who was convicted at the Lancaster Assizes of 1816, for the murder of her husband, her son, and the child of another person, it appeared that about a month before committing the crime, the prisoner told the mother of the child that she had her fortune read, and that within six weeks, three funerals would go from her door, namely, that of her husband, her son, and the child of the person whom she was then addressing. And so, on the trial of Zephon, in Philadelphia, in 1845, it was shown that the prisoner, who was a negro, had got an old fortune-teller in the neighborhood, of great authority among the blacks, to prophesy the death of the deceased. Great caution, however, should be used in sifting this kind of proof, particularly when the persons against whom the presumption is pointed are ignorant and superstitious, since among such, the habit of loose talk of this nature is too prevalent to make an instance of it, when standing alone, any just ground for suspicion.

§ 1137. Threats may also be put in evidence for the same purpose, when they go to show ill will from the defendant to the deceased. Thus, where the prisoner, a negro, said he intended "to lay for the deceased if he froze the next Saturday night," and where the homicide took place that night; where it was said, "I am determined to kill the man who injured me;" where the prisoner had declared the day before

(*i*) R. *v.* Mary Ann Higgins. Lond. Med. Gazette, vol. ix. p. 896, and Annual Register for 1831.

(*k*) Wells on Circum. Evi., p. 212.

(*l*) See Gourney's Report of the Trial, and *ante*, 1071.

(*m*) 1 Stark. on Evi. 465–66, (3d ed.)

the murder, that he would certainly shoot the deceased; and where the language of the defendant was, "I will split down any fellow that is saucy." Several considerations, however, have already been adverted to, which divert the applications of evidence of antecedent preparations, and which apply with equal force to this head. In addition to these, it is important to observe: 1st. The words supposed to be declaratory of criminal intention may have been misunderstood or misremembered. 2d. It does not necessarily follow, because a man avows an intention, or threatens to commit a crime, that such intention really existed in his mind. The words may have been uttered through bravado, or with a view of intimidating, annoying, extorting money, or other collateral objects. Thus a man, such as Dr. Parkman, may have frequently been the object of threats or curses of this kind from irritated tenants, and yet it was from a man who used neither, that his death proceeded. 3d. Another person, really desirous of committing the offence, may have profited by the occasion of the threat to avert suspicion from himself. A curious instance of this is given in the Causes Célèbres. A woman of extremely bad character and violent temper, one day, in the open street, threatened a man who had done something to displease her, that she would "get his hams cut across for him." He was found dead a short time afterwards with his hams cut across. This was, of course, sufficient to excite suspicion against the female, who, according to the practice of continental tribunals at that time, was put to the torture, confessed the crime, and was executed. A person was, however, soon after taken into custody for some other offence, who confessed that he was the murderer; that happening to be passing when the threat was uttered, he conceived the idea of committing the crime, as he knew the woman's bad character would be sure to tell against her. 4th. It must be recollected that the tendency of a threat or declaration of this nature, is to frustrate its own accomplishment. By threatening a man you put him on his guard, and force him to have recourse to such means of protection as the force of the law, or any extra-judicial powers which he may have at command, may be capable of affording to him. Still however, such threats, as observed by Mr. Bentham, "by the testimony of experience, are but too often sooner or later realized. So to the intention of producing the terror and nothing but the terror, succeed under favour of some special opportunity, or under the spur of some fresh provocation, the intention of producing the mischief, and (in pursuance of that intention) the mischievous act."

II. Marks of Violence.

§ 1138. Marks of violence, in connection with the cause of death, have already been considered. At present they are only to be noticed in connection with the question of intent. It cannot be doubted that when a wound is found to have been inflicted in a secret or concealed part, which is inaccessible in sudden and passionate conflict, it bears a violent presumption of having been the result of design. Thus the wounds of which the Scotch historian tells as having been inflicted by

forcing a heated iron into the fundament, could have been explained in no other way than on the hypothesis that to death was intended to be added concealment. In the same class may be enumerated the thrusting of a needle in the navel of an infant, running a sharp but slight instrument in the cavity behind the ear, dropping corrosive acids into the ear itself, and forcing molten lead down the throat through a tube; of each of which resorts the books give instances.(*n*) The principle on which the presumption of intent can be drawn from such cases is, that a person acting under the impulse of passion is much less likely to inflict a skillful wound, than one whose act is the result of premeditation.(*o*)

§ 1139. Whether the wound was inflicted in self-defence or otherwise; whether it was self-inflicted, or inflicted by a stranger; whether the perpetrator of the crime was an expert or otherwise,—may also be deduced from the wound. And the direction of the wound may often be shown for the purpose of testing the validity of a defence. Thus, where the defence was, that the ground being rough and slippery, the prisoner stumbled, and both barrels of the gun had gone off by accident, the defence was confirmed by tracing the direction of the shot, which was found to be pointed upwards.(*p*) The difference in appearance between wounds inflicted before and after death, has been already considered.(*q*)

§ 1140. It is by medical testimony alone that the agency of the alleged violence, as a cause of death, is to be determined; and if the death was not accelerated by such violence, the defendant must be acquitted. Thus, in 1847, on a trial for manslaughter, the surgeon who had attended the deceased, stated that on examining her body he had found the mark of an old wound on her head, and a slight bruise on one of her thighs; but he further stated that he made a *post mortem* examination of the body, and that his opinion was, that the cause of the deceased's death was confirmed consumption, her lungs being tuberculous, and that it had not been accelerated by violence, but was wholly attributable to natural causes. The defendant, under the direction of MURPHY, Sergeant, who consulted with Lord Chief Baron POLLOCK, was acquitted.(*r*) But it is no defence that the deceased was laboring under a mortal disease, if death was accelerated by the defendant's volence;(*s*) and this, no matter how remote the cause, if the intention was to commit an assault, and death resulted.(*t*)

III. INSTRUMENT OF DEATH.

§ 1141. The use of a lethal instrument, knowing it to be such, gives

(*n*) Mitternaier von Beweise, 402; Demme's Annalen des Criminalrechts, vol. iii. p. 215; Bauer, Theorie des Anzeigenbeweises; Henke Darstellung, sec. 99; Blanci de Indiciis, Venet, 1545; Reinhardt de eo quod circa reum ex Præsumpt. Convinc. et Cond. Just., &c. Erford, 1732; Heinroth in Hitzig's Zeitschrift, n. 42, p. 257.

(*o*) Presumption from gun-shot wound, see *ante*, § 811.

(*p*) Watson on Homicide, § 246. (*q*) *Ante*, § 810–816.

(*r*) R. *v.* Conner, 2 C. and K. 518. See also R. *v.* Crompton, C. and Mars. 597.

(*s*) State *v.* Morea, 2 Ala. 275. (*t*) Wh. C. L. (3d edit.) 363.

the strongest presumption of design, if the weapon appears to have been used contrary to the defendant's usual custom.(*u*) Whether it was the defendant's custom to carry the particular weapon, becomes, in such case, a material question. Thus, in Selfridge's case,(*v*) where the fatal weapon was a pistol, the defendant was permitted to prove that he had found it necessary to carry such a weapon, in consequence of the danger of being waylaid in his passage between his place of business and his residence in the country. And in the old cases, such as those of Major Oneby and of Mr. Lutterel, it having been the uniform custom of those times for gentlemen to carry swords, no presumption was drawn from the fact that in these instances swords were the instruments of death. But when the weapon by which the homicide was committed was one not usually carried, the presumption is, that it was assumed for the special purpose.

§ 1142. Other inferences are to be adduced from the instrument of death which it may not be out of place here to notice. Suicide may be inferred from the discovery of the weapon near the body.(*w*) This, however, is by no means a certain test. Thus, in July, 1683, the Earl of Essex was found dead in the Tower, with his throat cut, and a razor lying near him. His throat was smoothly and evenly cut from one side to the other, and entirely down to the vertebral column. Notwithstanding this, the razor was found to be much notched on the edge. This fact, those who favored the view of suicide were asked to explain. They could do so by no other way than by supposing that the deceased had notched the razor by drawing it backwards and forwards on the neck bone. This he could hardly be deemed competent to do after all the great vessels of the neck had been divided. If the weapon be found in the vicinity of the corpse, the question arises whether it could have been placed in its position by the act of the deceased. In the case of Courvoiser, who was tried for the murder of Lord William Russell, there were two facts relied upon to show that this was not a case of suicide. One was, that a napkin was placed over the face of the deceased, and the other, that the instrument of death did not lie near the body. To the same point is the case of Jane Norkott, who was found dead in her bed with her throat cut, while a bloody knife was found sticking in the floor a good distance from the bed, but as it stuck the point was turned towards the bed, and the haft from it. This last fact told strongly against the hypothesis of suicide.

§ 1143. On the trial of How, for the murder of Church, in Alleghany County, N. Y., in 1824, it was a material fact that a patch of square home-made linen, which was found near the deceased, being apparently a part of the wadding which was discharged, together with the ball which was the cause of death, was of the make and quality with other patches found almost simultaneously in the box of a rifle in the defendant's possession.

§ 1144. William Richardson was tried at Dumfries, in 1787, for the murder of a young female in the Stewarty of Kircudbright, in the autumn of 1786.(*x*) It appeared from the evidence that the deceased,

(*u*) See Wh. on Hom. 41, 385. (*v*) Wh. on Hom. 417. (*w*) See *ante*, 819.
(*x*) Burnett's Criminal Law of Scotland p. 524 *et seq.*

who lived with her parents in rather a remote part of the district, was, the day in question, left alone in the cottage, her parents having gone out to their harvest field. On their return home, a little after mid-day, they found their daughter murdered, with her throat cut in the most shocking manner. The circumstances in which she was found, the character of the deceased, and the appearance of the wound, all concurred in excluding any presumption of suicide; while the surgeons who examined the wound were satisfied that it had been inflicted by a sharp instrument, and by a person who must have *held the instrument in his left hand.* On opening the body, the deceased appeared to have been some months gone with child; and on examining the ground about the cottage, there were discovered the footsteps, seemingly, of a person who had been running hastily from the cottage, and by an indirect road through a quagmire or bog, in which there were stepping stones. It appeared, however, that the person had, in his haste and confusion, slipped his foot and stepped into the mire, by which he must have been wet nearly to the middle of the leg. The prints of the footsteps were accurately measured, and an exact impression taken of them; and it appeared that they were those of a person who must have worn shoes, the soles of which had been newly mended, and which, as is usual in that part of the country, had iron knobs or nails in them. There were discovered also, along the track of the footsteps, and at certain intervals, drops of blood; and on a stile or small gateway, near the cottage and in the line of the footsteps, some marks resembling those of a hand which had been bloody.(*y*) A number of persons being present at the funeral, the steward depute, with a view of obtaining some clue to the murderer, called all the men together, to the number of sixty. He then caused the shoes of each of them to be taken off and measured; and, after going nearly through the whole number, they came to the shoes of the prisoner, which corresponded exactly to the impressions, in dimensions, shape of the foot, form of the sole apparently mended, and the number and position of the knobs. (Up to this moment no suspicion had fallen on any one in particular.) The prisoner on being questioned where he was on the day the deceased was murdered, answered, seemingly without embarrassment, that he had been all that day employed at his master's work. Some other circumstances of suspicion, however, having transpired, he was, in a few days after, taken into custody. On his examination he acknowledged that he was *left*-handed; and some scratches being observed on his cheek, he said he had gotten them when pulling nuts in a wood a few days before. He still adhered to what he had said of his having been, on the day of the murder, constantly at his master's work, at some distance from the place where the deceased resided; but it appeared that he had been absent from his work about a half an hour (the time being distinctly ascertained,) in the course of the forenoon of that day; that he had called at a smith's shop under pretext of wanting something, which it did not appear that he had any occasion for, and that this shop was in his way to the cottage of the deceased. A young girl who was some 100 yards from the cot-

(*y*) As to foot-prints, see *post.* § 1157–8.

tage, said, about the time the murder was committed (and which corresponded to the time that the prisoner was absent from his fellow-servants,) she saw a person, exactly with his dress and appearance, running hastily towards the cottage, but did not see him return, though he might have gone round by a small eminence which would intercept him from her view, and which was the very track where the footsteps had been traced. His fellow-servants now recollected that on the forenoon of that day they were employed with the prisoner in driving their master's carts, and when passing by a wood, which they named, the prisoner said he must run to the smith's shop, and would be back in a short time. He then left his cart under their charge, and they having waited for him about half an hour, which one of the servants ascertained by having at the time looked at his watch, they remarked on his return that he had been longer absent than he said he would; to which he replied, that he stopped in the woods to gather some nuts. They observed, at this time, one of his stockings wet and soiled, as if he had stepped into a puddle, on which they asked him where he had been. He said he had stepped into a marsh, the name of which he mentioned; on which one of his fellow-servants remarked, that "he must have been either drunk or mad if he stepped into that marsh," as there was a foot-path which went along the side of it. It then appeared, by comparing the time he was absent with the distance of the cottage from the place where he had left his fellow-servants, that he might have gone there, committed the murder, and returned to them. A search was then made for the stockings he had worn that day, and a pair were found concealed in the thatch of the apartment where he slept, and which appeared to be much soiled, and to have some drops of blood on them. The last he accounted for, at first, by saying that his nose had been bleeding some days before; but it being observed that he had worn other stockings on that day, he next said that he had assisted in bleeding a horse, when he wore those stockings; but it was proved that he had not assisted, but had stood on that occasion at such a distance that no blood could have reached him.

§ 1145. On examining the mud or sand upon the stockings, it appeared to correspond precisely with that of the mire or puddle adjoining to the cottage, and which was of a peculiar kind, none other like it being found in the neighborhood. The shoemaker was then discovered who had mended his shoes a short time before, and he spoke distinctly to the shoes of the prisoner, which were exhibited to him, as having been those he had mended. It then came out that the prisoner had been acquainted with the deceased, who was considered in the country as of weak intellect, and had on one occasion been seen with her in a wood under circumstances that led to a suspicion that he had criminal connection with her; and on being jibed with having such connection with one in her situation, he seemed much ashamed and greatly hurt. It was proven farther, by the person who sat next to him while the shoes were being measured, that he trembled very much, and seemed a good deal agitated; and, in the interval between that time and his being apprehended, he had been advised to fly, but his answer was, "Where can I fly to?" In the prisoner's defence, evidence was brought to show that, about the time of the murder, a boat's crew from Ireland had

landed on that part of the coast, near to the dwelling of the deceased; and it was said that some of the crew might have committed the murder, though their motives for doing so it was difficult to explain,—it not being alleged that robbery was their purpose, or that anything was missed from the cottages in the neighborhood. On this evidence the prisoner was convicted and executed. Before his death, he confessed that he was the murderer, and said that it was to hide his shame that he committed the deed, knowing that the girl was with child by him. He mentioned also to the clergyman who attended him where the knife would be found with which he had perpetrated the murder. It was found accordingly in the place he described (under a stone in the wall,) with marks of blood upon it.(z)

IV. Liability of deceased to attack.

1st. *Possession of Money.*

§ 1146. This opens a wide range of testimony. It is admissible to prove that the deceased had received a considerable sum of ready money just before the fatal moment, and that he might be supposed to have the whole or a part of it on his person. When the defence is passion or self-defence, evidence of this kind is always proper to prove premeditation, though it should have no effect on the jury, unless it be connected, by presumption or otherwise, with the defendant. If he was not likely, from the circumstances, to have any suspicion of the fact,—if the opportunity of robbing the deceased was not used,—if the defendant's means were such as to make the acquisition of money in such sums and at such risks out of the range of possible temptation,—the fact should not be allowed to weigh. It will be seen at once that not only the deceased's condition and habits,—*e. g.*, those which would show the likelihood of his having money on his person at this particular time,—but those of the defendant become thus the legitimate subjects of inquiry. So far as the *deceased* is concerned, a very strong tone is lent to this species of presumption by the fact of his being a pedler or itinerant vender of jewelry. The easy exportation of the goods of this class of persons, their usual isolation, and the readiness with which they can be enticed, under business pretexts, into places where they can be secretly despatched, contribute to sharpen very much the probability that a violent homicide, of which a person of their calling was the subject, was committed for the sake of gain. On the other hand, the situation of the defendant after the guilty act, is to be closely scrutinized. Was there any change in his circumstances, exhibiting greater means of expenditure than before? For this purpose evidence is always admissible, showing the unexpected extinguishment of pressing debts, or increase of a bank-balance, or investments, or outlay of any kind whatever.

§ 1147. History rather than the records of criminal courts affords examples of cases where homicide has been committed to remove from the assailant's path a party who stood between him and the consumma-

(z) Best on Presumption, § 262.

tion of his avarice, or his ambition. In England, however, the poisoning of Sir Augustus Broughton,(*z*) in Paris, that of the family of the Marchioness Brinvilliers, and in Belgium, that of Gustavus Fougnies,(*a*) are conspicuous examples of the judicial punishment of homicide committed for the purpose of removing an obstacle in the way of a descent. And so frequently in that corrupt state of society which preceded the French Revolution was this method of diverting the channel of inheritance resorted to, that a specific under the name of the "Succession Powder" disputed with the "Aqua Tophana" the credit of being the most effectual remedy for this purpose. The inventress of the last-named agent was said to have poisoned six hundred persons, and in Paris, at the close of the seventeenth century, the practice increased to so alarming an extent that it was necessary to establish an inquisitorial court, called the "Chambre Ardente," for the purpose of watching and acting upon the use of poisons as a social element. By this court two women, named La Vagren and La Voison, were sentenced to be burned alive, in 1780; and the sentence was executed. The perfumer of Catharine de Medicis had the reputation of being able to convey poisons through a variety of vehicles, as a jelly, or the smell of a rose. Ancient testimony to this effect was very emphatic, Plutarch, Theophrastus, Livy, Tacitus, and Aulus Gellius, uniting in verifying it. That the modern belief was not peculiar to France, nor consequent upon the revelations of the Chambre Ardente, is proved by the fact that it was received in England at the time of Somerset's trial by both sides of that great politico-judicial struggle. Shakspeare thus recognizes the general currency which the opinion had obtained:—

> "Their great guilt,
> Like poison given to work a great time after,
> Now 'gins to bite the spirits."—*Tempest*, Act III. s. 3.

§ 1148. But however well-founded may have been the then popular belief, it is clear that if the art ever existed, it is now lost. Dr. Amos, whose authority in this branch of medical jurisprudence rests on the most elaborate research, tells us that "it may now be doubted if a medical man could indicate with certainty any poisonous preparation of which the effect should be fatal, but should nevertheless be suspended for two months or even a week. And perhaps good scientific testimony could be produced, negativing the quality of being a slow poison to any of Franklin's drugs, unless, indeed, they be repeated in slow doses for a considerable period."(*b*)

§ 1149. Neither in England, nor in this country, has there been any recent instance of a trial for homicide in which the motive of succession was supposed to be involved. And indeed it is not likely that in the present popular temper of either country such a species of crime could find place. The abolition of hereditary office takes *patronage* out of the line of descent; and there is therefore no cortêge ready to surround an heir-expectant and to dignify with the title of party spirit what with us would be at once denounced as an example of unnatural crime which is not to be permitted to exhibit itself in the sight

(*z*) *Ante*, § 1071. (*a*) *Ante*, § 1081. (*b*) Great Oyer, 347.

of man. The system, also, that obtains among us, of launching young men at an early age into the world on an independent basis of support, relieves them from those positions of luxurious and yet impotent dependency in which the cadets of noble continental families were formerly nurtured. And independently of this, which subtracts in the great mass of cases the motive for this species of homicide, it may not be unsuitable for us to notice a still more fundamental reason in the essential distinction between the Saxon and the Italian or the Italio-Gallican characters. That subtle and tortuous ambition which seeks to reach its object by secret approaches, conducted under the cover of patient and polite servility, is as much an exception with us, as is the more sudden and public manifestation of passion with them.

2d. *Old Grudge.*

§ 1150. In point of law the proof of an old grudge supplies a violent presumption of deliberation. No matter what may be the intermediate provocations, if a *prior* intent to kill exist, that intent will be presumed to continue down to the fatal blow.(*b*) If there has been time for cooling, the prior provocation only goes to prove an old grudge, and to make the offence murder.(*c*) Thus, in Major Oneby's case—which is the leading one under this head, and has been already cited,—the evidence was that the prisoner being in company with the deceased and three other persons at a tavern, in a friendly manner, after some time, began playing at hazard; when Rich, one of the company, asked if any one would set him three half crowns: whereupon the deceased, in a jocular manner, laid down three halfpence, telling Rich he had set him three pieces; and the prisoner at the same time set Rich three half crowns, and lost them to him. Immediately after which, in an angry manner, he turned about to the deceased, and said, it was an impertinent thing to set halfpence, and that he was an impertinent puppy for so doing, to which the deceased answered, whoever called him so was a rascal. Thereupon the prisoner took up a bottle, and with great force threw it at the deceased's head; but did not hit him, the bottle only brushing some of the powder out of his hair. The deceased in return immediately tossed a candlestick or bottle at the prisoner, which missed him; upon which they both rose up to fetch their swords, which then hung up in the room, and the deceased drew his sword: but the prisoner was prevented from drawing his by the company. The deceased thereupon threw away his sword; and the company interposing, they sat down again for the space of an hour. At the expiration of that time the deceased said to the prisoner, "We have had hot words, but you were the aggressor; but I think we may pass it over:" and at the same time offered his hand to the prisoner, who made answer, "No, damn you; I will have your blood." After which, the reckoning being paid, all the company, except the prisoner, went out of the room to go home; and he called to the deceased, saying, "Young man! come back; I have something to say to you;" whereupon the deceased returned into the room, and the door was closed, and the rest of the com-

(*b*) Wharton on Hom. 198, *ante*, § 972, 1132. (*c*) See *ante*, § 971.

pany excluded; but they heard a clashing of swords, and the prisoner gave the deceased the mortal wound. It was also found, that at the breaking up of the company the prisoner had his great coat thrown over his shoulders, and that he received three slight wounds in the fight; and that the deceased, being asked upon his death-bed, whether he received his wound in a manner among swordmen called fair, answered, "I think I did." It was further found that, from the throwing of the bottle, there was no reconciliation between the prisoner and deceased. Upon these facts all the judges were of opinion that the prisoner was guilty of murder; he having acted upon malice and deliberation, and not from sudden passion. It should probably be taken, upon the facts found in the verdict and the argument of the Chief Justice, that, after the door had been shut, the parties were upon an equal footing in point of preparation before the fight began in which the mortal wound was given. The main point then on which the judgment turned, and so declared to be, was the evidence of *express malice*, after the interposition of the company, and the parties had all sat down again for an hour. Under these circumstances the court were of opinion that the prisoner had had reasonable time for cooling: after which, upon an offer of reconciliation from the deceased, he had made use of that bitter and deliberate expression, that he would have his blood. And again, the prisoner remaining in the room after the rest of the company retired, and calling back the deceased by the contemptuous appellation of young man, on pretence of having something to say to him, altogether showed, such strong proof of deliberation and coolness, as precluded the presumption of passion having continued down to the time of the mortal stroke. Though even that would not have availed the prisoner under these circumstances: for it must have been implied, according to *Mawgridge's* case, that he acted upon malice; having, in the first instance, before any provocation received, and without warning or giving time for preparation on the part of Mr. Gower, made a deadly assault upon him.

When there is difficulty in ascertaining the probable perpetrator of a homicide it is desirable, therefore, to consider who there is who had an old grief or cause of provocation against the deceased. For this purpose evidence of threats and hostile declarations is always admissible on trial.

3rd. *Jealousy.*

§ 1151. Upon this head, as well as the last, it is not within the province of this work to enter. It is sufficient here to remark, that in inquiring for the supposed agent in a homicide, motives of this class are always a proper topic of investigation.

V. Position of Deceased.

§ 1152. That the deceased was found tied is not always a certain ground for assuming that he was the victim of a violent homicide, for cases exist where a party intending suicide has attempted in this way to relieve his memory from the disgrace of self-murder. This, however, is very difficult to effect, and the disguise is readily penetrated.

It is far different, however, with the converse, where the perpetrator of a violent homicide endeavors to so arrange the position of the deceased, as to give it the appearance of a *felo de se*. Cases of this kind are numerous, and sometimes the artifice has been so skilfully contrived as for a while to avert the current of suspicion. Thus, in a late case in Mississippi, the deceased was found lying dead with his own pistol in his hand, with which the fatal shot had undoubtedly been fired, and with his body arranged in such a way as to be entirely consistent with the hypothesis of deliberate self-destruction. No question, indeed, as to this being the fact existed, until it was subsequently accidentally discovered that the pistol had been wadded with a piece of paper which was a fragment of a sheet in the defendant's pocket. So also on the trial of a German named Papenberg, in Philadelphia, in 1844, it appeared that the deceased was found with a hatchet lying by his side, with the sharp edge of which his throat had been cut, in a manner which made the hypothesis of suicide not improbable. One of the most powerful circumstances in dispelling this hypothesis, and in pointing to the real offender, was the discovery in the pocket of the latter of a handkerchief, in which was marked in blood the profile of the precise weapon with which the wound was effected. In the case of Courvoiser, who was tried for the murder of Sir Wm. Russell, suicide, as has already been mentioned, was set up as a defence, with much show of evidence; but two facts were successfully relied on by the prosecution to rebut it, viz: that a napkin was placed over the deceased's face, and that the instrument of death did not lie near the body. And so Mr. Amos tells us of a trial where the defence of suicide was defeated by the fact, that while medical observation shows that prussic acid produces *instantaneous* death, the deceased was found with a *corked* bottle in her hand, from which five *drachms* of that particular poison had been taken, and with the bed-clothes composed about her person with elaborate precision.(*c*)

§ 1153. Other points are to be noticed in the same connection. Thus, it is important to examine whether there are marks of a scuffle about the deceased, and what footsteps are noticed leading to or from the *locus in quo*, together with their dimensions and other peculiarities.(*d*)

VI. Materials Appropriate to be Converted into Instruments of Crime.

§ 1154. It is here that what the civilians call *indicatory* evidence comes into greatest play. No *deliberate* homicide is committed without preparation, and the more malignantly contrived is the act, the more—such are the sanctions of society—it exposes itself to detection, by the discovery of the trains laid by it for the purpose of effecting the guilty purpose. Thus, in *poisoning*, it is necessary that the poison should have been pre-procured, either in its rudimental or its complete shape. For this purpose it is admissible to show not only, as in Sir Theodore Broughton's case, the possession of the fatal drug, but its purchase, or the purchase of its component elements. Inquiries, also, as to the

(*c*) See *ante*, § 810–16, 1146, for discussion of suicidal or homicidal presumptions.
(*d*) See *post*. § 1158–9.

effect of that particular drug,—possession of books in which the nature of poison is described,—become pertinent, for, unless the defendant is a scientific man, he must necessarily fortify himself with information before he attempts anything so hazardous as placing in the die both the life of another and of himself.(*d*) When a gun-shot wound is the cause of death, premeditation as well as identity may be determined in the same way. Of course, when fire-arms are habitually used, the possession of powder is of no moment in this respect. But the use of a particular fragment of wadding, has often been the means of insuring conviction; and when a party is not in the habit of carrying fire-arms, but assumes them for a particular occasion, this, as has already been noticed, lends a strong presumption of design, if it does not form part of a chain of circumstances, indicating the guilty party. The species of preparation which most often leads to the discovery of the offender, in this class of homicide,—particularly among those with whom the carrying of fire-arms is habitual,—is the selection or arrangement of a lair or shooting stand, from which the victim can be shot down without arresting the suspicion of himself or the observation of others. In a late case in South Carolina, the only trace by which identity could be pursued was that arising from the construction, by the assassin, of a shed or cover made of boughs of trees, from which the deceased was shot at. Similar to this, was the discovery of a level in a darkened room in a private house, upon which an air gun had been poised for the purpose of taking a more secure aim. The more artful and skilful is the method of death chosen, the more conclusive is the presumption it affords when discovered. Thus, in the traditionary homicide of Amy Robsart, the fact which defeated the hypothesis of suicide was, that the planks which had been taken up from the floor for the purpose of opening a pit-fall, were so artfully cut out, as to enable them afterwards, had it been necessary, to be returned to their former places without the appearance of having been disturbed. Hitzig, also, mentions a case where suspicion of a projected homicide, by poisoning, was attempted to be warded off by the prior announcement of a tendency to symptoms, on the part of the intended patient, of the same general character as that which the poison was likely to produce. And nothing added such point and emphasis to the evidence of design in the Webster case, as the presumption existing, that the defendant had prepared before hand the means of disposing of the deceased's body.

VII. Detached Circumjacent Bodies.

§ 1155. Was the deceased's dress torn, his pockets rifled, or were there any traces left by the supposed murderer on the spot? The more artful the design, the more emphatic, as has already been noticed, is the presumption to be drawn from it. Thus, in a case in New Jersey, suspicion was for some time averted by the fact that all the horse-tracks led to the spot, and *none* from it. This, however, tended only to clinch the fact of the defendant's guilt, when it was discovered that the horse which he had ridden that night bore on its hoofs the marks of the shoes

(*d*) See *ante*, Bocarmé's case, § 1081–1126.

having been nailed on *backwards*. So, also, where leaves were used for the purpose of concealing foot-tracks to and from the spot, the presumption against the accused party was certainly not *weakened* by the discovery that the leaves were none of them taken from a level above that which he could conveniently reach, he being, in fact, much below the average height.

§ 1156. A woman was tried in England, in 1818, before Mr. Baron Garrow, for arson. She had been met near the ricks, which were the subject of her incendiary attempt, about two hours before midnight, On one of the ricks was found a piece of woman's handkerchief, and in a tinder-box near the spot was some unburnt cotton rags. On examining the cotton taken from the latter with a lens, it was proved to be of the same fabric and pattern as a gown and some pieces of cotton-print taken from the prisoner's box at her lodgings. A still more conclusive presumption was drawn from the comparision of a half neckerchief taken from a bundle belonging to the prisoner with the piece found in the rick. A critical examination by experts of the two, showed that they belonged to the same square. It appeared, also, that the hemming in each was of the same breadth—the stitching in each was of the same degree of evenness—and that each was sewed with black sewing-silk, which was the more remarkable from the fact that articles of that character were usually sewed in cotton. Now although these circumstances would have been entirely insufficient to warrant a conviction without proof of guilt *aliunde*, it cannot be denied that they are of much value in relieving the court and jury from that anxiety which must always arise when there is a doubt whether if the circumstances in question had been explored, they would not have tended to have negatived the defendant's guilt. And as the burden of proof is on the prosecution, if it neglects to examine facts like these, the presumption is that if they had been examined, they would have told against it. In this view, as well to promote public justice generally, their investigation is a matter of duty.

§ 1157. In a trial in Philadelphia in 1844—already mentioned under another head—a handkerchief found on the defendant's person was discovered to be marked with the profile of a hatchet with which the fatal wound had been inflicted. The hatchet itself was peculiarly notched, and a critical analysis showed the marks on the handkerchief to be blood. Other circumstances conspired with this to make the presumption irresistible that the defendant was the guilty agent.

§ 1158. The piecing together of the wadding of a pistol with papers or other material found in a suspected party's possession, is a well known method of identification.(*e*) It should be observed, however, that this is a species of identification very easily fabricated, as is illustrated by the case of Boynton, in Mississippi, where a scrap of paper from which the wadding was cut, was purposely put in the defendant's pocket in order to inculpate him.

§ 1159. In 1836, a Spaniard, named Palayo, was charged with attempting the life of an officer in the post office, by depositing in it

(*e*) 1 Starkie's Law of Ev. 490; Bentham's Jud. Ev. Book v. ch. xv. 256; Wills' Circum. Ev. 97.

packets filled with fulminating powder, one of which exploded while in the act of being stamped, causing thereby serious personal injury. The letters, which were in Spanish, and one of them subscribed with the prisoner's name, were addressed to persons in Havana and Matanzas, who appeared to have been the object of the writer's especial malignity. Evidence that the defendant was on the spot, mailing letters, at the particular time, was held to be materially corroborated by proof that the impression on the wax with which the letters were sealed, corresponded with that of a seal worn about the defendant's person.(*e*)

Foot-prints, whether of man or beast, lead often in like manner to discovery of the guilty agent. In a case already referred to, which occurred in New Jersey, in 1820, it appeared that the defendant, who was charged with arson, had turned his horse's shoes round, after arriving at the house to be fired, so that there should appear to be *two* persons proceeding *to* and none *from* it. This very artifice, however, was the means of his detection, since the reversal of the shoes, as indicated by the recent marks of the nails on the horse's feet, afforded one of the most emphatic of the indications by which the defendant's guilt was determined.(*f*)

§ 1160. "It is of the utmost importance," says Mr. Best, "to examine minutely for the traces of another person at the scene of death, for it is by no means an uncommon practice with murderers to dispose of the bodies of their victims in such a manner as to lead to a supposition of suicide or death from natural causes;(*ff*) while, on the other hand, persons about to commit suicide, but solicitous to preserve their reputation after death, or their property from forfeiture, sometimes make away with themselves in such a manner as to avert suspicion of the mode by which they came to their end.(*g*) In one case, where a female was found dead in a room, with her throat cut and a large quantity of blood on her person and on the floor, the presence of another person in that room, was demonstrated by the print of a bloody *left* hand on the *left* arm of the deceased.(*h*) Where a man was found dead, with a discharged pistol lying beside him, the hypothesis of suicide from that pistol, was rebutted by showing that the fatal bullet was too large to fit it.(*i*) The following case strongly illustrates the difficulties which sometimes attend investigations of this nature. A man on detecting his wife in the act of adultery, fell into a state of distraction, and having at first dashed his head several times against the wall, then struck himself violently and repeatedly on the forehead with a cleaver, until he fell dead from a great number of wounds. All this was done in the presence of several witnesses. But suppose it had been otherwise, and that the dead body had been found with these marks of violence upon it, murder would have at least been suspected.(*j*) And even where there is the clearest proof of the infliction of wounds, still death may have been the result of previous disease, or violence from some other source. Cases illustrative of the former of these are pretty numerous,(*k*) and

(*e*) Wills' Circum. Ev. 99. (*f*) See *ante*, § 1144. (*ff*) 1 Stark. Ev. 572.
(*g*) Id. 577. (*h*) Case of Mary Norket and others, 14 Ho. St. Tr. 1324.
(*i*) Theory of Presumptive Proof, App. Case, 2d sec. Also, Beck's Med. Juris. 591–2.
(*j*) Beck's Med. Juris. 562.
(*k*) Several instances of this will be found in Beck's Med. Juris., chap. xv. (7th edit.) entitled "Wounds on the Living Body."

the two following show the necessity of not overlooking the latter hypothesis.

§ 1161. "At an inn in France, in the year 1808, a quarrel arose among some drovers, during which one of them was wounded with a knife, on the upper part of the *chest*, as also on the face and hand. The wounds were dressed and he left to return home, but the next morning he was found dead, bathed in blood, with the left lung and pulmonary artery cut. His death was at first attributed to the wounds received at the inn, but on a more minute examination this appeared unlikely, and it ultimately turned out that he had been robbed and murdered on his road home. (*l*) In another case, a girl expired in convulsions while her father was in the act of chastising her for a theft, and who was believed both by himself and the bystanders to have died of the beating. Although there were marks of a large number of pretty severe stripes on the body, they did not seem to the medical man who saw it to be quite sufficient to cause death, who therefore made a *post mortem* examination, from which, and other circumstances, it appeared that the girl had taken poison on finding her crime detected." (*m*)

§ 1162. One of the most remarkable cases of conviction on this species of evidence, is that of George W. Carawan, a deposed Baptist preacher, who was tried and convicted in Beaufort county, North Carolina, in the fall of 1853, for the murder of Clement H. Lassiter. Carawan was a man of great natural force of character, as well as of ingenuity and courage, but was destitute of any further education than he had picked up in mature years; and was sensual, passionate and unscrupulous. He lived in a section of the country which is peculiarly destitute of the means of instruction, either moral or intellectual. In one district where he had property, and which he occasionally made his residence—an island in Beaufort county, he acquired such a control over his neighbors as to enable him for some time to defy the attempts of the law to secure his arrest. He was over fifty years of age when the murder for which he was tried took place, and had recently married a second wife, almost immediately upon the death of the first, whose end the subsequent developments showed he had at least hastened. Lassiter, the deceased, was a young man of mild disposition, who had been for some time engaged in the neighborhood as a schoolteacher, and who had been employed in the defendant's house in that capacity. When he was residing there the defendant threw out intimations of jealousy as to an intimacy between his wife and Lassiter, though as the evidence subsequently showed, without any real ground. It appeared that previous to the death of Lassiter the prisoner had made threats as to him, and that the deceased entertained fears that he would fall a victim to these threats. On Sunday, the 14th of November, the deceased stayed all night at the house of a man named Dorset Mason, with whom he had been boarding, and spoke of his intention to go on the next day out on the turnpike road to Mattamuskeet Lake, to get a school, expressing his fears of the prisoner, and speaking of getting some one to go with him. He left Mason's the next morning, with his carpet-bag, and went to the house of Thomas Bridgman, a neighbor of

(*l*) Beck's Med. Juris. 558. (*m*) Ibid. 766. Best on Presumptive, § 205.

Carawan, where he dined. After dinner he took his carpet-bag and started on up the road, passing Carawan's house about two o'clock. Carawan was then in the yard, and just before Lassiter appeared went into the house, which was a short distance only from the road, and from which he had an unobstructed view of any and all who might be passing. Lassiter stopped at one or two neighbors, and then passed on along the road towards the Lake, and was seen no more alive. Carawan was in his house a short time only after the deceased passed; he then left and went direct across his field and pasture to the woods on the back of his farm, and was soon followed by his wife to the same point, with a double-barreled gun concealed under her apron. The wife returned shortly to the house without the gun. Carawan disappeared in the woods, and is supposed to have hastened through the woods to a place beside the road, where the murder was committed. Not a great while after Lassiter had gone upon the road a gun was fired in that direction, at quite a distance. Carawan returned to his house at sundown, without his gun. The place was an appropriate one for the perpetration of such a crime, and one likely to be selected. In a few days the non-arrival of Lassiter at his appointment on the Lake, began to awaken attention. It was ascertained that he had gone that way on Monday. Suspicion began to be excited. His friends became alarmed. It was noised about that he had been murdered. Inquiries were set on foot in all directions, and on Friday a general search was commenced on both sides of the turnpike road. While the inquiries were going on, the prisoner manifested great interest in the result of them, and made efforts to divert these inquiries into a different channel, suggesting to one of his friends the probability that Lassiter had run away, and before this friend had heard that the deceased was missing. The remarkable fact then was developed that Lassiter's dead body had been carried off a long distance from the road, into a dense and almost impenetrable thicket, and there, beneath the mossy turf of a low bottom, so carefully and adroitly concealed, that it seemed impossible that any human search could ever discover its hiding place.

§ 1163. Two men, on Saturday afternoon, after a long and tedious search which they were about to abandon as hopeless, were led to this place; but how, they could not tell. No mound was there, or footprints, and the moss was smooth and level all alike. A few lumps of dirt, less than a handful in all, and a decaying limb of laurel that had been overturned, were the sole circumjacent indications. There these men found the body, riddled with shot and bullets, crammed into a hole upon its face, the elbows sticking up, and trampled on, and covered with turf. Though Carawan took no part in the search, yet he betrayed his interest during its progress, inquiring where and how far it had been made, and where next they proposed to look. And as soon as the result was announced to him, he prepared a budget of clothes and escaped; declaring, as he went, to his nephew and his servant, "Boys, I must go away, or I shall be hung." He told his nephew that if he would tell the people that he was home all day Monday, he would give him the best negro that he had. Sometime afterwards he returned to his home by stealth, at night, and surrendered himself to the officers of the law only when he discovered that it was useless longer to hold out. After

his arrest, and during his imprisonment, the evidence showed that he was uneasy about the witness whom he had tried to purchase with a bribe, and making further efforts to hire him to leave, in default of this, to get others to get rid of him "by hook or by crook."

§ 1164. The defendant was convicted, but scarcely had the jury returned their verdict, when he drew from his breast a single-barreled pistol, rose from his seat in a half sitting posture, leaned forward, and thrusting his arm between two attendants, took deliberate aim at Mr. WARREN, one of the counsel engaged in prosecuting for the State, and fired. The ball struck just above the heart, and passing through the lappel of his coat, and cutting the cloth on the breast, struck the padding, and fell to the floor. He then dropped this pistol, and instantly taking another, applied it to his own forehead. One of the officers, observing the movement, seized his arm and pulled it down to the railing of the box, but could get it no further. During this struggle, the prisoner, with great coolness, leaned his head against the muzzle of the pistol and fired, the ball entering the right side of the skull, considerably behind, and somewhat above the ear, and traversing the brain until it lodged just over the right eye. He then dropped on his seat senseless, and died shortly afterwards.

§ 1165. One other remarkable incident accompanied this case. There followed the circumstantial evidence a supplement of direct, which, though for judicial purposes without value, became interesting for the purpose of showing how completely in this case presumption was verified by fact. A negro slave, by the laws of North Carolina, is an incompetent witness; and it so happened that there stood behind the trial in this case, a negro man named Seth, in whom Carawan placed great confidence, and who was privy to the whole transaction. His statement as given after the conviction, was as follows:—"On Monday night, just before dark (the day on which Lassiter was murdered) whilst Seth was feeding the horses in the stable, his master came to him and told him he wanted him to take an oath, to keep secret what he was going to tell him, and made him take the oath. He then told him he had killed Lassiter, and that he must go and help him to bury the body; and to get a pair of leading lines (such as he used to guide the horses in ploughing) and go with him down on the turnpike. The boy got the lines; but asked, as he was about to start, if he was going to leave Carawan Sawyer, and a free negro boy who was then living with Carawan, at home whilst they were gone? Carawan answered that he was not, and then went to the house and sent Sawyer and the free boy to Bell's, as stated in the trial. They then started, and when they got to Yankee field, Carawan took a strong rail from a fence which inclosed a small garden. When they got to the two pines Carawan led the way a few yards to the bushes, and there lay the body of Lassiter. The negro was terribly frightened, and thought he heard somebody coming on the road; but it was only his heart beating. The coat had been taken from the body and doubled under it. Carawan said he had done this to keep the blood from running on the ground. he told the negro that he had concealed himself close to the two pines, and just as Lassiter had passed he rose up to shoot him. In taking aim he stepped on a dead bush which broke under his foot. The noise

attracted Lassiter's attention, he turned partly around and saw him. He cried out, 'O, God!' and fell. He rose up straight again, but fell instantly. Carawan sprang into the road, seized the body, and threw it into the bushes, and then with his hands scraped up the blood in the road, and casting it into the ditch, threw some pieces of juniper wood upon it. He then went to the body and dragged it farther off from the road, took off the coat, doubled it up, and laid the body upon it, so that the coat was directly under the wounds. The first thing Carawan and the negro did, was to put the coat upon the body. This was done hurriedly, and then they tied him "hog fashion," Carawan pulling the body about, and jerking the line very roughly to tie it; and then they fastened him to the rail. They first attempted to take him through the woods and bushes, direct from the pines to the spot back of the Yankee field, selected by Carawan for the burying place. The negro being much shorter than Carawan, and the ground uneven, they stumbled and fell, and in the darkness found it impracticable to go through that way.

§ 1166. "Carawan then told the negro they must take the road—that if any one should be coming behind or before, they would hear in time to step aside in the bushes; but that in fact no one would be travelling at that time of night, especially as it was very cold. They accordingly took the body up the turnpike, to the east-end of the Yankee field, and then carried it into the woods. They had much difficulty, and fell with the body several times. On such occasions Carawan would fly into a passion, and kick both the negro and the body, sometimes stamping the latter. When they reached the spot which Carawan had previously fixed upon, they laid the body down, untied it and prepared to bury it. Carawan first cut the turf with a knife, took it off and laid it aside, the negro helping as he was wanted.

§ 1167. "They then commenced digging the grave with sticks, taking the dirt out with their hands and putting it into their hats, and then throwing it into the woods. They did this in order not to leave any dirt about the grave. Finding this process difficult and tedious, Carawan ordered the negro to go to the house and get a hoe. He said he was afraid to go. Carawan insisted, and the negro started, concluding in his own mind to go to the neighbors and betray him. But before he had gone fifty yards, Carawan called him back. They then put the body as well as they could into the hole they had partially dug, and covering it over temporarily with the turf, left it and went home, taking the rail and line with them.

§ 1168. "On Wednesday, which was a rainy day, Carawan went out alone with a hoe, and completed the work of burial. The negro further stated that, as soon as the body of Lassiter was found, Carawan came into the woods where he and Sawyer were cutting wood, and told them that Lassiter was found, and he was going away, as he would be hung if he stayed there,—that he should send for his family, and wanted Sawyer to come with them. He then took the negro with him to the turnpike, and told him to go up on the road and see if any body was in sight either way. On his reporting there was none, Carawan crossed the canal, and the negro saw no more of him till he came back from Tennessee. He was constantly on the look out for his return. He was

afraid if Carawan came back, and caught him, he would kill him. He saw some one cross the yard and go into the house, and as soon as he became satisfied it was Carawan, he ran with all his might to one of the neighbors, and told his master had come back.

§ 1169. Akin to this, are the results of recent extraordinary exertion on the horse itself, a point which is particularly worthy of consideration, when it was necessary that some distance should have been rapidly travelled in order to enable the suspected party to pass from the spot where the crime was committed to his place of retirement. This is illustrated in the trial of How, who was convicted in Alleghany County, N. Y., in 1824, for the murder of Othello Church.(*n*) The prisoner's house here was some distance from the deceased's, and there were several circumstances, (e. g. old grudge &c.,) which indicated the defendant as a likely party to have committed the murder. Immediately upon the alarm being given, two of the neighbors took sleighs, the snow being on the ground, and proceeded at once to the defendant's house. The defendant was at home, and nothing particular about his appearance or dress was discoverable. On proceeding to the stable, three horses were found, one dry and blanketed, the next very wet, having the appearance of natural sweat, and was smoking greatly. On this point considerable evidence was taken as to the tendency of horses, when subject to particular diseases, to sweat in the night season in the manner described. There was other evidence with regard to the instrument of death, which left little doubt, and the result was a conviction and a subsequent full confession.

VIII. Possession of Fruits of Offence.

§ 1170. When property has been taken from the deceased, the possession of it in a third party opens, of course, an important avenue of inquiry. It should not be forgotten, however, that *light* articles, such as form suitable ear-marks, would be much more likely to be secreted by an assassin on the person or on the property of another.(*o*) A distinction here exists between articles of great value and trifles, such as may have been collateral to the homicidal intent. The possession of the *first*, gives an overweening presumption of complicity; that of the *second*, if there has been time for the purpose, is equally likely to have been the result of the artifice of another.

§ 1171. With regard to the general properties of indicatory testimony, it is important to keep in mind that whatever may be the differences as to its value in other respects, it has some very decided advantages over the direct testimony of a limited number of witnesses, and which are thus clearly stated by Mr. Bentham,—"First, by including in its composition a portion of circumstantial evidence, the aggregate mass on either side is, if mendacious, the more exposed to be disproved. Every false allegation being liable to be disproved by any such notoriously true fact, as it is incompatible with; the greater the number of such distinct false facts, the more the aggregate mass of

(*n*) 2 Wheel. C. C. 412. (*o*) See *ante*, § 1146.

them is exposed to be disproved: *for it is the property of the mass of circumstantial evidence, in proportion to the extent of it, to bring a more and more extensive assemblage of facts under the cognizance of the judge.* Secondly, of that additional mass of facts, thus apt to be brought upon the carpet by circumstantial evidence, parts more or less considerable in number will have been brought forward by so many different deposing witnesses. But, the greater the number of deposing witnesses, the more seldom will it happen that any such concert, and that a successful one, has been produced, as is necessary to give effect to a plan of mendacious testimony, in the execution of which, in the character or deposing witnesses, divers individuals are concerned."(*p*) In short, a conclusion of guilt, deduced from a process of well-collected reasoning, upon evidence purely presumptive, may be quite as convincing, and in some cases infinitely more so, than one arising from direct testimony.(*q*)

§ 1172. Of all illustrations, however, of the value of the inductive process as applied to the work of drawing from mechanical and physical indices the truth which underlies them, the most effective is the following, for which we are indebted to the genius of a late American author, who possessed the quality which enables this process to be successfully applied, to a degree so eminent as to make his early death, and more particularly the associations which previously led him from the severer branches of study, a serious national loss.(*r*)

§ 1173. "*Extraordinary Murders.*—This morning about three o'clock, the inhabitants of the Quartier St. Roch were aroused from sleep by a succession of terrific shrieks, issuing, apparently, from the fourth story of a house in the Rue Morgue, known to be in the sole occupancy of one Madame L'Espanaye, and her daughter, Mademoiselle Camille L'Espanaye. After some delay, occasioned by a fruitless attempt to procure admission in the usual manner, the gateway was broken in with a crowbar, and eight or ten of the neighbors entered, accompanied by two *gendarmes.* By this time the cries had ceased; but, as the party rushed up the first flight of stairs, two or more rough voices, in angry contention, were distinguished, and seemed to proceed from the upper part of the house. As the second landing was reached, these sounds also had ceased, and every thing remained perfectly quiet. The party spread themselves, and hurried from room to room. Upon arriving at a large back chamber in the fourth story, (the door of which being found locked, with the key inside, was forced open) a spectacle presented itself which struck every one present not less with horror than astonishment.

"The apartment was in the wildest disorder—the furniture broken and thrown about in all directions. There was only one bedstead; and from this the bed had been removed, and thrown into the middle of the floor.

§ 1174. "On a chair lay a razor, besmeared with blood. On the hearth were two or three long and thick tresses of gray human hair,

(*p*) 3 Benth. Jud. Ev. 251. (*q*) Best on Presumption, § 194.

(*r*) I refer here to Mr. Poe; and I only regret that I am unable to establish still more indisputably the view I take of his inductive ability by the insertion here—which its length prevents—of a still more striking instance of it, viz., his elucidation of the Roger's case, as given in "The Mystery of Mary Rogét;" Poe's Works, 213.

also dabbled in blood, and seeming to have been pulled out by the roots. Upon the floor were found four Napoleons, an ear-ring of topaz, three large silver spoons, three smaller of *métal d'Alger*, and two bags, containing nearly four thousand francs in gold. The drawers of a *bureau*, which stood in one corner, were open, and had been, apparently, rifled, although many articles still remained in them. A small iron safe was discovered under the *bed* (not under the bedstead.) It was open, with the key still in the door. It had no contents beyond a few old letters, and other papers of little consequence.

§ 1175. "Of Madame L'Espanaye no traces were here seen; but an unusual quanty of soot being observed in the fireplace, a search was made in the chimney, and (horrible to relate!) the corpse of the daughter, head downward, was dragged therefrom; it having been thus forced up the narrow aperture for a considerable distance. The body was quite warm. Upon examining it many excoriations were perceived, no doubt occasioned by the violence with which it had been thrust up and disengaged. Upon the face were many severe scratches, and, upon the throat, dark bruises, and deep indentations of finger nails; as if the deceased had been throttled to death.

§ 1176. "After a thorough investigation of every portion of the house, without further discovery, the party made its way into a small paved yard in the rear of the building, where lay the corpse of the old lady, with her throat so entirely cut, that, upon an attempt to raise her, the head fell off. The body, as well as the head was fearfully mutilated —the former so much so as scarcely to retain any semblance of humanity.

"To this horrible mystery there is not yet, we believe, the slightest clew."

The next day's papers had these additional particulars.

§ 1177. "*The tragedy in the Rue Morgue.*—Many individuals have been examined in relation to this most extraordinary and frightful affair." [The word "affair" has not yet, in France, that levity of import which it conveys with us,] "but nothing whatever has transpired to throw light upon it. We give below all the material testimony elicited.

§ 1178. "*Pauline Dubourg*, laundress, deposes, that she has known both the deceased for three years, having washed for them during that period. The old lady and her daughter seemed on good terms—very affectionate towards each other. They were excellent pay. Could not speak in regard to their mode or means of living. Believed that Madame L. told fortunes for a living. Was reputed to have money put by. Never met any persons in the house when she called for the clothes, or took them home; was sure they had no servant in employ. There appeared to be no furniture in any part of the building except in the fourth story.

§ 1179. "*Pierre Moreau*, tobacconist, deposes that he has been in the habit of selling small quantities of tobacco and snuff to Madame L'Espanaye for nearly four years. Was born in the neighborhood, and always resided there. The deceased and her daughter had occupied the house in which the corpses were found for more than six years. It was formerly occupied by a jeweller, who underlet the upper rooms to various persons.

The house was the property of Madame L. She became dissatisfied with the abuse of the premises by her tenant, and moved into them herself, refusing to let any portion. The old lady was childish. Witness had seen the daughter some five or six times during the six years. The two lived an exceedingly retired life; were reputed to have money. Had heard it said among the neighbors that Madame L. had told fortunes: did not believe it. Had never seen any person enter the door except the old lady and her daughter, a porter once or twice, and a physician some eight or ten times.

§ 1180. "Many other persons, neighbors, gave evidence to the same effect. No one was spoken of as frequenting the house. It was not known whether there was any living connections of Madame L. and her daughter. The shutters of the front windows are seldom opened. Those in the rear were always closed, with the exception of the large back room, fourth story. The house was a good house—not very old.

"*Isodore Musèt, gendarme*, deposes, that he was called to the house about three o'clock in the morning, and found some twenty or thirty persons at the gateway, endeavoring to gain admittance. Forced it open, at length, with a bayonet, not with a crow-bar. Had but little difficulty in getting it open, on account of its being a double or folding gate, and bolted neither at bottom nor top. The shrieks were continued until the gate was forced, and then suddenly ceased. They seemed to be screams of some person (or persons) in great agony,—were loud and drawn out, not short and quick. Witness led the way up stairs. Upon reaching the first landing, heard two voices in angry contention: the one a gruff voice; the other, much shriller—a very strange voice. Could distinguish some words of the former, which was that of a Frenchman. Was positive that it was not a woman's voice. Could distinguish such words as '*sacré*' and '*diable*.' The shrill voice was that of a foreigner: could not be sure whether it was the voice of a man or a woman. Could not make out what was said, but believed the language to be Spanish. The state of the room and the bodies was described by the witness as we described them yesterday.

§ 1181. "*Henry Duval*, a neighbor, and by trade a silversmith, deposes that he was one of the party who first entered the house—corroborates the testimony of Musèt in general. As soon as they forced an entrance, they reclosed the door, to keep out the crowd, which collected very fast, notwithstanding the lateness of the hour. The shrill voice, the witness thinks, was that of an Italian. Was certain it was not French. Could not be sure that it was a man's voice. It might have been a woman's. Was not acquainted with the Italian language. Could not distinguish the words, but was convinced by the intonation that the speaker was an Italian. Knew Madame L. and her daughter. Had conversed with both frequently. Was sure that the shrill voice was not that of deceased.

§ 1182. "—— *Odenheimer, restaurateur*. This witness volunteered his testimony. Not speaking French, was examined through an interpreter. Is a native of Amsterdam. Was passing the house at the time of the shrieks. They lasted for several minutes,—probably ten. They were long and loud—very awful and distressing. Was one of those who entered the building. Corroborates the previous evidence in every respect

but one. Was sure that the shrill voice was that of a man, of a Frenchman. Could not distinguish the words uttered. They were loud and quick; unequal; spoken apparently in fear as well as anger. The voice was harsh; not so much shrill as harsh. Could not call it a shrill voice. The gruff voice said, repeatedly, '*sacré*,' '*diable*,' and once, '*mon Dieu.*'

§ 1183. "*Jules Mignaud*, banker, of the firm of Mignaud et Fils, Rue Deloraine. Is the elder Mignaud. Madame L'Espanaye had some property. Had opened an account with his banking house in the spring of the year —— (eight years previously.) Made frequent deposits in small sums. Had checked for nothing until the third day before her death, when she took out in person the sum of 4000 francs. This sum was paid in gold, and a clerk sent home with the money.

§ 1184. "*Adolph Le Bon*, clerk to Mignaud et Fils, deposes that on the day in question, about noon, he accompanied Madame L'Espanaye to her residence, with the 4000 francs, put up in two bags. Upon the door being opened, Mademoiselle L. appeared and took from his hands one of the bags, while the old lady relieved him of the other. He then bowed and departed. Did not see any person in the street at the time. It is a by-street—very lonely.

"*William Bird*, tailor, deposes that he was one of the party who entered the house. Is an Englishman. Has lived in Paris two years. Was one of the first to ascend the stairs. Heard the voices in contention. The gruff voice was that of a Frenchman. Could make out several words, but cannot now remember all. Heard distinctly, '*sacré*' and '*mon Dieu.*' There was a sound at the moment as if of several persons struggling—a scraping and scuffling sound. The shrill voice was very loud—louder than the gruff one. Is sure that it was not the voice of an Englishman. Appeared to be that of a German. Might have been a woman's voice. Does not understand German.

§ 1185. "Four of the above named witnesses being recalled, deposed that the door of the chamber in which was found the body of Mademoiselle L., was locked on the inside when the party reached it. Everything was perfectly silent; no groans or voices of any kind. Upon forcing the door, no person was seen. The windows, both of the back and front room, were down, and firmly fastened from within. A door between the two rooms was closed but not locked. The door leading from the front room into the passage was locked, with the key on the inside. A small room in the front of the house, on the fourth story, at the head of the passage, was open—the door being ajar. This room was crowded with old beds, boxes, and so forth. These were carefully removed and searched. There was not an inch of any portion of the house which were not carefully searched. Sweeps were sent up and down the chimneys. The house was a four-story one, with garrets (*mansardes.*) A trap door on the roof was nailed down very securely; did not appear to have been opened for years. The time elapsing between the hearing of the contention and the breaking open of the room door, was variously stated by the witnesses. Some made it as short as three minutes,—some as long as five. The door was opened with difficulty.

§ 1186. "*Alonzo Garcio*, undertaker, deposes that he resides in the Rue Morgue; is a native of Spain; was one of the party who entered

the house; did not proceed up stairs; is nervous, and was apprehensive of the consequences of agitation; heard the voices in contention; the gruff voice was that of a Frenchman; could not distinguish what was said; the shrill voice was that of an Englishman; is sure of this; does not understand the English language, but judges by the intonation.

§ 1187. "*Alberto Montani*, confectioner, deposes that he was among the first to ascend the stairs. Heard the voices in question. The gruff voice was that of a Frenchman. Distinguished several words. The speaker appeared to be expostulating. Could not make out the words of the shrill voice. Spoke quick and unevenly. Thinks it the voice of a Russian. Corroborates the general testimony. Is an Italian. Never conversed with a native of Russia.

"Several witnesses, recalled, here testified that the chimneys of all the rooms were too narrow to admit the passage of a human being. By sweeps were meant cylindrical sweeping brushes, such as are employed by those who clean chimneys. These brushes were passed up and down every flue in the house. There is no back passage by which any one could have descended while the party proceeded up stairs. The body of Mademoiselle L'Espanaye was so firmly wedged in the chimney that it could not be got down until four or five of the party united their strength.

§ 1188. "*Paul Dumas*, physician, deposes, that he was called to view the bodies about daybreak. They were then both lying on the sacking of the bedstead, in the chamber where Mademoiselle C. was found. The corpse of the young lady was much bruised and excoriated. The fact that it had been thrust up the chimney would sufficiently account for these appearances. The throat was greatly chafed. There were several deep scratches just below the chin, together with a series of livid spots which were evidently the impression of fingers. The face was fearfully discolored, and the eye-balls protruded; the tongue had been partially bitten through. A large bruise was discovered upon the pit of the stomach, produced, apparently, by the pressure of a knee. In the opinion of M. Dumas, Mademoiselle L'Espanage had been throttled to death, by some person or persons unknown. The corpse of the mother was horribly mutilated. All the bones of the right leg and arm were more or less shattered. The left tibia much splintered, as well as all the ribs of the left side. Whole body dreadfully bruised and discolored. It was not possible to say how the injuries had been inflicted. A heavy club of wood, or a broad bar of iron, a chair, any large, heavy and obtuse weapon, would have produced such results if wielded by the hands of a very powerful man. No woman could have inflicted the blows with any weapon. The head of the deceased, when seen by witness, was entirely separated from the body, and was also greatly shattered. The throat had evidently been cut by some very sharp instrument—probably with a razor.

§ 1189. "*Alexander Etienne*, surgeon, was called with M. Dumas, to view the bodies, and corroborated the testimony and opinions of M. Dumas.

"Nothing further of importance was elicited, although several other persons were examined. A murder so mysterious and so perplexing in

all its particulars, was never before committed in Paris, if indeed a murder had been committed at all. The police are entirely at fault, an unusuul occurrence in affairs of this nature. There is not, however, the shadow of a clue apparent."

"The evening edition of the paper stated that the greatest excitement still continued in the Quartier St. Roch—that the premises in question had been carefully researched, and fresh examinations of witnesses instituted, but all to no purpose. A postcript, however, mentioned that Adolph Le Bon had been arrested and imprisoned, though nothing appeared to criminate him, beyond the facts already detailed.

§ 1190. "Dupin seemed singularly interested in the progress of this affair—at least so I judged, from his manner, for he made no comments. It was only after the announcement that Le Bon had been arrested, that he asked me my opinion respecting the murders. I could merely agree with all Paris, in considering them an insoluble mystery. I saw no means by which it would be possible to trace the murderer.

"We must not judge of the means," said Dupin, "by this shell of an examination. The Parisian police, so much extolled for their *acumen*, are cunning, but no more. There is no method in their proceedings, beyond the method of the moment. They make a vast parade of measures; but not unfrequently these are so ill-adapted to the objects proposed, as to put us in mind of Monsieur Jourdain's calling for his *robe-de-chambre, pour mieux entendre la musique.* The results attained by them are not unfrequently surprising, but, for the most part, are brought about by simple diligence and activity. When these qualities are unavailing their schemes fail. Vidocq, for example, was a good guesser and a persevering man; but, without educated thought, he erred continually by the very intensity of his investigations. He impaired his vision by holding the object too close. He might see, perhaps, one or two points with unusual clearness, but in so doing he necessarily lost sight of the matter as a whole. Thus there is such a thing as being too profound. Truth is not always in a well. In fact, as regards the more important knowledge, I do believe she is invariably superficial. The depth lies in the valleys, where we seek her, and not upon the mountain-tops, where she is found. The modes and sources of this kind of error are well typified in the contemplation of heavenly bodies. To look at a star by glances, to view it in a side-long way, by turning toward it the exterior portions of the retina, (more susceptible of feeble impressions of light than the interior,) is to behold the star distinctly, is to have the best appreciation of its lustre—a lustre which grows dim just in proportion as we turn our vision *fully* upon it. A greater number of rays actually fall upon the eye in the latter case, but in the former there is more refined capacity for comprehension. By undue profundity we perplex and enfeeble thought; and it is possible to make even Venus herself vanish from the firmament, by a scrutiny too sustained, too concentrated, or too direct.

§ 1191. "As for these murders, let us enter into some examinations for ourselves, before we make up an opinion respecting them. An inquiry will afford us amusement," [I thought this an odd term, so applied, but said nothing] "and besides Le Bon once rendered me a service for which I am not ungrateful. We will go and see the premises with our

own eyes. I know G——, the prefect of police, and we shall have no difficulty in obtaining the necessary permission.

"The permission was obtained, and we proceeded at once to the Rue Morgue. This is one of those miserable thoroughfares which intervene between the Rue Richelieu and the Rue St. Roch. It was late in the afternoon when we reached it; as this quarter is at a great distance from that in which we resided. The house was readily found; for there were still many persons gazing up at the closed shutters, with an objectless curiosity, from the opposite side of the way. It was an ordinary Parisian house, with a gateway, on one side of which was a glazed watch-box, with a sliding panel in the middle, indicating a *lodge de concierge*. Before going in, we walked up the street, turned down an alley, and then, again turning, passed in the rear of the building; Dupin, meanwhile, examining the whole neighborhood, as well as the house, with a minuteness of attention for which I could see no possible object.

§ 1192. "Retracing our steps, we came again to the front of the dwelling, rang, and, having shown our credentials, were admitted by the agents in charge. We went upstairs, into the chamber where the body of Mademoiselle D'Espanaye had been found, and where both the deceased still lay. The disorders of the room, had, as usual, been suffered to exist. I saw nothing beyond what had been stated in the 'Gazette des Tribunaux.' Dupin scrutinized everything—not excepting the bodies of the victims. We then went into the other rooms and into the yard; a *gendarme* accompanying us throughout. The examination occupied us until dark, when we took our departure. On our way home my companion stopped in, for a moment, at the office of one of the daily papers.

"I have said that the whims of my friend were manifold, and that *je les ménagais*:—for this phrase there is no English equivalent. It was his humor, now, to decline all conversation on the subject of the murder, until about noon the next day. He then asked me, suddenly, if I had observed anything peculiar at the scene of atrocity.

§ 1193. "There was something in his manner of emphasizing the word 'peculiar,' which caused me to shudder, without knowing why.

"No, nothing peculiar, I said; nothing more, at least, than we both saw stated in the paper.

"'The Gazette,' he replied, 'has not entered I fear into the unusual horror of the thing. But dismiss the idle opinions of this print. It appears to me that this mystery is considered insoluble, for the very reason which should cause it to be regarded as easy of solution—I mean for the *outré* character of its features. The police are confounded by the seeming absence of motive—not for the murder itself—but for the atrocity of the murder. They are puzzled, too, by the seeming impossibility of reconciling the voices heard in contention, with the fact that no one was discovered upstairs, but the assassinated Mademoiselle L'Espanaye, and that there were no means of egress without the notice of the party ascending. The wild disorder of the room; the corpse thrust with the head downwards, up the chimney; the frightful mutilation of the body of the old lady: these considerations, with those just mentioned, and others which I need not mention, have sufficed

to paralyze the powers, by putting completely at fault, the boasted *acumen* of the government agents. They have fallen into the gross, but common error of confounding the unusual with the abstruse. But it is by these deviations from the plane of the ordinary, that reason feels its way if at all in its search for the true. In investigations such as we are now pursuing, it should not be so much asked, 'what has occurred,' as 'what has occurred that has never occurred before.' In fact, the facility with which I shall arrive, or have arrived, at the solution of this mystery, is in the direct ratio of its apparent insolubility in the eyes of the police.'

§ 1194. "I stared at the speaker in mute astonishment.

"'I am now waiting,' continued he, looking toward the door of our apartment—'I am now awaiting a person, who, although perhaps not the perpetrator of these butcheries, must have been in some measure implicated in their perpetration. Of the worst portion of the crimes committed, it is probable that he is innocent. I hope that I am right in this supposition; for upon it I build my expectation of reading the entire riddle. I look for the man here—in this room—every moment. It is true that he may not arrive; but the probability is that he will. Should he come, it will be necessary to detain him. Here are pistols; and we both know how to use them when occasion demands their use.'

"I took the pistols, scarcely knowing what I did, or believing what I heard, while Dupin went on very much as if in a soliloquy. I have already spoken of his abstract manner at such times. His discourse was addressed to myself; but his voice, although by no means loud, had that intonation which is commonly employed in speaking to some one at a great distance. His eyes, vacant in expression, regarded only the wall.

"'That the voices heard in contention,' he said, 'by the party upon the stairs, were not the voices of the women themselves, was fully proven by the evidence. This relieves us of all doubt upon the question whether the old lady could have at first destroyed the daughter, and afterwards committed suicide. I speak of this point chiefly for the sake of method, for the strength of Madame L'Espanaye would have been utterly unequal to the task of thrusting her daughter's corpse up the chimney as it was found; and the nature of the wounds upon her own person entirely preclude the idea of self-destruction. Murder, then, has been committed by some third party; and the voices of this third party were those heard in contention. Let us now advert—not to the whole testimony respecting these voices—but to what was *peculiar* in that testimony. Did you observe anything peculiar about it?'

§ 1195. "I remarked that, while all the witnesses agreed in supposing the gruff voice to be that of a Frenchman, there was much disagreement in regard to the shrill, or, as one individual termed it, the harsh voice.

"'That was the evidence in itself,' said Dupin, 'but it was not the peculiarity of the evidence. You have observed nothing distinctive; yet there *was* something to be observed. The witnesses, as you remark, agreed about the gruff voice; they were here unanimous. But in regard to the shrill voice, the peculiarity is,—not that they disagreed—but that, while an Italian, an Englishman, a Spaniard, a Hollander,

and a Frenchman, attempted to describe it, each one spoke of it, as that *of a foreigner*. Each is sure that it was not the voice of one of its own countrymen. Each likens it—not to the voice of an individual of any nation with whose language he is conversant—but the converse. The Frenchman supposes it to be the voice of a Spaniard, and 'might have distinguished some words, '*had he been acquainted with the Spanish.*' The Dutchman maintained it to have been that of a Frenchman; but we find it stated that '*not understanding French, the witness was examined through an interpreter.*' The Englishman thinks it the voice of a German, and '*does not understand German.*' The Spaniard 'is sure' that it was that of an Englishman, but 'judges by the intonation' altogether '*as he has no knowledge of the English.*' The Italian believes it the voice of a Russian, but '*but has never conversed with a native of Russia.*' A second Frenchman differs, moreever, with the first, and is positive that the voice was that of an Italian; but, *not being cognizant of that tongue*, is, like the Spaniard, 'convinced by the intonation.' Now how strangely unusual must that voice have really been, about *which* such testimony as this *could* have been elicited!—in whose *tones*, even, the denizens of the five great divisions of Europe, could recognize nothing familiar! You will say that it might have been the voice of an Asiatic—of an African. Neither Asiatics nor Africans, abound in Paris; but, without denying the inference, I will now merely call your attention to three points. The voice is termed by one witness 'harsh rather than shrill.' It is represented by two others to have been 'quick and *unequal.*'

§ 1196. "No words, no sounds resembling words, were by any witness mentioned as distinguishable. 'I know not,' continued Dupin, 'what impression I may have made, so far, upon your own understanding, but I do not hesitate to say that legitimate deductions, even from this portion of the testimony—the portion respecting the gruff and shrill voices—are in themselves sufficient to engender a suspicion, which should give direction to all further progress in the investigation of the mystery. I said, 'legitimate deductions,' but my meaning is not thus fully expressed. I designed to imply that the deductions are the *sole* proper ones, and that the suspicion arises *inevitably* from them as the single result. What the suspicion is, however, I will not say just yet. I merely wish you to bear in mind that, with myself, it was sufficiently forcible to give a definite form—a certain tendency to my inquiries in the chamber.

§ 1197. "Let us now transport ourselves in fancy to this chamber. What shall we first seek here? The means of egress employed by the murderers. It is not too much to say that neither of us believe in præternatural events. Madame and Mademoiselle L'Espanaye, were not destroyed by spirits. The doers of the deed were material, and escaped materially. Then, how? Fortunately, there is but one mode of reasoning upon the point, and that mode *must* lead us to a definite decision. Let us examine each by each, the possible means of egress. It is clear that the assassins were in the room where Mademoiselle L'Espanaye was found, or at least in the room adjoining, when the party ascended the stairs. It is then only from these two apartments that we have to seek issues. The police have laid bare the floors, the

ceilings, and the masonry of the walls, in every direction. No *secret* issues could have escaped their vigilance. But not trusting to *their* eyes, I examined with my own. There were, then, *no* secret issues. Both doors, leading from the rooms in the passage, were securely locked, with the keys inside. Let us turn to the chimneys. These, although of ordinary width, for some eight or ten feet above the hearths, will not admit, throughout their extent, the body of a large cat. The impossibility of egress, by means already stated, being thus absolute, we are reduced to the windows. Through those of the front room, no one could have escaped without notice from the crowd in the street. The murderers *must* have passed, then, through those of the back room. Now, brought to this conclusion, in so unequivocal a manner as we are, it is not our part, as reasoners, to reject it on account of apparent impossiblities. It is only left for us to prove, that these apparent 'impossibilities,' are, in reality, not such.

"There are two windows in the chamber. One of them is unobstructed by furniture and is wholly visible. The lower portion of the other is hidden from view by the head of the unwieldy bedstead which is thrust close up against it. The former was found securely fastened from within. It resisted the utmost force of those who endeavored to raise it. A large gimlet-hole had been pierced in its frame from the left, and a very stout nail was found fitted therein, nearly to the head. Upon examining the other window, a similar nail was similarly fitted in it: and a vigorous attempt to raise the sash failed also. The police were now entirely satisfied that the egress had not been in these directions. And, *therefore*, it was thought a matter of supererogation to withdraw the nails and open the windows.

§ 1198. "My own examination was somewhat more particular, and was so for the reason I have just given: because here it was, I knew, that all apparent impossibilities *must* be proved to be not such in reality.

"I proceeded to think thus—*à posteriori*. The murderers *did* escape from one of those windows. This being so, they could not have refastened the sashes from the inside, as they were found fastened: the consideration which put a stop through its obviousness, to the scrutiny of the police in this quarter. Yet the sashes *were* fastened. They *must* then have the power of fastening themselves. There was no escape from this conclusion. I stepped to the unobstructed casement, withdrew the nail with some difficulty, and attempted to raise the sash. It resisted all my efforts, as I had anticipated. A concealed spring must, I now knew, exist; and this corroboration of my idea convinced me that my premises, at least were correct, however mysterious still appeared the circumstance attending the nails. A careful search soon brought to light the hidden spring. I pressed it, and satisfied with the discovery, forbore to upraise the sash.

"I now replaced the nail, and regarded it attentively. A person passing out through this window might have reclosed it, and the spring would have caught, but the nail could not have been replaced. The conclusion was plain, and again narrowed in the field of my investigations. The assassins *must* have escaped through the other window. Supposing, then, the springs upon each sash to be the same, as was probable,

there *must* be found a difference between the nails, or at least between the modes of their fixture. Getting upon the sacking of the bedstead, I looked over the head-board minutely at the second casement. Passing my hand down behind the board, I readily discovered and pressed the spring which was, as I had supposed identical in character with its neighbor. I now looked at the nail. It was as stout as the other, and apparently fitted in the same manner—driven nearly up to the head.

§ 1199. "You will say that I was puzzled; but, if you think so, you have misunderstood the nature of the inductions. To use the sporting phrase I had not been once 'at fault.' The scent had never for an instant been lost. There was no flaw in any link of the chain. I had traced the secret to its ultimate result, and that result was *the nail.* It had, I say, in every respect, the appearance of its fellow in the other window; but this fact was an absolute nullity, (conclusive as it might seem to be) when compared with the consideration, that here, at this point, terminated the clue. 'There *must* be something wrong,' I said, 'about the nail.' I touched it; and the head, with about a quar- of an inch of the shank, came off in my fingers. The rest of the shank was in the gimlet hole where it had been broken off. The fracture was an old one (for its edges were incrusted with rust,) and had apparently been accomplished by the blow of a hammer, which had partially imbedded, in the top of the bottom sash, the head portion of the nail. I now carefully replaced this head portion in the indentation whence I had taken it, and the resemblance to a perfect nail was complete—the fissure was invisible. Pressing the spring, I gently raised the sash for a few inches: the head went up with it, remaining firm in its bed. I closed the window, and the semblance of the whole nail was again perfect.

§ 1200. "The riddle so far, was now unriddled. The assassin had escaped through the window which looked upon the bed. Dropping of its own accord upon his exit (or perhaps purposely closed) it had become fastened by the spring; and it was the retention of this spring, which had been mistaken by the police for that of the nail,—further inquiry being thus considered unnecessary.

"The next question is that of the mode of descent. Upon this point I had been satisfied in my walk with you around the building. About five feet and a half from the casement in question, there runs a lightning-rod. From this rod it would have been impossible for any one to reach the window itself, to say nothing of entering it. I observed, however, that the shutters of the fourth story, were of the peculiar kind, called by Parisian carpenters, *ferrades*—a kind rarely employed at the present day, but frequently seen upon very old mansions at Lyons and Bordeaux. They are in the form of an ordinary door, (a single, not a folding door,) except that the lower half is latticed or worked in open trellis—thus affording an excellent hold for the hands. In the present instance, these shutters are fully three feet and a half broad. When we saw them in the rear of the house, they were both about half open—that is to say, they stood off at right angles from the wall. It is probable that the police, as well as myself, examined the back of the tenement; but if so, in looking at these *ferrades* in the line of their breadth (as they must have done) they did not perceive

this great breadth itself, or, at all events, failed to take it into due consideration. In fact, having once satisfied themselves that no egress could have been made in this quarter, they would naturally bestow here a very cursory examination. It was clear to me, however, that the shutter belonging to the window at the head of the bed, would, if swung fully back to the wall, reach within two feet of the lightning-rod. It was also evident that, by exertion of a very unusual degree of activity and courage, an entrance into the window, from the rod, might have been thus effected. By reaching to the distance of two feet and a half (we now suppose the shutter is open to its whole extent) a robber might have taken a firm grasp upon the trellis-work. Letting go, then, his hold upon the rod, placing his feet securely against the wall, and springing boldly from it, he might have swung the shutter so as to close it, and, if we imagine the window open at the time, might even have swung himself into the room.

§ 1201. "I wish you to bear especially in mind that I have spoken of, a *very* unusual degree of activity as requisite to success in so hazardous and so difficult a feat. It is my design to show you, first, that the thing might possibly have been accomplished; but secondly, and *chiefly*, I wish to impress upon your understanding, the *very extraordinary*—the almost præternatural character of that agility which could have accomplished it.

"You will say, no doubt, using the language of the law, that 'to make out my case,' I should rather undervalue, than insist upon a full estimation of the activity required in this matter. This may be the practice in law, but it is not the usage of reason. My ultimate object is only the truth. My immediate purpose is to lead you to place in juxta-position, that *very unusual* activity of which I have just spoken, with that *very peculiar*, shrill (or harsh) and *unequal* voice, about whose nationality no two persons could be found to agree, and in whose utterance no syllabification could be detected."

§ 1202. "At these words a vague and half-formed conception of the meaning of Dupin flitted over my mind. I seemed to be upon the verge of comprehension, without power to comprehend—as men, at times, find themselves upon the brink of remembrance, without being able, in the end, to remember. My friend went on with his discourse.

"You will see," he said, "that I have shifted the question from the mode of egress to that of ingress. It was my design to convey the idea that both were effected in the same manner, at the same point. Let us now revert to the interior of the room. Let us survey the appearances here. The drawers of the bureau, it is said, had been rifled, although many articles of apparel still remained within them. The conclusion here is absurd. It is a mere guess—a very silly one—and no more. How are we to know, that the articles found in the drawers, were not all these drawers originally contained? Madame L'Espanaye and her daughter lived an exceedingly retired life—saw no company—seldom went out—had little use for numerous changes of habiliment. Those found were at least of as good quality as any likely to be possessed by these ladies. If a thief had taken any, why did he not take the best—why did he not take all? In a word, why did he abandon four thousand francs in gold to encumber himself with a bundle of linen?

The gold *was* abandoned. Nearly the whole sum mentioned by Monsieur Mignaud, the banker, was discovered in bags, upon the floor. I wish you therefore to discard from your thoughts the blundering idea of *motive*, engendered in the brains of the police, by that portion of the evidence, which speaks of money delivered at the door of the house. Coincidences ten times as remarkable as this, (the delivery of the money, and the murder committed within three days, upon the party receiving it,) happen to all of us every hour of our lives, without attracting even momentary notice. Coincidences, in general, are great stumbling-blocks in the way of that class of thinkers who have been educated to know nothing of the theory of probabilities—that theory to which the most glorious objects of human research are indebted for the most glorious of illustration. In the present instance, had the gold been gone, the fact of its delivery three days before would have formed something more than a coincidence. It would have been corroborative of this idea of motive. But, under the real circumstances of the case, if we are to suppose gold the real motive of this outrage, we must also imagine the perpetrator so vacillating an idiot as to have abandoned his gold and his motive together.

§ 1203. "Keeping now steadily in mind the points to which I have drawn your attention—that peculiar voice, that unusual agility, and that startling absence of motive in a murder so singularly atrocious as this—let us glance at the butchery itself. Here is a woman strangled to death by manual strength, and thrust up a chimney, head downward. Ordinary assassins employ no such modes of murder as this. Least of all, do they thus dispose of the murdered. In the manner of thrusting the corpse up the chimney, you will admit that there is something *excessively outré*—something altogether irreconcilable with our common notions of human action, even if we suppose the actors to be the most depraved of men. Think, too, how great must have been that strength which could have thrust the body *up* such an aperture so forcibly that the united vigor of several persons was found barely sufficient to drag it *down!*

§ 1204. "Turn, now, to the other indications of the employment of a vigor most marvellous. On the hearth were thick tresses—very thick tresses—of grey human hair. These had been torn out by the roots. You are aware of the great force necessary in tearing thus from the head even twenty or thirty hairs together. You saw the locks in question, as well as myself. Their roots (a hideous sight!) were clotted with fragments of the flesh of the scalp—sure tokens of the prodigious power which had been exerted in uprooting perhaps half a million of hairs at a time. The throat of the old lady was not merely cut, but the head absolutely severed from the body; the instrument was a mere razor. I wish you also to look at the *brutal* ferocity of these deeds. Of the bruises upon the body of Madame L'Espanaye I do not speak. Monsieur Dumas, and his worthy coadjutor Monsieur Etienne, have pronounced that they were inflicted by some obtuse instrument; and so far these gentlemen are very correct. The obtuse instrument was clearly the stone pavement in the yard, upon which the victim had fallen from the window which looked in upon the bed. This idea, however, simple it may now seem, escaped the police, for the same reason

that the breadth of the shutters escaped them—because, by the affair of the nails, their perceptions had been hermetically sealed against the possibility of the windows having ever been opened at all.

"If now, in addition to all these things you have properly reflected upon the odd disorder of the chamber, we have gone so far as to combine the ideas of an agility astounding, a strength superhuman, a ferocity brutal, a butchery without motive, a *grotesquerie* in horror absolutely alien from humanity, and a voice foreign in tones to the ears of men of many nations, and devoid of all distinct or intelligible syllabification. What result then has ensued? What impression have I made on your fancy?

"I felt a creeping of the flesh as Dupin asked me the question, 'A madman, said I, 'has done this deed—some raving maniac, escaped from a neighboring *Maison de Santé*.'

§ 1205. "'In some respects,' he replied, 'your idea is not irrelevant. But the voices of madmen, even in their wildest paroxysms, are never found to tally with that peculiar voice heard on the stairs. Madmen are of some nation, and their language, however incoherent in words, has always the coherence of syllabification. Besides, the hair of a madman is not such, as I now hold in my hand. I disentangled this little tuft from the rigidly clutched fingers of Madame L'Espanaye. Tell me what you can make of it?'

"'Dupin,' I said, completely unnerved, 'this hair is most unusual—this is no *human* hair.'

"'I have not asserted that it is,' said he; 'but before we decide this point, I wish you to glance at the little sketch I have here traced upon this paper. It is the *fac simile* drawing of what has been discovered in one portion of the testimony, as 'dark bruises, and deep indentations of finger nails,' upon the throat of Mademoiselle L'Espanaye, and in another, (by Messrs. Dumas and Etienne,) as a series of livid spots, evidently the impression of fingers.'

"'You will perceive,' continued my friend, spreading out the paper on the table before us, 'That this drawing gives the idea of a firm and fixed hold. There is no *slipping* apparent. Each finger has retained —possibly until the death of the victim—the fearful grasp, by which it originally imbedded itself. Attempt now, to place all your fingers, at the same time, in the respective impressions, as you see them.'

"I made the attempt in vain.

"'We are possibly not giving this matter a fair trial,' he said. 'The paper is spread out on a plain surface; but the human throat is cylindrical. There is a billet of wood, the circumference of which is about that of the throat. Wrap the drawing around it, and try the experiment again.'

"I did so; but the difficulty was even more obvious than before. 'This,' I said, 'is the mark of no human hand.'

"'Read now,' replied Dupin, 'this passage from Cuvier.'

"It was a minute anatomical and generally descriptive account of the large fulvous ourang-outang of the East India Islands. The gigantic stature, the prodigious strength and activity, the wild ferocity, and the imitative propensities of these mammalia are sufficiently well known to all. I understood the full horrors of the murder at once.

§ 1206. " 'The description of the digits,' said I, as I made an end of reading, 'is in exact accordance with this drawing. I see that no animal but an ourang-outang, of the species here mentioned, could have impressed the indentations as you have traced them. This tuft of tawney hair, too, is identical in character with that of the beast of Cuvier. But I cannot possibly comprehend the particulars of the frightful mystery. Besides, there were *two* voices heard in contention, and one of them was unquestionably the voice of a Frenchman.'

" 'True: and you will remember an expression attributed almost unanimously, by the evidence, to this voice—the expression, 'Mon Dieu!' This, under the circumstances, has been justly characterized by one of the witnesses, (Montaine, the confectioner,) as an expression of remonstrance or expostulation. Upon these two words, therefore, I have mainly built my hopes of a full solution of the riddle. A Frenchman was cognizant of the murder. It is possible—indeed it is far more than probable—that he was innocent of all participation in the bloody transactions which took place. The ourang outang may have escaped from him. He may have traced it to the chamber; but under the agitating circumstances which ensued, he could never have recaptured it. It is still at large. I will not pursue these guesses—for I have no right to call them more—since the shades of reflection upon which they are based, are scarcely of sufficient depth to be appreciable by my own intellect, and since I could not pretend to make them intelligible to the understanding of another. We will call them guesses then, and speak of them as such. If the Frenchman in question is, indeed, as I suppose, innocent of this atrocity, this advertisement, which I left last night, upon our return home, at the office of 'Le Monde,' (a paper devoted to the shipping interest, and much sought by sailors,) will bring him to our residence.'

§ 1207. " He handed me a paper, and I read thus:

" 'Caught—*In the Bois de Boulogne, early in the morning of the — inst.* (the morning of the murder) *a very large, tawney, Ourang-Outang of the Bornese species. The owner (who is ascertained to be a sailor, belonging to a Maltese vessel,) may have the animal again, upon identifying it satisfactorily, and paying a few charges arising from its capture and keeping. Call at — Rue — Faubourg St. Germain — au troisême.*'

" How is it possible," I asked, " that you should know the man to be a sailor, and belonging to a Maltese vessel?"

" I do *not* know it," said Dupin. " I am not *sure* of it. Here, however is a small piece of ribbon, which, from its form and greasy appearance, has evidently been used in tying the hair in one of those long *queues* of which the sailors are so fond. Moreover, this knot is one which few but sailors can tie, and is peculiar to the Maltese. I picked the ribbon up at the foot of the lightning rod. It could not have belonged to either of the deceased. Now if, after all, I am wrong in my induction from this ribbon, that the Frenchman was a sailor, belonging to a Maltese vessel, still I can have done no harm in saying what I did in the advertisement. If I am in error, he will merely suppose that I have been misled by some circumstance into which he will not take the trouble to inquire. But if I am right, a great point is gained. Cog-

nizant, though innocent of the murder, the Frenchman will naturally hesitate about replying to the advertisement, about demanding the ourang outang. He will reason thus: 'I am innocent: I am poor. My ourang outang is of great value; to one of my circumstances, a fortune of itself: why should I lose it through idle apprehensions of danger? Here it is, within my grasp. It was found in the Bois de Boulogne—at a vast distance from the scene of that butchery. How can it ever be suspected that a brute beast should do the deed? The police are at fault; they have failed to procure the slightest clue. Sould they even trace the animal, it would be impossible to prove me cognizant of the murder, or to implicate me in guilt on account of that cognizance. Above all, *I am known*. The advertiser designates me as the possessor of the beast. I am not sure to what limit his knowledge may extend. Should I avoid claiming a property of so great value, which it is known that I possess, I will render the animal, at least, liable to suspicion. It is not my policy to attract attention, either to myself or to the beast. I will answer the advertisement, get the ourang outang, and keep it close until the matter has blown over.' "

§ 1208. "At this moment we heard a step upon the stairs.

"Be ready," said Dupin, "with your pistols, but neither use them nor show them until at a signal from myself."

"The front door of the house had been left open, and the visitor had entered without ringing, and advanced several steps upon the stair-case. Now, however, he seemed to hesitate. Presently we heard him descending. Dupin was moving quickly to the door, when we again heard him coming up. He did not turn back a second time, but stepped up with decision, and rapped at the door of our chamber.

"Come in," said Dupin, in a cheerful and hearty tone.

"A man entered. He was a sailor, evidently a tall, stout, muscular-looking person, with a certain dare-devil expression of countenance, not altogether unprepossessing. His face, greatly sunburnt, was more than half hidden by whisker and *mustachio*. He had with him a huge oaken cudgel, but appeared to be otherwise unarmed. He bowed awkwardly, and bade us "good evening" in French accents, which, although somewhat Neufchatelish, were still sufficiently indicative of Parisian origin.

"Sit down my friend," said Dupin. I suppose you have called about the ourang outang. Upon my word, I almost envy you the possession: a remarkably fine and no doubt a very valuable animal. How old do you suppose him to be?"

"The sailor drew a long breath, with the air of a man relieved of some intolerable burden, and then replied, in an assured tone—

"I have no way of telling; but he can't be more than four or five years old. Have you got him here?"

"Oh no; we had no conveniences for keeping him here. He is at a livery stable in the Rue Dubourg, just by. You can get him in the morning. Of course you are prepared to identify the property."

"To be sure I am sir."

"I shall be sorry to part with him," said Dupin.

"I don't mean that you should be at all this trouble for nothing, sir," said the man. Could 'nt expect it. Am very willing to pay a

reward for the finding of the animal,—that is to say, anything in reason."

"Well," replied my friend, "that is all very fair, to be sure. Let me think: what should I have? Oh, I will tell you. My reward shall be this. You shall give me all the information in your power about these murders in the Rue Morgue."

"Dupin said these words in a very low tone, and very quietly. Just as quietly, too, he walked toward the door, locked it, and put the key in his pocket. He then drew a pistol from his bosom, and placed it, without the least flurry, upon the table.

§ 1209. "The sailor's face flushed up as if he were struggling with suffocation. He started to his feet and grasped his cudgel; but the next moment he fell back into his seat, trembling violently, and with the countenance of death itself. He spoke not a word. I pitied him from the bottom of my heart.

"My friend," said Dupin, in a kind tone, "you are alarming yourself unnecessarily; you are indeed. We mean you no harm whatever. I pledge you the honor of a gentleman, and of a Frenchman, that we intend you no injury. I perfectly well know that you are innocent of the atrocities in the Rue Morgue. It will not do, however, to deny that you are in some measure implicated in them. From what I have already said, you must know that I had means of information about this matter —means of which you could never have dreamed. Now the thing stands thus. You have done nothing which you could have avoided; nothing, certainly, which renders you culpable. You were not even guilty of robbery, when you might have robbed with impunity. You have nothing to conceal. You have no reason for concealment. On the other hand, you are bound by every principal of honor to confess all you know. An innocent man is now imprisoned charged with that crime of which you can point out the perpetrator."

"The sailor had recovered his presence of mind, in a great measure, while Dupin uttered these words, but his original bearing of boldness was all gone.

§ 1210. "So help me God," said he, after a brief pause, "I *will* tell you all I know about this affair, but I do not expect you to believe one half I say; I would be a fool indeed, if I did; still I *am* innocent, and I will make a clean breast, if I die for it."

"What he stated was in substance this. He had lately made a voyage to the Indian Archipelago. A party, of which he formed one, landed at Berneo, passed into the interior on an excursion of pleasure. Himself and a companion had captured the ourang-outang. His companion dying, the animal fell into his own exclusive possession. After great trouble, occasioned by the intractable ferocity of his captive during the home voyage, he at length succeeded in lodging it safely at his own residence in Paris, where, not to attract toward himself the unpleasant curiosity of his neighbors, he kept it carefully secluded, until such time as it should recover from a wound in the foot, received from a splinter on board ship. His ultimate design was to sell it.

Returning home from some sailors' frolic in the night, or rather in the morning of the murder, he found the beast occupying his own bedroom, into which it had broken from a closet adjoining, where it had

been, as was thought, securely confined. Razor in hand, and fully lathered, it was sitting before a looking-glass, attempting the operation of shaving, in which it had no doubt previously watched its master through the key-hole of the closet. Terrified at the sight of so dangerous a weapon in the possession of an animal so ferocious, and so well able to use it, the man, for some moments, was at a loss what to do. He had been accustomed, however, to quiet the creature, even in its fiercest moods, by the use of a whip, and to this he now resorted. Upon sight of it, the ourang-outang sprang at once through the door of the chamber, down the stairs, and thence through a window, unfortunately open, into the street.

"The Frenchman followed in despair; the ape, razor still in hand, occasionally stopping to look back and gesticulate at its pursuer, until the latter had nearly come up with it. It then again made off. In this manner the chase continued for a long time. The streets were profoundly quiet, as it was nearly three o'clock in the morning. In passing down an alley in the rear of the Rue Morgue, the fugitive's attention was arrested by a light gleaming from the open window of Madame L'Espanaye's chamber, in the fourth story of her house. Rushing to the building, it perceived the lightning-rod, clambered up with inconceivable agility, grasped the shutter, which was thrown fully back against the wall, then, by its own means, swung itself directly upon the headboard of the bed. The whole feat did not occupy a minute. The shutter was knocked open again by the ourang-outang, as it entered the room.

"The sailor, in the meantime, was both rejoiced and perplexed. He had strong hopes of now recapturing the brute, as it could scarcely escape from the trap into which it had ventured, except by the rod, where it might be intercepted as it came down. On the other hand there was much cause for anxiety, as to what it might do in the house. This latter reflection urged the man still to follow the fugitive. A lightning-rod is ascended without difficulty, especially by a sailor; but, when he had arrived as high as the window, which lay far at his left, his career was stopped; the most that he could accomplish was, to reach over so as to obtain a glimpse of the interior of the room. At this glimpse he nearly fell from his hold, through excess of horror. Now it was that those hideous shrieks arose upon the night, which had startled from slumber the inmates of the Rue Morgue. Madame L'Espanaye and her daughter, habited in their night-clothes, had apparently been occupied in arranging some papers in the iron chest already mentioned, which had been wheeled into the middle of the room. It was open, and its contents lay beside it on the floor. The victims must have been sitting with their backs towards the window; and from the time elapsing between the ingress of the beast and the screams, it seems probable that it was not immediately perceived. The flapping-too of the window-shutter would naturally have been attributed to the wind.

§ 1211. "As the sailor looked in, the gigantic animal had seized Madame L'Espanaye by the hair, (which was loose, as she had been combing it,) and was flourishing the razor about her face, in imitation of the motions of a barber. The daughter lay prostrate and motionless; she had swooned. The screams and struggles of the old lady (during which

the hair was torn from her head) had the effect of changing the probably pacific purposes of the ourang-outang into those of wrath. With one determined sweep of its muscular arm, it nearly severed her head from her body. The sight of blood inflamed its anger into phrenzy. Gnashing its teeth and flashing fire from its eyes, it flew upon the body of the girl, imbedded its fearful talons in her throat, retaining its grasp until she expired. Its wandering and wild glances fell at this moment upon the head of the bed, over which the face of its master, rigid with horror, was just discernible. The fury of the beast, who no doubt bore still in mind the dreaded whip, was instantly converted into fear. Conscious of having deserved punishment, it seemed desirous of concealing its bloody deeds, and skipped about the chamber in an agony of nervous agitation, throwing down and breaking the furniture as it moved, and dragging the bed from the bedstead. In conclusion, it seized first the corpse of the daughter and thrust it up the chimney, as it was found; then that of the old lady, which it immediately hurled through the window headlong. As the ape approached the casement with its mutilated burden, the sailor shrank aghast to the rod, and, rather gliding than clambering down it, hurried at once home, dreading the consequences of the butchery, and gladly abandoning, in his terror, all solicitude about the fate of the ourang-outang. The words heard by the party upon the staircase were the Frenchman's exclamations of horror and affright, combined with the fiendish jabberings of the brute.

§ 1212. "I have scarcely anything to add. The ourang-outang must have escaped from the chamber by the rod, just before the breaking of the door. It must have closed the in door just as it passed through it. It was subsequently caught by the owner himself, who obtained for it a very large sum, at the *Jardin des Plantes*. Le Bon was instantly released upon our narration of the circumstances (with some comments from Dupin) at the *bureau* of the Prefect of Police. This functionary, however well-disposed to my friend, could not conceal his chagrin at the turn which affairs had taken, and was fain to indulge in a sarcasm or two, about the propriety of every person minding their own business.

"Let him talk," said Dupin, who had not thought it necessary to reply. "Let him discourse, it will ease his conscience. I am satisfied with having defeated him in his own castle. Nevertheless, that he failed in the solution of this mystery, is by no means that matter for wonder which he supposes it; for, in truth, our friend the Prefect, is somewhat too cunning to be profound. In his wisdom is no *stamen*. It is all head, and no body, like the pictures of the Goddess Laverna—or, at best, all head and shoulders, like a codfish. But he is a good creature after all. I like him especially for one master-stroke of cant, by which he has attained his reputation for integrity. I mean the way he has '*de nier ce qui est, et d'expliquer ce qui n'est pas.*' "(s)

(s) Rousseau—Nouvelle Helvise.

D. Infanticide and Fœticide.(t)

I. How far fœticide is effected by the degree to which gestation has proceeded.

§1213. By the common law, as expounded by the earlier text writers, the destruction of an infant *en ventre sa mere* was a high misdemeanor, no matter what was the stage of gestation;(u) and if the death occurred at any time subsequent to birth, the offence was murder.(v) The law in respect to fœticide, in England and in most of the United States, it is true, has been settled by statutes which will presently be noticed; but, before proceeding to their consideration, it is important to observe that on the general question of the amenability to indictment of the offender in all cases where the life of the fœtus has been destroyed, there has been a concurrence of judicial sentiment wherever the point has arisen. Where such injury has been attempted by violence to the mother, there can be of course no doubt. All assaults are indictable, and the guilty party upon conviction punishable with fine and imprisonment; nor when the offence takes this shape, is it necessary that the aggrieved party should have been even touched. Thus, it has been held that throwing a squib,(w) shaking a whip,(x) and presenting a gun,(y) form an assault; and so far has this doctrine been pushed, that it has been ruled that a party, who enticed a young girl into a private place, and there exposed his person to her, might be convicted of an assault with an intent to commit a rape, though there was no evidence that he actually touched her.(z) Nor is it necessary that there should be resistance, if there be not complicity. Thus, where a medical practitioner had sexual connection with a female patient of the age of fourteen years who had for some time been receiving medical treatment from him, upon the jury finding that the injured party was ignorant of the nature of the defendant's act, and made no resistance, solely from a *bona fide* belief that the defendant was (as he represented) treating her medically with a view to her cure, the fifteen judges of England held that the defendant was guilty of an assault.(a)

§1214. Where, therefore, there is no statute defining the offence and prescribing a special penalty, there is no doubt that the attempt to commit fœticide by a third party, is punishable as an assault, provided the mother be not an accomplice. Where, however, she consents, this form of proceeding must be abandoned, and the term "assault," if inserted in the indictment, discharged as surplusage. In such a state of facts an interesting question arises, which was anticipated in England by the early enactment of a statute providing for the whole subject matter, but which, in the United States, has been the subject of much conflicting adjudication. It being everywhere conceded, that producing

(t) See this subject medically examined, note § 335–355.
(u) 3 Coke's Inst. 50; Bract. I. c. c. 31; 1 Hawk. c. 13, s. 16; 1 Rus. on Cr. 671; Wh. C. L. (3d ed.) 537.
(v) R. v. Senior, 1 Mood. C. C. 346, Wh. C. L. (3d ed.) 426, 537.
(w) 2 W. Bl. 892, (x) Wh. C. L. (3d ed.) 545. (y) 1 Hawk. c. 62, s. 1.
(z) Hays v. People, 1 Hill, 351. (a) R. v. Case, 1 Eng. R. 544.

the abortion of a *quick* infant is indictable at common law, the courts of Massachusetts(*b*) and of New Jersey(*c*) have held, that unless the infant were quick, the offence was not indictable unless made so by statute. The contrary opinion has been advanced and carried into effect with equal resoluteness by the Supreme Court of Pennsylvania.(*d*) This conflict of authority has been fully considered elsewhere, and it was there maintained, after a full examination of authorities, which it is not necessary now to review, that the protection of the law was cast round an unborn child from its first stage of ascertainable existence, no matter whether "quickening" had taken place or not.(*e*) Except, however, in those States in which no legislation on this branch of criminal law has been had, and they are but few, the point has ceased to be of practical importance; but in those jurisdictions where the common law still exists untouched, and where there has been as yet no judicial settlement of the immediate question, it may still be contended with far the greater show of reason, if not of authority, that to make the criminality of the offence depend upon the fact of quickening, is as repugnant to sound morals, as it has already been shown to be to just medical judgment.(*f*) That it is inconsistent with the analogies of the law is shown by the fact, that an infant born even at the extreme limit of gestation, after its father's death, is capable of taking by descent, or being appointed executor.(*g*)

In Massachusetts, New York, and Virginia, the following statutes exist:

MASSACHUSETTS.

Whoever, maliciously or without lawful justification, with intent to cause and procure the miscarriage of a woman then pregnant with child, shall administer to her, prescribe for her, or advise or direct her to take or swallow any poison, drug, or medicine or noxious thing; and whoever maliciously and without lawful justification, shall use any instrument or means whatever with the like intent, and every person, with the like intent, knowingly aiding and assisting such offender or offenders, shall be deemed guilty of felony, if the woman die in consequence thereof, and shall be imprisoned not more than twenty years, nor less than five years in the state prison; and if the woman doth not die in consequence thereof, such offender shall be guilty of a misdemeanor, and shall be punished by imprisonment not exceeding seven years, nor less than one year in the state prison or house of correction, or common jail, and by fine not exceeding two thousand dollars.(*h*)

Every person who shall, knowingly, advertise, print, publish, distribute, or circulate, or, knowingly, cause to be advertised, printed, published, distributed, or circulated, any pamphlet, printed paper, book, newspaper, notice, advertisement, or reference, containing words or language giving or conveying any notice, hint, or reference, to any person or to the name of any person, real or fictitious, from whom, or to any place, house, shop, or office, where any poison, drug, mixture, preparation, medicine, or noxious thing, or any instrument or means

(*b*) Com. *v* Parker, 9 Met. 263; Com. *v*. Bangs, 9 Mass. 387.
(*c*) State *v*. Cooper, 2 Zabriskie, 57.
(*d*) Com. *v*. Demain, 6 P. L. J. 29; Mills *v*. Com. 1 Harris, 631.
(*e*) Wh. C. L. (3d ed.) 537.
(*f*) Ante, § 282.
(*g*) Wh. C. L. (3d ed.) 537.
(*h*) Gen. Laws of Mass., Sess. 1845, c. 27.

whatever, or any advice, direction, information, or knowledge, may be obtained, for the purpose of causing or procuring the miscarriage of any woman pregnant with child, shall be punished by imprisonment in the state prison, house of correction, or common jail, not more than three years, or by fine not exceeding one thousand dollars.(*h*)

NEW YORK.

Every person who shall administer to any woman pregnant with a quick child, or prescribe for any such woman, or advise, or procure any such woman to take any medicine, drug, or substance whatever, or shall use or employ any instrument, or other means, with intent thereby to destroy such child, unless the same shall have been necessary to preserve the life of such mother, shall, in case the death of such child or of such mother be thereby produced, be deemed guilty of manslaughter in the second degree.(*i*)

Every person who shall administer to any pregnant woman, or prescribe for any such woman, or advise or procure any such woman to take any medicine, drug, substance, or thing whatever, or shall use or employ any instruments or other means whatever, with intent thereby to procure the miscarriage of any such woman, shall, upon conviction, be punished by imprisonment in a county jail, not less than three months, nor more than one year.(*k*)

Every woman who shall solicit of any person any medicine, drug, or substance, or thing whatever, and shall take the same, or shall submit to any operation, or other means whatever, with intent thereby to procure a miscarriage, shall be deemed guilty of a misdemeanor, and shall, upon conviction, be punished by imprisonment in the county jail not less than three months nor more than one year, or by a fine not exceeding one thousand dollars, or by both such fine and imprisonment.(*l*)

VIRGINIA.

1. Murder by poison, lying in wait, imprisonment, starving, or any wilful, deliberate and premeditated killing, or in the commission of, or attempt to commit arson, rape, robbery or burglary, is murder of the first degree. All other murder is murder in the second degree.(*m*)

2. Murder of the first degree shall be punished with death.

3. Murder of the second degree, by a free person, shall be punished by confinement in the penitentiary not less than five nor more than eighteen years.

4. Voluntary manslaughter by a free person, shall be punished by confinement in the penitentiary not less than one nor more than five years.

5. Involuntary manslaughter by a free person shall be a misdemeanor.

6. If a person be stricken or poisoned in, and die, by reason thereof, out of this state, the offender shall be as guilty, and be prosecuted and punished, as if the death had occurred in the county or corporation in which the stroke or poison was given or administered.

(*h*) Gen. Laws of Mass., Sess. 1847, ch. 83.
(*i*) Sec. 1 of chap. 22, of 1846, 2 Rev. 3d ed. 750.
(*k*) Sec. 2 of chap. 260, of 1845, 2 Rev. 3d ed. 779. (*l*) Ibid. sec. 3.
(*m*) See 1 Va. Cas. 10, 310; 2 Va. Cas. 70, 78, 111, 387, 483; 6 Rand. 721; 1 Leigh, 598; 8 Leigh, 745; 11 Leigh, 681; 2 Rob. 772; 3 Grat. 594; 5 Grat. 660.

7. If any free person administer, or attempt to administer, any poison or destructive thing in food, drink, medicine, or otherwise, or poison any spring, well or reservoir of water, with intent to kill or injure another person, he shall be confined in the penitentiary not less than three, nor more than five years.

8. Any free person who shall administer to, or cause to be taken, by a woman, any drug or other thing, or use any means, with intent to destroy her unborn child, or to produce abortion or miscarriage, and shall thereby destroy such child, or produce such abortion or miscarriage, shall be confined in the penitentiary not less than one, nor more than five years. No person, by reason of any act mentioned in this section, shall be punishable where such act is done in good faith, with the intention of saving the life of such woman or child.(*n*)

II. How far the offence is affected by the fact of birth.

§ 1215. While, as has been seen, it is a misdemeanor at common law to kill a child in its mother's womb, the offence becomes murder if the child dies after birth in consequence of violence inflicted before delivery. It was decided, in fact, at a very early period, that if a child die *after* birth in consequence of a potion or bruises administered *before*, the offence is murder.(*o*) And *a fortiori*, when a blow is inflicted on a child's head *during* birth, and it is afterwards born alive, and then dies, the same result obtains.(*p*) But the fact of actual birth must be shown, and mere breathing is not enough for the purpose.(*r*) It is no defence that the child died in consequence of want of viability, resulting from premature delivery, if this delivery was caused by the defendant's misconduct in bringing about a miscarriage for the purpose of destroying the child.(*s*)

§ 1216. The confidence reposed by courts in former days, on the hydrostatic test, was entire; and several executions took place on testimony of viability of this character alone. Such, however, is no longer the case. On the trial of a woman in 1835, at Winchester Spring Assizes, in England, it was proved that the lungs were inflated; but on cross-examination the medical witness said, that if the child had died *during* birth, the lungs might have been inflated. As the question of guilt depended upon the child having been *born* alive, and as the fact of the inflation of the lungs was the only evidence of life that was produced, Mr. Baron Gurney stopped the case.(*t*) A single sob during birth is enough to produce inflation.(*u*) And where, on an indictment for infanticide, it appeared in evidence that the child's throat was cut, the wound dividing the right jugular vein, and that the lungs, floated in water, and proved to have been

(*n*) Code, p. 724; Title 54, ch. 191.
(*o*) Wharton on Hom. 93–8; Wharton's Crim. Law, (3d ed.) 426.
(*p*) R. *v.* Senior, 1 Mood. c. c. 346.
(*r*) Wharton Crim. Law, (3d ed.) 426.
(*s*) R. *v.* West, 2 Car. & Kir. 783; Wharton on Hom. 192–94.
(*t*) R. *v.* Simpson, Cummin on the proof of Infanticide, p. 40.
(*u*) R. *v.* Davidson, 1 Hume's Com. 486.

inflated; but the medical evidence showed that this test only proved that the child must have breathed, and not that it had been born alive; and that there were instances of children being lacerated in the throat in the act of delivery. Mr. Baron Parke told the jury that if they entertained doubts as to whether the child was born alive, it was harldly necessary to go into evidence on behalf of the prisoner. The jury, without going further, returned a verdict of acquittal.(*u*)

§ 1217. Some fluctuation of sentiment has existed as to how far it is necessary for the child to be actually produced.(*v*) While, on the one hand, it is not enough for the child to have breathed, unless the whole body was brought into the world,(*w*) and while more than one learned judge has expressly ruled that there must be an entirely independent circulation,(*x*) on the other hand, the fifteen judges have united in holding, that to constitute such an independent existence, so as to constitute murder, it is not necessary, that the child should have breathed,(*y*) nor that the umbilical cord should be severed.(*z*) For this conclusion two reasons are given; one rested on legal, and the other on medical foundation. "If that" (the reverse) "were the law," said Vaughan, J., "the child and the after-birth might be completely delivered, and yet, because the umbilical cord was not separated, the child might be knocked on the head and killed, without the party who did it being guilty of murder."(*a*) In another case, on the part of the prosecution, there was strong evidence to prove that the child had been wholly produced alive from the prisoner's body, and that she had strangled it by fastening a handkerchief, or some such thing, around its throat; but it was clearly proved by Mr. Wood, the surgeon who examined the body of the child, that it must have been strangled before it had been separated from the mother by the severance of the umbilical cord: and it was further stated by Mr. Wood that a child has, after breathing fully, an independent circulation of its own, even while still attached to the mother by the umbilical cord; and that, in his judgment, the child in question had breathed fully after it had been wholly produced, and had, therefore, an independent circulation of its own before and at the time it was strangled; and was then in a state to carry on a separate existence. "If you are satisfied," said Erskine, J., to the jury, "that this child had been wholly produced from the body of the prisoner alive, and that the prisoner willfully, and of her malice aforethought, strangled the child after it had been so produced and while it was alive, and while it had, according to the evidence of the surgeon, an independent circulation of its own, I am of opinion that the charge is made out, although the child, after it was so strangled, still remained attached to the mother by the navel string." The prisoner was convicted, and upon a case reserved, the judges held the conviction right.(*b*)

(*u*) R. *v.* Grounell, Wills on Circum. Ev. 205.
(*v*) As to viability, see *ante*, § 356, 378.
(*w*) R. *v.* Poulton, 5 C. & P. 329; R. *v.* Enoch, 5 C. & P, 539; R. *v.* Wright, 9 C. & P. 754.
(*x*) Parke, J., R. *v.* Enoch, 5 C. & P. 539; Gurney B., R. *v.* Wright, 9 C. & P. 754.
(*y*) R. *v.* Brain, 6 C. & P. 349.
(*z*) R. *v.* Trilloe, 1 Car. & Mars. 650; 8 C. 2 Mood. c. c. 413.
(*a*) R. *v.* Reeves, 9 C. & P. 25.
(*b*) R. *v.* Trillor; 2 Car. & Mars. 650,—S. C. 2 Mood. C. C. 413.

§ 1218. The following legal propositions may be considered as now undisputed:—

(1.) Where there is a malicious wound inflicted on an infant, with intent to produce death, and death ensues *after birth*, the offence is murder.

(2.) Where there is a malicious exposure of an infant, with intent to produce death, and death ensues *after birth*, it is murder.

(3.) Where there is a wanton exposure of an infant, without the intent to produce death, but with the expectation of shifting the support of the infant upon some third person, and death ensues *after birth*, it is manslaughter.

(4.) Where there is an exposure resulting from necessity, ignorance, or insanity, and death ensues *after birth*, the offence is excusable homicide, in which, in accordance with an American practice, the defendant is entitled to an acquittal. The leading cases from which these principles are extracted, are as follows:—

§ 1219. Ann Walters, the prisoner, who was an unmarried woman, had taken a place in a stage wagon, on the 13th of April, 1841, and started in the wagon at about ten o'clock on that night, at the Wellington Inn, which is situated on the Malvern Hills. The evidence showed that she must have left the wagon after that time, as she overtook it at Ledbury. It further appeared that she was delivered of a female child at the roadside, between the Wellington Inn and Ledbury, and that, after the child was born, she had carried it a distance of about a mile to the place at which it was found dead, which was also at the roadside. It further appeared that this was a much frequented road, and that two wagon teams and several persons were on it about the time at which the child was left; and that a wagoner, named Weaver, who was passing along the road, heard the child cry, but, instead of going to tender any assistance, he went on, and told some other persons, who went to the place where the child lay, and there found it dead from cold and exhaustion. The body of the child was found quite naked. It further appeared that the prisoner had arranged with a woman named Thomas to be confined in her house. It was urged for the prisoner by Mr. Charles Phillips, the eminent criminal barrister, that it was clear that the prisoner had no original intention of destroying the child, as she had made arrangements for the taking care of it. He insisted, also, that there was equally little doubt that she had got out of the wagon when seized with the pains of labor; that she had carried the child, after its birth, as long as her strength would allow, and that she had then laid it on the roadside, hoping that some passer-by would render it assistance. Mr. Justice Coltman told the jury—and his charge has since been uniformly followed—that if a party do any act with regard to a human being, helpless and unable to protect itself, which must necessarily lead to its death, the crime amounts to murder; but if the circumstances are not such that the party must have been aware that the result would be death, that would reduce the offence to the crime of manslaughter,—provided the death was occasioned by an unlawful act, but not such as to imply a malicious mind. There have been cases, he said, where it has been held that persons leaving a child exposed and without any assistance, and under circumstances where no assistance

was likely to be rendered, and thereby causing the death of the child, were guilty of murder. "It will be for you," he continued, addressing the jury, "in the present case, to consider whether the prisoner left the child in such a situation that, to all reasonable apprehension, she must have been aware the child must die, or whether there were circumstances that would make it likely that the child would be found by some one else, and its life preserved, because then the offence of the prisoner would be manslaughter only. It is impossible to say that the offence of the prisoner could be less than manslaughter. It is for you to consider whether, under all the circumstances, the child was left in such a situation that there was a reasonable expectation that it would be taken up by some one else and preserved. Suppose a person leaves a child at the door of a gentleman, where it is likely to be taken into the house almost immediately; it would be too much to say that, if death ensued, it would be murder: the probability there would be so great—almost amounting to a certainty—that the child would be found and taken care of. If, on the other hand, it were left on an unfrequented place, a barren heath, for instance, what inference could be drawn, but that the party left it there in order that it might die. This is a sort of intermediate case, because the child is exposed on a public road, where persons not only might pass, but were passing at the time; and you will, therefore, consider whether the prisoner had reasonable ground for believing that the child would be found and preserved." The jury rendered a verdict of guilty of manslaughter.(*c*)

§ 1220 In a case tried in Pennsylvania, in 1846, before Chief Justice Gibson, Bridget Harman, a married woman, in very destitute circumstances, who had been, it was alleged, deserted some time previous by her husband, was indicted for the murder of a female infant child, at the time nine months old. The evidence showed that at 6 A. M., on the 11th of August, 1846, she had taken the child away from the house where she then lived, and at 9 A. M. she returned, saying she had given it away. She was seen shortly after she left, with a shovel, going towards a stream in which the remains of the child were subsequently found. No question existed but that under the circumstances, if the defendant was guilty at all, she was guilty of murder in the first degree, of which crime she was convicted, though never executed.(*d*)

IV. Corpus Delicti in Infanticide.

§ 1221. Mr. Wills, in his very interesting work on Circumstantial Evidence, discusses with much ability the difficulties attending the proof of the Corpus Delicti in cases of Infanticide. These difficulties may be enumerated as follows:—

§ 1222. (1.) *The Uncertainty as to the Fact of Pregnancy.*—The history of the English queens, Mary I. and Mary II., with each of whom spurious gravidity was frequently mistaken for pregnancy, singularly illustrates this. In a case tried in Lancaster in 1808, before Mr. Justice

(*c*) R. *v.* Walters, 2 Car. & Marsh. 170.
(*d*) Com. *v.* Harman, 4 Barr. 269.

Chambre, the suspicion of pregnancy arose principally from the bulk of the deceased while living, coupled with circumstances of conduct which denoted the existence of an improper familiarity between the parties, and from the discovery upon *post-mortem* examination of what was supposed to be the placental mark. The medical testimony was very divided. On the one side it was proved, that the deceased was subject to obstructions, that the appearance of the uterus might be accounted for by hydatids, a species of dropsy in that part of the body, and that what was thought to be the placental mark might be the *pediculi* by which they were attached to the internal part of the surface of the womb. On the other hand, four medical witnesses expressed a decided opinion that the deceased had been recently delivered of a child nearly come to maturity. The learned judge charged the jury, that it was a mere matter of conjecture, *first*, whether the deceased had been with child; *secondly*, and whether she had been the subject of the alleged abortion. The defendant was acquitted.(*e*)

§ 1223. (2.) *The Uncertainty as to the Time of Death.* We have already noticed the difficulties which arise when it is necessary to determine whether the child died *before* or *after* birth. The law, as has been seen, is, that if the death occurs *after* birth it is murder; if it occurs before birth, it is but a misdemeanor at common law. It is not necessary at this point to do more than to refer to the views already expressed as to the physiological facts bearing on this point.(*ee*)

§ 1224. (3.) *Presumptions which bear with great force in ordinary cases of Homicide apply much more weakly to cases of Infanticide.* "Concealment of pregnancy and delivery," says Mr. Wills, "may proceed even from meritorious motives; as where a married woman resorted to such concealment in order to screen her husband, who was a deserter, from discovery."(*f*)

§ 1225. (4.) *Gestation and delivery, under the most favorable circumstances are attended with casualties; and in cases of clandestine and illegitimate delivery, this must be still more strongly the case.*(*g*)

(*e*) R. *v.* Angus. Burnett's C. L. of Scotl. 575. In a case which has been already given, a young girl, under the delusion that she had really been confined, made confession of the birth and murder by herself of an illegitimate child, and might have been convicted had there not been a medical examination showing that no confinement had taken place, *ante*, § 989, and see generally *ante*, § 310, 329.

(*ee*) See *ante*, Book II.

(*f*) Will's on Cicum. Ev. 206.

(*g*) See *ante*, § 378–398.

INDEX.

ABDOMEN, enlargement of the, § 279.
wounds of the, § 860–865.
Abortion, or Fœticide, § 335–355.
natural causes of, § 335.
signs of, § 346–355.
legal relations of, see "*Homicide.*"
Abstinence, prolonged, instances of, § 889.
Acetate of lead, poisoning by, § 643, 644.
Acetic acid, § 549.
fatal results from, § 549.
Acid in general, § 519–550.
arsenious, § 572–611.
arsenic, § 613.
hydrochloric, § 536, 539.
tests for, § 702.
nitric, § 530–535.
prussic, § 705–721.
sulphuric, § 519–529.
tartaric, § 548.
Aconite, poisoning by, 761–764.
symptoms in poisoning by, 761, 762.
tests for, § 764.
Age, in relation to impotence, §424, 425.
relative to identity, § 474.
Aidoiomania, see "*Mental Unsoundness.*"
Alcohol, poisoning by, § 734.
post-mortem appearances in poisoning by, § 737.
symptoms in poisoning by, § 734.
Ale, supposed presence of strychnia in, § 760.
ALKALINE poisons, § 551–560.
Almonds, oil of bitter, § 721, 722.
Ammonia, poisoning by, § 554.
tests for, § 556.
Anger, how to be distinguished from Mental Unsoundness, see "*Mental Unsoundness.*"
Animal blood, distinguished from human, § 830, 831.
Antimony, chloride of, § 658.
in organic mixtures, detection of, § 656.
Apoplexy, distinction from narcotic poisoning, § 512.
Apricot kernels, poisoning by, § 724.
Aqua fortis, § 530–535
tofana, § 578.
Areola, as a sign of pregnancy, § 285.
Arsenic acid, § 612.

Arsenic, chemical examination in poisoning by, § 592–611.
chronic poisoning by, § 579.
delay in the symptoms of poisoning by, § 574.
eaters, § 496.
effect of on the putrefactive process, § 587–591.
elimination of from the system, § 589.
found in the body after long periods, § 590, 610.
in organic mixtures, detection of, § 607, 608.
in the soil of cemeteries, § 610, 611.
in the viscera, detection of, § 607–609.
intermission in the symptoms of poisoning by, § 575.
liquid tests for, § 597–601.
metallic, § 571.
odor when heated, § 592.
poisoning by external application of, § 580, 581.
post-mortem appearances in poisoning by, § 582–584.
properties of, § 572.
secondary effects of, § 579.
smallest quantity fatal, § 585, 586.
solubility of, § 572.
suboxide of, § 612.
sulphuret of, § 615.
symptoms of poisoning by, § 573–581.
taste of, § 572.
test by reduction of, § 593–596.
Arsenical and antimonial stains, § 604.
ring, § 593–596.
Arsenious acid, § 572–611.
Arseniuretted hydrogen, § 616.
Arsenite of copper, § 618, 619.
of potash, § 617.
of soda, § 614.
Artery, carotid, ruptured in hanging, § 913.
Asylums, structure of, for insane criminals, see "*Criminals.*"
Atelectasis, distinction from pneumonia, § 366.
pulmonum, § 365.
Atropia, poisoning by, § 777.
Autopsy, see "*Homicide.*"
how to be made, § 947–963.

Ballottement, § 287.
Barium, chloride of, § 557.
Baryta, carbonate of, § 558.
poisoning by, § 557–560.
tests for, § 560.
Beale, Dr. case of, § 443.
Beef, smoked, poisoning by, § 685.
Belladonna, poisoning by, § 776.
Bernard, St., Hospice of Mount, § 486.
Bernt, Prof., on signs of live-birth, § 363.
Binoxalate of potash, § 543.
tests for, § 547.
Bischoff, on Corpora Lutea, § 299.
Bismuth, subnitrate of, poisoning by, § 667.
Bitter almonds, essential oil of, § 721, 722.
oil of, symptoms of poisoning by, § 722.
poisoning by, § 715.
strength of oil of, § 723.
Bladder, wounds, of the, § 863.
Blindness, how far connected with mental unsoundness, see "*Mental Unsoundness.*"
Blood, arterial and venous, distinguished, § 828.
coagulation of after death, § 799.
corpuscles of man and animals, § 831.

Blood, extravasation of, in wounds, § 802.
menstrual, characters of, § 828.
microscopical characters of, § 831.
stains of, § 820–831.
chemical examination of, § 821.
color of, § 820.
human distinguished from others, § 822, 825, 827.
microscopical evidence, § 831.
on clothing, &c., § 820.
presence of fibrin in, § 829.
legal presumption from, see "*Homicide.*"
test by odour of, § 830.
Bocarmé case, § 749,—(*note*) § 1081, &c.
Brain, concussion of the § 847.
extravasation of blood upon the, § 851.
wounds of the, § 849, 850.
Bromine, fatal results from, § 566.
properties of, § 566.
Burned, post mortem appearances in the, § 873.
wounds upon the, § 870, 871.
Burnett, Sir William's, disinfecting fluid, § 662.
Burns and scalds, § 866–873.
division of, § 866.
effects upon the system, § 872.
upon the dead body, appearance of, § 867, 868, 869.

Cadaveric changes affecting the evidence from wounds, § 805, 806.
lividity, characters of, § 806.
phenomena, § 797.
Camphor, poisonous effects of large doses, § 738, 739.
Cancrum oris, § 633–639.
Cantharides, smallest quantity fatal, § 679.
symptoms in poisoning by, § 670.
poisoning by, generally, § 677–680.
post mortem appearances in poisoning by, § 680.
Carbonic acid gas, appearances after death by, § 783.
properties of § 782, 785, 786.
symptoms of poisoning by, § 782.
source of, § 785.
Carbonic oxide, poisonous properties of, § 785, (*note.*)
Castor seeds and beans, fatal results from, § 672.
Castration, a cause of impotence, § 420.
Catamenia, suppression of the, § 278.
Cedar oil, poisoning by, § 766.
Cerebral matter, microscopical characters, § 832.
Cheese, poisoning by, § 686.
Cherry, laurel water, § 726.
Chest, wounds of the, § 855–859.
Child, active movements of, § 288.
killing of, see "*Homicide.*"
new-born, causes of death in the, § 379–405.
Chlorine, poisoning by, § 570.
Chloroform and Ether, § 728–733.
as facilitating felonious assaults, § 733.
criminal employment of, § 733.
means for detection of, § 732.
means for prevention of accidents from, § 732 (*note.*)
poisonous effects of, § 729.
post-mortem appearances in death by, § 731.
Cholera, distinction from irritant poisoning, § 506.
morbus, distinction from irritant poisoning, § 507.
Cicatrices, disappearance of, § 482.
identification from, § 482.

Circumstantial evidence, see "*Homicide.*"
Coagulation of blood in wounds, § 799.
Cocculus Indicus, poisoning by, § 773–775.
Coercion, how far affecting acts of imbeciles, see "*Contracts.*"
Coition, § 312–314, see "*Rape.*"
Colchicum autumnale, § 669, 670.
detection of after death, § 670.
post-mortem appearances in poisoning by, § 669.
smallest quantity fatal, § 669.
symptoms in poisoning by, § 669.
Cold, as retarding putrefaction, § 486.
death from, § 885–887.
post-mortem appearances in death from, § 886.
Color of the neck in hanging, § 911, 912.
Combustion ordinary, characters of, § 876, 877.
spontaneous, § 874–879.
Commissions of Lunacy—
What is necessary to be proved, in order to deprive a party of the management of his estate, § 40.
When a party is incapable, the practice is to appoint a committee, who take the alleged lunatic's place, § 41.
In what way the question of lunacy, under such circumstances, is tried, § 42.
General and not *partial* incompetency must be shown, § 42.
The test is, is the respondent capable of managing his own estate? § 42.
What in such cases is required of medical witnesses, § 43.
The same process lies in cases of habitual drunkenness, § 44.
The test here is, is there a fixed habit of drunkenness? § 44.
Compression, effect of, on inflated lungs, § 372.
Compulsion, how far affecting acts of imbeciles, see "*Contracts.*"
Conicine or Conia, § 755.
Conception, time of, § 307, 313.
Concussion of the brain, § 847.
distinguished from intoxication, § 847.
Confectionery, colored, poisoning by, § 618, 619, 650.
Contracts or Wills—
What degree of unsoundness invalidates, § 2.
As to lunatics or idiots, § 2.
General legal principle is, that contracts or wills of idiots or lunatics will not be enforced,
Cases where there is a sufficient degree of sanity to create responsibility for crime, and yet when a contract or will will be avoided.
Imbecility generally, and herein of fraud and compulsion,
Fraud itself vitiates a contract, and in this the contracting party's intellect becomes an essential item for consideration, § 3.
Lord Portsmouth's case, § 3.
Acts and contracts of persons of weak understanding will be held void, when such persons have been imposed upon by cunning or undue influence, § 4.
In cases of wills this is peculiarly the case, § 5.
The testator must have had a *disposing* memory, § 5.
Over-importunity of controlling friends may destroy capacity, § 5.
The question in reference to contracts and wills does not depend upon mere subjective capacity, and hence no positive definition can be given, § 6.
Idiocy, to make it a positive incapacity, must be shown to have been accompanied with business disability, § 7.
The question of capacity will be greatly affected by the reasonableness or unreasonableness of the act attempted to be set aside, § 8.
The inquiry in many cases is, whether the testator or grantor had capacity or information enough to comprehend and disregard any attempt at fraud or coercion, § 9.
Difficulties in such cases from conflict of medical opinion, § 9.

A distinction is taken between the cases where the Court is asked to *annul* an *executed* contract, and where it is asked to execute an *un*executed one, § 11.
Weakness of intellect, from extreme old age, works a disability, § 12.
But great caution should be exercised in this respect, the object being to *protect* old age, not to render it still more defenceless, § 12.
How far the deaf and dumb are thereby incompetent, § 13.
Partial Insanity, § 14.
Rule in this country is, that unless the contested act is the product of an insane delusion, it is not vitiated by it, § 14.
The present English rule, however, seems to be that the existence of an insane delusion destroys testamentary capacity altogether, § 15.
Opinion of Lord Brougham on this point, § 17.
Objections to this view, § 18.
Compatibility of hallucinations with sound disposing memory, § 19.
Instances of existence of hallucinations in persons otherwise sane, § 21.
Lucid Intervals.
When *habitual* insanity is shown, the presumption is, that the act was committed in an insane period, § 33.
The character of the act goes a great way in determining whether it was committed in a lucid interval, § 35.
Intoxication.
When actually existing renders a party civilly incompetent.
A party, however, cannot use his drunkenness as a means of imposition, § 36.
Difference in this respect between executed and unexecuted contracts, § 37,
In actions for torts, drunkenness is no defence on the merits.
Drunkenness avoids a will when acted on by fraud or imposition, § 38.
Copper coins, poisoning by, § 651.
in organic mixtures, detection of, § 652.
post-mortem appearances in poisoning by, § 649.
salts of, § 648–652.
symptoms of poisoning by, § 648.
tests for, § 652.
utensils, poisoning from the use of, § 650.
Cord, mark of, in hanging, § 910–913.
umbilical, compression of and by, § 380.
Corpus delicti, see "*Homicide.*"
luteum, § 297–301.
two varieties of, § 298, 299.
Corrosive sublimate, chemical tests for, § 624–629.
elimination from the system, § 628, 629.
in organic mixtures, detection of, § 626.
poisoning by, § 620–629.
poisoning by external use of, § 623.
post-mortem appearances in poisoning by, § 622.
properties of, § 620.
smallest fatal quantity, § 621.
symptoms of poisoning by, § 621.
Conium masculatum, § 753, 754.
Cretinism, see "*Mental Unsoundness.*"
Crime, responsibility for, see "*Responsibility for Crime.*"
Criminals, insane treatment of, § 259.
Necessity of separate places of confinement in which insane criminals can be placed, § 259.
For Retribution, § 260.
In most, if not all, cases of crime resulting from insane impulse, there is original responsibility, § 260.
Insanity, in most cases, the result of moral excess, § 261–9.

Qualified responsibility of lunatics, § 261–9.
For Prevention, § 270.
Mischief to society if monomaniacs are suffered to go at large, § 270.
Necessity of restraint, § 271.
For Example, § 272.
Contagiousness of unchecked crime, § 272.
For Reform, § 273.
Impossibility of patient recovering when permitted to run at large, § 273.
Injury to the community from the want of secondary punishments, the result being acquittals of dangerous parties, from an unwillingness to see the severer penalties inflicted, § 274.
Ordinary penitentiaries inadequate, § 275.
And so of ordinary lunatic asylums, § 276.
Cyanide of potassium, poisoning by, § 727.

Dalton, Dr., on Corpora Lutea, § 299.
Datura stramonium, poisoning by, § 745.
post-mortem appearances in poisoning by, § 746.
Dead, exhalations from the, § 791.
Deaf and dumb, how far competent to make contracts, see "*Contracts*," "*Mental Unsoundness*."
Deafness, how far connected with mental unsoundness, see "*Mental Unsoundness*."
Deformities, identification from, § 479.
Death, length of time since, § 484.
Decomposition in coffins, § 489, 490.
progress of, after death by drowning, § 939 *et seq.*
in vaults, § 490.
Delirium, see "*Mental Unsoundness*."
Delivery, feigned, § 301.
protracted, § 384.
signs of, § 292–301.
in the dead, § 296–301.
unconscious, § 402.
Delusions, how far affecting civil capacity, see "*Contracts*," see generally "*Mental Unsoundness*."
Dementia, see "*Mental Unsoundness*."
Demono-mania, see "*Mental Unsoundness*."
Depression, see "*Mental Unsoundness*."
Derangement, see "*Mental Unsoundness*."
Development of fœtus, premature, § 326.
Diaphragm, wounds of the, § 862.
Digitalis, poisoning by, § 778.
poisonous properties of, § 778
Disease, as modifying the action of poisons, § 497.
Doubtful Sex, § 406–414.
Drastic purgatives, fatal results from, § 671.
Drowning, see "*Homicide*,"
changes in body after death by, § 939.
floating of body after, § 929.
homicidal or suicidal, § 942.
in shallow water, § 941.
mode of death by, § 927.
of new-born child, § 399.
rapidity of death by, § 928.
signs of death by, § 930, 937.
Drunkenness, how far affecting civil capacity, see "*Contracts*," "*Commissions of Lunacy*."
how far affecting responsibility for crime, see "*Responsibility for Crime*."

Ductus arteriosus, § 362, 363.
Dumb, how far civilly incapacitated, see "*Contracts*," "*Mental Unsoundness*."
Dumbness, how far connected with mental unsoundness, see "*Mental Unsoundness*."
Duration of pregnancy. Legal decisions, § 322.
statistical results, § 314.

Early viability, § 323–378–1217.
Ecchymosis, caused by umbilical cord, § 382.
from natural causes, § 805.
in wounds, § 802–4.
Emphysema, an objection to hydrostatic test, § 371.
Ergot, § 336.
Erysipelas from wounds, § 841.
Ether and Chloroform, physical effects of, § 443, *note* (*q*.)
Etherization, external phenomena of, § 730.
Evidence, circumstantial, in wounds, § 818–19–1141–1212.
of violence, see "*Homicide*."
Examinations, medico-legal, how to be conducted, § 943 *et seq*., and § 655.
Examination of the body in death from wounds, § 796.
Excusable homicide, see "*Homicide*."
Execution by hanging, anomalous case of, § 910, *note* (*x*.)
Exhalations from the dead, § 791.
Experiments upon animals, in proof of poisoning, § 504.
Experts, Medical, testimony of in cases of insanity, see "*Mental Unsoundness*."
Exposure of new-born child, § 394.

Face, wounds of the, § 852.
Fanatico-mania, see "*Mental Unsoundness*."
Feigned Insanity, see "*Mental Unsoundness*."
Fish, poisonous, § 687.
Fly poison, accidents from, § 571.
Fœtal channels of circulation, § 362, 363.
Fœtal heart, pulsation of, § 289.
Fœticide, see "*Homicide*."
Fœtus, age of, § 323–24, 352.
blighted, § 331–33.
first movement of, § 282–84.
putrefaction in the, § 491.
size of, § 323, 352.
weight of, § 323, 352.
Foramen ovale, § 362, 363.
Fractures, identification from, § 479.
of the skull, § 848.
during birth, § 389.
in delivery, § 392.
Fraud, how far affecting acts of imbecile, see "*Contracts*."
Friction matches, poisoning by, § 562.
Fungi, poisoning by, § 673–76.

Gardner peerage case, § 310, *note*.
Gases evolved in human decomposition, § 490.
Gastritis, as a result of poisoning, § 511.
Genital organs, wounds of the, § 865.
condition of in hanging, § 914.
Gestation, protracted, § 303.
see "*Homicide*."
Gœrlitz case, § 877, *note* (*v*.)
Gold, terchloride of, § 664.
Grief, how to be distinguished from mental unsoundness, see "*Mental Unsoundness*."
Gunshot wounds, § 811, 815.
character of, § 811, 815.

Habit, as modifying the action of poisons, § 496.

Habitual drunkenness, see "*Commissions of Lunacy.*"
Hashich, composition of, § 742.
Hair, fraudulent discoloration of the, § 483.
identification by means of the, § 483.
mode of identifying, § 832.
Hallucination, see "*Mental Unsoundness.*"
Hanging, see "*Homicide.*"
before or after death, § 909.
mark of the cord, § 910–13.
death by, § 907.
cause of death in, § 907.
signs of death by, § 908.
rupture of carotid artery in, § 913.
suicidal and homicidal distinguished, § 915–26.
Head injuries of the, § 847–51.
Heart, pulsation of fœtal, § 289.
rupture of the, § 859.
wounds of the, § 857, 858.
Heat, as a cause of putrefaction, § 485.
as retarding putrefaction, § 485.
death from, § 880, 881.
Hemlock, poisonous properties of, § 753, 754.
Hemorrhage, as evidence of the vital origin of a wound, § 800.
constitutional tendency to, § 834.
from umbilical cord, § 386.
internal, § 834.
secondary, § 843.
Hereditary tendency to mental unsoundness, see "*Mental Unsoundness.*"
Hernia, as a cause of impotence, § 423.
Hermaphroditism, § 406–14.
female, § 409.
male, § 408.
real, § 410.
surgical interference in, § 414.
Hodge, Prof., on criminal abortion, § 341, *note* (*y.*)
Home-sickness, how to be distinguished from mental unsoundness, see "*Mental Unsoundness.*"
Homicide in its legal relations.
elementary definitions, § 964.
Murder, § 966.
General definition of, § 966–7.
Malice the essential ingredient, § 968.
Malice either express or implied, § 968.
When malice to be presumed, § 968.
Murder from general malice, § 968.
When homicide is committed from general malevolence it is murder, § 968.
But when from wantonness, but manslaughter, § 968.
Murder from individual malice, § 969.
In reference to the party killed, § 970.
How such malice to be proved, § 970.
In what it consists by the civil and common law, § 970.
Intent to kill, § 971.
In this case the offence is always murder, § 971.
How such intent may be proved, § 972.
Declarations and acts of defendant admissible for this purpose, § 972, 1133, 1150.
Intent to do bodily harm, § 973.
In this country such homicide generally is murder in the second degree, § 973.
The grade therefore depends on the intent, § 973.
In reference to the party killed, when the blow falls on the deceased by mistake, § 974.

Homicide—Corpus Delicti.
When in an attempt to produce abortion, the mother is unintentionally killed, § 974.
3d. From collateral malice, § 975.
This includes those cases where the malice is directed to an object other than that of human life or limb, § 975.
Manslaughter, § 976.
General definition of, § 976.
Involuntary manslaughter, § 977.
Excusable Homicide, § 978.
1st. Where a man, doing a lawful act, without any intention of hurt, by accident kills another, § 978.
2d. Where a man kills another in self-defence, § 978.
The distinction between excusable and justifiable homicide, is in this country merely theoretical, § 979.
Justifiable Homicide, § 980.
When committed by unavoidable necessity, § 980.
When committed in advancement of public justice, § 980.
Murder in the second degree, § 981.
Object of distinction is the restriction of capital punishment to those cases only in which there is an intent to take life, § 981–2.
The distinguishing feature between the two degrees is a specific intent to take life, § 982–3–4–5–6.
Homicide by poisoning not necessarily murder in the first degree, § 987.
Homicide collateral to rape, robbery, &c., is necessarily murder in the first degree, § 985.
Homicide of A., when the intent was to kill B., is murder in the second degree, § 986.
Specific intent to take life to be inferred from circumstantial evidence, and from declarations, &c., § 987.
That a death took place, § 988.
Universal rule of civil and common law, that the fact of death should be proved, § 988.
Identification of dead body—see *ante*, § 473, &c.
Cases of conviction of innocent parties, from neglect of this precaution, § 988–990.
Exceptions to this rule, § 991.
Possession of body is unnecessary when decease is proved by eye-witnesses, § 991.
And so where it is proved that the body was destroyed by chemical or mechanical agents, § 992.
Webster's case reported, § 993–1068.
That death was from violence.
It must appear that it was not natural, § 833–846.
How autopsy to be conducted, *ante* § 947–962, p. 658, *n*.
1st. Poisoning.
General summary of the cases, § 1067–8–9. (See *ante*, § 493–791.)
Chemical proof of the existence of poison in the stomach, in sufficient quantities to have caused death, though important, is not essential, to a conviction, § 1068.
Importance of chemical examination of stomach and its contents, § 1068. (See *ante*, as to nature and character of post-mortem, § 501–503, 514, 515, 516, 522, 532, 537, 544, 563, 582, 622, 646, 649, 654, 669, 684, 700, 716, 731, 746, 748, 768, 772, p. 628, *n*.)
When, however, this is prevented by the accused, he cannot set up the want of it, § 1069.
On the other hand, neglect by the prosecution to procure it, if in its power, is a powerful presumption in favor of the accused, § 1069.
Summary of reported cases in the common law courts:
Donellan's case, 1781, § 1071.

Homicide—Corpus Delicti—Poisoning.
Donnall's case, 1817, § 1073.
Anonymous, 1835, § 1074.
Chapman's case, 1831, § 1076.
Tawell's case, 1845, § 1077.
Graham's case, 1845, § 1079.
Bocarmé's case, 1851, § 1081.
Hartung's case, 1854. § 1127.
2d. Wounds or blows, § 1132.
Legal definitions of wounds, § 1132.
Medical definition—see *ante*, § 792.
3d. Hanging, § 907–928.
Intent and Design, from what to be inferred, § 972, 1133, 1150.
Prior attempts, preparations, and threats, § 1133.
Evidence of such always admissible, § 1133, 1150.
And so as to obtaining instruments of mischief, and possession of them, § 1134.
Cases illustrative of this, § 1135–6.
Threats to be received for the same purpose, § 1137.
Cases illustrative of this, § 1137.
Marks of violence, § 1138.
Presumptions to be drawn from such, § 1139.
Presumptions to be drawn from nature of gun-shot wounds, § 811.
It must appear that the alleged violence was the cause of death, either in part or in whole, § 1140.
Distinction between wounds made before and after death, § 798, 804, see p. 658–9, *n*.
Blood stains, § 820–831.
Suicidal or homicidal, § 810, 816.
Instrument of death, § 1141.
The use of a lethal instrument leads to the presumption that death was intended, § 1141.
Suicide may be inferred from the position of the weapon, § 1142.
Other presumptions to be drawn from instrument of death—§ 819, 1143–5.
Liability of deceased to attack, § 1146.
Possession of money, § 1147.
Avarice and ambition, § 1147.
Old grudge, § 972, 1133, 1150.
Jealousy, § 1151.
Position of deceased, § 946, 1152.
Presumption to be drawn from this as to suicide, § 819, 1152.
In cases of hanging, § 907, 926.
In cases of drowning, § 938.
In cases of poisoning, § 1152.
Materials appropriate to be converted into instruments of crime, § 1154.
Importance of indicatory evidence in this respect, § 1154.
Purchase of poison and powder; preparation of other materials, § 1154.
Detached circumjacent bodies, § 1155.
Dress of the deceased. Footprints. Presumptions to be drawn from the latter, § 1157–8–9.
Detached articles of clothing, § 1158.
Wadding of gun, &c., § 1156.
Cases illustrative of the importance of this species of evidence, § 1162, 1169.
Possession of fruits of offence, § 1170.
Illustration of the general value of indicatory evidence, § 1171–1212.
Infanticide and Fœticide, § 1213. (See for the Medical view of this subject, § 335, 355.)
How far fœticide is effected by the degree to which gestation has proceeded, § 1213.
At common law destruction of an unborn infant is a misdemeanor. Late differences of opinion as to whether there must be a quickening. Better opinion is, that all attempts of this character are misdemeanors, no matter what be the stage of gestation, § 1213–14.

Homicide—Infanticide—Corpus Delicti.
How far the offence is effected by the fact of birth, § 1215.
When a child dies *after* birth, from a wound inflicted before, the offence is murder; when the death takes place *before* birth, it is at common law but a misdemeanor, § 1216–17.
Tests of viability recognized by the Courts, § 1217.
Viability medically considered, § 356, 378.
Time of gestation, § 310, 327.
Difference of opinion as to actual degree of birth which is requisite to constitute the legal offence, § 1218.
General propositions of law bearing on this topic:
Where there is a malicious wound inflicted on an infant, with intent to produce death, and death ensues *after birth*, the offence is murder, § 1218.
Where there is a malicious exposure of an infant, with intent to produce death, and death ensues after birth, it is murder, § 1218.
Where there is a wanton exposure of an infant, without the intent to procure death, but with the expectation of shifting the support of the infant upon some third person, and death ensues after birth, it is manslaughter, § 1218.
Where there is an exposure resulting from necessity, ignorance, or insanity, and death ensues after birth, the offence is excusable homicide, in which, in accordance with American practice, the defendant is entitled to an acquittal, § 1218–20–21.
Corpus delicti in infanticide, § 1221.
Difficulties arising in this respect from
The uncertainty of the fact of pregnancy, § 1221. See *ante*, § 310, 329.
The uncertainty of the time of death, § 1221.
Uncertainty of presumptions, § 1221.
Casualties of gestation and delivery, § 1221. See this subject medically considered, *ante*, § 379, 398, p. 659–660.
Homicidal insanity, see "*Mental Unsoundness*," "*Responsibility for Crime.*"
Hospital gangrene, from wounds, § 842.
Human blood, distinguished from animal, § 830, 831.
Hydatids, description of, § 347, 348.
Hydrochloric acid, § 536–539.
chemical examination in poisoning by, § 538.
post-mortem appearances in poisoning by, § 537.
symptoms of poisoning by, § 536.
Hydrocyanic, see "*Prussic acid.*"
Hydrocele, as a cause of impotence, § 423.
Hydrogen, arseniuretted, § 616.
Hydrostatic lung-test, § 370.
objections to the, § 371–375.
Hymen, evidence from, in cases of rape, § 429, 430, 432, 447, 448.
Hyoscyamus, poisoning by, § 740, 741.
Hypochondria, see "*Mental Unsoundness.*"
Hysteria, see "*Mental Unsoundness.*"

Identification of the dead, § 474–492.
of the living, § 473.
Identity, questions relative to, § 473–492.
disputed, § 473.
See "*Homicide*," "*Corpus Delicti*,"
Idiocy, how far avoiding contract or will, see "*Contract*," see "*Mental Unsoundness.*"
Idiosyncracy, as modifying the action of poisons, § 495.
Illuminating gas, accidents from, § 788.
Imbecility, see "*Mental Unsoundness.*"
how far avoids contract or will, see "*Contract.*"
Immaturity of the Fœtus, signs of, § 354.
Impotence, causes of, § 416–419–424.
Indicatory evidence, see "*Homicide.*"
Indigo, sulphate of, § 529.

Infanticide—
Infanticide generally, § 356—405.
by drowning, § 399.
exposure, § 394.
poisoning, § 404.
strangulation, § 398.
suffocation, § 396.
wounds, § 400.
in its legal relations, see "*Homicide.*"
Inflation, artificial, an objection to hydrostatic test, § 372.
distinguished from imperfect respiration, § 374.
practicability of, § 372–373.
Ink, poisoning by, § 525.
Insanity, see "*Mental Unsoundness.*"
Insane criminals, treatment of, see "*Criminals.*"
delusions, how far affecting civil capacity, see "*Contracts,*" see generally "*Mental Unsoundness.*"
persons, how far capable of making contracts or wills, see "*Contracts.*"
Insemination and conception, § 313.
Intent and design, see "*Homicide,*"
Intercourse, single act of, § 312, 314.
Intervals, lucid, how far affecting testamentary capacity, see "*Contract.*"
Intoxication, how far affecting civil capacity, see "*Contracts.*" "*Commissions of Lunacy.*"
Intoxication—
How far it affects responsibility for crime, § 62.
Insanity produced by delirium tremens affects responsibility in the same way as insanity produced by any other cause, § 62.
Insanity immediately produced by intoxication, does not destroy responsibility where the patient, when sane and responsible, made himself voluntarily intoxicated, § 66.
While intoxication is *per se* no defence to the fact of guilt, yet when the question of intent or premeditation is concerned, it is material for the purpose of determining the precise degree, § 70.
Iodine, poisoning by, § 567.
tests for, § 569.
Iron, chloride of, poisoning by, § 666.
sulphate of, poisoning by, § 665.
tests for, § 665, 666.
Irritant poisons, § 519—690.
Irritants, animal, § 677—689.
mechanical, § 690.
metalloidal, § 561, 570.
vegetable, § 669—676.

Jackson, Dr., description of gangrænopsis, § 637.
Justifiable homicide, see "*Homicide.*"

Kiestein in the urine, § 291.
Kleptomania, see "*Mental Unsoundness.*"
Krahmer, Prof., on duration of pregnancy, § 317, 318.

Labor, induction of premature, § 342, 344.
Labor, precipitate, § 387.
Lactucarium, § 743.
Lead, chronic poisoning by, § 641–645.
constitutional effects of, § 641–645.
in the tissues, detection of, § 647.
post mortem appearances in poisoning by, § 646.
salts, poisoning by, § 640, 641.
tests for, § 647.
Legitimacy, presumption of, § 302.
Leucorrhœa, § 435, 436.

Lighting gas, accidents from, § 788.
gas, appearances after death by, § 788.
Lightning, death from, § 883.
post mortem appearances in death by, § 884.
Lime, its influence upon putrefaction, § 492.
Linea Alba, discoloration of the, § 280.
Live-birth, signs of § 327, 358, 368.
tests of, § 369–378.
Liver, wounds of the, § 861.
Living, identification of, § 473.
Lobelia inflata, poisoning by, § 765.
Lockjaw, from wounds, § 840.
Lucid intervals, how far affecting civil capacity, see "*Contracts;*"—see generally "*Mental Unsoundness.*"
Lunacy, commission of, see "*Commissions of Lunacy.*"
Lunar caustic, poisoning by, § 664,
Lunatico inquirendo, see "*Commission of Lunacy.*"
Lunatics, how far capable of making contracts or wills, see "*Contracts.*"
characteristics of, generally—see "*Mental Unsoundness.*"
Lungs of new-born child, § 361.
of still-born children, § 357.
specific gravity of, § 375.
wounds of the, § 856.
condition of, after drowning, § 933–935.

Malformation of child, § 393.
Malice, see "*Homicide.*"
Mania sine delirio, see "*Mental Unsoundness.*"
Manslaughter, see "*Homicide.*"
Marsh's process for the detection of arsenic, § 602–605.
Maturity of the Fœtus, signs of, § 353.
Meat, unsound, poisoning by, § 689.
Mechanical injury, death from, § 836.
Mechanical means for procuring abortion, § 341, 345.
Meconic Acid, tests for, § 702.
Meadow saffron, poisoning by, § 669, 670.
Medical evidence concerning wounds, § 795.
experts, reliance to be placed on in cases of insanity, see "*Mental Unsoundness.*"
examiner, office of,—see *Ibid.*
evidence, in poisoning, necessity of combination of, § 516.
Medico-legal examinations, § 943.
Melancholy, see "*Mental Unsoundness.*"
Menses, cessation of, § 418.
suppression of the, § 278.
Menstrual blood, characters of, § 828.
function, irregularity of, § 308.
Menstruation in old women, § 418.
Mental Unsoundness considered Psychologically.
Classification of Dr. Ray, § 74.
" " Flemming, § 75.
" " Elinger, § 76.
" " Present Treatise, § 77.
General Theories of Mental Unsoundness, § 78.
Psychological theory, § 79.
Somatic theory, § 80.
Intermediate theory, § 81.
Difficulties attending each of the first two, § 82.
Question as to moral responsibility of Lunatics, § 83.
Views of President Edwards, § 84.
Of Dr. Barlow, § 85.
How Mental Unsoundness is to be detected, § 86.
By whom, § 86.
Medical expert necessary for this purpose, § 86.

Mental Unsoundness.
Great skill and experience needed in examiner, § 87.
Dangers of an inexperienced examiner being baffled, § 88.
Responsibility in law of medical examiner, § 89.
Importance of examiner adapting his manner to patients condition, § 90.
Important that legal and medical officers should, in such cases, act in concert, § 92.
Manner in which medical witness is to be examined on trial, § 94.
At what time, § 95.
Time of act, § 95.
At trial, § 97.
At and after sentence, § 98.
By what tests, § 100.
Physiognomy, § 100.
Relations of the different features, § 101.
Bodily health and temperament, § 102.
State of bowels, § 102.
Physical disorganization, § 103.
Insensibility to pain and cold, § 104.
Irregularities in action of senses, § 105.
Change in disposition, § 106.
Hereditary tendency, § 107.
Importance of this test, § 108.
Admissible in point of law, § 108.
Opinion of Gibson, C. J., § 108.
Conversation and deportment, § 110.
Necessity of great circumspection in this respect, § 110.
Cases illustrating this, § 111.
Nature of act, § 112.
Insensibility, § 112.
Its incongruity with antecedents, § 113.
Its motivelessness, § 114.
Its inconsequentiality, § 115.
From what Mental Unsoundness is to be distinguished.
Emotions, § 116.
Remorse, § 116.
Anger, § 118.
Shame, § 122.
Grief, § 124.
Homesickness, (*Nostalgia*,) § 125.
2d. Simulated insanity, § 127.
Necessity for close examination, § 127.
Tests to be applied, § 128.
Delirium most usually counterfeited, but the most difficult, § 129.
Physiognomy and health to be examined, § 130.
Case to be compared with other recorded cases, § 131.
Simulation not to be inferred from absence of a trace of insanity at the examination, § 132.
Causes why such signs may be suppressed, § 132.
Pretended insanity frequently turns into real, § 133.
How examination is to be conducted, § 134.
Patient to be brought into a succession of relations, § 135–8.
To be furnished with pen, ink and paper, and other methods of examination, § 135–8.
Insania Occulta, features of, § 139.
Necessity of guarding against, § 139.
Mental Unsoundness, as connected with Derangement of the Senses, and Disease, § 140.
Deaf and dumb, § 140.
Blind, § 141.
Epileptics, § 142.
Peculiar tendency of epilepsy to insanity, § 142.

Mental Unsoundness.
Nature of epilepsy, § 143.
Distinction between the several classes, § 144.
Different stages of the disease, § 145.
Actions committed during attack, not valid, § 146.
Rule as to intermediate stages, § 147.
Tests laid down by Clarus, § 148.
Mental Unsoundness, as connected with Sleep, § 149.
General effect of sleep on the senses, § 149.
Somnolentia or sleep-drunkenness, § 151.
Somnambulism, § 159.
Mental Unsoundness, as affecting the Temperament, § 163.
Depression, § 163.
Hypochondria, § 166.
Hysteria, § 169.
Melancholy, § 170.
Mental Unsoundness, as affecting the Moral System, § 174.
General moral mania, § 174.
Effect of, § 174.
General symptoms, § 175.
Illustrations, §176.
Monomania, § 177.
Doctrine of *Mania sine Delirio*, § 178.
Difference of opinion as to its existence, § 179.
Tests to be applied to it, § 180.
Tendency in this country to recognize its existence, § 183.
Homicidal mania, § 186.
Cases where Esquirol supposes it to exist, § 186.
Precautions necessary in its recognition, § 190.
Tests suggested by Dr. Ray, § 190.
" " Dr. Taylor, § 190.
Dr. Mayo's objections to the entire theory, § 191.
Kleptomania—(morbid propensity to steal,) § 192.
Pyromania—(morbid incendiary propensity,) § 195.
How far recognized in England, § 197.
Necessary tests, § 198.
Aidoiomania—(morbid sexual propensity,) § 199.
Pseudonomania—(morbid lying propensity,) § 202.
Oikeiomania—(morbid state of domestic affections,) § 204.
Suicidal mania—(morbid propensity to self-destruction,) § 206.
Tendency to this in cases of melancholy, &c., § 207.
Legal consequences in actions against life insurers, § 208.
Fanatico-mania, § 209.
Supernatural or pseudo-supernatural demoniacal possession, § 210.
Testimony of ancient writers to this, § 210.
Testimony of the New Testament, § 211.
Mental alienation on religious subjects, § 214.
Tendency of infidelity to insanity, § 214.
Conservative influence of Christianity, § 215.
Insane delusion the result of a *departure* from Christianity, § 216.
Illustrations of this, § 217.
Legal bearings of religious insanity, § 219.
Politico-mania, § 220.
How far an epidemic, § 221.
Causes likely to generate it, § 221.
Mental Unsoundness, as connected with intellectual prostration, § 222.
Idiocy, § 222.
Nature of, § 222.
Physical incidents of, § 223–5–6.
Cretinism, § 228.
Imbecility, § 229.
With concomitant insanity, § 230.

Mental Unsoundness—Imbecility.
Original, § 230.
Supervening, § 230.
Specious, § 230.
With confusion of mind, § 230.
Without insanity, § 231.
Distinction between innocent and malignant imbecility, § 232
Dementia, § 234.
Mental Unsoundness, accompanied with delirium, § 235.
General delirium, § 235.
Depressed delirium, § 236.
Maniacal delirium, § 237.
Delirium tremens, § 238.
Puerperal mania, § 239.
Partial delirium, § 240.
Mental Unsoundness, as connected with Delusions and Hallucinations, § 241.
General, § 241.
Marked by general derangement of the perceptive faculties, § 241.
Various phases it assumes, § 242.
Tests of Ellinger, § 243.
Effect of general delusion, § 244.
Partial, § 245.
Delusions and hallucinations, § 245.
When there is no other sign of mental unsoundness, § 246.
When mental unsoundness has made some progress, 247.
In cases of drunkenness, &c., § 248.
In cases of developed insanity, § 249.
Causes of delusions, § 250.
Abercrombie's classification, § 252.
Hallucination in regard to a change into, or a possession by, wild animals, § 253.
Mental Unsoundness, as connected with Lucid Intervals, § 254.
Mental unsoundness, how far affecting contracts or wills, see "*Contracts.*"
Mercurial preparations, poisoning by various, § 631.
Mercury, bi-chloride of, § 620—629.
chronic, poisoning by, § 632—639.
deleterious effects of, § 632—639.
effect of, on the mouth, § 633—639.
effects of, distinguished from disease, § 633—639.
Mercury, nitrate of, § 630.
Metallic arsenic, § 571.
poisoning by, § 571.
Metallic Irritants, § 571.
Metalloidal Irritants, § 561, 570.
Mezereon, poisoning by, § 532.
Milk, microscopic examination of, § 293.
Moisture, influence of, on putrefaction, § 488, 489.
Moles, description of, § 347, 348.
Monomania, see "*Mental Unsoundness.*"
Moral insanity, see "*Mental Unsoundness,*" "*Responsibility for Crime.*"
Morphia, poisoning by, § 699.
tests for, § 701.
Murder, see "*Homicide.*"
Mushrooms, deprivation of the poisonous property of, § 674.
poisoning by, § 673—676.
symptoms in poisoning by, § 675.
post mortem appearances in poisoning by, § 676.
Mussels, poisoning by, § 688.

Narcotico-acrid, poisons, § 745–80.
Narcotic poisons, § 692–744.
Neck, wounds of the, § 853.
New-born child, drowning of, § 399.
exposure of, § 394.

New-born Child.
length of skeleton of, § 475.
strangulation of, § 398.
suffocation of, § 396.
wounds of, § 400.
killing of, in its legal relations, see "*Homicide.*"
Nicotina, detection of, in the viscera, § 751, 752.
poisoning by, § 749.
properties of, § 750.
Nitric acid, § 530–535.
character of, § 530.
chemical examination in poisoning by, § 538.
post-mortem appearances in poisoning by, § 532.
stains on clothing from, § 535.
symptoms of poisoning by, § 531.
Nostalgia, how to be distinguished from mental unsoundness, see "*Mental Unsoundness.*"
Nux Vomica, § 756.

Œnanthe crocata, § 754.
Opium, and its preparations, § 692–704.
chemical examination in poisoning by, § 700–4.
effects of modified by disease, § 696.
habit, § 697.
idiosyncracy, § 696.
effect of on longevity, § 697
in organic mixtures, detection of, § 703–4.
poisoning by, distinguished from apoplexy, § 512.
post-mortem appearances in poisoning by, § 698.
smallest quantity fatal, § 695.
symptoms in poisoning by, § 692, 693.
Organs internal, description of their natural aspect, § 953.
Orpiment, § 615.
Ossification of the skull, defective, § 391.
process of, § 475.
Oxalic acid, character of, § 540.
chemical examination in poisoning by, § 545.
post-mortem appearances in poisoning by, § 544.
smallest quantity fatal " " " § 543.
Oxalic acid, symptoms of, in poisoning by, § 541.
Oysters, poisonous, § 687.

Parkman, Dr., identification of body of, § 477.
see full report of trial for killing of, § 993–1068.
Partial insanity, how far affecting civil capacity, see "*Contracts,*"
see "*Mental Unsoundness.*"
Peach kernels, poisoning by, § 725.
Penis, malformation of, § 422.
Peritonitis, as a result of poisoning, § 511.
Perforation of the stomach in poisoning by, § 508.
Phosphorus, chemical examination in poisoning by, § 564.
poisoning by, § 561–5.
post-mortem appearances in poisoning by, § 563.
smallest quantity fatal, § 562.
symptoms of poisoning by, § 552.
Platinum, bichloride of, § 664.
Plocquet's test, § 377.
Pneumonia distinguished from atelectasis, § 366.
Poisoning, chemical examination in cases of, § 503.
homicide by, see "*Homicide.*"
differential diagnosis of, § 505–17.
evidence of, § 498–504.
gastritis, as a result of, § 511.

Poisoning, irritant, mistaken for cholera, § 500, 506.
for cholera morbus, § 507.
mode of action of, § 494.
narcotic, symptoms of, § 512.
perforation of the stomach in, § 508.
post-mortem appearances in, § 501.
results of compared with those of disease, § 514–17.
symptoms of, § 499.
the new-born child, § 404.
use of the microscope in cases of, § 501, 502.
legal relations of, see "*Homicide.*"
Poison, definition of, the word, § 493.
Poisonous Gases, § 782–91.
Poisons, action of modified by disease, § 497.
habit, § 496.
idiosyncracy, § 495.
classification of, § 518.
narcotic, § 692–744.
irritant, § 519–690.
Politico-mania, see "*Mental Unsoundness.*"
Post-mortem examination, see "*Homicide.*"
Potash, bichromate of, poisoning by, § 668.
binoxalate of, § 543. Sorrel, salt of, § 543.
nitrate of, poisoning by, § 551.
poisoning by, § 551–2.
Potassium, cyanide of, 727.
Precocious development, § 417, 424.
Pregnancy, duration of, § 302–22.
presumption to be drawn from, in infanticide, see "*Homicide.*"
signs of, § 277–91.
wounds in, § 838.
Premature labor, induction of, § 342, 344.
Presumptions, see "*Homicide.*"
Prussic acid, § 705–21.
chemical examination for, § 716–20.
detection of, after death, § 720.
odor of, after death, § 712.
period of death in poisoning by, § 707, 708.
post-mortem appearances in poisoning by, § 711.
properties of, § 705.
question as to source of, § 713, 714.
recovery from large doses of, § 710.
smallest quantity fatal, § 709.
symptoms in poisoning by, § 706.
tests for, § 716–20.
Pseudonomania, see "*Mental Unsoundness.*"
Psychological view of insanity, see "*Mental Unsoundness.*"
Puerperal mania, see "*Mental Unsoundness.*"
Purgatives, drastic, poisoning by, § 671.
for procuring abortion, § 339.
Putrefaction an objection to hydrostatic test, § 371.
as affected by arsenic, § 587–91.
by cold, § 486.
by heat, § 485.
by moisture, § 489.
by water, § 488.
as affecting evidence of strangulation, § 906.
as influenced by temperature, § 485, 486.
Dr. Waller Lewis' observations on, § 490.
in the fœtus, § 491.
influence of lime upon, § 492.
Orfila's observations on, § 489.
phenomena observed before, § 797.

Pyromania, see "*Mental Unsoundness.*"

Quickening, § 282.
period of, § 282.
value of as a sign of pregnancy, § 282–4.
legal relations of, see "*Homicide.*"
Quinia, poisonous effects of, § 780.

Rape, § 426–72.
medical evidence in case of, § 426.
on adult females, possibility of, § 438.
on adults in an unconscious state, § 439, 440.
on old women, § 442.
on persons asleep, § 440.
on persons under the influence of ether or chloroform, § 443.
upon children, § 427–37.
frequency of, § 432.
marks of violence in, § 432,
transmission of gonorrhœa, &c., in § 432, 433.
upon person's ignorant of the nature of the act, § 444.
Legal relations of, § 457.
1st. Submission of prosecutrix, § 458.
(1) from artificial stupefaction, § 458.
(2) from ignorance of the nature of the act, § 460.
(3) from mistake of person, § 464.
(4) from fear, § 465.
2d. Prior want of character of prosecutrix, § 466.
3d. Subsequent suppression of the fact by prosecutrix, § 468.
4th Extent to which coition was carried, § 469.
5th. Want of age of defendant, § 472.
6th. Want of sexual capacity of defendant, § 419–25.
Rapid delivery, § 402.
Realgar, § 615.
Reckoning, modes of, § 304–9.
Reduction test for arsenic, § 590–6.
Reid, Dr., on duration of pregnancy, § 311.
Reinsch's process for the detection of arsenic, § 606.
Religious insanity, see "*Mental Unsoundness.*"
Remorse, how to be distinguished from "Mental Unsoundness."
Reports, medico-legal, how to be drawn up, § 963.
Respiration, causes of imperfect, § 367.
signs of imperfect, § 364.
Responsibility for Crime—how far avoided by Mental Unsoundness, § 45.
The difficulties in this respect have arisen from mistaking *dicta* given in particular cases for general and absolute rules.
Ill consequences arising from looseness of citation, § 45, *n.*
The true doctrine is, that medical science is a part of the common law of the land, and is to treated as such, § 45, *n.*
Cases where the defendant is incapable of distinguishing right from wrong in reference to the particular act, § 46.
Under this head fall cases of idiocy and amentia, § 46.
Cases where the defendant is acting under an insane delusion as to circumstances, which, if true, would relieve the act from responsibility, or where his reasoning powers are so depraved as to make the commission of the particular act the natural consequence of the delusion.
An act committed under a bona fide belief of its necessity in self-defence, will be regarded as if there really was such necessity, § 47.
And the gauge here is the *defendant's* capacity, § 47.
An honest insane delusion is to be viewed in the same light, § 48.
But the delusion must have been the *cause* of the crime in order to excuse it, and not *collateral*, § 49.

Responsibility for Crime.
Cases where the defendant is impelled by a morbid and uncontrollable impulse to commit the particular act, § 53.
The doctrine of homicidal mania has been recognized by the Courts of this country, § 53.
Chief Justice Shaw, § 53.
Chief Justice Gibson, § 54.
Chief Justice Lewis, § 55.
Chief Justice Hornblower, *contra*, § 57.
The right and wrong test is impracticable as an absolute rule, § 60, 61.
Rue, § 338.

Salt of sorrel, § 543.
Sausages, poisoning by, § 681–685.
post-mortem appearances in poisoning by, § 684.
symptoms in poisoning by, § 682.
Savin, § 337.
detection of after death, § 769.
poisoning by, § 767–769.
post-mortem appearances in poisoning by, § 768.
Scars, disappearance of, § 482.
identification from, § 482.
Scheele's Green, § 618, 619.
Semen, emission of in hanging, § 914.
Sex, doubtful, § 406–414.
identification of, § 478.
Sexual disability, § 415–425.
organs, absence of, § 412.
Shame, how to be distinguished from Mental Unsoundness, see "*Mental Unsoundness.*
Shell-fish, poisonous, § 687, 688.
Shock, death from, § 835.
Silver, nitrate of, poisoning by, § 664.
Simpson, Dr., on duration of pregnancy, § 309, 311.
Simulated insanity, see "*Mental Unsoundness.*"
Skeleton, female, peculiarities of, § 478.
identification by the, § 475, 477.
Skin, condition of after drowning, § 931.
Skull, fractures of the, § 848.
during birth, § 389.
in delivery, § 392.
Sleep—Drunkenness, see "*Mental Unsoundness.*"
Soap lees, poisoning by, § 551.
Soda, poisoning by, § 551.
Solanum, § 744.
Somnambulism, see "*Mental Unsoundness.*"
Somnolentia, see "*Mental Unsoundness.*"
Souffle, umbilical, § 290.
uterine, § 290.
Spine, dislocation of the, § 854.
wounds and injuries of the, § 854.
Spontaneous combustion, § 874–879.
cases of, § 875.
conclusions respecting, § 878, 879.
Stains on clothing from nitric acid, § 535.
sulphuric acid, § 528.
Starvation, death from, § 889–892.
post-mortem appearances in death from, § 891.
Stas, Prof., his process for the detection of nicotina, § 752.
detecting of opium, § 704.
Static tests, conclusions, § 378.
of live-birth, § 376, 377.

Sterility, § 415–418.
relative causes of, § 416.
Still-born children, appearance of, § 357.
Stomach, aspect of, in health, § 514.
condition after drowning, § 935–6.
cadaveric changes in, § 514.
lesions of, found in poisoning, § 514.
Strangulation, death by, § 899–906.
cause of death in, § 899.
marks of violence upon the neck in, § 900.
before or after death, § 901.
evidence of design in death by, § 902.
suicidal, § 903–4.
homicidal, § 905.
putrefaction affecting the evidence of, § 906.
case of Drory, § 905, (note *v.*)
of new-born child, § 383–398.
Strychnia, poisoning by, § 756–760.
post mortem appearances in poisoning by, § 759.
recovery from large doses, § 758.
smallest quantity fatal, § 758.
symptoms in poisoning by, § 757.
tests for, § 760.
Sudden death as presumptive of poisoning, § 513.
Suffocation, accidental, § 895, 898.
death from, § 893–898.
homicidal, § 897.
of new-born child, § 396.
post mortem appearances in death by, § 894.
suicidal, § 896.
trial for murder by, § 897, (note *o.*)
and rape, § 898.
Suicidal mania, see "*Mental Unsoundness.*"
Suicidal and homicidal hanging distinguished, § 915–926.
Suicide, see "*Homicide.*"
Sulphurets of arsenic, § 615.
Sulphuretted hydrogen gas, accidents from, § 789.
appearances after death by, § 790.
Sulphuric acid, § 519–529.
characters of, § 519.
chemical examination in poisoning by, § 526.
post mortem appearances in poisoning by, § 522.
smallest quantity fatal, § 521.
symptoms of poisoning by, § 520.
aromatic, § 528.
Sun-stroke, death from, § 880, 881.
post mortem appearances in death from, § 882.
Superfœtation, § 328–335.
apparent, § 331–335.
definition of, § 328.
in animals, § 329.
Supernatural possession, see "*Mental Unsoundness.*"
Surgical interference, refusal of, § 846.
Surgical operations, as influencing fatality of wounds, § 844, 845.
Sympathetic phenomena of pregnancy, § 284–286.

Tansy Oil, § 337.
poisoning by, § 771.
post mortem appearances in poisoning by, § 772.
Tartar emetic, § 653–657.
in organic mixtures, detection of, § 656.
post mortem appearances in poisoning by, § 654.
smallest quantity fatal, § 653.

Tartar, symptoms of poisoning by, § 653.
tests for, § 655.
Tartaric acid, § 548.
fatal results from, § 548.
Tartrate of antimony and potassa, § 653–657.
Tattoo-marks, disappearance of, § 482.
Taxus baccata, poisoning by, 770.
Teeth, identification by the, § 477–999–1000.
Temperature, influence of, on putrefaction, § 485, 486.
Testamentary capacity, see "*Contract or Will.*"
Testes, congenital absence of, § 419.
diseases of the, § 421.
Tests of live-birth, § 369–378.
Tetanus, distinguished from effects of poisons, § 512.
in wounds, § 840.
Tin, chloride of, § 663.
Tobacco, Indian, poisonous properties of, § 765.
poisonous effects of, § 747.
post mortem appearances in poisoning by, § 748.
Tschudi, Dr., account of the arsenic eaters, § 496.

Umbilical cord, compression of and by, § 308.
dessication of, § 360.
evidence from, § 359, 360.
hemorrhage from the, § 386.
mark left by the, § 380.
strangulation by, § 380.
usual length of, § 388.
Unconscious delivery, § 402.
Urine, kiestein in the, § 291.
Uterine respiration, § 367.
souffle, § 290.
Uterus, absence of, §416.
double, § 333.

Vagina, absence of, § 416.
Vaginal respiration, § 367.
Vagitus uterinus, § 367.
Venesection, as an abortive, § 340.
Vertebræ, fracture of the, § 854.
Viability, early, § 323–28.
See "*Homicide.*
Vibices, description of, § 806.
Vinegar, poisoning by, § 550.
Violence, marks of, in bodies found drowned, § 938.
Vitriol, elixir of, § 528.
Vulva, gangrenous inflammation of, § 427.

Water, as affecting putrefaction, § 488.
Webster case reported, § 993–1068.
Wilde's cases of alleged felonious assaults, § 436.
Wills, how far affected by mental unsoundness, see "*Contracts.*"
Womb, changes in the mouth and neck of, § 281.
Wound, direction of the, § 817.
situation of the, § 816.
Wounds, accidental or spontaneous, § 810.
before and after death, distinction of, § 798, 799.
cause of death in, § 833–46.
circumstantial evidence in, § 818–19.
classification of, § 807–10.
danger of, § 794.
death from a multiplicity of, § 836.
definition of the term, § 792.

Wounds, see "*Homicide.*"
evidence of design, § 816–19.
fatal after surgical operations, § 844.
after long periods, § 839.
from a diseased condition of the body, § 837.
from erysipelas, § 841.
from hospital gangrene, § 842.
from secondary causes, § 839–46.
from tetanus, § 840.
fatality of hemorrhage in, § 834.
from wadding and gunpowder, § 815.
general considerations, § 792–806.
grounds of classification of, § 793.
gunshot, § 811–15.
incised and punctured, § 807, 808.
indirectly fatal, § 839–06.
lacerated and contused, § 809.
made by small shot, § 813.
medical evidence concerning, § 795.
mortality of, as influenced by age and disease, § 834.
purposely made upon the dead body, § 803.
suicidal, § 816.
of the abdomen, § 860–5.
bladder, § 863.
brain, § 849, 850.
chest, § 855–59.
diaphragm, § 862.
face, § 852.
genital organs, § 865.
heart, § 857, 858.
fatality of, § 857.
long survivance in, § 857 (*note.*)
suddenness of death in, § 858.
liver, § 861.
lungs, § 856.
neck, § 853.
spine, § 854.
of various parts of the body, § 847–65.
on pregnant women, § 838.
on the new-born child, § 400.
upon the burned, § 870, 871.

Yew, § 770.

Zinc, chloride of, poisoning by, § 662.
in organic mixtures, detection of, § 661.
oxide of, poisoning by, § 659.
sulphate of, poisoning by, § 660.
tests for, § 661.

Date ~~Issued~~ Due

TRANSFERRED TO
YALE MEDICAL LIBRARY

TRANSFERRED TO
YALE MEDICAL LIBRARY

RA 1051
855W