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MENTAL DISEASE.

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LECTURES

ON

MENTAL DISEASE

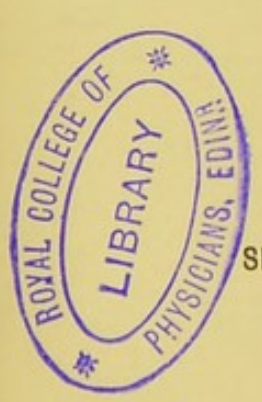
BY

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TABLE OF CONTENTS.

PART I.

MENTAL SCIENCE, OR PHYSIOLOGY.

SECTION I.

Page

MENTAL PRODUCTS 1

SECTION II.

MENTAL PROCESSES OR STATICS 32

SECTION III.

MENTAL PROCESSES OR DYNAMICS 59

PART II.

MENTAL DISEASE, OR PATHOLOGY.

SECTION I.

ORDINARY INSANITY, ACUTE STAGE 100

SECTION II.

ORDINARY INSANITY, CHRONIC STAGE 146

SECTION III.

Page
Recurrent Insanity 165

SECTION IV.

Varieties of Ordinary Insanity 190

SECTION V.

Examples and Cases in illustration . . . 199

SECTION VI.

Etiology, Morbid Anatomy, and Pathology of Ordinary Insanity 216

SECTION VII.

General Paresis 250

SECTION VIII.

Etiology, Morbid Anatomy, and Pathology of General Paresis 280

SECTION IX.

States of Idiocy and Mental Weakness . . . 327

PART III.

SYMPTOMATIC MENTAL DISEASES.

SECTION I.

Epileptic Insanity 344

CONTENTS.

SECTION II.

Page
Alcoholismus 355

SECTION III.

Spinal Cases 364

SECTION IV.

Organic Brain Diseases 370

PART IV.

Treatment 375

PART V.

Legal Relations of Insanity 400

APPENDIX.

Classification of Insanity 440

PLATE I.

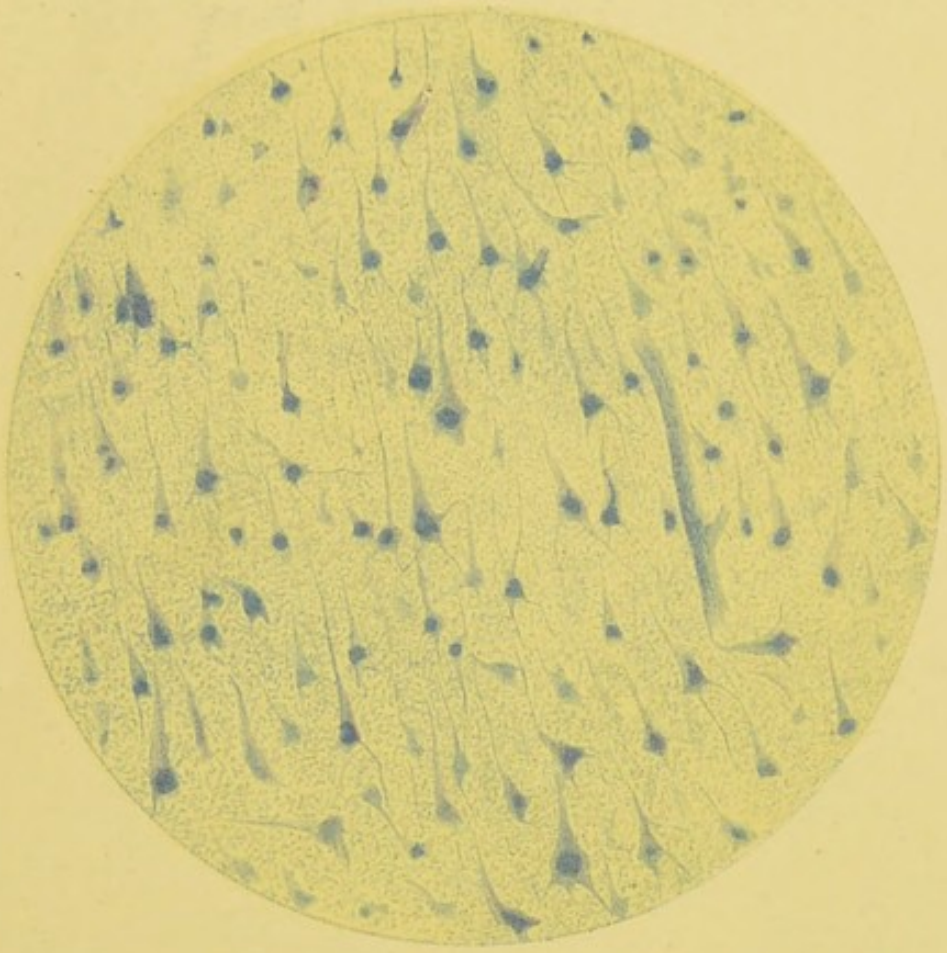
Sections of Normal Brain from Specimens prepared by Dr. Herbert O. Sankey.

FIG. 1. Portion of second layer of cortex.

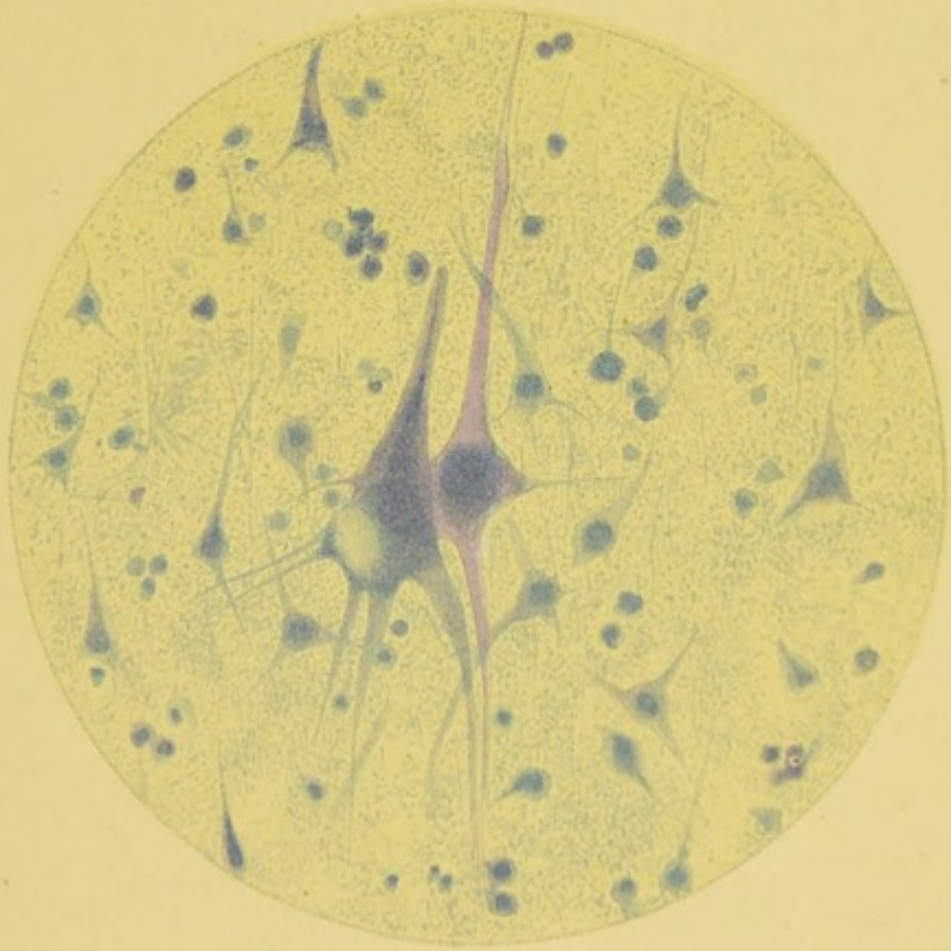
FIG. 2. Showing giant cells from Paracentral lobe.

Tissues stained with aniline blue, and drawn to the scale of $\frac{1}{4}$ of an inch to $\frac{1}{1000}$.

PLATE I.



1



2

PLATE II.

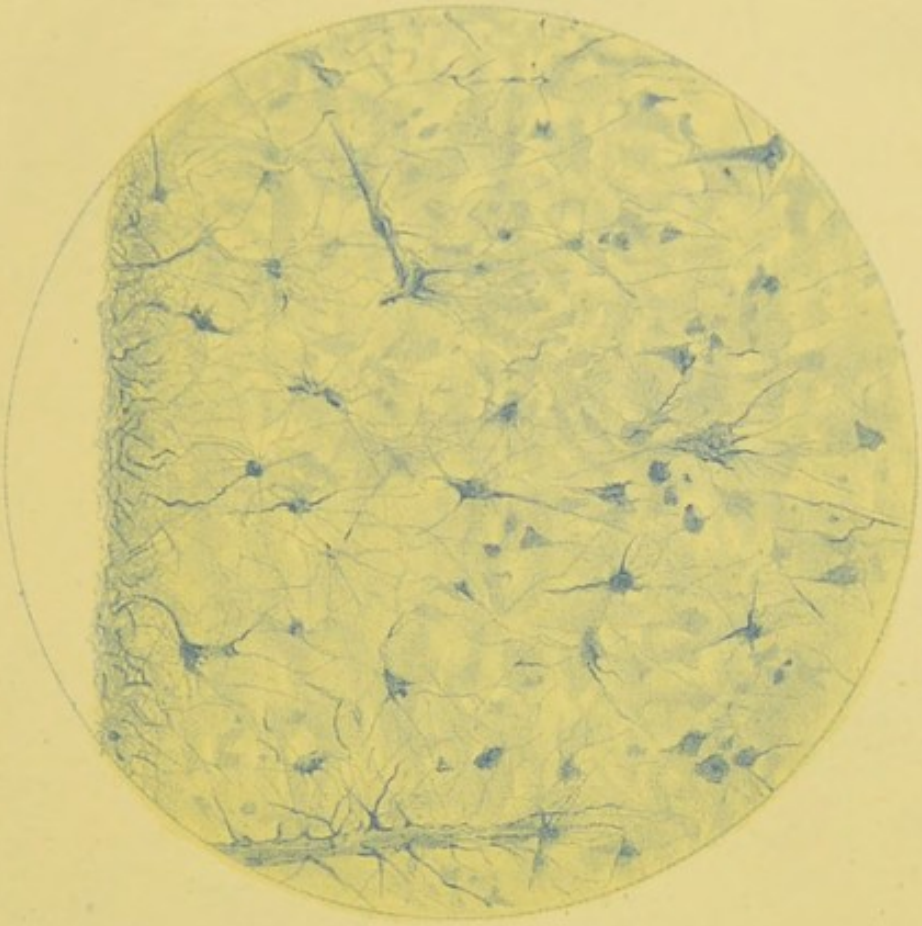
Sections of Brain in General Paresis from specimens prepared and lent by Dr. Wiglesworth, M.D. Lond.

Fig. 1. Portion of upper portion of Cortex Cerebri, a vertical section through whole of first layer, and a small portion of second from middle frontal gyrus. The first layer presents a marked fibrillated appearance (scarcely sufficiently marked in the engraving), and numerous large, much branched neuroglia corpuscles scattered throughout. There are indications of nerve cells, and branches of vessels enveloped in hyperplasic tissue.

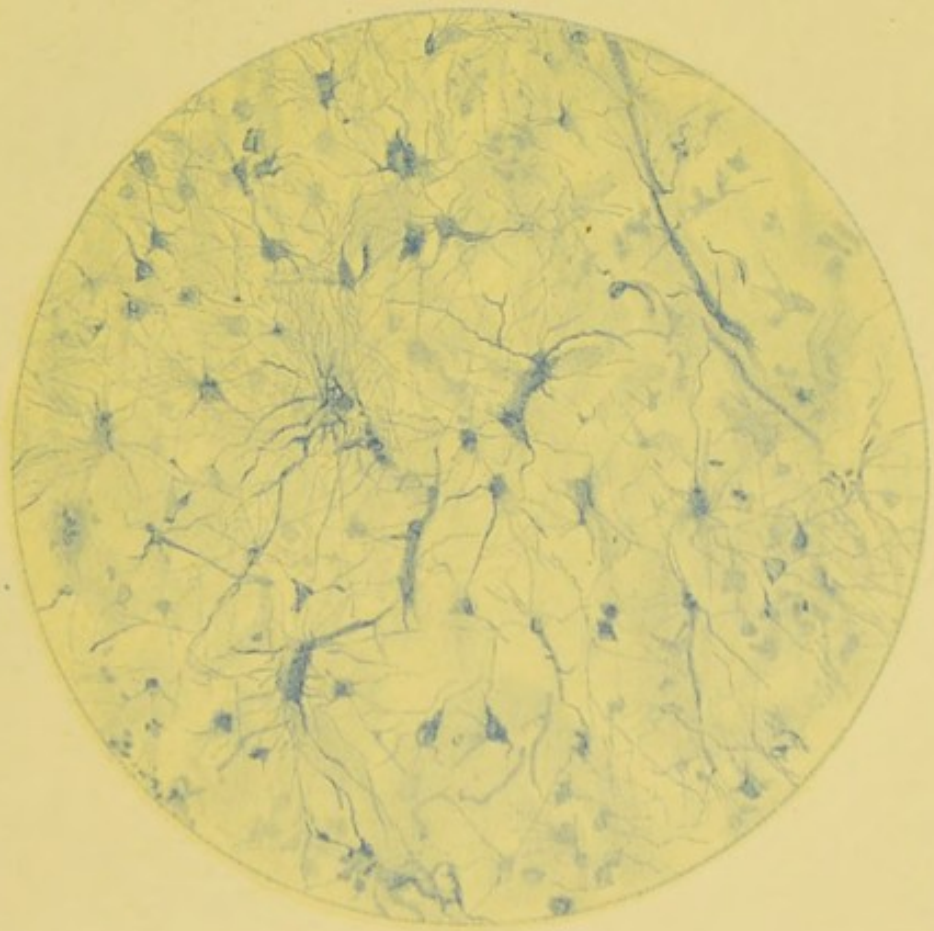
Fig. 2. Vertical section of a deeper layer of the same preparation in which the hyperplasia of connective tissue (Bindegewebewucherung) is more apparent. See page 202 *et seq.*

Drawn from the preparations by the author to the scale of $\frac{1}{4}$ of an inch to $\frac{1}{1000}$.

PLATE II.



1.



2.

West, Newman & Co. chromo-lith.

PLATE III.

Small Arteries of the Pia Mater and Cortex Cerebri. Fig. 1, 4, 5 and 6 prepared under a stream of water, by washing away the cerebral tissue; Fig. 2 and 3 are from sections prepared in the usual way.

Fig. 1, 2, 3, 4 show the appearance of the arterioles in general paresis as described at pp. 304 and 305.

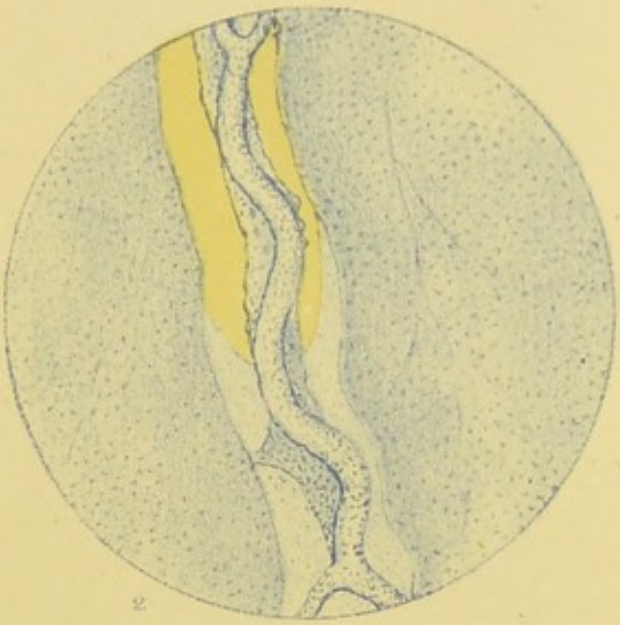
Fig. 5 and 6 are vessels taken from cases of Chronic Insanity and Imbecility and show hypertrophy of the arterioles as described at pp. 236 and 245.

*** Figs. 1, 2, 3, and 4 were drawn from the preparations themselves by Mr. Tuffen West and before the author and artist met.

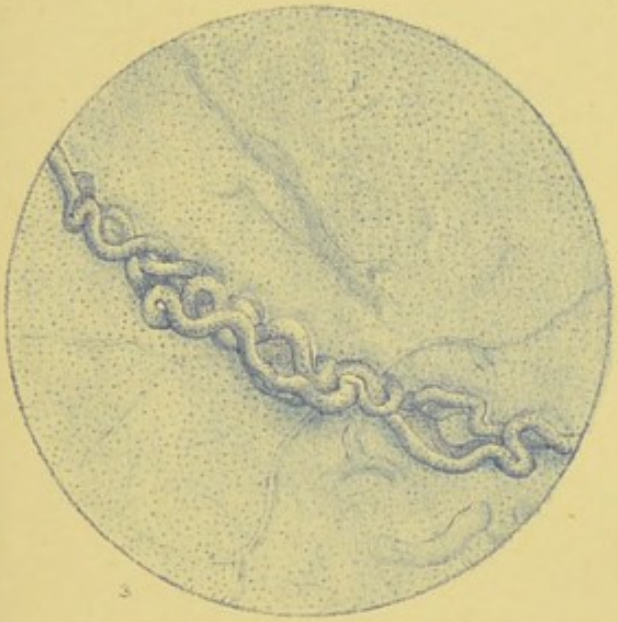
PLATE III.



1



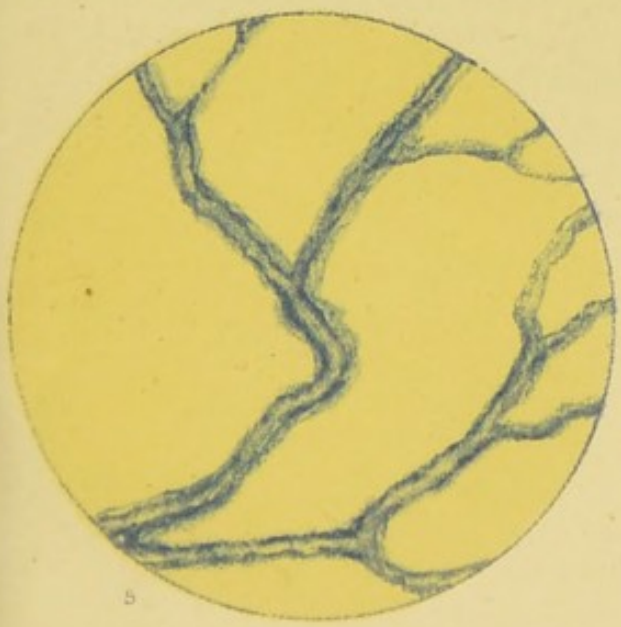
2



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5



6

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A COURSE OF LECTURES

ON

MENTAL DISEASE.

PART I.

Section I.

Science of Mind—Schools of Philosophy—History—Auguste Comte, his Account of Positive Philosophy—Psychology a Branch of Physiology—Division of the Subject—Statics and Dynamics, or Products and Processes—Products considered—Locke's Definition of Ideas—Concrete and Abstract Ideas, their difference—Examples of Concrete and Abstract Ideas, Mind, Life, Ego, &c.—The Products of Sensation—Persistence of Sensation—Memory—Association of Ideas—Consciousness—Emotions—Will—Belief—Imagination—Judgment.

I think it expedient in commencing a course of Lectures on Mental Disease to introduce the subject with some remarks on the science of Mind. In other medical treatises the pathologist may assume that the physiology of each organ, the diseases of which he is about to describe, is already acquired by the student. This cannot be said to be the case when the disease is mental. The physiology of the mental functions or psychology, is omitted of late years in the text books. It is not possible therefore to appeal to the student's knowledge, and besides this the subject is a very wide one and is discussed by writers from very different stand-points.

The study of Mind, formerly called Philosophy as though it were the only subject of learning, is of very ancient date, and was almost the first subject which excited the attention of contemplative minds. In those early times it was of course considered entirely apart from the body. Mental philosophy long preceded the study of anatomy.

The large amount of attention that has been given therefore to this subject, through such a series of years, has resulted in the formation of what is called the various schools of philosophy. Each school in its turn had its own system—one school has yielded to another through many changes. The history of the schools is treated in two volumes by the late Mr. Lewes.*

It would be of no use to us to review these several systems, or the doctrines of the Spiritualist, Materialist, Nominalist, Realist, Idealist, Sensualist, and others; though allusion may be made to some of the tenets during our course.

In England the tendency has been to adhere chiefly to the practical, and transcendentalism has not found so much favor with us as with the German schools.

One of the last systems of philosophy is that of Comte, a French professor, and his writings have had a large influence on French philosophy, and have brought it into more accordance with English views—it was called by him the Positive Philosophy.

Comte gives in a short compass an epitome of the history of philosophy, and his part in the progress of it, which I will here quote.

History of the Positive Philosophy of the School of Comte.—Auguste Comte was born in 1798 and died in 1857. His chief work is his *Cours de Philosophie Positive* in six volumes.

The following passage from vol. i., p. 14, of his work, gives his own account of the Positive Philosophy.

"In order to explain," he says, "the true nature and real character of the Positive Philosophy in a convenient form, it is absolutely necessary to cast a general *coup d'œil* over the gradual progress of human knowledge viewed in its entirety; for any understanding of the subject can only be gained from its history."

"In studying the development of the entire human understanding in its different spheres of activity, from its earliest soarings to the present time, I believe I have discovered a grand fundamental law, to which, by an invariable necessity it is subjected . . . . . This law consists in the fact that each of our principal conceptions, each branch of knowledge passes through

* Lewes' *History of Philosophy.*

three different theoretical states: the first, theological or fictional; second, metaphysical or abstract; third, scientific or positive."

He goes on to point out that the mind in its first efforts, and which he would also consider as the lowest point of its development, simply refers all natural phenomena to the direct intervention or operation of an intelligent agent—to God.

That from this simple and early mode of explanation the next stage, which is the metaphysical, invented the hypothesis of an intermediate power as Nature, Life, Vital Principle—as the active cause of the phenomena of the universe—and the object of philosophy at this stage was to enquire into the nature of these prime causes.

This, the metaphysical stage, took as strong a hold on men's minds as did the theological, and to this day it influences the judgments and opinions and modes of thought of a great many. As an example, there is at present no dogma more prevalent perhaps than that which attributes certain phenomena of the body to some distinct agent as "the Will," "Mind," "Vital Principle," etc.

The positive philosophy as described by Comte has, he says, been gradually extending its power during the last two centuries and embraces to day every order of phenomena. All phenomena according to him fall under five grand categories—Astronomy, Physics, Chemistry, Physiology, and Sociology, and the chief characteristic of this philosophy, or the philosophy of science, is this—"that it seeks no more to investigate the intimate nature or character of causes, but rather occupies itself in the discovery of the Rules or Laws which regulate the universe."

The positive school made no sudden change in the views generally entertained. Opinions had been for more than two centuries gradually undergoing change, and tending toward the same direction. The writings of Comte perhaps merely stated positive views more dogmatically, and the name of Comte is now most generally associated with them; there are many matters, however, in the writings of Comte which are by no means accepted—views on religious and political questions, which partake rather of atheistic and materialistic views, and which, at all events are quite foreign to our present purpose. More especially

was there in the later writings of Comte much of the mystical and obscure, and which have given rise to an adverse opinion concerning him. It should be borne in mind that much of these peculiar doctrines form no essential part of Positivism, and these views were broached only in the latter part of his life, and after a severe attack of mental disease.

Mr. Lewes sums up the position of Comte in relation to philosophy thus:—"the positive philosophy is novel as a philosophy, not as a collection of truths never before suspected. The novelty is in the organization of existing elements. (*History of Philosophy*, vol. ii., p. 696).

Psychology being, then, a section of physiology it is to be studied in the same way as that pursued with other portions of the subject; we may, however, take advantage of what we find prepared for our use in all previous investigations by former methods.

The subject may be studied, as in other physical investigations, from two points of view—or statically and dynamically. In other words, we may examine the organ and the function—or the process and the product. Only a brief review of the chief matters will be attempted here.

It will be the most convenient to consider, firstly, the products, and secondly, the process. As these, however, are very intimately blended it will not be possible to keep them perfectly distinct throughout our examination.

THE PRODUCTS OF MIND.

I. *Products.* It is in this division of the subject, in which the earliest labours of the schools will be alone available.

A classification of mental products has been made by many authorities. The division of Professor Bain, and which it appears he adopted from a suggestion of Professor Sharpey, is a good practical arrangement, viz., into the Senses, the Intellect, the Will, and the Emotions.

These, however, are not strictly products, but rather groups of processes, the products of the senses would be Sensations; of the intellect, Ideas, Beliefs, Judgments, etc.; of the will, Volitions; of the emotions, Feelings, etc.

For our purpose I think a more useful mode will be to begin with the most simple product and proceed to the more complex.

Locke, whose work on the *Human Understanding* reaily laid the foundations of what has since been called the positive school, commenced his examination of the understanding by the study of the *Ideas*.

Ideas may be considered the units of our investigation.

Other resultants are as it were secondary as regards Mind; for example, Sensations and Emotions are mental products when they give rise to Ideas.

It is as well, therefore, to commence with the examination of Ideas. Locke used this term in a very general manner. "It is the term," he says, "which I think serves best to stand for whatsoever is the Object of the Understanding when a man thinks. (*On the Human Understanding*, chap. i., § 8).

Ideas are of two kinds :—

1. Concrete.
2. Abstract.

It is important that the student should thoroughly examine the differences between these. Very much of the difficulty of the whole subject, in my opinion, lies in the understanding of what these terms signify.

1. *A Concrete Idea* represents only an object as it is, that is, it is the first impression that is produced upon the organism by the action upon it of an external object; the impression in its crude state, as received, constitutes the concrete idea. In this state the object with all its attributes unseparated—whole —concreted—or in its compound and unanalysed condition, affects the individual and gives him—produces in him—a concrete idea. This will be still more clearly seen by contrasting it with the other kind of idea.

2. *The Abstract Idea.*—An abstract idea does not relate to an object as, or in the condition in which, we see it, or know it, but to some attribute only of the object or objects. Though an object is acting upon our organism, the abstract idea is in relation only to a particular quality, attribute, or portion of the object, drawn away—abstracted from the whole or concrete object, and presented to us only after analysis; and since it relates only to a portion of the idea formed, it does not correspond to any object in its actual condition as found in nature.

To illustrate this by an example:—I have before me a table, and I see it exactly as it is before me, in its entirety; such an idea thus begotten is a concrete idea.

But almost at the same moment of receiving the first positive effect upon my organism, there is another process within the mind which is evoked, for directly I say that the object is a table it is obvious that I liken it to some other table; beyond the simple passive impression there is an action commencing, and which is a mental process. I may recognise the object as a table and perceive that it has the attributes of other tables, I must have, therefore, a distinct idea of "table" quite independent of the one before me, or indeed, of any table in particular. I know tables of various shape, size, material, colour, uses, etc., and yet all are to me tables, thus I have an idea of table, which is an abstract idea—because it is abstracted from many tables and of all kinds—I call this abstract idea "table," and in making use of the term I conceive it entirely apart from, and independent of the rest of the properties of tables.

As a further illustration of the attributes of the abstract idea, I will take the idea "Blue." We have undoubtedly a distinct idea of that which is signified by the term "Blue." Yet when used, as it most commonly is, adjectively, there is nothing in existence exactly corresponding to this term—we all know blue sky, blue paint, blue books, but if we take away (abstract) the idea corresponding to the terms sky, paint, books, we have only blue, but it remains only in idea. We do not imagine that there is anything, any entity in nature, corresponding to the idea.

The abstract and concrete ideas differ then in the following particulars:—

1. A concrete idea results from the action and reaction of an external object on the organism, in which the organism is a passive recipient of the impression.

2. The action has relation only to a single increment of time.

3. The concrete idea carries with it a conviction that it represents a real object as it exists in nature. Consequently "a concrete name is the name of an object; an abstract name the name of an attribute." (Mill's *Logic*, vol. i., p. 30). "A real concrete object, such as a plant could not be annihilated without alteration to the whole cosmos. But abstracts as classes—orders

genera, etc.,—one and all might be annihilated and would cause no perturbation in the system of things." (Lewes).

1. The abstract idea is the result of a process within the organism.

2. It is *not* in relation only with a single increment of time, but may extend over a wider field.

3. It does not represent objects in their actual state in nature, but has relation with portions, or the qualities of things.

4. The abstract idea produces conviction, or belief, but not that it corresponds to any thing or things in their actual state—the conviction only is of the existence of an attribute of an object. There is some difference in different writers in the employment of abstract and general terms as expressing ideas. A general term should properly denote a class of attributes, but it of course then denotes an abstract idea, and an abstract term Mill would confine to denote an attribute of a single object, and to mean the opposite to concrete.*

There are certain fallacies in regard to these two kinds of ideas which are very commonly met with, viz. :—

1. To attribute a real or objective existence to what is a mere abstract idea.

2. To confound the one kind of idea with the other.

Though these are separable they may be conveniently considered together.

Examples in illustration of the above fallacies. With the double view of illustrating the above statement by examples, and pointing out some of the errors which have prevailed, and obscured our present subject, I will select examples bearing on the Science of Mind.

1. *The confusion arising from attributing an objective existence to an abstract idea.*

This error is one abundantly discussed by writers of the positive school. Indeed, a just appreciation of what is a mere abstract idea is the distinguishing feature of this school of philosophy.

* The metaphysical schools believed that that which we call an abstract really did correspond to a real object, which they named the essence; as Mill expresses it, they believed in the existence of real entities corresponding to general terms, for instance, they would believe in a certain general substantive table. *The Antient Doctrine of Essences, vide* Mill, vol. i., p. 123.

Comte, in fact, points out that this tendency was a distinguishing mark of one era in the history of philosophy, for while in his first era man attributed the origin of all things to one, or Universal, maker; in the second, or metaphysical age of philosophy, everything was attributed to certain general agencies, as gravitation, vital force, &c., and which were viewed as real and existent agencies, or as actual entities.

But there is no difficulty in meeting with illustrations. The word "Mind" itself affords a good example, and we may conveniently give it precedence, for a proper conception of what the word really symbolizes is very necessary to the comprehension of what is to follow.

Mind. I prefer, in explaining errors that have commonly arisen with regard to the abstract idea, to make use of extracts from authors, as such illustrate and give authority to my own statements.

Dr. Maudsley writes* "with regard to the manifold mental phenomena by observation of them, and abstraction from the particular, we get the general conception, or essential idea of mind, an idea which has no more existence out of mind, than any other idea or general term. In virtue, however, of that powerful tendency in the human mind to make the reality conformable to the idea, a tendency which has been at the bottom of so much confusion in philosophy, the general conception has been converted into an objective entity, and allowed to tyrannize over the understanding—a metaphysical abstraction has been made into spiritual entity."

"The mind," says Mr. Lewes, (Problems, &c., p. 216, vol. i.), "is commonly spoken of in oblivion of the fact that it is an abstract term expressing the sum of mental phenomena: as an abstraction it comes to be regarded in the light of an entity, or separate source of the phenomena which constitute it."

"By a similar illusion we come to regard the process of thinking apart from the product—thought; and, generalizing the process, we call it Mind or Intellect, which then means no longer the phenomena condensed into a term, but the *source* of these phenomena."

When we speak of mental disease, or disorder of the mind;

* Maudsley's *Physiology and Pathology of Mind*, First Edition, p. 41.

terms which are legitimate because they represent a general notion—it is not that we would intimate that Mind can be separated from body; but that the body is diseased, and gives rise to alteration of those functions called mental or Mind.

Another abstract term which is often used in the same way is *Life.*

"*Life* is often spoken of as something independent of Living." (Lewes, *op. cit.*, p. 110).

"The analogy of Life and Mind is the closest of all analogies, if indeed the latter is anything more than a special form of the former. Hence what is known of Life, is the best guide to what is knowable of Mind. Both are processes, or under another aspect functional products. Neither is a substance, neither is a force. To speak of Vitality as a substance would shock all our ideas—but many speak of it as a force. What then is meant by Vitality or vital forces? If the abstraction be resolved into its concretes it will be seen that a certain process, or group of processes, is condensed into a simpler expression. Vitality and Sensibility, Life and Consciousness, are abstractions having real concretes. These are compendious expressions of functional processes conceived in their totality and not at any single stage." (p. 111).

"Co-ordination, Mind, Life, are abstractions; they are realities in the sense of being drawn from real concretes; but they are not realities existing apart from their concretes, otherwise than in our conception: and to seek their objective substratum we must seek the concrete objects of which they are the symbols."

The terms denote generalizations and express in a convenient and concise form a wide series of phenomena. But when they are taken to mean something distinct—standing over and directing as it were the functions or actions of the body as so many agents, they are grossly misapplied and lead to much confusion.

"*The Ego.*"—The next mental product which I will mention is the Idea included in the term "Ego," or "the Ego." Much use has been made of this term, and it may be said to have played a foremost part in metaphysical discussion generally.

What is meant by the term is the subject, as when we say *Ego sum*, the *sum* is predicate of *Ego*, and the *Ego* is subject of

the *sum*. The word therefore signifies one's self, while speaking of one's mental functions—it, the Self—or the "I."

Now the term is used in two ways, and hence the confusion which has arisen in its employment. The error is the same as already pointed out with other ideas, or the confounding the concrete and the abstract; for the word Ego, or I, is sometimes the symbol of a concrete idea and sometimes an abstract idea.

It is sometimes put merely as one element in a single reaction, in which case it refers also to a single increment of time, as in the expression "I am writing," "I am here," it is then the name of a concrete.

But it is also used, and perhaps more frequently—and especially when the words "the Ego" are employed—to represent an abstract idea, and as such it is not confined to the signifying of one increment of time, as in the following passage from Dr. Carpenter "the control which the Will can exert tends to render *the Ego* a free agent," or "the conscious Life of every individual man consists in an action and reaction between his mind and all that is outside it, the Ego and the Non-Ego." In both these phrases the word is clearly employed as a general term to signify a persistent agent, or an agent acting throughout a life.

For illustration's sake, I may say, I know that I have existed 60 years and upwards, and consider myself to be the same individual throughout, though I have been changing during the whole of that time. When I use the term I, or speak of myself as the Ego—as an abstract term, I include myself throughout all these changes, and in using it in this sense it is a general term as much as any other already alluded to as Life and Mind—and in considering its effect in analysing any particular act this must be borne in mind: for example, in the expression—I exist—the signification of these words may be either, that I am existing at the particular moment of time, or that I am in a continuous state of existence. As this Ego, or I, is usually one term in every mental analysis of ourselves, it is necessary to thoroughly appreciate its exact value in each proposition. Thus, in the expression "I am a free agent," this is certainly true if the "I" means the abstract condition of "Self." In the expression which Dr. Carpenter quotes from Mr. H. G. Atkinson and Harriet Martineau (and with obvious pain at the sentiment

expressed) the Ego or I is used in its concrete sense, and as regards several distinct and separate acts: "Instinct, passion, thought," they write, "are effects of organised substances, all causes are material causes, I am what I am, a creature of necessity, &c., &c." What is true of these statements is this, that each individual concrete act of the individual is the resultant of the concrete Ego, at that particular time under the particular circumstances. The Ego is the concrete idea of the man only as he is at that one increment of time. It includes unseparated all his inclinations, convictions, desires, appetites, feelings, passions, and every other attribute to which a name has been given, and such an Ego, under such an influence gives rise of course to necessary results. If either of the two conditions vary, the result will also vary. But when the expression is used in the abstract sense, as the general condition of the individual and his inclinations, dispositions, &c., then, since the conditions are no longer the same, the result will be different. The proposition then becomes a different one, and the result is no longer predicated as necessary but only probable.

If the surroundings change, the Ego will not be the same Ego mentally. The Ego—the abstract Ego, is thus a changeable not a constant quantity, and the resultant will be a contingency and not necessary, the result changing with the change of the Ego; the action so far depends on the Ego, that since the man and the Ego are one and the same, the man changes according to his own bent—according to his own inclination generally, and therefore must be said to act just as he chooses.

Sensation.—The next mental product which we have to consider is Sensation.

It will be first necessary to make some remarks as to the meaning of this term. The words sensory, sense, sensible, sensibility, sensational, have become so incorporated into conversational language, that a considerable ambiguity as to the proper application of the words sensation and sense, &c., has resulted. Thus a man has been called sensible, or a man of sense—or of common sense, in relation to his intellectual qualities, rather than his perception. A certain school of philosophy has been called sensual, because they placed a primary importance upon

the functions of the senses; and to the same word sensual has been given the meaning in common phraseology of grossness, immorality, &c. But the word sensation in mental science is entirely used to express the particular function of the different special senses—as Vision, Hearing, Smelling, Feeling, Tasting, to which various authors would add certain other kinds which may be called organic, or those on which the emotions of appetite and desires seem to depend.

With respect to the operation of the organs of Sensation, this difference in function may be pointed out, that the idea produced from the sensation is in some objective, and in others, more or less subjective. We attribute the effect produced on ourselves through Vision, Hearing, Smelling and Tasting, to the qualities of the object. We attribute the qualities derived from touch and other organic sensations to ourselves—that is, subjectively, but ourselves considered objectively. Thus we do not imagine after an impression produced on our eye, that the object is near or close to the organ, but we refer it to a distance, and the same with the action of the auditory and olfactory senses—these are senses for distant perception; there are other impressions—modifications of sensation from touch within the organism and called organic, and which are subjective.

Mr. Lewes writes: "When the mental phenomena are considered as wholly within the mind, they are Sensation, Emotion, Impulse. When passing out of the organism, they are Perception, Ideation, and Volition." (*Problems*, vol. i., p. 138, § 29).

In other words one is the passive and the other the active effect. A sensation thus limited is the impression produced on the organism by external objects, for a sensation to furnish an idea it must become a perception,* in other words it must be a conscious act.

The question involuntarily arises then, what can sensation furnish, and what can it not furnish? This has been the point on which the different schools have expended much argument; this part of the question will be more in its place when we come to consider the mental processes, or the dynamics of mind: it may be pointed out, however, that by limiting the meaning of

* Dr. Ferrier (*Functions of the Brain*, p. 46) suggests the use of the word æsthesis—for the sensation as above, and noesis—to signify a perception.

the word to its proper sphere, it will be evident to every one that all that the special senses can directly give us are material objects, and these in the concrete. No abstract notion can be an object of any of the special senses. We may see a man, but not mankind—a brave man, but not valour—a blue book, but not the abstract idea blue.

If we cannot obtain the abstract idea through sensation, we are naturally led to enquire how the abstract is obtained. Locke answered this question thus "by the operation of our minds"—this for the present must suffice until we come to consider the processes.

There are some properties connected with sensation which should be mentioned here.

Sensations vary in power, psychologists admit of two kinds, which Mr. Spencer calls Vivid and Faint.

Sensation implies feeling, the word feeling, however, has been employed like the word sensation very loosely—but in the sense of something felt, sensation and feeling are, as James Mill says, the same thing, the names are two but the things are one.

Another attribute of sensation, most people would say, would be that it is always accompanied by consciousness. We have naturally a difficulty in understanding how the two functions can be separated. We must be conscious of what we feel. This must depend, it will be seen, however, upon the exact signification that is put upon the words "feeling or sensation" by those who would object to the axiom, that a sensation must be accompanied by a consciousness of the act. Before we discuss that point, we may add that another property of sensation is, that it produces an effect on the mind of a more or less persistent character. And the degree of persistence appears to depend a good deal upon the force of the original impression, whether it is Faint or Vivid.

This property of the persistence of the impression is one on which much depends, and unless the fact of persistence is granted, the explanation of many of the phenomena to be discussed would fail; it should not therefore be passed over without careful examination. But if we admit the action of the object on the organism at all, which is the primary axiom—we shall have no difficulty in allowing that the impression may persist, and the

property may be formulated in a second axiom "that the impression upon the organism by its environment may show its persistence in the organism."

With regard to the connection of sensation and consciousness, we may now explain that some authors would include under this word sensation, every effect produced on the organism through the sensory nerves, in other words the whole effect of the afferent nerves. It must be remembered that there are no strong lines of demarcation in nature. We have admitted that the impression may be stronger or weaker, faint or vivid, these great differences are appreciable, but their limits are not sharply defined, the vivid impressions produce vivid consciousness, the faint impressions weaker effect, and the weakest produce so faint an impression that consciousness is either evanescent or unappreciable; who can decide that it is absent, this will be further discussed in the sequel.

The Persistence of a sensation is the basis of the faculty of memory. A sensation has always a tendency to produce motion; in the primitive state of the nervous system, the whole of the sensation is expended in motion, and the action called excito-motor or reflex is the result; in the higher organisms there remains, after the motor act, a future source of energy, the whole is not expended, and there is what is called a "remanent."

Another question in connection with sensation is one that has been greatly discussed in different schools of philosophy, and is in relation to the nature of Sensation; this will be considered from our point of view when we have to examine the genesis of mind generally. But the question which the metaphysical school have been occupied with is, how the object affects the subject, or the mode by which a quality of an object passes from the object to the subject—and whether the quality or property of an object which we recognize, belongs to the object or the subject, that is ourselves; that the blue, for example, of a blue book belongs to the book, or whether the idea of blue is only an effect produced on persons seeing it.

The positivist school declines this discussion, and accepts as real the Sensation produced on the organism by external objects; by resolving sensation into feeling, it accepts that feeling as real, and under certain conditions it furnishes a sufficient basis, or

datum for our investigation. "Science is compelled," says Lewes (*Problems of Life and Mind*), "to accept certain limits as final, and these limits may be arbitrary when they suffice for the immediate purpose of the research (conventional ultimates), or necessary when they abut on some dead-wall of ignorance which may be one day removed, or some ultimate of feeling which can never be passed beyond."

With respect to the reality of feeling, Lewes remarks "that the sensation, or presentation, is fitly considered *real* because it has objective reality for its antecedent stimulus. The *representation*, whether image or symbol, is ideal, because its antecedent is a subjective state. Reality always indicates that antecedent which excites sensation when in direct relation with the sensory organism. Hence we say that a feeling is real when it is felt, ideal when it is only thought, not felt. To feel cold and to think of cold are two markedly different states." (*Problems*, vol. i., p. 149).

In this way our abstract ideas are indirectly though not immediately based on sensation.

That the positivist school accept as real the sensation produced on the organism by external objects, is not asserting, however, that our senses necessarily yield us real facts, the organs of sense may be imperfect, and other causes may exist to impede the action of the organ.

The metaphysician on the other hand, as Kant, affirms that the true is only in the abstract idea, and some go so far as to maintain that every general term (or abstract idea) such as man, virtue, has a real and independent existence, these are the realists; the nominalists, on the contrary, maintain that all general terms are but the creations of mind, designating no distinct entities being merely used as marks of aggregate conceptions. (Lewes' *History*, vol. i., p. 242).

Though we cannot fathom the mystery how any quality passes from the object into the subject and produces what we call sensation, we may examine some of the attributes of the sensation. We simply say it produces an effect, and this effect is intensified in some cases by special mechanical arrangements, and diffused by other means, but there are some laws attending these functions which have been studied. It would appear that the mode by which the influence is diffused, is chiefly if not universally by

vibrations, with the sense of hearing this is capable of ready proof and the fact has been utilized in the telephone. Hermann writes (*Physiology*, by Gamgee, p. 474), the excitation of the auditory nerve is most intense when it takes place thirty-three times a second, the excitation of the optic nerve is most intense when it takes place seventeen to eighteen times in a second: in what is called the "bruit musculaire" distinct and regular vibrations occur, their number in tetanus have been estimated at nineteen and a half per second.

But besides these the phenomena of respiration and contraction of the heart are instances of the kind, the heart of a frog or turtle, for example, continues to contract for hours in regular time after removal from the body, and even pieces of the muscular tissue separated from the muscular walls will continue regularly to contract. The periodicity of many of the other functions probably is due to the action of the same law. In considering the effect of rhythmical excitants this fact may be remembered.

It has been shown, that in the higher organisms the sensory impression does not wholly terminate in an action, but in most instances, and more especially when the original impression has been strong, there remains behind, or persists, or is stored, a latent energy, which is liable to be called forth in a future operation.

Memory is a faculty founded upon, or arising out of, this persistence of a former sensation.

A thing is remembered only when a previous impression is resuscitated by a new or present impression. The tendency of a present impression to recall an old impression depends upon what is called *the association of ideas*. All ideas are associated—concrete ideas are in fact an association of abstract qualities; any abstract quality occurring in a new sensation recalls the same quality met with before, though differently associated; a comparison of quality with quality, or idea with idea, forms the genesis of Judgments.

The Association of Ideas depends of course on the faculty of memory, there would seem to be a natural cohesion between different ideas, so that a given idea will resuscitate another in a way recognizable as normal or natural. In disease this association is often disturbed and the current of ideas flows in an incoherent manner.

Memory, in the usual way in which the term is employed, would appear to be necessarily associated with consciousness. Memory is the remembrance of a thing felt. We can scarcely imagine we could remember an act, of which we had never been conscious. It seems unfortunate that the term unconscious memory should have been introduced, as it has been, to signify certain phenomena which are observed. The question, however, will be better deferred for the present; it will be enough to state here, that Memory is much stronger, the more vivid or strong the original impression was, that is re-called. Hence a new sensation produces more effect than an old one. An action which is stale and performed in a perfunctory manner is soon forgotten. Next to a strong impression an often repeated impression produces a greater degree of memory. As different persons are affected differently through the different sense organs, so the memory of one kind is easier than another in different individuals. One remembers things seen, another what they hear, one man's memory is for form, colour, or for harmony, music, &c. The question of unconscious memory will be deferred till the faculty of consciousness has been considered, and which we will now proceed to do.

Consciousness can scarcely be viewed as a product, and some consider it rather as a faculty; but it may require a few lines of remark in this place, on account of its intrinsic importance, and the difference of the views which have been expressed concerning it. It will scarcely need a definition, for everyone is aware of its existence and operation in himself; the differences of opinion, which have arisen connected with it, have been owing chiefly to the different systems of mental science, by which it has been examined. Dr. Charlton Bastian in an article "On Consciousness" in the *Journal of Mental Science*, Jan. 1870, quotes the following passage from Sir W. Hamilton:—

"Aristotle, Descartes, Locke, and philosophers in general, have regarded Consciousness not as a particular faculty but as the universal condition of intelligence. Reid on the contrary, following probably Hutchinson, and followed by Stewart, Royer-Collard, and others, has classed consciousness as a co-ordinate faculty with the other intellectual powers; and as the particular faculties have each their particular object, so the peculiar

object of consciousness is the operations of the other faculties themselves, to the exclusion of the objects about which these operations are conversant."

Again Dr. Bastian, quoting from James Mill, writes, "If we are in any way sentient, that is, have any feelings whatsoever of a living creature, the word conscious is applicable to the feeler and consciousness to the feeling."

These views are not identical; they contain probably nothing but what is true, yet scarcely make the question clear.

Every thing of which we are conscious, of course must be a feeling, but does consciousness embrace every kind of feeling. In the former quotation the feeling is limited to a particular field of operation. The object of consciousness, according to the views of the authors named, are 'the other faculties,' hence, by way of illustration, as the external environment is the object of sensation—sensation is one of the objects of consciousness; (an imperium in imperio) and therefore it differs from sensation according to this view.

As regards the second quotation of Dr. Bastian, or that the word consciousness is applicable to the feeling of the feeler, it may be asked if feeling or sensation is nothing more or less than consciousness? A sensation as it appears to me is the impression produced by an external object, but consciousness is the impression or recognition of the sensation, and this is the meaning conveyed in the first quotation. In this there is this difference between sensation and consciousness, the special senses give us one set of ideas, acquaint us with external objects, their presence and qualities, but consciousness makes us cognizant of the operations within us.

Sensation depends therefore upon the special senses. External objects are the objects of the special organs. Internal operations the objects of consciousness.

We may next ask how far it is a *condition* of intelligence—in two ways.

In the first place our special senses may make us cognizant of the physical characters around us. Everything which we can see, hear, taste, smell, or feel, can be made known to us through these organs, but we have many other cognitions than those derived from special senses; all the operations going on within us

are objects of consciousness and beyond the sphere of the special senses.

Secondly, there is a wide difference between the cognitions obtained by special sense and through the operations going on in the mind.

The ideas received by the special senses relate wholly to our environment, to external things and their relations. When we see an object, we receive the idea of the object external to us. It is the same with the object of hearing, the sound is attributed to its producer, and even when we touch ourselves, we attribute the quality to ourselves as an object: but when any idea becomes a part of our consciousness, it is viewed as belonging to the organism, and to a process connected with the organism.

A sensation, it is true, becomes conscious as soon as we are conscious of it, at first it is only a sensory stimulus; but when thus incorporated with consciousness it is a perception, and we do not any longer consider that it belongs to the external environment, but to be an attribute of the internal organism; it thus becomes an idea, and, as an idea, may remain as stored force.

Various degrees of consciousness are recognizable. Authors speak of semi-consciousness, feeble-consciousness in all degrees, to a state of complete unconsciousness.

Consciousness is a necessary part of several other mental faculties; as, Volition—which is in other words motion with consciousness: Emotions—or sensations with consciousness: Memory—though of late a memory without consciousness has been spoken of.

Though all the voluntary movements imply the presence of consciousness, it is well established that the quality of consciousness is in no way operative in producing the motion. Hence physiologists have been speaking of unconscious motions under the term automatic movements.

And beyond this of late they have claimed other kinds of memory -as an unconscious memory, this term is to designate the tendency expressed by Lewes in the words "discharge along the line of least resistance," which means that many even very complex movements originally acquired by such vivid impressions along the afferent track as to produce a vivid con-

sciousness of the operation, may by constant repetition become less and less conscious in their performance, in other words become more and more mere reflex or spinal actions. Such as learning to read or write, to play the piano, walk, etc., all of which by practice become almost unconsciously performed. Gratiolet says—"Every organ has its own memory."

Griesinger, as quoted by Lewes, says, "there is a memory for all the central organs including the spinal cord. There is one for reflex images as well as for sense images."

This to my mind is only adding another difficulty to what is already considered intricate enough. Much opposed as one may be to new names however, this phenomenon would certainly deserve a better name, and a more distinctive term to denote it, than that of unconscious memory.

The tales that are told of actions performed unconsciously, from result of cerebral disease or cerebral sleep, are among the most wonderful histories of medical literature; they are at the same time proofs that co-ordination in no way depends on consciousness.

M. Trousseau (*Lectures*, translated by V. Bazire, p. 58) gives several examples of acts performed unconsciously by epileptics while in their attack, and which partook of the character of acts of Will, as: an architect who, when attacked by his disease, ran along the planks of a high scaffold, and this he did frequently and without ever falling; a musician, who in his attack continued to play his part in an overture; a priest, who continued to incense the bishop from the thurible; the president of a provincial tribunal who would leave his seat to go into the next room and perform some incongruous act, and return to continue his duty. Professor Huxley, in an address at the Meeting of the British Medical Association, August, 1874, related the case of a man who after receiving a shot which fractured his parietal bone, recovered, but was subject to attacks, in which he became, as it were, purely automatic for two or three days in every month. In this state he would appear neither to see or hear; but if the materials for a cigarette were put in his way, he proceeded to fold them into proper form, but could not distinguish if it were sawdust or tobacco which was given him. He could perform other equally complicated acts, avoid obstructions in walking, &c.

Emotion.—The next mental product which we may consider is Emotion.

Emotion is closely allied to the products which we have been occupied upon—Sensation and Memory.

The word Emotion is an abstract term, and is used to group together those effects which are produced on the organism from without, and are attended with pleasure or pain.

The effect which any external object produces on the subject is one,—whole and concrete. It is by a mental process, that this single effect can be separated into the abstracts of Sensation, Emotion, Volition, &c.

Emotion is so closely related to, as to be scarcely separable from, Sensation; the ground for separating the one from the other, is this quality of being attended with pleasure or pain. So much of the effect produced on the organism by any external object, which excites painful or pleasurable feelings is emotion. It has, therefore, reference entirely to the mental product, or the subjective effect, or the effect produced on the subject.

"Whenever the mental phenomena," writes Lewes, "are considered as wholly within the organism, they are Sensations, Emotions, Impulse. When passing out they are Perceptions, Ideation and Volition." (Lewes, *op. cit.*, vol. i., p. 138, § 29).

"We divide feelings into central, called Emotions, and the peripheral, commonly called Sensations." (Spencer's *Principles of Psychology*, vol. i., § 112).

Thus the term Sensation has a somewhat more circumscribed meaning than Emotion. A Sensation is the product of an object in its concrete form, and is the concrete or primary effect produced on the Organism. Whereas Emotions may be produced by ideas of high abstraction; the highly moral actions, or valiant deeds described by poets, the contemplation of virtues or of the attributes of the Deity, give rise to Emotions; as the awe inspired by grandeur, antiquity, goodness, ideal beauty and the like, is Emotion, and which may eventually be traced back to Sensation as the origin; yet certainly acts upon the mind, through ideas of the abstract kind.

A very slight examination will convince us that nearly every idea is accompanied by some degree of emotional feeling, from that of the faintest kind, to an impression of the most disturbing or overwhelming description.

The following is the definition given by Prof. Bain—

"Emotion is the name used to comprehend all that is understood by feelings, states of feeling, pleasures, pains, passions, sentiments, affections." (*Emotions and Will*, p. 1).

"The fundamental proposition respecting Emotion generally may be expressed in these words:—The state of feeling, or the subjective consciousness which is known to each person by his own experience, is associated with a *diffusive action* over the system, through the medium of the cerebral hemispheres. In other words, the physical fact that accompanies and supports the mental act, without making or constituting that fact, is an agitation of all those bodily members more immediately allied with the brain by nervous communication." (*Op. cit.*, p. 5).

The Emotions have been differently enumerated; that arrangement of them given by Dugald Stewart is practical, and will serve to give examples of the chief varieties. He enumerates five kinds:—1. Appetites; 2. Desires; 3. Affections; 4. Moral Sense; and 5. Self Love.

All kinds of Emotions play an important rôle in Insanity. We may examine their agency and influence from two points of view: 1. From their kinds; 2. From their degree; but which will be better deferred to the chapter on Mental Processes.

Will, Volition.—The next product which claims our attention is the Will, and their is no product of the mind of more importance to us in the study of mental disease than this.

Will, voluntary motion, volition, free will, responsibility, and irresponsibility, all are connected with the mental faculty we call the Will. The question is treated by writers of all schools, but scarcely with the fulness which its importance from the medical point of view deserves.

Firstly, it is obvious that the term is an abstract term; and the idea of Will is an abstract idea. Plainly as this should appear to anyone who knows what an abstract idea is, it has been frequently overlooked. If an abstract, from what, we may ask, is it abstracted? Every time we use the term I, or he, in connection with an active verb, we have presented to our minds an action and the cause or agent (I or he). This agent by abstraction is generalised into a power that initiates an action, but to attribute to this power an independent existence

and call it the Will of the agent, is simply unwarrantable; by no manœuvre can we separate the Will from the agent.

But to go more fully into this question as it is of importance. In such a sentence as "I move," the meaning is intelligible, and it contains two ideas which we can separate in our minds, and place the one among a group of agents, and the other among a group of actions. We may say of the word "move" that it is of the same kind as walk, stand, run, &c., in fact it is a verb.

With regard to the word "I," it is the symbol representing the agent; and it may be classified with nouns in general, as far as its functions are concerned.

By considering this "I" in conjunction with other active verbs, as: I walk, I strike, I select, &c., we become possessed with the general idea of something which plays a similar part in so many acts. This general idea, with such general power to act, is the power we call "Will." It denotes an attribute of the "I." It is purely, therefore, an abstract idea; when used it signifies only an abstract power.

It has already been pointed out that the word I, or the Ego, is also used sometimes to denote an abstract, and sometimes a concrete, idea.

The word "Will" is thus clearly the name of an abstract idea and an attribute of the subject. It cannot in that sense be a separate and independent agent—an attribute except in conjunction with its object has no existence.

Will, then, is an attribute of Mind, it is included in the term mental functions, it cannot exist separated from mind, as mind cannot exist out of body. We have seen that various functions—Emotions, Sensations, &c., are included as mental functions, and Will is in the same category. Will, Emotion, Intellect, are abstractions of the idea of mind, as Mind is of bodily functions. Mind, is merely the grouping of all these faculties, and as expressed by Dr. Maudsley in a passage already quoted, "with regard to the manifold mental phenomena, by observation of them and abstraction from the particular, we get the general conception or essential idea of mind, an idea which has no more existence out of mind than any other idea or general term."

Will is necessarily attended by consciousness, since it is one

of the factors of consciousness, and it may be defined in the words of Hermann: "The state of consciousness coincident with excitation of the central organ, by means of the centripetal fibre is called Sensation, and that coincident with excitation by means of the centrifugal fibre—Will." (Hermann, by Gamgee, p. 474).

Mr. Spencer says, that the mistake that persons of confused conceptions make on the subject of Will "appears to consist in supposing that at each moment the Ego is something more than the composite state of consciousness which then exists," that is, for the passage is very epigrammatic, that in speaking of ourselves we mean our minds, and it is obvious in speaking of any voluntary performance this is eminently the meaning, though we are apt to imagine we may speak of ourselves—divorced, as it were, for a time from ourselves—that we are able to put off our composite state of consciousness, which is in fact our only existence,—that we put this aside and sit in judgment, or as outside observers, of what is going on in our mind; whereas, what is going on is our mind, and is in fact all ourselves. "A man," says Mr. Spencer, "who after being subject to an impulse consisting of a group of psychical states.....performs a certain action, usually asserts that he determined to perform the action," this group of psychical states being inducements presenting themselves at the moment, or the result of former impressions, and that he performed the action under their impulse, "and," says Mr. Spencer, "by speaking of himself as having been separate from the group of psychical states, constituting the impulse, he falls into the error of supposing that it was not the impulse alone which determined the action." The man himself mentally considered, or mentally constituted, was nothing more than these "psychical states." When a man speaks of himself as an agent in any voluntary act, he means his mental self; for his state of mind is himself, and constitutes his Ego, or *individualness*; and, therefore, it is the same thing to say that he performed the act, and that the mental impulse performed it. "The entire group of psychical states which constituted the antecedent to the action, also constituted himself at that moment—constituted his psychical self, that is, as distinguished from his physical self. It is alike true that he

determined it, seeing that during its existence the impulse constituted his then state of consciousness, that is himself." (*Principles of Psychology*, First Edition, vol. i., p. 617, § 219).

In this example here cited from Spencer, by viewing a single act of Volition, the impulse at that particular moment was the man—the Ego, and all the relations that were present around the Ego, acting with the Ego, necessarily resulted in a certain way. The result was as necessary as that 2 and 2 make 4; the laws of nature being admitted to be at all times fixed.

That we have, however, an idea that we are not subject to this fixed law in our various volitions, results from the fact that most frequently we do not judge this question on the one act in its concrete state, but we take a general and abstract view of our entire existence, and consider the problem with a general Ego, and placed in a general position of surrounding circumstances: such a problem, *i.e.*, of the variable Ego, in a variable position, gives of course but a variable and general result; and the outcome is an abstract and general idea of a power of choice.

In fine, the idea of Will considered as a faculty of mind, must be always united with its subject, and that is the Ego.

The Ego, Consciousness, Emotion, Will, are abstracts of one whole conception, and as such, cannot separately determine any concrete act.

Where the popular idea of a separate and distinct agent, called Will, has been derived, is from the metaphysical school—a school which was the most popular during a previous generation, and whose tenets still linger in the minds of many, and which, as pointed out by Comte, invented the hypothesis of an intermediate power, as "nature, life, vital principle, as the active causes of the phenomena of the universe." It was this source of error which led Dr. Carpenter to quote Cardinal Manning, and to state his unhesitating acquiescence: "That there is (in man) still another faculty—and more than this, another distinct agent, distinct from the thinking brain." (Carpenter, *Mental Physiology*, p. 6).

This is exactly the error, I fancy, to which Mr. Spencer alludes, when he wrote about men of confused mind. If such a faculty, however, could be proved to exist in the sense described by Dr. Carpenter, it would behove us to study it.

But if we are to consider the Will a distinct agent, why are we not to consider other abstract faculties as Emotions, Intellect, Sensation, as separate agents, or indeed why stop at such, and not include all abstract ideas ?

There is another product of mind, or resultant of the mental functions, which it will be as well to allude to, "Belief." This of course is largely discussed in all works on Mental Philosophy, and finds an important place in all treatises on Logic. It has special relation to our studies, though perhaps from a different point of view from that on which the works alluded to discuss the question.

The word "Belief," like most others in common use, is employed in a very loose manner in ordinary writings. Thus it is used to express both a doubt and a certainty; in the expression "I am not sure, but I believe so," it expresses uncertainty, though in works on Logic it signifies usually a "Creed." Originally, or etymologically, however, the term meant a persuasion of truth, rather than an absolute certainty; of fact. Locke says, "Belief is the assent to any proposition not made out by the deductions of reason, but upon the credit of the proposer." This is certainly one phase of the matter.

It is in this sense in which it is chiefly of interest to us as pathologists.

The various schools of philosophy treat of it, and have of course their special views on the subject. Before proceeding to examine any of these it will be as well to note some of the chief characteristics of Belief.

Firstly. Belief is not a voluntary act, we cannot believe or disbelieve as we choose; though the feelings may have weight in biasing opinion they cannot control it.

Secondly. Belief does not depend absolutely on truth. Philosophers have examined and have had discussions at great length on a 'basis of certitude'; though what a man believes is what he judges to be true, this belief is no test of the truth of any proposition. The agreement of the belief of many, the consensus of opinion of many, may produce a great degree of probability of the truth, but can go no farther than probability. It is beyond a doubt, that different men truly and firmly believe in very opposite propositions.

We are more concerned here on the state of mind called belief than on how it is produced.

Thirdly. A belief, to be a belief, must be a certitude to the believer.

Fourthly. As already stated, certitude, or the truth of a proposition, has been based by one school, upon the ultimate appeal to feeling or sensation, and to an inherent faculty of the mind by another. It must be allowed that feeling, or the direct evidence of the senses, is often at first view deceptive, and until it is verified, as particularly insisted upon by Lewes; as an example, the relative movements of the Earth and Sun may be quoted, as well as various other illusions of the senses.

While as to inherent evidence of certitude, as insisted upon by Kant in what he calls the *à priori* judgments, these are often disturbed in disease. The axiom, for example, "I exist, therefore I am," may be singularly disturbed by insanity. One cannot refrain from remarking here, that if these innate and fundamental beliefs are independent of the organism, and their origin, as Kant maintains, quite anterior to it, it is difficult to understand how a disease of the organism can overturn them.

Fifthly. Beliefs are by no means confined to the direct sensations or concretes; on the contrary our belief in abstract propositions is equally strong. It is claimed indeed for the abstract the greater power of inducing belief, this is due to the greater exactness of abstract propositions, and the elimination of disturbing conceptions on them.

Such an abstract proposition as all A is A, which is called an identical proposition, produces absolute belief by the force of its high abstract nature, or the conciseness to which the terms are reduced.

Lastly it must be granted that in the ordinary meaning of the word, belief admits of several degrees from the strongest conviction of certitude to a degree of probability.

There is no doubt that the facility of belief exists in different degrees in different individuals. This is a necessary result of the different amount of experience and knowledge in different individuals; the simpler the minds, the fewer the number of stored observations and judgments, the quicker is a belief arrived at, and the firmer is it held.

In the ultimate analysis of the foundation of belief, we come to that primitive reaction between the environment and the organism, in other words—to sensations, as held by the positive school. For though there may be a fallacy in first impressions made by an object, and an illusion of the particular sense, while the wrong impression is in operation, belief exists—though it be a belief of error; and belief in error, may be, as all history shows, as strong as in truths. Belief may be corrected, reviewed, or modified, by subsequent sensation, or by the memories of previous sensation, but that does not alter the fact that belief rests primarily on sensation—in other terms on Feeling.

Imagination has been treated by some as a separate faculty or power, but considered from the point of view which has been pursued in all the previous pages, it must be held to be simply an abstract product. We group all phenomena under the word mind, and we may on the other hand separate various parts of the whole by the process of abstraction, and one set of phenomena observed—we call imagination.*

Those who would treat it as a power or an active principle, would endow it with a creative power for which there is no warranty. If we examine any idea which is supposed to be due to this power, that is to the Imagination, and which idea has characteristics, which are easily recognised and grouped, we shall find it simply an abstraction, and the process of its formation appears to depend wholly upon the process which we have alluded to in speaking of the association of ideas. The new idea, however high its imaginative character, will be seen to be simply a result of one impression upon a previous or stored impression, which is called forth by association and comparison.

However grand or highly poetical the new idea is, it will be found to be simply a sensation from some physical object which calling up a previous sensation, forms with it a new combination, and more often than not, the new idea is only the expression of a simple association of ideas.

* The business of conception says Dugald Stewart is to present us with an exact transcript of what we have felt or perceived. But we have also a power of modifying our conceptions by combining the parts of different ones, so as to form new wholes of our own creation.

Poetical expressions are chiefly the expression of similes. No doubt one mind is more readily impressed with one phase of natural objects than with another. Thus one man, as Bacon remarks, is occupied with likenesses and another with the differences. Some men are impressed by magnitude, others with the minutiæ.

Imagination is thus not occupied with a present sensation, but with the secondary result which a sensation calls forth. It depends upon memory, it is wholly an abstract idea having no physical object. This will readily be seen by an example; as a poetical example due to pure Imagination, the following from Shelley to a lady may be cited:—

"As the moon's soft splendour
O'er the faint cold starlight of heaven
Is thrown,
So thy voice most tender
To the string without soul has given
Its Own, &c"

The likening of the charm which the human voice gave to the instrument, to the effect which the moon sheds over the cold starlight, is simply the comparison of two impressions. All having originally a physical origin, the poetry probably consists in the description of the resemblance of the two emotions. These emotions may not be associated at first in every mind, individual minds are differently sensitive, still every one can trace the natural association of the emotions, produced by these two sensations, the comparison of the sensation of sight to that of hearing, when once put into a formula of words.

As soon as these ideas are associated for us, their connexion is realised and they produce in us an emotion of pleasure or satisfaction, and new associations give us a wider view of nature and enlarge our spheres of intellect.

The point however to be insisted upon is, that the results which are called imaginative ideas, are not due to any independent agent or faculty, but the word Imagination includes only a particular kind of abstract idea, which is the product of one idea operating upon another. In insanity many of the ideas expressed might, and indeed have been attributed to disordered imagination, it would be more correct to say they were due to abnormal

association of ideas. Sometimes ideas in the insane exhibit merely an unusual association, that is that the stored idea which is aroused by a sensation, appears to a sane person to have no natural connexion with the excitant—it is incongruous; to us the mind of the patient is simply wandering, or it may be called incoherent. A still greater abnormal condition of mind is observed in some when every word seems disconnected.

Judgment. The next mental product which we have to mention is "Judgment." This subject has some important bearings from our point, owing to the various doctrines that have prevailed in the different schools of philosophy in regard to it. More especially is it of interest in relation to the question of Innate Ideas.

It is said that the doctrine of the independent faculty of judgment is still the most accepted in Germany and the metaphysical school generally, and even in this country it prevails as one of the legacies of metaphysics.

If the power of judgment is a separate faculty of the mind, it would of course be of primary importance to the alienist physician to examine it.

The definition of the word judgment is thus given by Lewes (*op. cit.*, vol. ii., p. 141):—"The operation named Judgment has a much more extensive sphere than the text-books assign to it. Judgment is inclusion, or grouping. The operation is one which connects an action with a feeling (more accurately one feeling with another) and the ordinary logical process of connecting a predicate with a subject is but a particular mode of this operation." That is, though what is technically called a Judgment, is simply predication, or the assertion that something is this or that, yet according to Mr. Lewes, the process is equally concerned with Emotions or Perception, as well as to Ideas, Thoughts, or to Judgments or Conception. When concerned with Perception and Emotion he prefers the term "The Logic of Feeling," and when concerned with Conception "The Logic of Signs."

According to most writers, a judgment is the outcome of a proposition, but the words judgment and proposition have been used indiscriminately (Mill's *Logic*, vol. i., chap. v.). When, for example, two ideas or conceptions are compared, as when we

say gold is yellow. Here a process takes place in our minds—by which two ideas, namely that of yellowness and that of gold, are brought together, and the result viz., that gold is yellow is a judgment. It is said that yellowness is predicated of gold—and the one is said to be predicate of the other. It is not, however, necessary that either of the elements, the subject, or the predicate, should be a material object nor the symbol of it, in fact the things compared are the ideas produced by objects, and they may be abstract and very complex ideas. But the judgment, Mill says, has always reference to the things, and not to our conception of them.

The process it will be seen is for the purpose of grouping—or inclusion.

The example, gold is yellow, groups or includes gold among yellow objects. The following phrase "the breeze which whispers through the lime trees is peculiarly agreeable to the feelings of a hot and wearied pedestrian," is equally a proposition in which one feeling is predicated of an action and the whole is also a judgment, though the subject—that is the particular sort of breeze, and the predicate or the condition produced in a particular kind of individual, are somewhat complex.

In as much as a judgment is grouping, in other words placing the object operated on into a group of resembling objects, the judgment is the expression of the quality and the predicate is the name of a quality, consequently, the judgment is an abstract idea; and that whether the result has reference to an object or to a feeling or emotion. Judgment too is not confined to a single increment of time, but usually it relates to the past, or to the future, it compares previous feeling with the present, or with still prior feeling, and in this it differs from a mere definition.

When we come to speak of the processes or the dynamics of mind, the subject will be further discussed from the point of view of the Metaphysical school.

Section II.

PROCESSES.

Development of Mind—Reflex acts, primitive effect in movement—Organs undifferentiated—Gradual Evolution of Special Organs; for Sense; for Locomotion—Appearance of Neural Apparatus—Genesis of Choice—Reflex Actions of Simple Kind—Compound Reflex Actions—Instinct—Acquired Actions—Evolution of Memory—Persistence of Sensory Impressions—Emotions—Stored Impressions and Remanents; their influence—Judgment; Kantian and Metaphysical Doctrines—Will—Responsibility—Character—Résumé.

Hitherto the subject treated has related to a consideration of the nature of the chief products of mind—this may be called the statics of mind; we will next consider the processes on which these products depend, or the dynamics of mind.

This portion of the subject admits of two divisions. In the first portion of the following pages we will examine the genesis of mind, and in the second part the mechanism on which the mental functions depend.

Part I.—On the Development of Mind.

Notwithstanding a fear that it may be thought that many of the facts about to be adduced are very trite and elementary, yet for the sake of tracing the genesis of mind from its earliest manifestations, it will be necessary to commence with such.

The first indication of the reaction between the external, or what is called the inorganic portion of creation, and the organic or living animal, is in a movement of the latter.

This simple effect of movement does not vary greatly from what is seen to occur in the action between certain agents wholly inorganic; as in the expansion of inorganic bodies by heat, say for example the movement of the mercury in the thermometer; or from what occurs in the transference of motion from a moving body to a similar body at rest.

And indeed there would seem to be no distinct line of demar-

cation between the movement caused by the reaction of external and physical agents upon the organism, and that between two inorganic bodies, anymore than there is in nature between what is organic and what is inorganic.

This, however, is our starting point in tracing the processes of mind, an animal is acted upon by an external agent of some kind and a motion follows. The polypes may be cited as an example. When anything, whether fit for the animal's nutrition or not, floats into the vicinity of the tentacles of the polype, these close around it, and it is digested or rejected if not digestible.

A second stage in ascending the scale of creation is to be observed when the animal is itself more composite, when it consists of parts symmetrically arranged as in the radiata. In these may be seen rudimentary organs of sense,—points which are believed to be more sensitive, and on which the action of external agents is greater, the consequence of which is simply, that the animal thus endowed is more easily influenced. The influence remains of the same general character, we must call it sensation, without defining it either as tactile, visual, or other kind of impression ; we are of course not in the position to say whether this effect, this sensation, approaches more to one kind of special sense or another, there is this evidence only—that what produces in us that which we call light, and what we experience by actual contact with a solid, have more effect on the lower organisms than sounds or odours.

In these compound animals consisting of several distinct parts we observe a decided spreading of the local excitant to the surrounding parts. The influence at first affects the parts adjacent. As we ascend the scale of nature we perceive that the local irritant extends also to the distant organs ; and we can trace distinct lines of nerves, by which we know such influence can be propagated.

So far, we are speaking of but very uncomplex organisms. Natural history would afford innumerable grades of development, each giving more and more complex functions and endowments. Next to this low form of nerve function, it will suffice to instance the tribe of animals, who besides having organs in connection with each other, but all endowed with the same faculties, have distinct organs for separate functions. There is clearly

no essential difference between the act of seizing a floating object by the polype, and the seizing of a similar object by tentacles placed around an oral opening, and conveying it into the special organ for digestion, or a stomach as may be seen in Bryozoa, etc.

Such tentacles for seizing the object or prey are clearly rudimentary arms; and since in the lower tribes, as in the jelly-fish, such organs as well as seizing the prey act as paddles or locomotive organs, there can be little difference in principle between these and the limbs of some higher animals which serve entirely for locomotion. The organs of locomotion, which in the lowest, are mere cilia lashing the water in which the animal floats, move the animal simply in an undefined direction; but when the visual organs are developed, there is a means of bringing the movements under the control of a common principle of action. In all the above examples we recognize a movement in obedience to a direct excitant from the surroundings; in the primitive state the impulse of the external irritant is expended in the immediate neighbourhood of the point of contact, in the more complex it is propagated to a wider sphere. Thus we have the first rudiments of a nervous system, and of a nerve current.

It may be as well to stop here and ask ourselves how far there is yet shown anything approaching mind, there is nothing apparently like choice, but it is evident that all that is received into these rudimentary stomachs is not digested. There is thus a selection made by some part of the organism, and this kind of selection is not widely different from that which is shown by the caterpillar, which affects one kind of leaf rather than another.

We may cite as example of the next degree, that which we observe in the larvæ of moths or butterflies; the egg is in the first place deposited upon a particular kind of leaf, immediately the egg is hatched, the young larva commences to feed upon the leaf; thus far the event is not different from the seizure of the floating particles by the polype or any of the zoophytes; but if we move the larva on to a different kind of leaf the animal no longer eats. Children who rear silk worms obtain if possible the mulberry leaf; if this is not procurable they substitute the lettuce leaf and the worm will feed on this; but if a leaf of some other species is offered the animal refuses

it. Here we have decidedly an instance of selection or choice. On closely examining the details of this experiment it is clear that the result is due to the operation of two agents, the animal is ready to eat, but it must be excited thereto by its proper excitant or stimulant. We may be prone to attribute all the selection to the animal, but this is clearly a fallacy, and one arising from want of a due examination of all the phenomena. In choosing, there must be the two agents, not only a chooser, but a thing chosen, and for the thing to be chosen it must excite the animal in a given way, it must be possessed of qualities that will attract the animal. In this way for the consummation of a choice, the two agents must operate, and the act forms no exception to the rule of the reaction between the animal and its environment, or in the words of Mr. Spencer:—

"Manifestly, if there is an entire absence of adaptation between its acts and surrounding circumstances, the animal must quickly cease to live, and if it exhibits any adaptation, it can do so only in virtue of the fact that certain impressions made upon it call forth one kind of action, while others call forth another kind." (Spencer, *Principles of Psychology*). There is in the organisms an innate capability of acting thus or thus according to the nature of the stimulus.

There are other faculties in this larva which are equally excited, the animal moves in regular manner to reach its food and its locomotion is very symmetrical and complex. It is not only directed by its faculties of taste, its nascent emotion of hunger, but its movements are in a proper direction. The animal consists of distinct parts, some for directing its movement, others for conveying, and storing, and digesting its nutriment within its body. So that we find organs for seeing or other special sense located in one point, organs for locomotion in another, and these are brought into an unison of action by a distinct nervous system. The same cause which incited the animal to eat, excites it to move though the result is brought about by more complex mechanism.

Now this very animal in process of time and development becomes an animal with still greater and higher faculties, for the insect world as a rule has a larval stage. The pupa becomes a perfect insect and in some insects much

higher faculties are discoverable—in the ant and the bee for example. We must admit from the experiments and observations of naturalists, that these animals not only show mental attributes in selecting and procuring food, but, as we are told, they learn to store it, they are prepared to protect it, and there is even a division of labour among their tribes. These very wonderful tales, if admitted, would prove that nearly all the higher attributes called mental, as memory, deduction, foresight, contrivance or actual reasoning faculty, may be developed in a very simple organism; but it is true that there is no means of verifying the actual identity of these functions in the insect with those in ourselves. And is it not merely an approach and not an identity of functions?

There is a difference which must not be lost sight of between the actions, however complicated, of the lower kind of animals and those of the higher as in man. Formerly, but without any very stable reason, one kind was ascribed to Instinct and the other to Reason. Instinct was assigned to the lower tribes which could not be allowed to possess a faculty of Reason without shocking the prejudices of mankind. A close examination does not show that there is anything in the quality of the act, which can distinguish between acts of reason and instinct, for the act itself is performed as perfectly and completely as any act of an intelligent and thinking man.

We may express this in other terms and say that the result which is the outcome of a given animal placed in a given position, is itself a necessary result.

If we admit the intelligence of the ant to the full extent claimed, there is scarcely a mental faculty, under whatever division of the faculties we like to make, that has not its analogue, or prefigurement in these animals. Senses, Intellect, Will, and Emotion, must be allowed to them, as well as Memory and Consciousness.

But it may be admitted that the problem cannot be so well examined in the insect life, and observations with the mammalians would be more convincing. However, in this early development we have at least this addition—the movements of the animal in a concerted direction, and this excited by a complex interaction between the animal and its surroundings. We have examples,

of the use of the special sense of sight and perhaps of smell. We have no satisfactory foundation for attributing to insects anything more than a very rudimentary degree of consciousness, and we cannot demonstrate the faculty of memory.

In the most primitive phase of excited actions, as they are called, in which we readily observe the motion to follow immediately on the action of an excitant, and in which the resulting movement is of the simplest character, we have no difficulty in admitting the result to be due to reflex action; there is nothing in the character of the more complex actions cited of the insects, to remove them from the category of excited movements. If we observe the first movements of some vertebrate animals it must be admitted that they also are the result of the same dual action. A duck just hatched rushes to the water, it swims and exercises all its limbs, chases the insect, turns and performs complex muscular movements, in whatever direction it appears to will. We see in such phenomena the commencement of the evolution of those actions called voluntary. Closely scrutinized these actions differ only from other excited actions in being of more complex character.

In the above cases, however, there is yet no evidence of the faculty of memory. This faculty evidently exists in some birds as in the parrot; but it is obvious that the first act of the duckling is not due to memory in any way,—the bird can have no recollection of being in a similar position; in it at least it is an excited action, and must be due moreover to a particular formation of the organism; all ducks in all times and places perform the same acts, and the same circumstances will continue to produce the same results.

We may cite the above facts as proving the same law of the interaction of the environment and the organism, and as proof that many acts, which have apparently all the characteristics of contrived or devised actions, are the result of the law of reflex action, or the necessary outcome of the environment and the organism; and such is the cause for almost every habit in the lower animals. It is seen in the various propensities of tribes of animals, as the disposition to point in one kind of dog, to set in another; to watch and lay wait, and to torment its captured prey in the cat; and which propensities are alike in all in-

dividuals of the same class and variety. We may even witness the same results in the propensities exhibited by children, who are found to follow certain modes of play and to have dispositions for like propensities in all climes, in savage as well as civilized life—and particularly to show an early inclination to imitation, exhibiting as Mr. Lewes would say, "organised tendencies to particular actions."

These actions which are usually called instincts show great uniformity of character, though under certain influences, they occasionally present slight variations in detail, and this more and more as the organism visibly shows greater and more complex development. Since, however, they clearly depend upon the original organisation for the particular features, they must be admitted to be, in some sense, innate.

These instinctive actions give no intellectual superiority to the individual over its fellows, though in their performance the actions themselves, in well observed instances, are evidently objects of consciousness; still they do not depend in any way on consciousness, nor are they either the result of memory, nor, as far as we can perceive, do they leave behind a memory, in the usual signification of that word.

These faculties which must be considered mental, equally as those of higher kind, have this peculiarity besides their tribal quality or hereditary character; that they are perfect from their first manifestations, in other words do not require to be learnt nor are they performed more readily by practice. The ants, the bees, and the beavers of to-day, go through the same performances as their ancestors of old; their progeny will repeat what they are doing now.

Acquired Acts.—But we next meet with another phenomenon, which is faintly exhibited in some of the lower forms of vertebrata, such as actions which are acquired or learnt by the particular animal, and not being born with the animal are not transmitted or transmissible to their offspring.

Birds have been taught to perform certain motor evolutions and to imitate certain sounds by instruction. Besides those movements which are common to the particular animal or the song which is the natural one of the species, new combinations are engrafted *ab initio* upon the animal, and their motor organs acquire a wider range of action.

It is important to note that this is only accomplished after long and frequent repetition. The bird can only acquire a new song or a new action after much pains bestowed, but the higher we ascend in the scale the more easily is the new action acquired. In the dog or the elephant, the power of learning is greater, and in man it is in its highest perfection.

The power of acquiring actions follows in the inverse ratio of the greatest perfection of the instincts. In the human infant the instincts are the fewest, and the motor functions at first at the lowest state of perfection. But in the human infant the propensity is innate or the tendency of the race may exist, but the mechanism is not in a state to carry out the actions. We must place in similar category the natural tastes, the appetites, and even many higher qualities, or natural gifts, with which we find every man more or less endowed and which each inherits.

It is, however, only the ability to perform and not the skill to execute, which is innate; this results and doubtless depends on particular development of the organism. New functions require even some degree of cultivation to perfect them, and are intermediate and form a transition from purely instinctive acts to the acts of reason or the higher mental attributes.

These acts of Reason, which are found in a limited degree in very many other animals besides man, but which are by far in the most perfect condition in man, seem to exist in exact ratio to the degree of development of the cerebral hemispheres, and have in fact an anatomical basis. In connection with them there may be certain other faculties resembling them, though it is doubtful to what extent they exist in those animals which are dependent upon what are called instincts. The anatomical facts on which both depend, however, have all this basis, this law—the law of afferent excitement and efferent motion; for as the action in the lowest kind of function depends upon the reaction of the environment and the organism, which in the simplest form of animal life is abundantly evident, so also does each variation of it upward. Man himself is acted upon from without, it is the environments which affect him through his special senses, producing sensation and all the other train of mental phenomena;

but in him there is a more complex machinery and a more complicated function.

The fact that the functions are only imperfectly performed in man at birth depends, however, rather upon the stage of growth at which birth takes place; the infant has all the mechanism in an imperfect condition, no new or fresh faculty is needed; but none of the functions are perfectly performed until the organism has arrived at its perfect growth.

Every animal is prone to perform certain actions in preference to certain other actions; each kind has its special kind of acts, and even the same kind of act is performed differently in different species. The primitive actions of all animals are in connection with the seizing of their prey; the mode of seizure depends on the organism; the animal is provided with organs of sense for finding, organs of locomotion for approaching, and organs of prehension for seizing the prey, and these organs are more and more special as we ascend the scale of animal life; but still the particular mode in each animal differs. One animal is chiefly aided by its organs of special sense—the sight and the scent, one captures its prey by its swiftness of pursuit, another lies in wait, one which feeds on vegetables reaches its food by a special formation of different kind; but all, whatever mode is adopted and whatever organism is applied, are impelled by a desire. This desire is special, in one it is for vegetable, in another for flesh; in one herbage, another fruit; in one for insects, another for fish, another birds, &c. In other words each organism has as well as its special organs, its special desires, its special fitness, or its choice; and such, it may be allowed, are innate, as they depend on the special endowment of the organism: *i.e.* the animal is directed or impelled to one or other kind of food, according to the effect which one or other kind of food produces on the animal.

The animal is pleasurably excited by one kind of food and unpleasantly or painfully affected by another kind, and pleasure and pain are terms used to signify the sum of the effects produced by different excitants of whatever kind, upon the organism.

The effect thus produced is Emotion.

For the production of emotion, however, what is called consciousness is essential, and for consciousness to exist the im-

pression produced by the excitant must have some degree of persistence.

The persistence of an impression over a distinct interval of time is an important property in mental processes—the mechanism on which it depends will be spoken of hereafter. It is a fact founded on pure observation, and is as uncontrovertible as any other fact derived from a similar source.

If every impression derived from one of our special senses—if what we saw, immediately faded as an object passing a mirror, mind could scarcely be said to exist: this property, therefore, is a factor in all mental processes; without it every act would simply be a reflex act, that is to say, the whole force produced by an object would be expended in a motion. But observation and the simplest introspection of ourselves prove to us that when we see any object we recognise it as a concrete, and immediately compare it with some object previously seen—we must do this to name it. It is clear, therefore, that some influence of former impression had remained with us.

The persistence of the impression is, therefore, an important faculty on which much depends; as, for example, all conscious acts, Emotion, Memory, and those acts attributed to Will.

As a very familiar example of the operation and property of this persistence may be cited that which occurs when an artist draws from nature—when he transfers the lines from the object to his paper: and in many instances this is not done immediately, but often after a very considerable interval of time: or when a musician returning from a concert continues to hear the airs passing through his mind, sometimes even to his annoyance.

Without such persistence there could be no comparison of present impressions with the past, in fact, there could be no store of knowledge of any kind.

Emotion. There remains the fact that each impression, and the recollection of it, gives rise to pleasure or pain; in other words, to emotional feelings of some kind, and the co-operation of such emotional feelings of past and present impressions determines often the direction of the resulting acts of life. In some acts, especially the more simple, the pain or pleasure are felt to give a preponderance to the direction into which the action shall tend, but in the more complex cases it may not be so

easy to recognize all the stages, by which the result is ultimately reached.

It undoubtedly happens that the Emotions are more distinctly called forth from a direct sensation, or by a concrete than by an abstract idea. The higher the abstract the less vividly does it produce emotion; and such abstracts as mathematical problems are quite free from emotional feeling. Even a description or narration of sensations and actions, which can be realised, causes emotion. Dramatic writing, or any narration to be successful should deal with facts in the concrete; sermons by very learned men often fail to interest, by dealing almost entirely in abstractions; such preachers speak of sin in the abstract sense, instead of instancing some act which is sinful.

In the higher abstract reasonings—in judgments properly so called—the agency of pleasure or pain forms but a minor part, and should, indeed, be wholly inoperative, but into which it often intrudes itself. In deciding upon any course of action for oneself, of course emotional feelings will be a factor in forming a conclusion, but the man who is the most able to suppress (inhibit) emotion has the best judicial mind. Such a condition of mind it was the object of the Stoics to cultivate.

To accomplish such a mastery of the emotional feelings requires a mind of power. It is, however, to be acquired by constant cultivation, and a large experience or a large store of observation. The young, and women as a rule, are less able to accomplish such mastery.

I have said that the ultimate action of a man takes the course on which the preponderance of emotions weighs, there is little doubt that an impulse to act in a particular direction may be suppressed. Some writers appear to believe that this alteration of the former impulse is due to an "inhibition." Such inhibition would seem with them to be an active process,—an action to arrest the first impulse. I have always viewed the result to be, and I believe this is the view of former writers, that the first impulse is overpowered by a second. We see, in fact, in certain cases an intermediate effect (hesitation) to be produced. Such at all events is felt, in coming to any conclusion, or opinion, or judgment.

The question of inhibitory centres will be alluded to in the sequel.

There remains the question why some emotions are painful and some pleasurable, how does an excitant cause one feeling at one time and another at another.

The recollection of any event which was followed by painful circumstances may produce a painful feeling when any reference to the same event occurs through the association of ideas; but in what does the pain or pleasure consist? How does this re-realization in the mind act upon the system? What is the process by which pleasurable or painful effects are produced? The remembrance of a sad event would be a cause of remote kind, the question here is what is the proximate cause or the organic condition at the basis of these feelings.

Emotion, says Professor Bain, is invariably associated with a "diffusive action over the system." While there is this tendency for a sensation (impression on the sensory organs) to terminate in a motor act, in many instances such motor act is more or less suppressed, as by a counter-action in any opposite direction, or by inhibition according to some views, yet there will be in every case some outgoing effect on the motor or glandular apparatus. If the excitant be too powerful for the inhibitory mechanism there will be some manifestation of emotion, from merely what Professor Bain calls a diffusive action to a more violent outbreak of laughter or crying. Sometimes the efferent may be expended in action of the capillaries or heart, causing blushing, palpitation, or pallor, or arrest of the heart, or evacuation of the bladder, etc., etc.

For an excitant to produce pleasurable feelings it must be regulated in its force. There is a degree to which an excitant produces pleasure, and beyond which the same excitation will produce pain. Another thing requisite to give rise to pleasurable emotions appears to be a certain diversity in the sensations aroused, that while a repetition of the same sensation which is in fact a monotony, produces a feeling of sadness, dulness, and such depressant emotions, a rapid change of effect produces a liveliness, joyfulness, and pleasurable ideas, accompanied with a pleasurable bodily effect. A changing scene in a landscape, a gradual and flowing sound, give rise to a sense of enjoyment, accompanied with a gentle play in the muscles concerned in expression, facial or bodily; while sudden change or break in a con-

nected flow of ideas produces the violent and convulsive movements of laughter, as in the effects of epigrams, riddles, and such *jeux de mots*. In analysing any witticism it will be seen, as often pointed out, that to produce the effect of mirth, and laughter, it is necessary in the recital of the story to lead the hearer's mind along a beaten track of ideas, and suddenly, unexpectedly, and abruptly to turn the whole current of thought into an opposite channel; the change must be complete and sudden as in the last word of the epigram—brevity is the soul of wit.

Pleasurable feelings therefore clearly require variation in the current of ideas—these ideas may be derived direct from sensation, as in viewing a scene of varied character or listening to music of varying notes, etc., or they may be produced by the description in words. There is this proviso, however, connected with the production of pleasure or pain, that events of tragical character are often sudden and abrupt and produce pain. When this is the case, it is owing not only to a continuance of impressions in one line, but to the degree of the excitant, for even too great pleasure of all kinds borders on the painful, and may be carried to an extent to become actually so. So when the excitant of a tragical character occurs, the excitant is painful from its intensity, and also from sympathy which is called forth in our own systems—leading us almost to realize the injury to ourselves, such at least is the effect in witnessing some tragical event. But some scenes even if tragical, have an element of pleasure in them or people would not resort to theatres to witness them as they do.

It is not meant here that pleasures and pains are mere degrees in a variety of successive sensations. The different kinds of emotion called forth, and which depend upon the nature of the external object which causes it, have some effect, thus the pleasure of music, of poetic imagination, of a landscape, of sculptures, produce different feelings; yet the pleasure derived from either requires some kind of change.

It is clear thus that to produce a feeling of pleasure a variation in ideas is essential; if the variety is abrupt, the effect is abrupt, if the variation flows from one change to another, the mind is pleased in a less active manner, and when one can almost

anticipate the coming turn in thought, it gratifies and even soothes. In listening to a piece of familiar music, not too frequently repeated, the mind is carried through the change in a way which is even more pleasurable, because more soothing, than to listen to a new and unknown melody: but when the same has been heard so often as to produce no surprise on the mind, or when a joke, is told so often as no longer to cause unexpected variation of ideas, they cease to produce the same effect; thus the actor ceases to laugh at the jokes he makes, and the musician to care to repeat his music; by the repetition of the same words many times, as a priest with his rosary, the process becomes at last monotonous, or automatic, and causes either depression or no feeling at all.

The power of external agents to act upon the organism in a way to produce pleasure or pain becomes, at least, a powerful agency in directing all actions. If one need not go so far as to assert that everything in a man's life and conduct depends upon the attributes of pleasure and pain, yet undoubtedly these are important factors in all human actions, including all kind of effects, and by no means limiting them to what are specially distinguished as psychical.

Judgment.—On no question connected with mental philosophy are the differences of opinion wider apart than on Judgment.

From the positivist point of view, the matter seems simple enough, the difficulties are connected with the doctrines of the metaphysicians. There is one source of confusion, however, which has in some way crept in among the most rigid positivists. It is this that ideas are spoken of as something more than sensations. Of course there is a distinction in the meaning of these words, but there is not therefore a separate existence for both, an idea is an abstract term only and its concrete is feeling or sensation, whichever word best expresses the impression on the organism made by an object: by making them two things we are interposing another step or stage in what seems a straitforward process.

This process is, that the external object affects the organism producing an impression, this is the first axiom on which we have been going, and secondly that the impression there produced may be exhausted entirely in a motor act, or only partially used,

and thus there is a remanent of energy; what is left we may call a sensation or an idea, but it is still part of and identical in nature with the new impression. If it be more convenient or clear to any one to call it an idea there can be no objection, provided he does not exalt it into a faculty, power or agent.

The primary action produces an impression in the concrete. This is named, and persists. By the law of association of ideas (that is, of impressions), if another object presents itself, allied to it in time or space, the second idea awaking the first, the two produce a joint effect, and two forces thus acting, the direction of the outcome will be according to the diagonal. The new effect will receive probably a new name, the last excitant will be *judged* to be like or unlike, similar or dissimilar—in the comparing the process of judging is inaugurated.

When more objects are presented these are compared with impressions made by previous objects, and the qualities of one compared with the qualities of the other; to compare is to judge. In the formation of abstract ideas the process is a judgment.

Judgment has therefore for its basis the power of the organism to receive an impression and to retain a portion of such impression, and the operation of these contending or co-operating impressions produces a new result, which may be a new abstract idea and a judgment.

By a further mental process and the reaction that takes place between two abstract ideas, or between abstract ideas and fresh concrete ideas, the higher abstract judgment results. These judgments through the reaction of ideas have reference, however, to the subject of such ideas, the result may be suppressed or formulated in words, and when so expressed it becomes what is called a proposition.

The result may or may not be reduced into language, but whether it be so or not, the proposition or judgment thus produced becomes the basis of all intellectual operations—operations which distinguish man from the rest of the creation by their much higher development.

By this explanation of the genesis of intellect the basis of the process rests ultimately upon the effect produced on the organism; and as this is called a sensation, the school which advocates

the doctrine has been called the sensualistic: it is stated to hold the doctrine expressed in the following :—

"Nihil in intellectu quod non fuerit prius in sensu."

Such, however, is not the case of the modern English school, nor indeed was it the doctrine of Locke to whom they are considered to owe their opinions. Locke's words were, as often quoted; "All our ideas come from Sensation and *Reflection*" which he explains to mean "the operation of our minds."

The operation of our minds is generally admitted to be the more important factor in the intellectual process of forming judgments or ideas. In every intellectual act the impressions previously produced on the Emotions, in other words on the mind, remain as a memory to influence, direct, divert, or arrest a judgment or an act. And, as already stated, there is no doubt that a man's inclinations, propensities, or biases, continually modify his thoughts, words, deeds, inclinations, propensities, &c.

But the schools which are the greatest opponents of such views of the intellectual process, and accuse those who hold such opinions of being sensualists, maintain, that besides the basis of sensation and reflection, there is an entirely distinct agent or property in operation, namely a property inherent in mind. They hold that the knowledge from this source is innate, and the doctrine of innate ideas is thus a part of their creed. This doctrine belongs to the metaphysical school generally, and since the ideas of this school were at one time very much in vogue, so much so as to imbue the general public with their opinions, and to affect even the very language of the literature of the times, the opinion demands some attention.

The exposition of these opinions will be best stated in their own words, and as one of the chief exponents of the school we may take the words of Kant, which I quote from Lewes' *History of Philosophy*, vol. i., p. 110, and vol. ii., p. 470, *et seq.* :—

In contradistinction to the doctrine that our knowledge is wholly derived from experience, Kant affirms, that not only is experience (by which he means the ideas dependent for their origin on sensations) not the source of our ideas, in other words not the foundation of our knowledge, beliefs, &c., but that these are matters which transcend all experience, which are indeed

anterior to it and without which experience itself would be of no avail.

In passing it may be remarked, that if this is so, it is of essential consequence in any study of mental diseases.

It may also be noted that the word "experience," which was the word used by Locke, is here limited to sensations; a common error in Locke's foreign critics, but as already has been shown a distinct misinterpretation of his words. Locke too, is considered the champion of the opponents of the doctrine of Innate Ideas. No modern writer of Locke's school will deny the influence of innate propensities, of temperaments, hereditary tendencies, &c., these help to make one factor in every mental operation, or in every interaction between the external world and the individual. The sun produces in the body the idea of light, but both factors must combine for the idea to be produced, and the susceptibility is an innate endowment, and so far there is an innate faculty, but such is not the sense which Kant claims for the existence of the Innate Idea.

Kantian doctrine on Judgments.—Kant divides Judgments into: 1. Synthetical; 2. Analytical; and he further divides each of these in two, α. *à priori*, β. *à posteriori*, according to Kant therefore judgments are of four kinds:—

1. Synthetic *à priori*. 2. Synthetic *à posteriori*. 3. Analytic *à priori*. 4. Analytic *à posteriori*.

As an example of a *synthetical judgment* Lewes gives the following:—*All bodies are heavy; Acids redden litmus;* which are judgments which extend our knowledge. By which he means, as I understand the subject, that such a judgment is a resultant from a process of *putting things together* (synthesis) and comparing them, and the product or result is an addition to our store of knowledge.

Whereas *the analytical judgment* is formed by analyzing the existing qualities of a subject, as when we say *a triangle is a body with three sides—body is extended.* This is not any addition to our store of facts, but it merely analyses our previous observations.

Of more importance to our present inquiry is that division of the subject into *à priori* judgments and *à posteriori* judgments, according to Kant's classification both the analytical and synthetical judgments admit of subdivision into these heads.

A priori judgments are those, according to the metaphysicians, which are *not* derived from experience, but belong to the natural structure of the mind, and which structure is one of the conditions of experience and makes experience possible.

A posteriori judgments are those derived from experience, that is to say they are the products of the mind and external objects.

As examples of judgments of the *à priori* kind, are given the following:—*A straight line is the shortest path between two points; two parallel lines cannot enclose a space or can never meet; two and two make four; the whole is greater than its part; that A is A.* The examples of *à posteriori* judgments are those of every day occurrence, as *Gold is ductile*, which is a knowledge derived clearly from experience.

Kant affirms that all cognition is unstable unless it is *à priori.* The following are the five fundamental propositions respecting judgments according to Kant.

1. "Experience does not furnish the whole of our knowledge."
2. "That what it does furnish has the character of contingency and variability."
3. "That the mind also furnishes an element, which element is an inseparable condition of all knowledge and without it knowledge could not be."
4. "That this element has the character of universality and necessity."
5. "That the principle of all certitude is precisely this universality and necessity."

Before proceeding to criticise these propositions and the examples in detail, it may be as well to remark, that on this question hinges many of the chief differences between the two schools with respect to the doctrine of innate ideas, and also that of nominalism, materialism, and idealism, &c.

The upshot of the dogma, as stated by Kant, is that according to him there exists, independent of the senses and other inlets of knowledge connected with the organism, or at all events with the brain and nervous system, another element, which existed anterior to the organs and continues to exist independently of them; that this in fact is the surer and safer monitor of the truth. If this be so, it behoves us especially as physiologists and psychologists to become acquainted with it.

This view too is favoured I think very commonly, or until very lately by physiologists, who in speaking of mental functions speak always of mind as quite independent of mental actions, and existing as a totally separate entity.

But firstly or before we set ourselves to examine the attributes of this inherent power, or *à priori* factor, in obtaining our knowledge, it is necessary to examine the evidence of its existence.

This seems to rest upon the following evidence. It is asserted that certain cognitions which are called necessary truths, as two parallel lines cannot meet, &c., cannot be given by experience and therefore they must be *à priori* of all experience.

To quote again very largely from Lewes. (*History of Philosophy*, vol. i., § 7). "We have," says Mr. Lewes, "to examine whether we learn necessary truths or bring them with us into the world as the heritage of a higher life." That two parallel lines can never meet is a necessary truth, that is to say it necessarily follows from the definition of a straight line.

To call it, however, an *à priori* truth, a truth independent of experience, is to have a very imperfect analysis of the mind's operations. An attempt is made to prove that the idea could never have been gained through experience, because it commands universal assent, and because experience itself could never give necessity. Dr. Whewell's argument is, that let us follow two parallel lines out as far as we can, we are still unable to follow them to infinity; and for all our experience can tell to the contrary, these lines may possibly begin to approach immediately beyond the farthest point to which we can follow them, and so finally meet. Now what ground have we for believing that this possibility is not the fact? In other words how do we know the axiom to be absolutely true? Clearly *not* from experience says Dr. Whewell following Kant.

"We answer," says Mr. Lewes, "yes, clearly from experience. For our concept of two parallel lines formed from experience is precisely this, they do not enclose space, and directly we conceive them to approach each other, they cease in our conception to be parallel lines."

"The whole difficulty lies in the clearness or obscurity with which the mind makes present to itself past experience....No sooner do we make present to our minds the image of parallel

lines, than in that very act we make present the impossibility of their meeting, and only as the image becomes obscure does the idea of meeting become possible." That this is a fact therefore gained from experience is clear. (Lewes, *loc. cit.*)

But in fact the attribute of not meeting is the distinguishing property of parallel lines; they are named from this attribute, and so soon as they lose it, they would no longer answer to the definition, on this depends the necessity and the certainty of the cognition.

Again to take another example, if all necessary truths are *à priori* judgments, then that three and two make five must be an *à priori* judgment, because by no effort, or freak of thought can we imagine three and two to make seven. If they are *à priori* they cannot be *à posteriori*, or in other words the outcome of experience. "Certainly by no freak of thought," says Mr. Lewes, "can Dr. Whewell believe that two and three are seven." This is quite true, and that it makes five, is to him a necessary truth, but that is evidently a matter of pure experience and slowly acquired knowledge too. One might easily believe that 472 and 274 made 646 or that 365 and 365 made 720. Yet when one had made an accurate calculation, he would find that the first two numbers made 746 and not 646, and the latter 730 and not 720; and having once obtained the correct result, the correct figures would be necessary truths, which by no power could we believe to be incorrect, but the result was a laboriously acquired knowledge.

Not only therefore are these, and many similar judgments which might be quoted, not *à priori*, though they have all the character of necessity. This character of necessity is therefore not due to what is attributed to some independent and innate faculty of the mind. To what then can we trace it? It will be seen that it depends upon the precision of the terms used in expressing the judgment; these necessary truths consist of abstractions, and the terms used to note them are free from ambiguity. "The truth depends," as Lewes says, "on the exactness of the terms." All A is A is true and necessary, but vary the terms as some A is some B, and there is no longer any necessity. The more abstract the term used the less does it include; therefore the higher the abstraction the greater generally is there the quality of neces-

sity in the judgment, but it is not because these abstractions are furnished as Kant says *exclusively* by the mind, that they are necessary or free from contingency, but because the terms used are more precise and exact.

There is no evidence therefore of any element furnished by the mind which is *prior* to all experience.

The whole fallacy of these views rests on that which is at the base of all metaphysical doctrines; the operations of the mind are treated as though mind were a material object or entity of some kind, and pre-existed, and were anterior to and independent of the organism. That is, to the metaphysical school, there is the idea of mind, whether it is a concrete or abstract idea would appear to be uncertain, but if an abstract idea of what is it an abstract? It is difficult to say even from the metaphysical point of view.

Judgments are usually more dependent upon the influence of abstract ideas than upon the more simple or concrete ideas directly derived from sensations; judgments are concerned, however, with a wide scope of mental impressions; a judgment may be derived from a balance between two present impressions, which would be a judgment of the most simple kind, and of the kind usual with undeveloped or low class of minds, as in children and imbeciles. In such, an action takes place quickly, the person is said to jump to a conclusion. Such a simple, that is uncomplex condition of mind, has but few stored impressions to modify or divert the present sensation; the same result follows more uniformly upon the same sensation and the actions following are said to be instinctive. To a mind in which impressions have accumulated in greater store, the process of mental weighing (deliberation) one against the other, is longer. The result or outcome is delivered, not only more slowly, but with less force; after deliberation of any large number of stored impressions, the scale preponderates eventually, but feebly, in one direction, so that the word deliberation becomes to signify a slow process of coming to a conclusion.

There is no doubt that in deliberations of all kind, from the simplest to the most abstract, the emotions enter largely as elements in giving a preponderance to the force of the nervous current in its outward progress. The emotions are antagonised by experiences gathered during a life, and they themselves pro-

bably are less strong as life progresses. In other words by long experience, external impressions and sensations of all kinds have a tendency to produce less bodily commotion, while several strong excitants grow feeble from bodily or physical decay. This is especially the case with all the appetites and more especially of course with all connected with sex. In man certain strong emotions and many higher mental faculties, poetical, imaginative, &c., are developed, and decay at certain periods of life, and they therefore have less influence in the resulting conclusions, that is, such emotions act with less force in the old than in the young.

The difficulty in considering any resultant, whether a cognition, or judgment, or act, as dependent upon the influence of abstract ideas upon abstract ideas, is experienced by many, because they desire to interpose a directing agent, or independent power, which is called by them the Will, Soul, Mind, the I, &c., according to various views which they have imbibed.

As an example of the mode of reasoning on the metaphysical doctrine in contrast to that of the positive school, the genesis of the ideas of time and space may be quoted.

Spencer writes, "the abstract of all sequences is time, the abstract of all co-existences is space," *First Principles*, p. 163. The ideas therefore are abstract ideas formed upon obvious concretes. When we observe one act or action following upon another, by a simple abstraction, we arrive at the idea of time which is a necessary part of such action, as knowledge of outward or inward actions are objects of sensation, undoubtedly the basis of the idea of time is in sensation. So with space, we see any body before us, or many bodies, by simple abstraction we can conceive that the space they occupy can be void. We have thus an abstract idea of space which appears perfectly simple and intelligible.

The objection which the metaphysician raises to this, is that to imagine any thing existing in space we must first have the idea of space to be occupied. "The Kantian formula is," says Cousin "that the pure rational idea of space comes so little from experience, that it is the condition of all experience." Cousin points out that though this may be logically the order, it is not chronologically, and suggests that we must first have the idea

of body before we can obtain the idea of space. Kant would assert of course that the idea of space was an *à priori* judgment.

Will.—It may be necessary to say a few words on the subject of Will considered as a *mental process.* It has already been pointed out that Will is merely the expression of a psychical process going on in our minds just prior to the termination of any excitant into a movement.

When certain impressions are produced to our minds through the medium of our senses, the tendency is for such to culminate in a motion, and in special actions, as far as we are cognizant, that is all that occurs; the stimulus passes from the sense centre to the motor centre and thence to a muscle: but in other actions instead of passing directly to the motor mechanism, say of a limb or leg, it is controlled by passing through a higher centre, where it is delayed an appreciable time. The delay is due probably to a ganglionic interposition; at which centre the original impulse may be modified by a previous or stored impression, or turned in some other direction; this conflict of impulses is a conscious condition. When at length the primary excitant overpowers the direction of other impulses, the neural discharge is felt to be emitted and to pass in the direction in which the preponderance of different forces points; these opposing forces are the man's wishes, desires, &c., when the discharge is about to occur, the feeling or the consciousness of the impending result we call our Will, and the act when made a volition. Voluntary acts are therefore slower than the involuntary, and it has been shown by direct experiment that it is a tendency of a ganglion to arrest the neural current.

Before concluding this part of our subject, it will be convenient to append a few remarks upon some matters bearing upon the mental functions, which have been supposed to be in opposition to the views here described, and which arise as it were incidentally, this is the more advisable as the subjects have a bearing on mental disease.

I allude to the subjects of responsibility and character.

Responsibility.—If a man's actions depend so much on external circumstance it may occur to any one to ask how it is that men differ so widely in temper, intellect, and mental faculties generally. Two men of equal mental powers, placed in the same

position, according to such a view should always act alike, and since a man has no control over his own organization, and not often over his own surroundings, how is it, firstly, that men differ so widely, and secondly, that they can be held responsible for their acts.

The answers to these questions appear to be in the first place, no two men are exactly alike, and it is rare to find two men exactly in the same position as to their surroundings, and therefore, any difference that is observed does not invalidate the proposition that men's conduct may differ normally.

Secondly, since he is the object of his surroundings over which he may have no control, how can a man be responsible. A man is not responsible for any acts over which he has no control; but he is for those under his control, and if we analyse an act we shall find that he is only responsible for such that arise out of his own organic actions; the case is put by Miss Martineau in the words I quote from Dr. Carpenter, as follows:

"Instinct, passion, thought, etc., are effects of organized substances. All causes are material causes. In material conditions, I find the origin of all religions, all philosophies, all opinions, all virtues, all spiritual conditions and influences, in the same manner that I find the origin of all diseases, and of all insanities in material conditions and causes. I am what I am, a creature of necessity. I claim neither merit nor demerit. I feel that I am as completely the result of my nature, and compelled to do what I do, as the needle to point to the north, or the puppet to move according as the string is pulled. I cannot alter my will, or be other than what I am, and cannot deserve either reward or punishment."

A great deal of the above sentence is superfluity; such as that which asserts the causes of this and that being material, etc. The gist of the sentence lies perhaps in the last paragraph. "I cannot alter my will"; of course the will is the man, if altered it would make a different man; a different man, would probably do differently, at all events he would do as he willed to do. If a man wills to do an act, of course he wills or elects to do the act with all its consequences, and punishment might be one. "I am what I am, a creature of necessity," this is mere verbiage or flourish, and might be put into a more sober proposition, when it would be more intelligible, it means probably only that, I own that the laws of nature are definite. As to not deserving either reward or punishment—since, as he says he cannot

alter and control the laws of nature or change them, which he admits by his proposition, when he wills a certain course, he wills to take all the consequences, he deserves what he invites, and what he will get, and he does exactly what he wills.

The passage is scarcely worth quoting, except as an example of a mistaken idea concerning the faculty of "Will"; which the writer first "exalts into a separate entity, and then allows it to tyrannize over his understanding."

Character.—But undoubtedly there are found in different men, very different powers to act, and each individual has his special characteristic, or in other words the natural characters of men differ. They differ intellectually, emotionally and morally, and the causes for such variations may be in the organism of the man or in his circumstances or environments.

The organic causes of difference may be due to different cerebral development—the gross weight of the organ varies, as a rule, the big cerebrum gives a greater mental power, but more particularly perhaps, the difference of mental power may be due to shape—that is to the preponderance of particular faculties. In one man the faculty of observation is large, the man is a large collector or storer of facts. In another the powers of reasoning, of estimating differences and likenesses is greater. A third may have both capacities large and be a more intelligent person than the others.

On the other hand, one man's energies may be feeble, another weak. Such a faculty added to either of the above special endowments would considerable modify the result. One man's emotional faculties may be over sensitive, or duller.

Especially is the character influenced by a man's appetites and organic feelings, by his health and strength, etc.

A man who is possessed of good powers of observation and of reasoning, who is not swayed by his animal appetites and feelings to any degree, will have faculties of the highest character. According to my own personal experience through a long life, when two men are met with who are equal, or nearly so, in these respects the one who has the largest power of digestion will prove the best man.

That on the whole the size of the brain has considerable influence is shown in the weights of the brain in men of great

mental power, examples of which may be found in any class book on physiology.

Again it is observed that one faculty is often developed at the expense of another, as when the blind show a development of musical talent; and no one can see a body of musical performers without observing how many are obliged to resort to glasses for some defect of sight.

The substance of the foregoing is as follows:—

SUMMARY.

1. The organism is acted upon by the environment, and from their conjoint action, a movement in the organism is the result. The action from the environment to the organism is the afferent. The action at the organism is the central æsthesis. The action from the centre to the environment is the efferent; the afferent is the sensitive, and efferent the motor effect; this law pervades the whole neural system.

2. The afferent may be wholly expended in the motor act as in the simplest reflex act, or it may be partially expended, the remainder may persist, the remanent.

3. The persistent remainder or remanent is dormant until revived by a fresh excitant.

4. The persistent remanent is recalled by an impression or feeling of any kind previously associated with it. This property is called the association of ideas.

5. The persistent remanent when recalled has power to modify the fresh impression from the environment, by strengthening or weakening it, and thus give greater variety to the direction of the motor outcome.

6. The excitant or impression from without may cause pleasure or pain either directly, or in combination with a former impression. Such states are the emotions and are usually accompanied by an efferent or motor current of some kind.

7. Upon the property of the persistence of impressions is founded the faculty of memory, consciousness, emotion, volition, perception and the higher intellectual faculties. "The perception of any object is possible only by the classing of a present

group of attributes and relations with a past group (Spencer, *op. cit.*, p. 330).

8. The comparison of a present group with a past group is a Judgment. "All mental action whatever may be defined as the continuous differentiation and integration of states of consciousness."—Spencer.

9. Judgments may be influenced by the emotions and emotions are influenced as much by the organism as by the environment.

10. Consciousness of the excitation which precedes the motor result is Will. In the words of Spencer "the difference between an involuntary movement of the leg and a voluntary one is, that whereas the involuntary one takes place without any previous consciousness of the movement to be made, the voluntary one takes place only after it."

Section III.

THE PROCESSES OR DYNAMICS OF MIND.—*continued.*

Dynamics—Gradual Development of Neural Functions—First Effect, Movement the Genesis of a Nervous System—Nature of Neural Force, its Properties—General Scheme of Nervous System—Development of Nerves—Forms of Nervous Systems—the Ganglion, its Office and Forms—Cells, varieties of—Motor and Sensory—Origin of Neural Current—Nervous Mechanism in Man—Spinal Cord, its Division into Motor and Sensory Columns—its Connection with the Cerebrum—Homology of Brain and Cord—Community of their Functions, as shown Anatomically, Pathologically and from a Developmental point of view—the Gradual Controlling Power of the Brain—the Differentiation of Brain and Cord—in their Functions—in Construction—Automatic Movements—Signification of the Term—Dr. Marshall Hall's views—the Control of Cerebrum shown by Experiment—Functions of Cerebral Hemispheres—Localization of Functions—Dr. Hughling Jackson's views—Anatomical basis of Intellect—Persistence of Impressions—Inhibition—Synthetical Review of Mental Function—Reflex Acts in Childhood—Subsequent Brain Development—Other Neural Functions; Co-ordination, Equilibriation, Tone.

In the next division of our subject we have to consider the dynamics of the nervous system in respect to the mechanism.

We may proceed upon the same plan, namely, we may commence at the lower, which is at the same time the simplest form, and proceed toward the higher organism. I shall here only dwell upon some of the principal matters connected with this subject; as, the nature and operation of the nervous energy, its mode of liberation, and transmission centripetally and centrifugally from the centres from which it emanates, throughout the system generally.

In the previous pages we have traced the gradual evolution of the mental processes themselves. We have now to follow the mechanism by which these processes are performed. It will be less necessary to enlarge on this subject, since this question is treated from the same point of view in all text books, which is not the case with that aspect of the subject, which we have hitherto been considering.

In any comparative investigation of the animal functions we assume that there is one general principle extending through

the whole series of animals. We also, as already submitted, take it as a law that in the gradual development from the lower order to the higher, this general principle is modified only, and is perfected by a differentiation of function and by specialization of organs.

We may also lay it down as a postulate, which the preceding pages have had the object of establishing; that the organism is acted upon by its environment, from whence arise the phenomena which we have to consider as mental products.

We have to consider what the nature of this influence is, and secondly, in what way it acts upon the organism.

The crude result of the action of the environment on the organism is motion—and this is all that occurs in the lowest kind of action as in a reflex movement. This effect does not differ materially from the action of one inorganic object upon another, and is simply a mechanical distribution of force. There are also like effects produced on inorganic bodies as when a body is said to be expanded by heat, and when two bodies act chemically upon each other, in this latter case there is an entire re-arrangement of the molecules. The force exerted upon the organism by different surrounding objects is exhibited in some cases by motion only, and in other cases by molecular changes, as in nutrition and waste of tissues. The acting force in one case has been attributed to chemical affinity—or to be identical with electric force—it has also been called the vital force to mark its distinct species; and the processes have been said to be due to vital force and chemical attraction.

One of the differences formerly much insisted upon, was that chemical combinations, (which were considered to be electrical) were necessarily binary, and that the combinations due to vital affinity were ternary.

That these forces are not identical seems to be proved by their antagonism, when the vital affinities cease the organism is acted upon by chemical affinity, and its elements re-arranged; as when dead animal substance undergoes decomposition, and is resolved into various other products, chemically distinct.

But the electrical force which holds the elements together in chemical composition, can be isolated as galvanism, and can be conducted through metallic conductors to distant parts. In this

there is both resemblance and difference between these forces; for the power, which dominates over organic combinations, is found to be transmissible through special conductors, the nerves, though it has not been isolated.

The problem, whether these acting forces are identical or different, has naturally become one which has occupied the attention of physicians; their identity has not been proved, their similarity, and the similarity of the laws which govern them, must be admitted by every one. As we find a great difficulty in drawing a line between organic and inorganic bodies, so we find a similar difficulty in distinguishing the phenomena which take place in organic bodies from the changes in the inorganic. And for explanation of organic changes and especially all excretory processes, we still invoke the laws of chemistry.

The question, however, with which we are now concerned, is the force that we find transmitted through the nerves; we might of course admit the fact that the nerves convey a force to a distant organ and look upon the enquiry as to its nature as useless, and, it may be worth the while, however, to consider certain opinions which have been broached concerning it.

It is generally admitted that though the force resembles the electrical it is not electricity. Mr. Herbert Spencer would explain the current to be due to the extreme instability of the organic colloids, or protoplasm of which the nerves largely consist. This protoplasm or colloid substance, he supposes to undergo isomeric changes, to which changes all colloids are particularly prone. This explanation appears to be only the substitution of one unknown thing for another, and isomeric changes must have something to induce them. The electric current is certainly a good example of transmission of force without change of place, as when in magnetism N—S, N—S, N—S, N—S, becomes S—N, S—N, S—N, by merely reversing the poles, by the approach of a more powerful magnet at the end of the series. A similar change may be instanced as an example in sound in the metrical arrangement of words, when iambs may become trochees, by the ablation of the first syllable, thus $\breve{A}\bar{B}$ $\breve{A}\bar{B}$ $\breve{A}\bar{B}$ will become $\bar{B}\breve{A}$ $\bar{B}\breve{A}$ $\bar{B}\breve{A}$ by removal of the first A and again changed by replacing it.

The main objection to Mr. Spencer's theory is, that it is a

simple chemical change, and chemical changes are electrical, and the phenomena of the neural current do not accord with the electrical theory according to general consent of authorities.

We must in our present state of knowledge, I think, either consider the nature of the neural transmission as one of those dead walls, which for the present must remain as a boundary of investigation, or be satisfied by saying that it is called "vital force."*

If, however, the nature of this neural current or transmitting influence is uncertain, we may investigate its action and some of its chief properties. It has been calculated that normally, the rapidity of neural current varies slightly in different individuals, and is according to Helmholtz at the rate of about 26—27 metres per second, or from 29—30 yards. The neural current is initiated or started from one of its ends, peripheral or central, and passes to the other. The nerve itself is passive as regards the passage through it, the genesis of the current therefore must be either at the periphery through the apparatus called the end organ, and which has its special organization, or centrally in, as it is believed, a ganglion cell.

The neural or initiating force is capable of accumulation, and by action for a long time becomes gradually exhausted, this occurs by its natural action; but it is made more apparent by direct experiment. It is believed also that upon undue accumulation of force, explosion or abnormal discharge may occur. It was found that in the experiments upon guinea pigs in which artificial epilepsy was induced, the fit could be produced at the operator's will by pinching the animal's cheek; the first pinch threw the animal into strong convulsions; on the animal's recovery, a second pinch produced a convulsion of less severe

* Lewes arguing upon this point makes the following remarks upon the original force in organic bodies (*On Animal Automatism*, p. 320, *et seq.*, Physical Basis of Mind). "Clearly the nature of the forces must be taken into account, the Materialistic doctrine attempts to reduce Biology to a problem of Mechanics." "But vitality and sensibility are co-efficients which must render the mechanical problem insoluble. The Vitalist turns his back on all evidence and would explain organic phenomena without any aid from physics and chemistry." "Vital facts, especially facts of sensibility, have factors neither discernible in machines, nor expressible in mechanical terms. We cannot ignore them, although for analytical purposes we may provisionally set them aside."

character, a third still less severe, until after many stimulations, no effect followed.

We may next consider the organism concerned in the transmission, which consists in the end organs, the nerves and the central organs. In other terms, there is the apparatus for the liberation of the neural force, consisting of the organs of the special senses; the organs which convey the action *from* the environment to the central organs; the central nerve organs; the organs which transmit the impulse back to the periphery to muscles, tissues, glandular organs, &c.

The apparatus when perfected, as in man, has all these organs differentiated, but their genesis may be traced from the lower grades in which, however, the same principles rule their action.

General principles or scheme of neural functions.—We may trace the process briefly in the following manner:—

We find that the mechanism by which the animal is put into relation with his environment, and by which the several parts of his organism are brought into unison with each other, is at first of very simple kind; in this primitive condition it appears to be by simple extension of the impression through the tissues, so that there is a communism in function. When the functions are differentiated, when the organs of nutrition and motion are separated, then only the development of lines of communication becomes necessary.

There are three types of the arrangement of these means of inter-communication; the circular as found in the radiata; the diplo-neurose in the articulata; spini-cerebratal as in mammalia and man; these are examples of arrangement not differences of principle.

In the circular form there is uniformity of function through every portion of the animal. In the diplo-neurose there are ganglions of large size at the head and these surround the œsophagœal opening, there are ganglions in both forms placed at more or less regular intervals, and from these points the nerves proper arise, thus bringing the creature's eyes and locomotive organ, &c., into direct communication. Such is the apparatus which suffices for bringing the various parts of the animal into harmony of functions, and for performing the reflex movements which we find in this low organisation. But with this form of enervation

the movements of complex character are performed and apparently are as elaborate, or nearly so, as those which exist in the higher organisms. One of the chief differences between their performance, and that of the higher kind, is the fixity, or as it were the stereotyped character, of the acts. One individual at one period goes through the same action as another, without any accumulation of experiences or improvement in the process. The ants of this epoch do what the ants in Solomon's time did. They are, as it were, machines, which when once wound up, go through a given set of evolutions.

In following the development of the higher functions in mammalia and in man, we find the mechanism more complex, the distribution of nerves of communication and their consensus or co-ordination in action require other arrangements of more complex character.

This necessity is met by the development of ganglions; these may be likened to stations on a railway—or in railway terms, to junctions, from which a new direction may be initiated in a passing neural current; and the simile holds good in several respects, for the train may pass through the junction or continue in its original direction, or in fact it may be turned into a branch line out of the primary course.

We have thus developed a step in the differentiation of function and we have the special organs of the ganglion and the nerve, which we will consider briefly in succession and separately.

1. *Ganglion*:—If we may not say it is proved, it seems pretfully admitted, as had been a long time surmised, that the ganglion is a most important or chief organ and centre in neural functions. It is not meant by this that it exercises any active or possesses any inherent energy, though it may have the power of exciting or calling forth energy—as exhibited in its connection with a peripheral organ, as muscle, gland, &c.—Its main office is rather in directing, and it has also apparently the power of storing energy, in like manner that a Leyden jar has the property of accumulating electric power. In this latter capacity, it must even arrest the neural energy, for Wundt experimentally showed that a stimulus is both retarded and weakened in its passage through a ganglion. "He interpreted this as proving that the

cells retard every impulse, whereby they are enabled to store up latent force.....like locks in a canal." Lewes' *Physical Basis*, p. 249.

This property is one on which probably much depends, and it will be referred to again in the sequel.

The ganglion itself has received considerable attention from the physiologist; and its position, form, and every thing that is known concerning it seem to suggest that its office is one of essential character in the neural processes.

A ganglion consists of ganglionic cells and the neuroglia. In such sense the whole cortex cerebri and cerebelli, thalamus opticus, corpus striatum, and other basal ganglia, as well as the grey portions of spinal cord are ganglionic.

The neuroglia, as its name implies, may be looked upon as the special connective medium of the more essential parts, or the cells and their processes with the vessels of nutrient and functional supply.

The ganglionic cell is described to consist of a body and processes. The body of the cell is composed of numerous minute fibrils which form a kind of network, and according to Mons. Luys, the fibrillæ are interlaced "like the wickerwork of an osier basket." Each cell contains also a nucleus and nucleolus; the processes of the cell vary in number, some cells are without any and are called apolar, some have one or more and are called unipolar, bipolar, multipolar, &c., the rest of the contents of the cell is considered to be protoplasm. The processes connected with* the cells are both branched and unbranched.

The cells are met with singly or in groups. They also differ in size as well as in shape and complexity, as for example the cells of the anterior horn or motor tract of the cord are larger than the cells of the posterior or sensory tract. The cells of the cerebrum differ in size at different depths of the cortex; the more superficial are smaller, more ovoid, and many appear to be non-caudate, those of a deeper stratum are pyramidal (or

* It is obviously a difficult microscopic feat to prove the number of poles that are connected with any given cell, since in a section, filaments may escape observation by passing out of section downwards or upwards, &c. We may readily prove the positive existence of multipolar cells; the negative proof of the number of poles is impossible.

parsnip-shaped?), their large extremity directed centrally, and at the upper end terminating in a process or filament, that extends toward the pia mater. Still deeper the cells are larger, and in certain positions are specially large and are known as giant cells. These latter, it should be noted, exist in small quantity only in very young children, but are specially detected in old people. (See plate I.)

The fact that the largest cells are found in the motor centres of the cord, has been construed to signify that the tracts of the cerebrum, in which the large cells are found, are motor centres also, which is corroborated by the fact that they are more numerously developed in mature age and in certain localities in the brain.

The cells of the cerebellum are of different shape from those found in other parts of the nervous system; they consist also of a body and one process which is branched; the body is of more rounded form and is without angular projections. These cells are also arranged in a different way, being placed in regular lines between the white and grey matter; there are also in the cerebellum numerous non-caudate cells, of rather more circular form than those in the cortex cerebri.

We are therefore justified in concluding that the functions of these different cells differ, and that their use is of various kinds.

2. *Nerves*:—With respect to the nerves and their office, the nerves are simply conductors through which inter-communication is made between the different organs of the body; they exercise no function which may be called energy. The current through them can pass either way, as shown in the well-known experiment in which a rat's tail was first grafted by its tip into the back of the animal and afterwards severed at its root, and the neural current was re-established passing in an opposite direction to its normal course.

There seems no doubt, however, that the amount of energy or if we liken it to a current, the strength of the current may vary in degree in a nerve, if we measure its power by the different degrees of action that result from its influence, and there is evidence adduced to show that energy accumulates in its onward course. The neural current, however, may probably be increased

in its rapidity by repetition of its initiating stimulus, rather than by its actual power. It may, however, also be wholly and perhaps partially weakened by inhibitory action, to be considered further on, and by this means vary in its power. The increase of muscular power, or the increase in a glandular secretion, &c., must be due to the muscle when the increased power is motion, or to the state of the glandular organ when the increase is in that direction.

But since the nerves conduct in both directions or from the periphery to the centre and from the centre to the periphery, the fountain of this liberated energy must be either in these peripheral end organs or in the central organ.

Direct experiment has shown that the nerve current does not gain strength but rather the contrary, in passing through a ganglion (see ante p. 64); if we accept this view of Wundt, then the ganglion has no influence in the genesis of the neural force, but acts more as a storage for it. It follows that we must look for the genesis of the neural force in the peripheral end organs.

It is also in the anatomical arrangement of just these special organs that we find the apparatus for receiving and intensifying external impressions; the optical and auditory apparatus are both formed on mechanical principles to collect and intensify their particular excitant. So again is the dermal surface, for receiving the sensory impression of touch, as is obvious to every tyro in physiology.

Our review of the whole subject so far points out, how in the higher animals the environment of an individual acts upon the special organs of sense, and thus initiates or liberates the neural force, which is propagated along the nerves to the central ganglion, from whence the neural force is distributed.

The neural force may be *sui generis* or analogous to the chemical force, which performs the same function for organic operations that the electrical force does for inorganic combinations; in our present state of knowledge concerning it, we simply give it a distinctive name and call it the neural force. It, however, is clearly an attribute of the organism; so that the proposition that vital actions are due to the conjoint action of the organism and the environment still holds good.

Examination of the Nerve Functions; 1. Analytically; 2. Synthetically.—1. Analytical Examination of Nerve Functions. We have now to consider how these general principles are specialised to perform the various functions of life which we call nervous or mental in man.

We shall do well in studying the centres of the higher faculties, to commence with an examination of the spinal cord. Not only because this is pursuing our prescribed course in proceeding from the lower to the higher, but particularly because the physiology of the cord has received more attention of late and has been studied with much success, and the neural functions of the cord may afford us a key to the brain functions.

The following functions of the cord are recognised; for the description of which I avail myself of the work by Dr. B. Bramwell on *Diseases of the Spinal Cord.*

The spinal cord may be looked upon as consisting of a number of segments. Each being as it were a separate organ for a definite area, to which its roots proceed, whether skin, muscle, mucous membrane, viscus, &c. Each segment consists of a double set of organs, arranged side by side; each segment may be described as a disc of nervous tissue to which a pair of spinal nerves is attached; each nerve arising by an anterior and posterior root; the halves are separated by the anterior and posterior fissures.

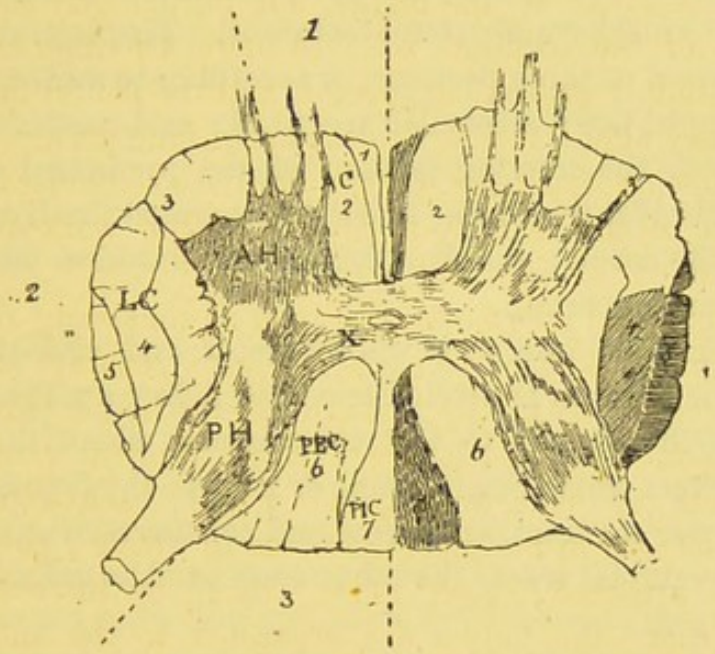
In this anatomical arrangement we perceive the separation into the sensory and motor organs, and viewed with regard to the functions, we have the primitive mechanism necessary for a simple reflex action such as we find in the lower organisms.

But in a segment of the cord, there are other organs besides the mechanism necessary for a reflex action. We have besides the sensory and motor ganglion cells, certain fibres which form the roots of the afferent and efferent nerves, and which are mostly horizontal in their direction; and other or perpendicular fibres which connect segment with segment, which also can be traced upwards and downwards.

These perpendicular fibres may be described as forming bundles and columns which are arranged side by side, and form three principal columns on each lateral half of the cord. Each of the three columns is further divisible into secondary columns, as shown in the accompanying diagram.

These separate portions of the cord are not only divided by their anatomical characters, but physiologically by performing separate functions, as determined both by experiment and pathological observation. The functions of the different columns are as follows; dividing each half of a segment into three parts, we have the posterior third as a sensory tract, the two remaining thirds motory.

Fig. 1.



AH Anterior Horn. PH Posterior Horn. AC Anterior Column. LC Lateral Column. PEC Postero-External Column. PIC Postero-Internal Column.

The *sensory tract*, or posterior column, or that portion situated between the posterior median fissure and the posterior cornu of grey matter, is further subdivided into two parts, which Dr. Gowers has proposed to call postero-internal PIC and postero-external columns PEC, (the internal being the column of Goll, and the external formerly called the column of Burdach.) The postero-internal portion of the sensory tract is smallest in the lumbar region, and gradually increases upwards towards the cervical. From this circumstance it is evidently an ascending tract, increasing as it reaches its destination and collecting the impulses on its way. This column in its internal portion has fibres connecting it with the posterior grey cornu and the grey commissure.

The postero-external portion is said to be composed of

fibres passing inwards to the posterior cornu, and of the fibres of the roots of the nerves which pass through it, and conveying impressions resulting in sensation "probably of touch and pain" (Bramwell), and also afferent fibres for reflex movements "including probably the deep reflexes" (Bramwell), as knee-jerk, and foot clonus.

Motor tracts (1 and 2), these constitute the rest of the white matter of the cord, and occupy two of the three portions into which the cord is artificially divided; the motor tracts therefore occupy the anterior and lateral columns. The lateral column LC is composed of three portions, or according to some four, viz.: anterior lateral LC3; cerebellar tract LC5; and posterior lateral LC4, which is the crossing portion of the pyramidal tract, or crossed pyramidal tract; the fourth enumerated lies between the latter and the cornu; the functions of the anterior lateral and the fourth are uncertain.

The anterior column AC is wholly motor and consists of two portions, the column is divided from its fellow by the anterior fissure, which extends to the commissure where the cornua meet; the tract which lies internal or next to the fissure, the internal anterior AC1 tract, is narrow and constitutes the uncrossed or direct pyramidal tract, the other tract or external anterior is also motor AC2.

Besides the perpendicular columns there are numerous horizontal fibres to be observed in each segment; some being due to the course of the roots of the nerve of which they consist, and others being the fibres which connect segment with segment.

Besides these white columns, an important portion of the segment consists of the central columns of grey matter, which on these transverse sections constitute the cornua, these are composed of grey matter and contain ganglion cells imbedded in neuroglia. In the anterior cornua the ganglionic cells are larger and are the motor cells, those of the lesser cornua are smaller and more spindle-shaped, and are considered to be sensory. These cells are caudate and differ from the cells of the cerebrum principally in size, and in having a more stellate form: they are collected into groups, the arrangement of these groups varies at different levels of the cord; besides groups which occupy the anterior horn in the dorsal and lumbar regions, there is a dis-

tinct group situated near to the central canal, called the vesicular column of Clarke; the ganglionic cells are largest in the lumbar region and fibres of white matter connect the columns of Clarke with the cerebellar tract described.

Relations of Cord and Cerebrum considered anatomically, pathologically and by embryology. The most interesting point connected with this differentiation of the cord is in its relation to the cerebrum; these various columns of white and grey matter can be traced upwards to their connexion with different parts of the cerebrum; on tracing this relation a few words relative to the medulla will be necessary.

The continuation of the cord upwards is by connexion with the medulla oblongata, cerebellar, and cerebral or basal ganglions, the corpora striata, thalami optici, corpora quadrigemina, and cerebral hemispheres; which shall next be briefly reviewed.

The medulla oblongata or superior termination of the cord, consists of the continuation of the different columns of the cord upwards. It will be remembered that after reaching the foramen magnum of the skull, the cord slightly expands and is called the medulla oblongata. This increase of size being partly due to the addition of fresh developments, as the olivary bodies, but partly also to a spreading out laterally of the columns corresponding to those of the cord; these columns have unluckily received different names in this part of their course and are called often the anterior pyramids.

Posteriorly, or in the sensory region, the cord is, as it were, slit open and the central commissure laid bare; the postero-internal columns of Gowers are here called the posterior pyramids, between these and by their separation a triangular space is left called the fourth ventricle, which is in fact the central foramen of the cord. The postero-external columns of Gowers lie external to these posterior pyramids, and are here called restiform bodies. The destination of these columns is doubtful, it is affirmed by some that the two become blended and pass as inferior peduncles into the cerebellum; "but Burdach and Arnold affirmed that the postero-internal ascend to the cerebrum." (Quain).

But the anterior or motor columns of the cord, at the lower part of the medulla, decussate with their fellows from the oppo-

site side, and pass through the pons Varolii where they form connection with the grey matter of the pons, and with the transverse bundles which proceed from the lateral lobes of the cerebellum; the course of the tracts is traversed by the roots of some of the cranial nerves, in their passage to the medulla oblongata (Ferrier).

"Beyond the pons Varolii and reinforced by fibres derived from it and its connections, the anterior tracts appear as two peduncles or limbs, the crura cerebri; these slightly diverge in their upward course. On the posterior aspect of the crura, and anterior to the cerebellum, are situated certain ganglionic masses, termed the corpora quadrigemina or optic lobes," (Ferrier). This description from Dr. Ferrier, it may be pointed out, is of the course of the posterior spinal column, or from a back view of the sensory tract, the additional developments to be mentioned hereafter are necessitated by the corresponding elaboration of the sensory functions.

The spinal columns, motory and sensory, up to a certain point, are thus united in their upward course, but on reaching the interior of the cranium their perpendicular position is converted of course into a more horizontal one. "*In the crura there is a distinct separation between the sensory and motor tracts,* the lower or inferior (*crusta* or *basis*) being the motor, and the upper or superior (*tegmentum*) forming the sensory tract. The two being separated from each other by a layer of dark coloured nerve cells called *locus niger*. The *tegmentum* or sensory tracts also contain, or enclose, a mass of nerve cells called the *red nucleus*, which is in connection with the *cerebellum* and *corpora quadrigemina*."

The crura cerebri pass into the two great basal ganglions, the optic thalamus, situated anteriorly, and the corpus striatum behind it. The sensory tracts pass into the thalamus and the motor tracts of the crura pass into the corpus striatum; from these the white fibres radiate in the form of a hollow cone called *corona radiata*, and by their expansion, when covered by the grey matter of the cortex (*couche corticale* of the French), form the surface of the cerebral hemispheres. The upper part of the crus connected with the sensory functions, was named by the old anatomists the *tegmentum*, and the lower part the *foot*, and

is connected with the motor functions. "Anatomically considered the *optic thalamus* is the ganglion of the *tegmentum*, and the *corpus striatum* the ganglion of the *base* or *foot*." (Ferrier).

As the white fibres emerge from the thalamus and corpus striatum, they are called the diverging fibres; besides these, which are arranged in a radiating manner, there are others which pass from front to back, and across or laterally, connecting the distant parts of the same hemisphere together.

There are certain portions of the cerebral hemisphere which have received considerable attention of late years in consequence of their connection with certain lesions which affect both spinal and cerebral functions simultaneously, and which it will be interesting to follow, since they connect the whole neural system into one common apparatus.

Before entering upon the subject of the cerebro-spinal connections, I would remark, that physiology and that part of it which has been called teratology, leads to the conclusion, that the skull may be considered as a homologue of vertebræ, and to consist of the elements of four vertebræ:—viz., 1. the nasal; 2. frontal; 3. parietal; 4. occipital; and the different cranial nerves have their analogues in the spinal nerves. Each of these segments has its corresponding portion of nerve ganglions and homologues of the cord.*

The observation is of interest as bearing out the principle of uniformity, that pervades the entire animal creation, and we are justified by it in viewing the cerebrum as a modified and higher differentiation of the cord, and to be the elaboration of so many segments of it; thus we may look upon the white matter of the cerebrum as continuation of the six columns of the cord, expanded from its bulbar end. The grey columns accompanying the crura or columnar expansion, occupy the same position as *locus niger*. The posterior horns increased in size become the tubercula cinerea; the grey commissure of the cord, as the white columns separate, is exposed at the back of the medulla as the floor of the fourth ventricle.

2. Embryological evidence of the cerebro-spinal connexions.—But there are certain other facts in connection with pathology and embryology, which throw considerable light upon the com-

* This question was treated in an article by Dr. Hughlings Jackson.

munism of function between the cerebrum and cord, which will well deserve attention.

The first of these is in connection with the internal capsule, as it is called.

It is found that any lesion of the capsule in its anterior two-thirds, causes hemiplegia on the opposite side of the body without anæsthesia; while rupture or lesion in the posterior one-third portion, causes hemi-anæsthesia;* thus clearly showing that both sensory and motor fibres are contained in this part, which as we know is an extension of the crura, and that the tracts are distinct; the motor occupying as in the cord the anterior, and the sensory the posterior position; also as regards this motor tract itself, physiologists are able to trace distinct connections between this part of the cord with a cerebral region. In the cord there are, as stated, two pyramidal tracts—one direct and the other the crossed pyramidal tract (the first 1. and the second 5. in the diagram). In the new born child, if a section of the cord be treated with osmic acid, these particular tracts alone are stained, the rest of the section remains clear; these tracts are thus by a histological test proved to be similar in properties. In the new born infant the cerebrum is in a very rudimentary condition, and the functions of the nervous system are in a manner exclusively concentrated in the medulla and spinal cord (Billard quoted by Charcot). At this early period such acts as are accomplished, however complex (as in sucking), are purely reflex; that such acts are spinal the case of the anencephalic infant, who will suck, proves.

These pyramidal tracts by the action with the osmic acid show an earlier development than the rest of the cord, and they are stained because their myeloid sheaths are developed, which is not the case with the other columns. The pyramidal fibres may be traced through the pons to the crus cerebri; before reaching this part they decussate with their fellow of the opposite hemisphere. In the pons the nerve elements, which had previously formed the bulbar pyramids, intermingle with the spinal fibres of the pons, and as it were, emerging from the pons become parts of the crura cerebri.

* Charcot. *Localisation of Cerebral Diseases.* Translated by Dr. Hadden, New Syd. Soc., p. 85.

The crus cerebri is here composed of an upper and lower portion, the former called the tegmentum and the latter the foot, as already stated. In the fœtus or newly born child, the foot may be distinguished as consisting of three segments, internal, external and middle; in the two first, the medullary sheaths are not yet developed, and on treating with osmic acid remain clear; the middle segment is rendered opaque, and this opaque portion is according to Flechsig, the re-arranged prolongations of the pyramidal tract. "This," says M. Charcot, "is unquestionally important, since it seems to indicate that the development of the pyramidal tracts proceeds from the cerebrum proper."

"The pyramidal tract may be followed beyond the foot into the cerebral hemisphere, and its presence can be recognised in the opto-striato ganglionic masses in the region called the internal capsule, which is in short, at least to a considerable extent, no other than the expansion of the fasciculi which form the lower layer of the crura," Charcot, *op. cit.*, p. 177. The pyramidal tract may be traced upwards even to the grey cortical matter of the convolutions and terminates in what is called the motor zone, "paracentral lobuli or upper extremity of the ascending frontal and parietal convolutions." (See plate I.)

The above is Flechsig's account as quoted from Charcot, who adds, that his conclusion requires confirmation in more than one point. Professor Parrot examined this question by testing it in ninety-six autopsies of children under one year; the only difference would appear to be, that the latter observer considers that the development of the motor tracts of the cerebrum proceeds from more than one centre, and proceeds gradually downwards.

3. Cerebro-spinal connexions as shown by pathology. The same connection or community of function between cord and cerebrum, is shown pathologically, by what are called the secondary lesions of the cord; that is when a lesion of any kind, which may affect the cerebrum, leads to a secondary degeneration below in the course of the tract by which it is connected with the cord; or when disease of the cord or atrophy of an inferior portion leads to degeneration above. It is found that these secondary lesions of the cord, on the pyramidal tract, only occur when the primary lesion is in the anterior two-thirds of internal capsule; they never occur when the lesion invades the posterior

third; and this obviously is the reason, that in one case the neural current is centrifugal, and therefore the function of the parts below are interfered with; in the other case, the current is centripetal, and therefore it has no effect on the point below, thus showing also that the differentiation of function in brain and cord are similar.

The connection or identity rather, of the cord and cerebrum, is thus made clear by anatomical and pathological investigations, as regards both motor and sensory functions.

That the development of the cord advances prior to that of the cerebrum. A very important question, as pointed out in the foregoing quotations and remarks, is that the development of the cord advances prior to that of the cerebrum. Comparative anatomy might have led us to suspect this. We readily admit that the higher intelligence in animals corresponds with the greater development of the brain. The intelligence of animals stops at a given point, and the development of their brain is finished at a corresponding degree of perfection.

We know that complexity of movements with co-ordination of the various motor impulses, occur in the lowest kind of organisms; there are also sensori-motor developments as indicated by expression of pain and discomforts, as well as by movements to escape from pain; there is also the exhibition of choice of food and many very complex operations in the very lowest animals. And at a certain period of the child's life we find the intelligence or the mental functions on a par with such simple manifestations. Before the brain is developed and even in the anencephalous infant, it has been established that the child is capable of performing certain complex and co-ordinated motions as in the operation of sucking; it is therefore obvious that such functions are performed through or by the means of the spinal cord. In observing the gradual development of the child, we find that all the first signs of life are of the same kind, the crying, sucking, evacuation of the dejections, the rolling of the eyes, movements of the limbs, are clearly of the character of spinal reflex motions, and excited through the usual channels of sensory centres. We may note also the fact, that in the frequent crying on any uneasiness, the sensations, especially of the skin, are perfectly developed.

By degrees the child begins to direct its eyes more regularly, then also to move its arms and legs with gradually increasing evidence of purpose; though still we witness the predominant excited or reflex movements in the contortions of the features and eyes in any slight gastric disturbance. And we know that up to a term of several years, a child is particularly prone to affections depending on the spinal centres, as to infantile convulsions; while he has but feeble control in checking all excited actions, as by crying when hurt, in falling, or even when hungry or uncomfortable in any way.

It corresponds with the period of the completion of the brain centres, that these excited reflex centres are first more controlled; that the child begins to control its evacuation to a given time; that it can wait more readily for its food; and gradually to acquire its full powers of volition.

Thus the brain becomes gradually a controlling power.

With this increase of function consciousness is also established. The higher mental powers are also slowly developing, and it is not till the age of puberty, that the faculties can be said to reach their completion.

The Differentiation of the Neural functions into cerebral and spinal. The foregoing facts have been chiefly brought forward to show the intimate connexion that exists between the cerebrum and spinal cord, both with regard to their functions and their anatomical substrata.

We may now proceed to view the question from the opposite point of view, and to examine the distinction between the functions of these organs.

Facts gleaned from pathology and experimental physiology abundantly show the difference of influence of these centres as regards one faculty—that is, consciousness.

We may premise that states of consciousness and unconsciousness exist in different degrees as already shown, and we may also divide them into kinds arising from different causes.

Consciousness naturally is subject to a certain degree of periodicity—as in sleep, when it is in greater or less abeyance. During perfect sleep all functions which are performed consciously or which when they take place are attended by consciousness, as Volition, Emotions, Memory, Ideation, cease; while those

of which we are unconscious, or less conscious, continue undisturbed, as the action of respiration, of blood circulation, the tonic contraction of the sphinctors, and certain other so-called automatic actions.

Mr. Durham, taking note of what occurred in a patient, who had a portion of his brain exposed by a fracture of the skull found, that as the patient dozed the brain grew pale, receded, and shrunk, and on waking the brain gradually swelled afresh, and discharged before it a quantity of serous fluid. This experiment is as satisfactory as any in experimental physiology, it shows that sleep has a marked effect in the cerebral organ, and that it depends upon a lessened supply of blood to the brain.

Sleep then, is a natural condition of unconsciousness, having for its anatomical substratum a state of anæmia, or spanæmia.

A similar state of unconsciousness is produced also by the sudden abstraction of blood, especially while the patient is in the erect posture, the older physicians used to prescribe venesection in the standing position *ad deliquium animi*, the patients usually recovered on being laid on their back. That the functions of respiration and other spinal movements continued, showed that the brain function was alone arrested, and that the cord was isolated from its immediate co-operation with it.

The above instances are of two kinds, and the *modus operandi* was different in them; in normal sleep the circulation was arrested by the vaso-motor nerves, and probably by their centres becoming exhausted. The other case was due to a direct deficiency of blood produced artificially; this loss must be sudden to produce the full effect, for a simply deficient supply, only lowers the activity of the cerebral function, affecting its energy especially in its function of memory, or the reproduction of a former impression: as when anæmia occurs in exhaustive diseases after fevers, or in old age, when the neural energy or activity of neural discharge is lessened.

But in certain other cases, the cerebral function is cut off by distinct lesion, as by compression of the brain, and in some cases temporarily by concussion also. The well authenticated cases of men who have lived for years in the state of mere automatons and have been suddenly restored by trephining are well

known; in these cases the brain-function has been suppressed by compression on the cerebral surface. Many of these persons were able, nevertheless, to perform very complicated and highly co-ordinated movements, but entirely without knowledge of the fact; and on being restored, awoke with a period of their life completely a blank in memory. So that not only a lesion affecting the blood-supply, but one acting on the nerve-tissue more directly, throws the cerebrum out of action.

Even without gross lesion, or mechanical injury, we observe the same state of unconscious existence to be produced by an excessive neural discharge, as in different kinds of epileptic seizure. In the cases of *petit mal* or *grand mal*, we have in fact the different functions of the brain as it were analyzed before our eye. In some slighter attacks there is, as Dr. Hughlings Jackson reasons, different degrees of discharge or discharges of different areas, and affecting portions of the brain in different and corresponding degree, producing in some a false sensation—an aura—in some, visions of colour; flashes of light; in some, a taste; and going on to motor discharge in cramps, convulsions, &c., and when the discharge is from the highest centres, unconsciousness.

The action of anæsthetics might also be cited, but the examples already instanced will suffice.

The foregoing facts, at all events, show that consciousness is a cerebral function, and since without consciousness all the chief purely psychical functions could not exist, as Emotion, Volition, Perception, Memory, they afford proof, if any were wanting, that all the higher or true intellectual powers depend on the brain solely.

There are, however, several functions to which we have not yet alluded, which require examination, and which depend on the action of the Brain and Cord conjointly or separately.

The spinal cord, besides being the centre of reflex movements has, it is believed, also trophic nerves or centres to control many of the vaso-motor functions. We have less to do with these from our special point of view except to indicate how a moral impression may act through these centres in producing those perturbations that Bain points out as accompanying all emotional feeling, as blushing, acceleration of pulse, palpita-

tion, micturition, &c., and which are doubtless all spinal; and hence they are more prone to occur in early life than in mature age, and in the weak-minded rather than what is called strong-minded; or in other words, in those in which the lower centres are less under the control of the upper centres. But these indications come chiefly under what have been called the automatic movements, on which we must make some reference here.

Automatic Movements.—It has been the fashion of late to class many of the spinal reflex movements under the head of automatic. The term automatic has, I consider, been an unfortunate introduction, and has come to mean in some people's notions, movements without cause, or without a substratum of a physiological process.

When this term was first employed I believe it was applied to those movements which, though at first obviously acquired by conscious efforts, and only by close attention, become by frequent practice and repetition more frequently executed without attention, or scarcely with consciousness, such as walking, or as in forming the letters in writing, striking the notes on a piano, which people, after a long practice, are able to do while talking or thinking of a perfectly different subject.

The word "automatic"* is certainly not very appropriate for such performances, except it be used metaphorically, or as a simile signifying that persons know as little of their actions as would an automaton toy. It was only subsequently that the term was made to include other actions, such as breathing, cardiac and peristaltic movements, winking, swallowing, coughing, flying, and such necessary functions which have the appearance of spontaneous initiation; while the acquired movements first mentioned are called secondarily automatic. The term in my opinion is a mistake and implies a power of which there is no proof, the words reflex or excito-motor introduced by Marshall Hall were applied or invented for these phenomena and especially for the primary automatic. He showed in his lectures, which I attended, a frog. "You observe this frog, its voluntary and sensory functions are obvious. I divide the spinal marrow below the occiput, with these scissors, all is still; there is no

* Lewes in a chapter on Automatism remarks that the word "Automatic" is an unfortunate metaphor which has led to the theory of Automatism.

trace of spontaneous motion. The animal would remain in this very form and position without change, until all signs of vitality were extinct. But now I pinch a toe with the forceps ; you see how both posterior extremities are moved. All is now still again, there is no spontaneous motion, *no sign of pain* from the wound in the neck. It is without sensibility, without volition ; the power to move remaining, the will is extinct. I now pinch the integument. You observe the result, the immediate recurrence of excito-motory phenomena. I now destroy the whole spinal marrow with this probe. It is in vain that I pinch the toes, the animal, the limbs are motionless," (*Lectures on the Nervous System*, § 30). Such phenomena as these, which Dr. Marshall Hall quoted to explain what are now often called automatic actions, clearly are excited actions.

The gradual sovereignty which the brain acquires, as it comes to maturity, over all spinal or excito-motory actions, is shown in various ways, and defective control is often exhibited when the brain is diseased as in insanity, but more distinctly is this action of cerebral control illustrated in certain lesions in which a physical separation of brain and cord occurs, and voluntary movements are annihilated, and all the reflex are in excess, a condition which is found in certain affections of the nervous system in which the reflexes are exaggerated.

In man not only can the cerebrum control the reflex spinal movements, but it is obvious to everyone in his own person that it can initiate them. In ordinary cases it is probable that walking, for example, is mainly performed, as to its neural force, through the lower centres and the cord, that is, when one performs the feat without attending to it, when it is automatic according to the original meaning of that term. When a person in walking has to avoid certain obstructions the action becomes a conscious and a cerebral act, but it is very well known that in certain cases of compression of the brain, and in certain states of epilepsy, that complicated actions do occur quite unconsciously, as they do also in sleep-walking. But direct experiment has been invoked to illustrate the same point.

By removal of the cerebral hemispheres, Dr. Ferrier found in animals the result to be, that whereas an animal with "brain intact exhibits a varied spontaneity of actions" not

obviously conditioned by present impressions on the organs of sense, after the removal, it moved only by excitation of its afferent nerves, that is in other words, its actions were reduced to simple reflex acts. He found that animals deprived of the cerebral hemispheres besides being able to maintain their equilibrium, are also capable of locomotion in their usual manner. He also inferred from experiment (p. 69) that animals deprived of consciousness by removal of the cerebral hemispheres gave indications of pain: the removal, was found to have no effect on vision, nor on hearing, nor upon co-ordination and maintenance of the equilibrium. (p. 64, § 27.)

It is not so, however, when certain lower centres or the corpora quadrigemina are irritated or removed, these correspond to the optic lobes of inferior animals and constitute the chief part of their encephalon. Dr. Ferrier concludes by remarking that electrical irritation of the corpora quadrigemina gives rise to effects mainly of reflex character which depend on the transference of irritation of sensory to motor centres.

At this point, therefore, may we make the anatomical division between these lower centres and the higher centres existing in cerebral hemispheres.

As regards the purely cerebral function the cerebral hemispheres have been the subject of direct experiment in this country and abroad; Dr. Ferrier's work on the Brain gives the results of his own investigation and that of others.

His experiments are now well known, and speaking in very general terms, they showed that irritation of given points of the cerebral surface was uniformly followed by a certain motor act. I am disposed to believe that with regard to the centres of special functions mapped out on the hemispheres, the proper conclusion to be drawn from a consideration of all the circumstances connected with them, is that such centres are the *usual* foci of given movements. To say that they are the real organs of the particular movements, is going beyond what experimentation proves, and beyond what I believe is claimed for them.

For firstly, as a principle of nerve action, it is well recognized that the current is continuous, that is, a sensory nerve at the periphery communicates through its central organ to a motor nerve going to the periphery, in other terms, there is afferent centrum

and efferent, and motion must follow excitations in any part of this tract. Excitation of the peripheral termination of the sensory terminates in movement, so the excitation of any part of the nervous loop produces the same effect. Of course this was well known to the experimenter, and all that the experiments can bear out, is that certain points indicated in different parts of the cerebral surface produce the most uniform results.

Again, the chief thing that the experiments on the lower animals show, is the movement of limbs, eyeballs, ears, etc., all of which phenomena together will go to form a very scanty catalogue of mental functions. It is not, I am quite aware, supposed that they do show psychical functions. Yet, the parts connected with the limb movements, occupy a great portion of the whole, while limb movements are but primitive nerve functions compared to psychical.

These mapped out centres, therefore, can only be looked upon as points on the usual paths, along which there is least resistance, and are the mechanism by which the tendency for a nerve current to travel in the paths previously traversed is shown anatomically.

And that they are only such is corroborated by various well known facts. It has been observed, that though destruction of a centre is followed by paralysis of the particular function in the lower animals, they soon re-acquire that function.

Again, if these particular points were so many centres—so many little brains, one would expect them to be symmetrically placed, which, as is well known, is not the case. (Ferrier, § 89).

To quote authority on the question, Dr. Hughlings Jackson writes (*West Riding Reports*, vol. vi., p. 283), "I have never believed in what I call abrupt localisations. I do not believe, for example, that there is any part where the movements of the hand are solely represented; but that there are numerous parts where these movements have special or leading representations; there being in each, as the term 'leading' implies, a representation of other parts serving subordinately with the leading movement. I have never acceded to the opinion that speech is to be localized in any one spot, although I do believe most firmly that the region of Broca's convolutions is, so to speak,

the yellow spot for speech, as the macula lutea is the centre of the greatest acuteness of vision, although the whole retina sees.

"To take an arbitrary and limited illustration. Supposing one centre in Hitzig and Ferrier's regions to represent the hand; another, especially the face; another, the foot; I should believe that each one of them represented all the movements of the chest."

Two main conclusions may be drawn from the foregoing:—

1. It has been well established that, as a rule, the cutting off or separation of the cerebrum from the cord, as it were emancipates the spinal cord from control; in the lesions of the motor cerebral centres, the reflex actions of the extremities are increased, as in lateral sclerosis of the cord, when all the reflexes are exaggerated. This is evidence of the continuous control of lower centres which is exercised by the cerebrum.

2. On the other hand, the control exercised by the cerebral centres over the purely spinal functions varies, not only on account of the degree of development of the cerebral organ, as shown in the gradual perfectioning of the cerebrum from childhood to manhood; it differs also almost naturally in different individuals, also in youth and in the sexes, and varies with the cultivation and education of the mental faculties.

But while the control is almost complete in regard to certain functions, over some other functions it is limited, or over which we can exercise control partially, as the respiration, the movements of laughter, of the bladder and bowels.

When we say we control an act, the act is necessarily attended by consciousness; but consciousness is no necessary adjunct to movement as has been shown, though it is of volition.

Intellectual faculties and their physical basis. Our physiological examination of the functions performed by the nervous apparatus so far, has related only to two faculties—Sensation and Motion, whence come then the other mental faculties, as Judgment, Ideas, Thought, &c., or what are called the psychical functions.

Motion and sensation appear no more than functions of a simple kind, and which we have seen the spinal cord to be capable of performing. No satisfactory proof exists, however, that the purely spinal functions have the attribute of consciousness connected

with them. It is true that the tactile surfaces of the limbs give rise to a conscious impression, but only when the way is open to the cerebrum, that is, that the cord is intact, and so can convey the sensation upward. And though the origin of all the sensory nerves called special are within the cranium, anatomically they are as much spinal as those of the tactile sensations of the trunk.

We may take the faculty of consciousness as the general representative of the psychical functions. Since it is a necessary concomitant to such functions which are usually called the psychical functions.

In all the recent investigations of the brain functions, the results gleaned, and they are not few, relate, it will be seen on examination, but to the two main and general functions of (1) Sensation, (2) Motion.

Some psychologists, the so-called followers of Locke, have no difficulty in ascribing all the intellectual attributes to sensation primarily; but Locke, notwithstanding what has been said to the contrary, also admitted a subsequent operation of the mind which he called reflection, and which he clearly intimated was a mental *process*. The dual or sensori-motor process, is not dissimilar from the dual process of reflex action generally, or in fact to the law that sensation is allied to motion; or thinking to action: and in thinking and acting we embrace pretty well all the intellectual faculties. But, *Nihil in intellectu quod non fuerit prius in sensu*, requires an addition to indicate the mental process of "reflection," admitting the axiom that the environment acts upon the organism, the effect of which is distributed throughout the system, we have to explain the anatomical substratum of the after mental process from which abstractions result.

Abstractions as explained in a previous page are composed of two or more sensations, that is, of present and past effects of the environment. We have to explain how the previous impressions remain to form the ground-work for the comparison of past with present effects or to ascertain the seat of the *persistence of previous impressions*. This we fix to be in the cerebral hemispheres as one seat, since as already shewn, conscious impressions are thus located: is there any other organ

in which former impressions are stored? The impression, however, is only one half of the interaction between the environment and the organism. We have to take into consideration the effect (say a motion) also, and viewing the two together it seems to show that spinal impressions are also stored, as well as cerebral or conscious impressions (ideas). "There is a memory," says Griesinger, "for the spinal cord." It may be confusing to call the faculty a memory, but undoubtedly the impressions on the spinal centres persist as well as those of the cerebral centres.

The persistence of an impression is due, we may almost say undoubtedly, to the action of the ganglion cell. We have seen how the neural current is arrested in passing through a ganglion. We can trace the action through various phases of completion.'

In the lowest organisms, the whole of the impression is expended in movement, the simplest reflex action is the result, there is no ganglion and no evidence of any influence left behind. We next find traces of influences of former impressions—evidence of memory in the animal's acts. As we proceed higher, co-ordination of movements is observed in a rudimentary state, and repetition of the same series of movements. Then we find newly-combined movements acquired, and the fact that the same are often repeated in the same order, gives evidence of an effect of a former impression persisting. These may only amount to a function, or disposition of the neural current or efferent, to pass along lin s of least resistance, or along lines previously traversed; and that such disposition does exist as a fundamental property of the organism, rests upon the same basis, as that the organism is acted upon at all by the environment.

Undoubtedly these two properties have abundant proof of existence from observation, viz.:—

1. The persistence of an impression, which is connected with afferent current.

2. The tendency to pass in tracks previously traversed connected with the efferent.

The former property may be exercised consciously or unconsciously; in the former case it is in a function of the highest centres; in the latter, it is connected with the lower.

If we admit these premises we shall have no difficulty in allowing that the number of stored impressions may be limited only by the capacity of the organ; nor of understanding those curious phenomena called automatic actions. If we admit that the impression of an object leaves on our conscious memory the form and other qualities of an object, or the pleasure or pain attending a previous action, we need have no difficulty in understanding how an action once performed by us may be easier than an entirely new action, since the process has already passed in given tracks.

Now, these two properties—the one cerebral, the other spinal—merge into each other, the cerebral governs, and as a rule, in man it is always supreme; but in certain functions it, as it were, abrogates its influence to the cord. As example, with such actions as reading, writing, piano playing, and the like, and even walking, the first efforts are through the cerebral organ, and are therefore all conscious movements; but after long practice the whole process is relegated to the lower centres. Even co-ordination of movement probably passes through the same stages, especially let us say, in such a case as learning to dance—and indeed, in most of the motor functions, as in various games, shooting, and in manual work of all kind, which come to be performed, as it is called, automatically, or from the lower centres without reaching or invoking the influence of the cerebrum at all.

These functions, however, are mechanical. We have to account for the process on which some that are deemed higher mental attributes depend, as the reasoning faculty, Emotion, Volition, &c.

In investigating these, which are called the psychical functions, we are unable to resort to direct experiment; but some light is thrown upon the subject by the phenomena of disease, and introspection of ourselves. We cannot anatomize the origin of an idea, nor detect the organism which gives rise to the faculty of judging; but the examination of these various faculties shows their close connection with sensation and motion. The law seems without exception, that each sensation results in a motor impulse of some kind, and in a very large number of instances the motor impulse is speech—not always audible, but

still speech. "There is every reason to believe," says Prof. Bain, "that there is in company with all our mental processes, an unbroken material succession. From the ingress of a sensation to the outgoing responses in action, the mental succession is not for an instant dissevered from a physical succession. A new prospect bursts upon the view. There is a mental result of Sensation, Emotion, Thought, terminating in outward displays of *speech* or gesture." (Bain, *Body and Mind*, p. 131).

But with regard to those so-called higher mental faculties—Ideas, Judgment, the power of reasoning, &c., one school have no hesitation in declaring that these are wholly founded upon a basis of sensation. This view, by excluding the influence of innate or organic influences, is considered too restricted by another school.

Much of the misunderstanding here arises probably out of the inexactness of words which are employed to define the signification of the authors. The force of an impression is doubtless considerably modified by the organism. A man's disposition, inclinations, tastes, and desires, are certainly considerably influenced by his conformation, or variation of his organism; but if these which influence a man are not through sensation, they at least qualify or are allied to sensation. Hereditary tendencies also modify a man's organic tendency, and in this way are elements in any impression or action.

To say an impression is modified is to admit that an idea resulting from such impression is also modified by the recipient organism, and so necessarily must subsequent ideas in succession.

Idea, then, acts upon idea, and a new idea or judgment results.

All reasoning, writes Mr. Spencer, is definable as the classification of relations.

The process of reasoning has for its object the forming of judgments.

Notwithstanding the more modern theory of inhibition and centres of inhibition, there can be no doubt, I think, that one sensory impression may be arrested in its consummation into a motion, or say into a verbal utterance, by a stronger impression in an opposite direction. Motives for and against every act

occur quickly on each other. This is observed in the lowest organisms, even in the caterpillar there is a choice or selection of food. "The condition on which every creature exists is that it shall act in special ways under special stimuli; that contact with nutritive matter shall modify its actions in a manner different from that in which contact with innutritive matter modifies them." (Spencer, *Principles of Psychology*, p. 331). In other words, there is in the organism a special faculty for the reception of one kind of stimulus in preference to another, and also there is a variation in degree of power of different stimuli to effect the organism. Two stimuli, therefore, occurring in close sequence may influence each other, the second may overwhelm or merely modify or change the direction of the other.

The stimulus may be an external one, or internal, or the remembrance of a previous excitant—as the externals are in a continuous state of action on the organism, there must be a continuous comparison taking place, resulting in a continuous conflict of ideas.

The outcome of this weighing of one impression against another (this deliberation) may be an overt act, as a bodily movement, or an expression of speech; or it may be a subdued act, or an unspoken formula of words. The comparison thus made is a process of reasoning; the result, a judgment; if expressed aloud it becomes a statement, if logically formulated a syllogism.

But for the process to be one of reasoning, it must be attended with consciousness—it is thus an operation of the highest centres and it is mentally a comparison of impressions, and quality is compared with quality, present impression with previous impression—thus, abstract ideas are the result. In other words, ideas are collected into groups, and thus are more easily dealt with. To group is to classify.

A group, or class, forms a general idea; all general ideas are necessarily abstract, and they are composed of the abstract qualities of the objects grouped. In classifying the animal kingdom, itself a group of objects, into Mammalia, &c., it is one quality, that of the development of the mammæ. Having thus enclosed a variety of objects under one class, and noted it by a name, henceforth, the name becomes the symbol of a general idea, and remains as an element in subsequent mental opera-

tions—a stored feeling or power, to affect a motor outgoing hereafter.

A higher generalization of objects is carried on by the recall of a former impression for comparison: this former impression appears to be recalled by a likeness or contrast in character or position, in time or place of occurrence. One idea is brought to mind by the process called the association of ideas—a quality in any object, which is an abstract idea, spontaneously recalls the concrete of which it was an abstract—it also recalls other concretes, in which the same abstract quality was associated, thus is awakened, by every new product from sensation, a whole series of ideas, *i.e.*, impressions, which occupy and pass through the mind, and which have a tendency, sooner or later, to terminate in a movement of some kind of speech or action.

This law of association of ideas appears to have much to do with recollection. While the persistence of the impression, which appears to be attributable to the functions of the cerebral cortex or ganglions, is at the basis of memory, the recall is influenced by the law of association. That the impression produced upon the organism from without gives rise to ideas, that this effect is more or less persistent, and that a former impression may modify the effect of a subsequent impression is readily intelligible. The simple analysis of observations support such an explanation of the formation of mental products, but our present enquiry has for its main object, to trace the mechanism on which the true psychical processes depend.

Our review, hitherto, of the facts of the intellectual faculties has been chiefly analytical. We may proceed to investigate the question synthetically.

2. *Synthetical examination of the basis of the psychical functions.*—For this purpose we may examine the phenomena historically, and examine their evolution in human physiology in relation with that of the organism.

As already shown, the first indications of nervous functions in the child are all purely reflex, in other terms spinal, and are performed with scarcely a scintilla of consciousness; and anatomy shows us that the spinal cord is much more advanced in structure than the cerebrum: nevertheless there are many complex movements perfectly performed, showing a considerable advance in the

function of co-ordination. The act of sucking must bring into play a very complex system of actions; and we know, as already quoted, that this occurs entirely independent of cerebral influence, and can occur without the existence of a cerebrum. The same may be said of other movements; if a finger be placed in the infant's hand it is grasped, and in the respiration, crying, action of sphincters, eyelids, &c., and in tonic condition of some at least of the muscles.

With the growth of the child, the connection of the cord with the cerebral hemispheres gradually takes place as pointed out on page 74.

I quote the following from M. Charcot's volume, translated by Dr. Hadden: "The cerebrum of the young child bears little resemblance to the adult, except in its external configuration. It is a soft organ of uniformly grey colour, the grey and white matter being intermingled; the neuroglia predominates everywhere; the reticulum is homogeneous and less distinctly fibrillated than in the adult. The nerve tubes are universally absent or at any rate barely represented in outline." "To sum up, the cerebrum in the new-born child is still, as it were, in a rudimentary condition, whereas the medulla oblongata and spinal cord already present the characteristic features of the adult state" (p. 160). "You see, gentlemen," concludes M. Charcot, "that the cerebrum at this age has, as yet, no existence; it is from a triple point of view—anatomical, functional, and pathological, an indifferent organ." M. Parrot's researches, as quoted by M. Charcot, show at seventeen days old the infant's brain in its anterior and posterior regions presented an almost uniform dark-grey colour. It is only at the end of the month that the substance of the occipital lobe begins to grow white, and it is not until four months afterwards, that is to say, towards the fifth month, that the anterior regions commence to undergo development, which is not completed until about the ninth month.

Such being the anatomical condition of the human infant, who, nevertheless, is able to perform several highly complex movements, and to begin to direct such movements, though imperfectly, towards external objects.

Still the earliest indications of mental functions are confined

to movements, and as early as the seventeenth day M. Parrot was able to trace the commencement of a motor tract through the central ganglionic masses. "The median or sub-Rolandic part of the cerebrum is marked by the presence of nervous fibres ensheathed in myeline. By treating the parts with osmic acid the myeline become stained, and are thus rendered apparent. These tracts are the commencement of the pyramidal tracts, and their development starts from two points, according to M. Parrot, "the one situated in the central nuclei is the first in age, the other has its starting point in the grey matter of the Rolandic convolution, otherwise called the motor zones," so that, "of all parts of the hemispherical cortex, the so-called motor regions are developed earliest, and they are the first to enter into relation with the bulbo-spinal system, through the medium of the pyramidal tracts." (p. 177).

In correspondence with the anatomical facts, we observe the first indications of volition or cerebral acts in motor functions. "In man," writes Dr. Ferrier, p. 205, "disorganisation of the cortical centres, or the above parts, causes lasting paralysis of *voluntary* motion on the opposite side of the body."

Now, though the motor functions play an important part in all mental phenomena, and especially when we include speech, still our examination would not be complete until we take into consideration certain functions under-lying speech, as thought, &c.

We must bear in mind that many of the purely reflex, that is, purely spinal movements, are not perfected at once. Co-ordination of the limb movements are not perfected until considerable advance is made in the cerebral development, and still later, are the directed movements. The child's arms and legs have a certain amount of co-ordination soon after birth; they have a certain feature alike in all infants. Its earliest attempts to seize an object are at first futile, and resemble the irregular movements of lateral or disseminated sclerosis of the cord, while the movements of respiration are regular, and calm, and perfectly co-ordinated; though they are thrown into over-action very readily, as when the child cries;—the nerve-tissues are less stable, and excited movements more readily induced.

This unstable condition of what is called the neural dis-

charges, is ameliorated as age increases; but childhood is the period when irregular discharges, epilepsies, are frequent.

With the gradual growth of the cerebrum, we may observe the gradual increase of the mental faculties; at first, simple concrete ideas are acquired—mere impressions through the special senses, the organs of special sense being perfected at a very early stage. The knowledge of objects seen, the power of discrimination of sounds, the musical talent, is also early shown.

In certain instances, the condition may be arrested at this point. By too early synostosis of the bones of the cranium, the enlargement of the cerebral organ is stopped, and the child remains an idiot, and in many other instances probably the development is finished at different degrees of its growth, and different mental capacities result. It may be mentioned in passing, that imperfect co-ordination of movements is a frequent effect in idiocy.

Up to the age of puberty, the knowledge chiefly acquired is a simple accumulation of facts, and ordinary education up to very recent periods, in many instances did very little to cultivate a faculty for comparing facts. The intellect is better brought out in the children's association with their elders, which is the natural mode, and we perceive the power of this in the effects of the *gamin* or street boy. The child, however, in spite of his education, acquires the power of comparing or judging in the playground, and obtains there an experience, which children kept more strictly perhaps seldom acquire so thoroughly.

In the human subject there are but few complex actions perfected at birth, the chief have to be acquired afterwards; but if we take two of the most important, walking and speaking, we find that both of them have to be acquired subsequently, and learnt too by a very slow process, it is clear also that they have to be acquired through a cerebral process, *i.e.*, through the organ the latest in developing.

With respect to speech especially, we have clear evidence that the cerebrum is the organ utilized, we know that in the majority of instances the motor centre is in a particular convolution of the frontal region as now fully established by pathology.

Speech may be viewed from many points as :—

1. Its performance as a motor act—this requires co-ordination

of several movements, as of the respiration, lip, tongue, glottis, all of which have to be regulated and co-ordinated. We know that the ordinary movements of expiration are possible through the spinal centres, as are also many movements of the lips and tongue which are used in sucking. What then is the relation of Broca's convolution to the motor spinal centres? It is evident that in the first place the higher centre modifies the lower and adjusts the various actions, *the process is learnt*; it is a conscious operation, it is only acquired by frequent trials and failures; this is one view, it may be called the efferent part of the operation,

2. From another point, the sound, including its tone, note, timbre, etc., has to be predetermined, modulated according to the emotions, and this may be, and at first is, an unconscious outcome of all the emotions awakened by the same cause that induces speech. When people are overcome with emotion, the speech is altered; there are in other words two causes exciting the motor act, and the motor result is influenced accordingly. The emotional tone can be imitated voluntarily by the actor, when he recalls or assumes a painful incident. From both aspects speech is evidently a cerebral act, at first a slow and difficult motor act, each step in it making an impression sufficiently strong to be attended by consciousness, by frequent repetition the neural current passes along a line of feeble resistance, the steps are easier, awaken no, or scarcely any, consciousness, so far as the operation is concerned the motor act passes quickly to the medulla and to the motor mechanism through well co-ordinated tracks, so quickly as to become like a reflex act, and like it especially in awakening little consciousness, and this may occur without reference to the subject matter of speech. After constant use of the same formula of words, the words may be repeated in the manner called automatical. It is known as a phenomenon in aphasic patients, that they are capable of using phrases of simple exclamation, the priest, it is said, sometimes can repeat his paternosters without a consciousness of the meaning of the words. So perfectly is then the transit through the cerebral region, that perhaps the impulse never reaches the highest centre. We have diagrams in books to show how a neural current may pass, as it were by a short

cut, directly through a lower centre from the afferent. These diagrams are hypothetical only, and it is difficult to say whether, as it were, they pass by the higher centre, or pass through it too rapidly to leave any persistent impression behind.

It would be more in accordance with other facts that have been observed, to assign to the speech-centre the higher office of being the centre of various neural currents collected from all sources, and to be the arena in which the ultimate struggle, between contrary inducements culminate in an efferent stimulus to motion; this arena, will then be a centre, where all the stored impressions converge, and are co-ordinated, and brought into order.

The Broca convolution appears to be essentially the "way out" for the motor action of speech, not necessarily the centre of thought, which probably has a wider field; aphasic patients can think or even in some cases write. Ideas are probably derived from wider areas, that is from the centres of auditory, visual and tactile impressions.

It would seem that in the case of speech, though the movements all pass through a lower centre, they are never wholly relegated to the class of reflex or absolutely unconscious acts.

It may be asked, are other kinds of movements? In walking, there is little doubt that a man may walk while unconscious, but the power of walking, the art of walking is an wholly acquired power, and one which requires much attention. It is coeval with known cerebral growth, as shown above. After a few years the feat is performed entirely without attention, and clearly it is directed by currents passing down the spine; the alternation of the movements is also first acquired by careful practice, the infant has at first great difficulty in alternating its limbs, in after life it is performed apparently entirely automatically, the co-ordination appears a property of the cord, though at first acquired through a higher centre, and in this again it would seem that the action first performed by a purely cerebral act at length never reaches the higher centres, but that the excitant by a cross or more direct channel reaches the motor centres. It must be owned, however, that there is no anatomical proof of this, but here again a more satisfactory explanation would seem to be that the neural current was direct from the brain, though from a lower co-ordinating centre in the brain.

We know that injury in the Rolandic convolutions produces hemiplegia, though the co-ordination of the limb movements may be still purely spinal, since in the disease disseminated sclerosis of the cord, the co-ordination of the limbs is a marked symptom.

But if walking is automatic, that is, reduced to an unconscious act, it is probably also always cerebral, the track of the neural current is easier in one direction than another, the combination of movements have also a tendency to move in old lines. Every one knows how difficult certain unaccustomed actions are in comparison to the accustomed, such as to rotate a leg in a different circle to the arm, to button the coat with the right hand, etc., the law that the neural current has a tendency to pass in a track previously traversed is sufficient to explain the phenomena. So long as the track is open, the traversing of the current awakes no consciousness, makes no impressions, recalls no associations in the cerebral hemispheres, but directly this path is disturbed—if a man kicks his toe against a stone in his path—the consciousness is aroused, a vivid impression is made of intensity enough to excite attention, to bring into action all associated impressions the remanents of former impressions. If disease in the motor tract occur the performance of walking is difficult, in certain cases of ataxy in which the afferent columns of the cord are at fault, the patient must look at his feet to direct them, that is, he must call in the aid of the cerebrum.

The various actions frequently performed may awaken little or almost no consciousness, but they are not therefore reflex in the sense of being necessarily spinal, though the spine has functions probably which assist in both voluntary and involuntary actions.

Thus it appears probable, as suggested by Dr. Wiglesworth in a paper read at Liverpool in August, 1883,* that in the cerebrum itself there are centres above centres, the one controlling the other, as the cerebrum controls the spinal centres; and analogy, which bears out this fact, would also lead us to conclude that some of these may form the anatomical basis of certain so-called automatic acts, of those acts in other words

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which are performed without consciousness, or only semi-consciously, such as the formation of words in speech, &c.

Dr. Wiglesworth's words are as follows :—"The nervous arc consisting of afferent and efferent fibres and intervening corpuscle, shows us the unit out of which the nervous system is built up; and it is by the combination of two or more such reflex arcs, fibres from which meet in a common centre, that the highest nervous centres are elaborated. The union of a number of nerve fibres from a number of nerve cells in one centre, permits of the action of such nerve cells being controlled and co-ordinated by that centre; and by the union of a number of such centres of co-ordination in one higher centre, it is possible for the numerous plexuses of cells and fibres individually combined in such lower centres of co-ordination, to be all co-ordinated together in such higher centres; and the process of evolution implies a perpetual super-position of higher upon lower centres of co-ordination, so that what were at one stage of development, the highest centres, become at a more advanced stage subject to the control of still higher centres, and are therefore themselves relegated to an inferior position, so that when we reach the last term of evolution at present expressed, we have an infinity of lower centres of co-ordination, controlled and co-ordinated by one or a few higher centres. *These highest co-ordinating centres are of course the latest developed.*"

There are still some functions of the nervous system which will require a few words though they do not appear to be so obviously connected with the mental functions, viz., co-ordination, equilibriation, and muscular tone.

With respect to co-ordination, from the often quoted fact, that a decapitated bird when thrown into the air can fly, that a headless frog can swim, and can even jump out of the water and climb up the side of the tank, it would seem that the co-ordination of movements in them depended upon the cord. Whatever may occur in these animals may be due to the deficient differentiation of function. In the more highly developed, the experiment is not available; although it has been established (Ferrier, *op. cit.*, p. 64) "that animals deprived of the *cerebral* hemispheres, besides being able to maintain their equilibrium, are also capa-

ble of locomotion in their normal manner" but this applies only, of course, to co-ordination of limb movements.

Equilibriation of course must be dependent upon co-ordination, the two functions therefore may be spoken of together, though as Dr. Ferrier remarks, one "can conceive such a case, as an animal which could maintain its equilibrium, but could not sufficiently co-ordinate its movements to walk."

Disorders of equilibrium are found to follow upon lesions of the cerebellum, and that in a very regular manner, which may be stated in very general terms to correspond to the seat of the lesion; when the injury is on the mesial line, the disturbances are of no marked importance; when the anterior part of the middle lobe is injured, the animal has a tendency to fall forward, when the posterior part is injured, to fall backward, lesion of the lateral lobes, causes a tendency to turn on the axis, usually towards the side injured.

Hence, the cerebellum, seems to be "a complex arrangement of individually differentiated centres, which regulate the various muscular adjustments to maintain the equilibrium, the action being a reflex one, and the excitant or afferent the disturbance of equilibrium in the various directions." (Ferrier).

This is corroborated by the observation, that the balancing of the body is a much more complex act in man, and in man is found the most complex cerebellum.

Though Dr. Ferrier mentions the displacement of equilibrium as acting as a stimulus to the special centre which calls into play the compensatory action, it seems equally well established that other factors exist in the "tactile, visual and labyrinthine impressions."

In an excito-motor or reflex act such as exists in cerebellar function, a lesion of afferent centre, or efferent, may disturb the equilibrium. Such occurs in cases of locomotor ataxy when both co-ordination and equilibriation are frequently found to be affected, as through a tactile lesion; or again in cases of labyrinthine affections (Menière's disease), producing giddiness and reeling, or by rotation of the body, as familiar in waltzing, causing a slight staggering, attended with giddiness. The tactile, visual and labyrinthine causes, however, are attended with consciousness, but in certain cases the disturbance is unconsciously

produced. This is evidently caused through the free communication of the cerebellum and cerebrum through the peduncles.

Tone.—This word is used to signify a condition of the muscular system, and it depends on the spinal cord. The experiment quoted from Marshall Hall in illustration of the functions of the cord, in which the decapitated frog continued to respond to an excitant, until its spinal cord was destroyed, is an illustration of the influence of the cord in producing tone.

It will be remembered that certain muscles are normally in a persistent state of contraction, while others contract only on a stimulus being applied. In the muscles which keep the jaw closed and the sphincters of the rectum and bladder, tonic action is persistent; but when cut off from nervous influence, they relax as in facial and vesical paralysis. There are other conditions of tonic action which are to be seen in the state of antagonism which is constant between the flexors and extensors, these also are disturbed by certain spinal diseases, when the limbs become contracted. "What is termed automatic action," says Dr. Ferrier "is in great measure reflex action of a constantly operative nature." (*Functions of Brain*, p. 22). Similarly reflex operation may be invoked to explain the tonic conditions of all muscles, including those of the system of the small arteries. It is well established that in certain morbid conditions of the spinal cord, there is a tendency to what is called the foot clonus action, it appears to me that this is due to a disturbance of the balanced state of tension and contraction of the antagonistic muscles, the flexors and extensors for example; and is not a like cause to be found for other irregular movements as in shaking palsy, tremors, etc.?

It has been attempted to be shown that there is in muscles a natural or inherent and independent condition of tone, where an explanation in accordance with general laws is sufficient to explain a phenomenon, it is at least gratuitous to seek for an exceptional cause. "It is," says Mr. Lewes, "a rule always to prefer the simplest hypothesis compatible with the observed facts."

PART II.

MENTAL DISEASE.

Section I.

Preliminary Remarks—Definition of Disease—Necessity of Classification—Proper basis of Classification—Classification adopted—Two classes, Idiopathic and Symptomatic—Consideration of Idiopathic Disease—Subdivision into two classes, Ordinary Insanity and General Paresis—Ordinary Insanity, description of, preliminary view of its nature, its stages, symptoms—First stage, progress and terminations, recovery, death, bodily symptoms—Second stage, Acute Mania, symptoms, mode of progress, terminations.

As the first part of these Lectures has been devoted to the consideration of Mind, this the second part will be occupied with a description of its Diseases and their Treatment.

Before entering upon the description of the different forms of mental disease, it will be well to say a word concerning what is here meant, by the term *Forms of Disease.*

By the word Disease, is meant the sum of all the phenomena which are observed in a given case, including the first indications of deviation from health, the evolution of the symptoms, their progress, order of succession, and mode of termination.

No two cases are, it is true, exactly alike, yet they resemble one another, by their general characters, sufficiently to be grouped together. To group is to classify. We use classification merely to facilitate the study of disease, or as a kind of *memoria technica*, to assist us in obtaining a wider grasp of facts.

In describing the characters of a group or class, the terms used must have a general or wide signification. So that probably no single case, that is met with in practice, will correspond in all particulars to such a general description.

Such happens even in examples of acute disease; two cases of measles differ in many particulars, though the period occupied is but short. It is not surprising, therefore, that cases of insanity of the same artificial species, show considerable variation, since their duration is so much longer. Therefore, in grouping cases of mental disease, a much wider latitude of variation of the phenomena must be allowed.

On this account it is, perhaps, even more necessary, in order to obtain a grasp of those innumerable variations, to resort to a grouping of the whole into classes.

Cases of mental disease vary much in their course or progress. At one period, the subject will present phenomena totally different from the symptoms presented at a different period. I maintain, however, that the case must be considered to be of one species throughout; such is the rule in general pathology and there are no grounds for having a different system in Insanity, however long the case may last. For a case to be placed under a different name, it should differ from all other cases, as distinctly as acute rheumatism from typhoid fever.

The very object of investigating symptoms or groups of symptoms, such as make up what we call a disease, is to trace and to follow the alterations that are going on within the organism. To know the changes that have taken place up to any given time is useful, but to know what is the next step, or what is likely to follow, is of greater importance. So to know a disease we must know its stages and its mode of progress, towards one goal or another.

The study of disease must, then, be a study of a changing condition; but great confusion must arise, if we isolate the different changes or stages, and after disconnecting them, call them by fresh names and look upon them as fresh species of disease.

This, however, is the course frequently followed by writers on mental disease, and which renders the literature of the subject so complicated.

The multitude of so-called diseases thus imported into the question, has necessitated systems of classification, which have become very various; in reading the different treatises, English or foreign, one may at once perceive that most of the

varieties of disease are called according to some prominent feature at the period when the case was first seen by the physician, irrespective of its history or probable termination. Most of such varieties are in fact diseases of a day.

Thus the classification of mental diseases really has become a prominent feature in the literature of our subject.

But besides a classification for a systematic arrangement of insanity, as a part of a scientific pathology, every author almost necessarily divides the subject, for the purposes of his own book, and to suit his own convenience.

A classification of disease, nevertheless, is by no means an arbitrary matter, for the result or deductions will be very much influenced by the basis, which is chosen for forming the classification upon. A multitude of facts or objects may be grouped in some way, upon almost any basis; but the result will be in each case, according to the basis chosen. It is necessary, therefore, to bear in view the object for which a classification is required.

In illustration of this, we might group plants into trees, shrubs, and herbs; or trees into deciduous and evergreen; but the product in one case, would be only a grouping of the habits of plants, and the other, that of their vernation. The process would not convey to us, any knowledge of the family of plants, unless it could be shown, that a certain vernation or a certain habit, was always allied with certain essential characters of the individual plant.

I maintain, therefore, that the basis of a classification of disease, should be a grouping of essential characters of disease. The essential characters of a disease, speaking in general terms, are the symptoms and their evolution, progress, and mode of termination. If we group a certain number of cases, which resemble each other in these essential characters, it is as much as we can expect to accomplish. The symptoms may vary more or less in general character, within such limits as will fairly approximate the phenomena generally; but after all, every disease must be considered in its entirety. A disease must be a single process to be worthy of a separate name.

For the purpose of completing the literature of our subject, it may be necessary to describe the various systems of classifi-

cation, that have been proposed by different authorities; but it will be better to defer this until the diseases themselves have been described.

Of course every writer on the subject must have some kind of arrangement, but from among all the various systems of classification proposed, I do not adopt any, for I do not consider they fulfil the desired object, of giving one general survey of the whole subject; and because, in my opinion, most of them are formed upon a totally wrong basis.

The ground, on which I consider the classification should be formed, is some essential character of the morbid process present *in its entirety*, not, that is, upon any particular phase through which a certain case may pass, but rather upon the kind of morbid process which is at the root of the altered functions. I repeat; a case of disease must be viewed, as a single process, from its first phenomena to its last.

In grouping thus all the cases met with in Asylums, it will be found, that they may be divided into two grand divisions.

It will be found that the disease in some is really idiopathic; in other terms, it is distinct from all other known forms of disease; while, on the other hand, in the rest of the cases the mental symptoms are only a part of some other well-recognised malady, such as epilepsy, or organic disease of the brain, in which there happens to be much disturbance of the mental faculties. In the former cases the mental aberration is an attribute; in the latter, an accident in the course of the disease.

We have thus two grand divisions, viz., Division A, in which the mental symptoms are primary, or essential, or idiopathic; and B, in which they are secondary, or *symptomatic*.

This grand division (A), or the purely mental cases, may be further divided into two subdivisions, viz. *(a)*, in which the cases depend upon a purely *pathological* change, or on what is really disease; and *(b)*, in which the mental symptoms are due rather to *developmental* causes.

In the former category *(a)* I can recognise as yet but two *species morbi*, viz.:—

I. Ordinary insanity or insanity proper; and

II. General paresis.

In the subdivision *(b)* there are also two kinds of cases; (1),

in which the developmental anomaly is in original conformation, or idiocy; and (2), in which it is due to decay, or senile imbecility.

This forms, therefore, the classification of all the cases of primary, or idiopathic insanity, and which may be clearer in the form of a table.

Class A.—Idiopathic Disease.

Subdivision *(a)*—Pathological:

1. Ordinary insanity.
2. General paresis.

Subdivision *(b)*—Developmental:

1. Idiocy.
2. Senile decay.

The Class B—in which the mental phenomena are only symptomatic, or accidents, forms, perhaps, a smaller moiety of all the cases in asylums; and the most frequently occurring kind of cases are the four following:—

I. Epileptic insanity.
II. Alcoholismus.
III. Spinal disease, extending to the cerebral regions.
IV. Organic disease of brain, as the result of apoplexy, etc.

Or to arrange the whole in a tabular form, it would be as below:—

(A).—Idiopathic	1.	Morbid . . .	1. Ordinary insanity. 2. General paresis.
	2.	Developmental .	3. Idiocy. 4. Senility.
(B).—Symptomatic			5. Epileptic insanity. 6. Alcoholismus. 7. Spinal diseases. 8. Organic cases.

And this corresponds very closely to the result arrived at by the International Committee at Paris in 1867.

Class A.—

Subdivision *(a)*—Pathological:

We commence then, with a consideration of the cases, which depend upon a true pathological cause, and which will give us therefore Disease in the purest signification of the term.

According to my experience, the diseases as already stated are but two in number, viz :—

Ordinary insanity; and

General paresis.

It will naturally occur to any one, at all conversant with the literature of the subject, to ask what becomes of the infinity of varieties, which one reads about. The terms in use are almost numberless; M. Guislain in describing Mania as a disease, (which I do not), says: "Vingt trois formes de manie, sans compter plusieurs formes composées non indiquées, voilà, me direz vous peut-être, un bagage symptomalogique passablement lourd pour la memoire."

These so-called varieties,—to which distinct names have been given, are merely cases having some non-essential peculiarities in their course: the names attached are very arbitrarily chosen. Some are coined from a prominent symptom only, as kleptomania, where the patient has a propensity to steal; oinomania, dipsomania, erotomania, nymphomania, homicidal and suicidal mania, and several others of similar origin, which will be again alluded to in the sequel.

There are besides, several other synonyms, for one and the same condition, all of which shall be alluded to in the description of the chief variations in the course of the disease.

Symptoms of ordinary insanity.—This is the disease which in its course, presents such varying phenomena, and has thus given occasion for multiplying the names. Its course is of very variable duration; in acute cases it may last from three to six months only, in other cases it may last many years and continue throughout the rest of a long life, that is, from thirty to forty years.

It is only very lately, that this disease has been differentiated from General Paresis; this separation was first made, by the French pathologists, Dr. Calmeil being probably the earliest. In this country, these two diseases were still generally considered to be mere stages or varieties of one disease, so lately as 1864; at which time I wrote a paper on the question, which was translated in the *Annales Medico-Psychologiques*, in 1866, by Dr. Roussillon.

Before describing the symptoms of either disease in detail, it

may probably assist the memory, if I here state in a general way, what I believe to be the pathological difference, between the two diseases we are about to consider.

In every mental act or act of cerebration, there are two chief agencies in operation; 1st, the nerve tissue; 2nd, the blood supply. A careful consideration of the early symptoms tends to show, that one disease commences through the first of these agencies; the second through the other. To illustrate this, as briefly as possible, I will point to the well observed fact that the acts of cerebration can be distinctly affected through the blood, as by the injection of certain substances into the veins, and by the introduction of substances, as alcohol, into the system by the stomach; and that while one agent will produce one effect, another agent causes a different result; and in most of these, according to the quality of the agent employed, the effect is more or less transient.

It is equally well known that disturbances of the digestion produce a depressing effect on the system.* Now, the early stage of ordinary insanity very closely resembles such a condition. In nearly every case well marked symptoms of impaired digestion are present, and are the first to appear—such as capricious appetite, loaded tongue, flatulence, anxious feeling located at the præcordia, constipation, etc., all of which point to an error in the process of blood-making, though, as the mental symptoms increase, these may be lost sight of by the patient.

* "So many alterations in the constitution of the blood, account for certain of the mental phases as the hypochondriacal and melancholic.

"In relation to this, we may bear in mind the mental colouring, usually associated with certain states of toxæmia, as for example, the depression attending cholæmia; the ill temper, anxiety, and depression of chronic lithæmia, and the apathy and unconcern of pyæmia. So also in phthisis, bright, swift, and lively, as are often the mental powers in the early periods,—yet later, and when probably the blood is much altered—caprice, fickleness, variability and impatience are observed for more than the so-called spes phthisica."—(Dr. Mickle on *General Paralysis*, page 153).

"Drs. Bucknill and Tuke refer to the case of a lady, whose character had always been distinguished for conscientiousness, whose religious education had been of a sombre kind, and who after suffering an attack of small-pox, attended with congestion of the brain, recovered with the natural bent of her disposition greatly altered."—(Hammond, *Treatise on Insanity*, p. 25).

"The mental characteristics after cerebral hæmorrhage, will be found to have undergone a radical change."—(Hammond, p. 24).

And the mental symptoms at first closely resemble those of impaired digestion. The mental symptoms are at first merely emotional; they extend but slowly to the intellect and movements, and affect the latter, only occasionally.

If, on the other hand, we trace a typical case of general paresis, we can trace from the commencement, or from a very early period, symptoms which embrace every artificial division of nerve force, as will be shown hereafter; intellect, emotions, volitions, including also what used to be called sympathetic system or the nerves of organic control. At first all is excitement, and then soon all is feebleness; while the general health, digestion, &c., remain unaffected.

Ordinary insanity.—To avoid multiplying names already too numerous, I prefer this name to others that have been proposed, and in this term it is intended to include the disease through all its stages and variations.

The disease has its well marked and definite symptoms and runs its course, in a manner which observation enables us to describe. It often extends over very long periods, so that it is perhaps difficult, for a single observer, to watch many cases from first to last; nevertheless, its course and progress are fairly well known by the labours of many different investigators.

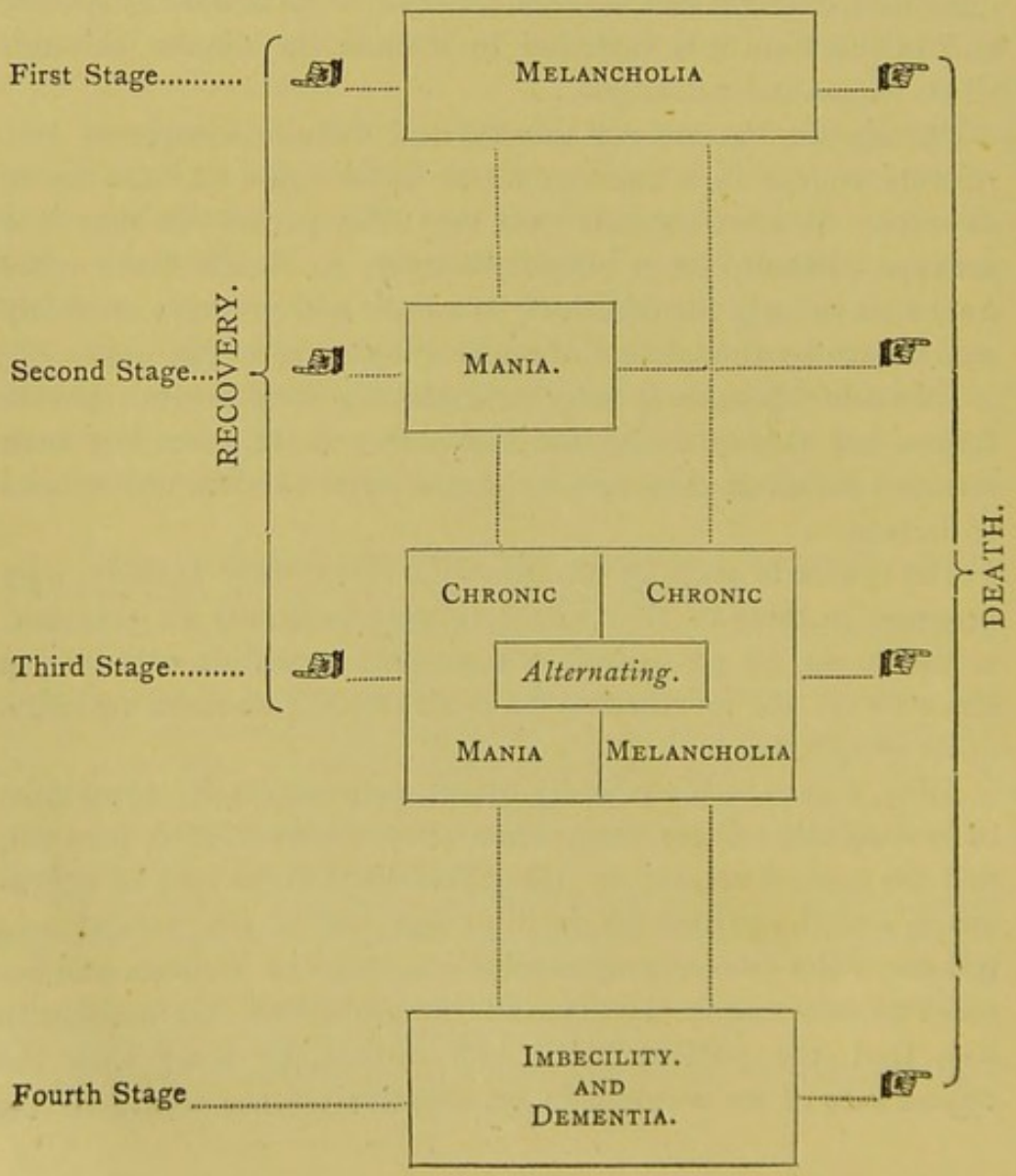
Like other diseases it may be artificially divided into separate stages, and this is useful for facilitating description, but such artificial divisions must not be looked upon as different species of disease.

The course of ordinary insanity like every other malady, may progress in three or four ways; it may terminate in recovery, in death, or by passing into a chronic condition—that is in three ways; the fourth, may be in a certain periodical variation of its symptoms.

Thus, a case in the primary attack commences by symptoms of melancholy; these may, when successfully treated, pass off, and the patient recover, or the melancholic stage may be aggravated, and the patient die in this stage; or if the patient does not die,—the disease may exhibit symptoms of violence and become acutely maniacal. There is no ground on this account to say, that the patient has a new disease,any more than the appearance of an eruption in an eruptive disease would be the

inauguration of a different kind of malady. A patient, without becoming maniacal however, may continue melancholic, and the disease become chronic. The case of the patient, who has passed into a condition of mania, may also become chronic in that stage, and he may recover or die. Next the chronic case may alternate in different ways, between a melancholic and maniacal condition; and lastly if the patient does not die in this stage, or recover, the chances of which would be slight, he may pass into a condition of imbecility or dementia. The following table is given to render these changes more clearly traceable.

DIAGRAM OF THE EVOLUTION OF ORDINARY INSANITY.



In adopting the usual course of dividing the disease into stages, in the above diagram, I have indicated four epochs in the progress of a case. It must not be inferred, however, that there are well defined lines of demarcation between the stages into which the case is divided. In most cases one division may run into another in a manner that no separation could be made.

The first stage in Ordinary Insanity, may be called the stage of Acute Melancholia. It presents five sets of symptoms, namely;

1. Depression of spirits.
2. Morbid apprehensions.
3. Alteration of affections and moral instincts.
4. Illusions.
5. Alterations of motility.

These are of course general terms only, under which many concrete facts are grouped; and it will be seen, as the symptoms are described in detail, that they include all the phenomena. It may be premised of all of them, that they are to a very large degree connected with the emotions. The feelings at all events take precedence in the symptomatology of the disease in this stage.

Depression of spirits.—This is of course an abstract and general term, and serves to include a large number of particular phenomena. It has reference entirely to *states* of emotion. Emotions (see ante, pp. 21 and 41) may be divided into painful, and pleasurable. Depression of spirits of course, is connected with the former only, and it would seem that the impression of pain or pleasure is in direct ratio to the variety and modifications of the sensations produced in the mind, without reference to the kind or quality of the excitant. If the organ is unimpressionable, the natural variation of ideas cannot take place, the ideas will be monotonous. It does not of course always require an external object to produce all the changes of thought and emotion in the mind, a memory will equally act; and from this source it is chiefly, perhaps, that the variety is supplied. These stored ideas may be faulty, or there may be an absence of fresh ideas from recent sensation, owing to the condition of disease.

The sources of misery or depression of spirits, are thus con-

nected with as great a variety of subjects as ideas themselves are; the degree of pain will vary also in degree or intensity; as from that slight state described by Sir B. Brodie, (*Psychological Inquiries*, p. 120). He wrote, "On some occasions I have laboured under depression of spirits, having what I call an abstract feeling of melancholy, there being no external cause to which it can be attributed; and it being at the same time, as far as I can judge, not connected with any derangement of any of the animal factors."

A degree of depression is apt to occur after an unusually prolonged state of pleasure, after fatigue and certainly, as is well known, after the exaltation produced by inebriation.

A gloomy view of every thing sometimes is felt from slight indisposition and debility on first awaking in the morning. Each circumstance reflects some impending harm or inconvenience—things seem to be all "going wrong," and which after the bath and breakfast, spontaneously right themselves, and the evil forecasts evaporate. These are all doubtless of the same source as the graver and more permanent degrees of depression, which constitute true melancholia or insanity.

The ingravescence is gradual in all the cases, the description of the state of Hamlet's mind, gives a graphic and very accurate picture of the mind in the early stage of mental disease—"I have of late (but wherefore I know not) lost all my mirth, foregone all custom of exercise; and indeed it goes so heavily with my disposition, that this goodly frame, the earth, seems to me a sterile promontory—this most excellent canopy, the air, look you this brave overhanging firmament, this majestical roof fitted with golden fire, why it appears no other thing to me than a foul and pestilent congregation of vapours." This feeling of melancholy, also so fascinates the subject of it, that he is loath to endeavour, by any voluntary effort, to shake it off; "thus much," says old Burton, "we may say of melancholy; that it is most pleasant at first, *blanda ab initio*, a most delightsome humour to be alone, dwell alone, walk alone, meditate alone, lie in bed whole days, dreaming awake as it were, and frame a thousand phantastical imaginations unto themselves."

The depression often exists for long periods and even becomes habitual, without encroaching upon the higher intellectual facul-

ties. The depression is a state only of the feelings, or moral faculties; patients exhibit even at a comparatively advanced stage of melancholy, perfect mental lucidity, they can carry on their affairs, perform the functions of high offices of state, or in commerce, and without evident deterioration, particularly when their own feeling or interests are not greatly implicated.

The characteristics of this condition may be summed up in the general terms of:—

Taciturnity, and love of solitude.

Indifference to every thing.

Such is the state of mind at the commencement of the disease; the consideration of the bodily symptoms, for the sake of clearness, will be reserved.

Morbid apprehensions.—The second set of phenomena which I have included under the general term Morbid Apprehension, is of even more varied character, and it succeeds or follows upon the state of depression, or rather becomes added to it, for the depression persists; both depression and apprehension are alike connected with Emotions, and are but morbid states of the Emotions.

Morbid apprehensions take many and often very phantastic forms, they may be considered under two heads.

1. Apprehensions connected with the present life.
2. Apprehensions connected with the future state.

With regard to apprehensions of the first kind, one of the most frequent perhaps, is a fear of impending ruin, of poverty, or injuries; in some cases, the patients express a sensation of fear without being able to state its nature—the sensation is then more of a bodily pain and is attributed to the heart, and perhaps arises absolutely from irregular action in that organ; fear of bodily danger of any kind by wounds, poison, drowning, fire, will often lead patients to assert that they are to be burnt alive, suffocated, &c. The fear may vary in intensity, and in the degree of conviction with which it is accompanied; often and at the earliest stages, the danger is not actually believed but only feared; by degrees it becomes more and more real, but at that point the disease will have passed into my next artificial division of the symptoms. In this stage, now under consideration, the fear of injury, starvation, &c., leads or induces the

patient to seek suicide. "Etsi mortem timent tamen plerumque mortem conciscunt."* The apprehensions are often, not only fantastic and absurd, but even of ludicrous character. Such is the usual development of the disease, and the characters as given by Burton, which he gathered from older authors, prove the universality of these characters from all time. Among such trivial and phantastic fears, are the following from Burton, "they are afraid of some loss, danger, that they shall surely lose their goods and all that they have, but why they know not." One special kind of fear also given by Burton, is that of being watched or followed, "semper fere vidisse militem nigrum presentem." This, according to the investigation of M. Thomeuf, (*Annales Médico-psychologiques*, Oct., 1859, p. 574), is more particularly associated with Alcoholismus in its acute stage—but it occurs occasionally in ordinary insanity.

Among morbid apprehensions connected with the present state, are fears about the health; this is called Hypochondriasis. It is a question with writers on medicine, whether hypochondriasis is insanity at all. I have no doubt of the fact myself. Hypochondriacal fears are met with in two forms, as recent, and as chronic and confirmed. All the symptoms of Hypochondriasis resemble in general character other cases of insanity, the difference being merely in the form which the apprehension assumes. This difference is not sufficient to constitute the case a particular species of disease, for it conforms to all the rest in its progress and termination. The term *hypochondriacal melancholia* is, however, quite admissible as denoting a variation which the symptoms may assume. Nearly every object of fear shown in the insane, has given rise to a new name, and multiplied the compound terms ending in -phobia, (*vide infra*).

The second kind of morbid apprehensions is that connected with the patient's future state; this is an important and common form, such as:—fears of eternal punishment, or loss of salvation, of being accursed of God, of having forfeited redemption, of having committed "the unpardonable sin." These fancies like the other, commence as fears or apprehensions only, but become

* This is quoted from Burton, *Anatomy of Melancholy*, who says of it, "it is Hippocrates' observation, Galen's sentence."

fixed and believed when they are delusions, and come under another section in the division of our subject. These apprehensions appear to be attended, very often, with the same physical sensation of dread at the præcordia or region of the aortic arch. They form a part and cause of depression, which is aggravated, and, as it were, authorised by them. They lead the sufferers to resort to reading religious books in their solitude, to be constantly on their knees in prayer—to be attending at every availing religious service, regardless of fatigues, distance, hours, &c.* This excess of zeal, however, may be and probably more often is, due to a perversion of feeling, rather than to an apprehension of their religious state. These cases have been called *Religious Melancholy*. This leads naturally to the next division of phenomena.

3. *Alterations of Affections and Moral Instincts.* As morbid apprehension is a state or condition of the moral faculties, so is this the next artificial division of our subject. Dugald Stewart, as quoted—*vide* p. 22, divides the moral faculties, into appetites, desires, affections, moral sense, and self-love. The alteration observed in insanity may be conveniently examined by referring to this arrangement; but the change in any of these emotions is still, in some instances, a change of condition only; for example a morbid apprehension is perhaps only an exaggeration of a normal state, but in other cases, there is an alteration in kind.

In this section the change is a difference more in kind, or is a perverted state. As in the previous paragraph, we have seen, that the excess of religious zeal, is at first due to fears about the patient's religious safety; this zeal of the sufferer often proceeds to an exalted condition or fervour, and not unfrequently the love of the deity leads to amatory feelings towards the minister of religion.

In youth, and perhaps more frequently in females, religion is more a matter of emotion than intellectual conviction. Love is,

* In connection with morbid fears and apprehensions, fresh names have been introduced for almost any kind or feature that the symptom may take—as panphobia, as well as syphiliphobia and even hydrophobophobia. Dr. Westphal is credited with the invention of an Agaraphobia, but which Gélineau says should be called Kenophobia or the fear of spaces. Some of these terms will be found explained in a future page. On what will not people try to erect a fame!

as is known, a tenet enjoined by Christian doctrine; it is an easy transition from the love of the Christian doctrine to a love of less chastened kind; the strong emotion of love being called forth, is easily perverted by being uncontrolled. The love encouraged by religion is a highly abstract emotion; it is an abstract from all kinds of love. Now one of the strongest kinds, and that which exerts the greatest influence on the organism, is undoubtedly, the sex-love; this kind of emotion is at one end gross and debasing—and at the other extreme, it is considered to be one of the highest attributes of human nature. In fact this feeling forms the basis of the emotion of the highest kind, in the same manner that all abstract ideas are formed upon impression on the senses. It is an easy transition therefore, for the disturbed mind to go from the love of pure or abstract kind, to that of the less pure or absolutely sensual kind. Erotism or amatory feelings, and especially among females, is a frequent symptom in the progress of melancholia. It is a fact also, that this symptom is more common among the religious melancholics, than among others.

This erotism may have a centric origin, or it may be due to eccentric irritation, it is difficult to decide which: and probably the truth is, that the origin is different in different cases. Undoubtedly it does arise as a mental perversion—though some have appeared to consider, that it was brought about, by an irritation at the periphery or in the sexual organs. It was proposed by one surgeon to perform what he called clitoridectomy, and castration also was tried in one case. The question was thus brought prominently before me at one period, but I never found a clear case, in which the erotic symptoms of insanity were distinctly of eccentric origin; the subject will be referred to in a subsequent page.

Connected with the sexual functions, are various illusions and delusions, which may be mentioned here. Female patients assert that they are about to be ravished—they may have at first an apprehension only, then this apprehension becomes a false sensation, passing thus from the first stage of morbid apprehension into that of altered sensation.

Another change as regards the affections, is pretty frequent in the early stage, viz., dislike of friends or relations, as wife to hus-

band, or in males, of husband to wife, and indifference to all those for whom formerly they had the greatest regard—as for offspring and parents. From indifference they proceed to dislike, and then to accusations of cruelty, unkindness, and actual hatred, and fears in consequence. Connected also with the alterations of the affections, must be mentioned a morbid self-accusation; examples of which are given among cases appended; patients accuse themselves of great crimes—of deserving of punishment, &c; one case referred to, was related by its author as an example of *hysterical insanity*; it is nevertheless only an example of insanity proper, it may be accompanied by the fear of punishment or other kind of apprehension.

Besides the alteration in the attachment to others, or alterations of affection,—the moral instincts, are frequently changed in other respects or toward themselves; the patients are perhaps regardless of ordinary decency. They cease to attend to their personal cleanliness, they become neglectful of their persons, they do not provide for their own wants, they will eat anything and in any way; they thus become altered and slovenly in appearance, and dirty in habits, and are perfectly regardless of their condition; besides this want of decency, there is also an absolute indifference to the opinions of others; an absence of normal shame. They not only do disgusting acts openly but use disgusting language: they, even delicate females, lose all reticence before the opposite sex, and show an entire loss of propriety and modesty.

Among other changes there is also often an absolute perversion of the instincts, the most common of which is refusal of food; the instinct of appetite or hunger, appears to be lost. This symptom, refusal of food, becomes often one of great difficulty to deal with. It probably occurs from different causes. Its precise connection with the mental function, is difficult to trace; undoubtedly it is caused in some cases, from what is just mentioned, and it is a perversion of a normal desire. In other cases, it appears to be connected with morbid apprehensions, as with the fear of poison; in others with false sensations of taste, a dislike or a suspicion of impure condition of the food; the food they say tastes of canker or *dirt*, or other foreign admixture. Patients sometimes appear to desire food or drink, but

are unable to command the volition to take it. One patient I knew who would not take food, but would submit to the use of the stomach pump, as placidly as to the barber to be shaved; another would entreat for food, but when given to him, he would hold it for hours to his mouth without taking it. In most cases, it seems to be due to a perversion of the normal calls of appetite and instincts for taking food. Connected with this question, is the perversion of instinct in eating nauseous or indigestible articles, dirt, coal, or even fæces, (see Macintosh, *Journal of Mental Science*, Jan. 1866, p. 512). This perversion of the instincts is met with in some cases, in regard to other animal functions. It is not uncommon for a patient to voluntarily retain the ejections; the patient appears afraid to evacuate the bowels. He will endeavour with great energy to prevent the action, and after taking aperients will submit voluntarily to all the torment, which he evidently feels, rather than allow anything to pass away. Perhaps will be greatly alarmed, when he no longer can retain his discharges. The same alteration of ordinary instincts, occurs with respect to the urinary secretion. The symptom may be founded upon an absurd perversion of reasoning. One patient of mine asserted that he ought to retain everything for strength; but such a statement may be dependent on the perversion of the instinct.

There is also the perversions of the sexual passions; not only an increase of passion but actual perversions, but the state is more likely to occur in the chronic lunatic or in senility than in the early stage of insanity, this condition has been found to be due to local irritation or disease of sexual organs in some instances.*

Self Love.—The next division of the moral affections according to Dugald Stewart's classification is that of *self love*, and this may be aptly considered here in connection with the perverted instincts. The suicidal propensity is clearly a perversion of a moral instinct, the instinct of self preservation.

The subject of suicide will be further discussed in some of its relations in a future page, it must be considered here as a symptom of the early stage of insanity only.

This symptom occurs quite in the first stage of the disease,

* Macintosh, *loc. cit.*

but in another form as will be shown hereafter, it occurs also in a different stage. When the propensity is present in this stage the patient makes no secret of it, and often repeatedly endeavours to carry out his desire, and usually selects one particular mode of achieving it: thus a patient who attempts his life by drowning will make no attempt by hanging, or the knife, and one that attempts to injure himself by fire will adhere to that mode. However, of course too much reliance must not be placed on this feature except to provide special care against the favoured mode; great care is of course necessary with this class of patient, yet his constant attempts and his repeatedly expressed desire to commit suicide puts the attendants on their guard, and thus it is not often that the act is effected in asylums.

Suicides in connection with insanity are said to have this peculiarity, the insane do not leave behind any statement of the reason why they committed the act. This is due doubtless to the fact, that the act is not one of any deliberation, but more of sudden impulse; these cases have been called *suicidal melancholy*, but of course they are not different species of disease and their pathology is the same as that of other cases.*

All the symptoms yet described, it will been seen, are connected plainly with *states* of the emotions, they merge it is true into convictions or beliefs, which would bring them into anomalies of the intellect proper, yet in the early stage all are emotional. So with suicide it is sought at first as a remedy or relief from mental agony, when it continues, it becomes more like a perverted instinct and borders upon an intellectual anomaly.

* Suicidal propensity was reported to be present in 29½ per cent. of the patients admitted into asylums in 1879, according to returns of the Commissioners in Lunacy, or 26 per cent. among males and 32 per cent. among females. It occurred in greater numbers among the married (especially among married women) than in any other class.

Altogether there were admitted in 1879, 3877 suicidal out of 11,758 patients and it tells well for the successful care in Asylums that out of this large number there were only 11 actual suicides, especially as the above number does not take any account of the patients that were admitted previously.

The gross number of patients in Asylums was 40,088, if the same proportion of suicidal patients to admissions were taken to hold good, there must have been in the Asylums 29½ per cent. of the whole or upwards of 13,000 suicidal patients under care, and less than one per thousand of suicides.

The moral treatment of the suicidal propensity will be found in a subsequent page.

Illusions or *Hallucinations* or alteration connected with the special senses.

Illusion must by distinguished from delusion. In my previous edition, I pointed out the difference and some of my critics believed that they had completely discomfited me on this point. It seems therefore that there is room for misunderstanding. This is the sum of what I wrote. "A disordered sensation is called an illusion or hallucination. These terms are synonymous. You will find in books definitions of each, but I hold that the terms are perfectly synonymous and I account for the confusion that has arisen from the variation of prefix in the French and English languages. In French there is no such word as *delusion*, the French for the English word *delusion* is *illusion* and the French of the English word *illusion* is *hallucination*."

Now there are but two kinds of symptom, viz., an error in sensation:—

1. Known to be an error.
2. Not so known but believed to be real.

We require two names only and unfortunately illusion must be one, hallucination would not exactly meet all the requirements.

Examples are the best kinds of definition of the Illusion:—

In the examination of a patient on this point, I was told that he once while sitting in his drawing room, saw the figure of a white dog pass across the room, he added in the same moment, "Of course I knew there was no dog, yet I saw it quite distinctly;" another patient, a medical practitioner, said to me once—"As I was standing looking out of this window I distinctly saw the figure of my wife appear above the garden wall, and in her arms she carried a white bundle and as I looked the vision disappeared," "what was that?" he asked,—I replied, "an admirable example of what we call, an illusion" (or if you like a hallucination) it would be called hallucination at all events in French, for *he knew that it was not real.*

These examples seem to make "illusions" more allied to imagination, say to a morbid activity of that faculty. It could not be a memory or an actual recollection of a former impression, for in the one case—the medical man—he could never have seen his wife on the top of the wall, or in the other case the white

dog was never seen in the drawing room, some portion of the scene must have been as it were composed at the time.

The false sensation in such cases may be called hallucination, the word, however, to ordinary English minds would express, I think a more permanent impression. If we say a person is under the hallucination, we convey an idea that the subject is mistaken on some point permanently, or at least persistently and during a distinct period. Such is at least the present interpretation of the word. We do not gain much by going into original or former significations, but formerly the word was used in its classical meaning as a simple blunder, a stumble in the dark, *ad lucem offendo*. Addison as quoted in Johnson's Dictionary evidently used the word thus, or as a physical blundering not a phantastical creation of the mind as we find the word now signifying. "This must have been the hallucination of the transcriber who probably mistook the dash of the I for a T."* At present it would I think be scarcely considered correct to speak of hallucinations of the sense of taste.

The morbid phenomenon is clearly an error connected with sensation or its concomitant, perception. The idea formed is however not so vivid as to resist the process of verification in the subsequent mental process.

Illusion has been described by some, and so differentiated from hallucination, by confining it to such errors of sensation as are shared in by others—the cause, as it were, being in the object, not the subject; in plain words, as in the tricks of conjurors and in various optical effects. In this sense illusions are not symptoms of disease at all.

The term illusion is at all events intended here to represent that defect in the sensations which is felt to be not the representation of an actual object, and it is the same which the French call "hallucination."

Illusions only rarely occur, when they occur they happen early in the course of a case, and they may be considered under the different special senses.

Vision.—Illusions of sight, as the appearance of angels, heavenly visions, and such instances as already mentioned.

Hearing.—Of voices, or various sounds. Such illusions are

* Addison.

common in other cases from various causes, as tinnitus ; but in mental disease the sound takes a more definite character—as of words, tunes, &c. Illusions of auditory kind are less common than delusions, of which mention will be made further on.

Taste.—Illusions connected with this sense are more frequent. The taste of canker, of metal, or of different disagreeable character occur, and like those connected with hearing eventually become delusions.

Smell.—The smell of sulphur and various other suffocating odours are often complained of and occur as illusions.

Touch.—Examples of false sensations of touch are common. Electric shooting in the limbs and various parts of the body are met with; patients in the humble class attribute them to electric telegraph, and I have known patients, as these false sensations were becoming more troublesome and pronounced, refuse to sleep on a spring mattress in consequence.

Besides these, there are met with other morbid sensations, which probably, like the above, commence as illusions and become believed, and therefore are at length delusions—as a feeling of being too tall, too short, too large or small; patients will assert that they have eaten too much, that they are dead, that some member is dead, changed, &c. ; all of which will be alluded to further on when we pass to the subject of delusions.

Motility.—All the above divisions of the phenomena occur as a rule in the order in which they have been mentioned. The depression is the earliest symptom, the next to appear is morbid apprehension, but the depression continues ; then occurs the alteration in the moral emotions, the apprehensions and depression still continuing ; and the same with the illusions. If the case continues to progress these are added ; but as regards the alteration of motility it over-rides the whole and extends through the entire series, even into the later stages of the disease.

Motility is altered in two ways:—

By excess.

By diminution.

1. By Excess.—In the expression of grief—I mean normal grief, we find the movements differently affected. One person in a state of mental distress will pace the room with eye fixed on the ground ; another will walk rapidly to and fro in a restless

manner; some will throw their arms about, and above their head, or throw themselves down on the floor, &c.; while, on the other hand, we may see another who sits motionless. So it is in disease; one patient will show extreme restlessness, will walk to and fro, frequently turning, like an animal in a cage, giving utterance at the same time to some monotonous complaint, as, Oh, dear!—oh, dear, never varying the idea—and is unable to sit still. When the patient exhibits this state the disease has been called *melancholia agitans*. Other patients exhibit the same restlessness by wandering to a distance, leaving their homes, and sometimes concealing their whereabouts from their friends (*melancholia errabunda*).

This condition of restlessness is attended with various acts of fidgetting—women unravel their apron strings, men fray out their cravats, or pull at their buttons, pluck out their hair, pick their skin, bite the nails to the quick; women make their nails bleed with pins, they rock themselves to and fro, &c.

The case with excess in movements is of more favourable character.

2. By diminished motility.—The case with diminished motility is less common, but of graver prognosis; while the efferent stimulus seems to unduly excite in the former kind of case, in this it seems not to act on the motor organs at all. In certain cases in which the patient has recovered, it has been found that the intellect has not been more involved than in cases with diminished action, the patients have remembered every occurrence that has taken place; but the absence of movements gives to these cases all the outward characters of extreme dementia. The cases have been called *acute dementia*, but in my opinion very wrongly. I believe the case has been also mistaken for general paresis. The French more correctly have named it melancholy with stupor. In Germany it is called *Melancholie mit Stumpfsinn*, it has also been called *Melancholia attonita*.

There are, however, degrees of this inactivity; some patients merely exhibit a sluggishness of movements; and from this condition to that of a stolid immobility, various degrees are met with; such conditions in the most marked character belong rather to the chronic stage of the case, and will be described in a future page.

It must be understood, that most cases of insanity proper, generally exhibit symptoms connected with all the divisions into which I have classed the symptoms, but the variety is so great that general terms are indispensable. "The four and twenty letters," says old Burton, "make no more variety of words in diverse languages than melancholy conceits produce diversity of symptoms in several persons."

What has been given is however connected only with the mental phenomena of the first stage, (see table p. 108) to make the description more complete it remains to point out, that up to this stage the intellect proper of the patient is scarcely affected, and to what extent it is affected is no more than through the feelings. The patients may take a too miserable view of life—and so far are incorrect, but from their own standpoint, not illogical. If got to attend, they could give as correct a judgment of any business matter as ever, they are able to calculate, they remember, they can form a correct view on most topics, so long as the result is not directly dependent on their personal feelings. A banker, for instance, while in a profound state of melancholy, transacted all the affairs of business for several years. A man of property managed his estate, bought and sold his stock, had a large number of tenants, servants, and tradesmen with whom he personally carried on his affairs, and at last he shot himself.

Before passing to the next part of the progress of the case. I would especially note that though I have introduced various terms as, *melancholia religiosa*, *erotice*, *errabunda*, *agitans*, etc., etc. I have done so merely to show on what slight grounds, and on what slight variations of the symptoms some have endeavoured to multiply the kinds of insanity; if by employing these terms anyone is lead to suppose they are separate species of disease they are positively confusing and mischievous. There is no objection, however, to their use, combined with melancholia, as melancholy itself is only a collective term for the symptoms of a stage in the disease.

To examine into the state of the patient in this stage of the disease, as regards the moral emotions, with the view, for example, of signing a certificate of insanity, or for case taking, I have been in the habit of recommending in my clinical lectures the use of the following *memoria technica* as it is called.

The word "methodic" may be used to assist in the investigation of the symptoms by dividing one's questions, thus:—

Is the patient changed in

M manner.
E emotional feelings, as affection, etc.
T temper.
H habit.
O or
D in disposition.
I ideas or intellect.
C character.

A careful investigation on these heads will often greatly assist in the description of the phenomena, and give well marked reasons for a certificate.

These altered conditions are often quite transient, they have no bad prognostic signification, for they belong to the early or curable stage of the malady, but it must be distinctly ascertained, that the alterations are not connected with some fixed belief, when their import would be more serious, as will be shown in the sequel; for the sake of giving a collective view of this stage some allusion to the state of the bodily symptoms may be advisable, but a general review of these will be found separately further on.

Bodily symptoms of the first stage.—In the early stage of insanity it is rather difficult to say by which class of bodily symptoms the disease commences. When the disease has lasted any time, distinct alteration of general health is apparent; but some might argue that this was due to the general neglect of care, or to the interference with the usual precautions about health, the refusal of food, neglect of person, etc. To the friends this seems the usual course of reasoning and they attribute several of the bodily ailments to the patient's own neglect.

This I am disposed to believe is a fallacy, and it arises from want of sufficient observation. The patient seldom complains, and thus the nature of the earliest bodily symptoms is concealed. When a mental cause, as grief or anxiety has clearly been in operation, when the mind has been too much absorbed, that nourishment is no longer taken or cared for, when the bowels become in consequence constipated and neglected, there follows all the

consequences, as from long retained fæcal accumulations which is followed by flatulence, indigestion, and these are perhaps aggravated by further imprudent feeding or drinking; while the more active functions obtain no rest in sleep, for insomnia is common. It is seldom that any pain in the head is to be noted. The patient is often unaware of any trouble of digestion; but a slight examination shows that the nutrient functions are much interfered with. The expression of countenance is languid and dull, the complexion muddy, the hair dry, the skin is harsh, often the breath is foul, the tongue coated, a foxy odour proceeds from the person, etc., the urine is loaded and often with excess of phosphates, yet none of these are complained of. In some cases I have observed in this stage, but more frequently in the next, a disposition to great flushing of the face after eating.

This first stage as noted in the diagram (at p. 108) ends in the following modes.

1. In recovery.
2. In death.
3. By passing into mania.
4. By becoming chronic melancholia.

We have now to consider the progress in these directions.

In illustration of the foregoing general description several cases are cited in the appendix.

1. *Recovery.*—The progress towards recovery, in primary cases is gradual, and of course depends much upon external influences. It is to primary cases only, that what has been written refers.

No doubt, those slight symptoms previously described, usually not connected in the minds of anyone with insanity, frequently and daily occur and pass off either through the assistance of the ordinary medical adviser, or in many instances by self administered medicines. The cases are considered to be dyspepsia or nervous debilities, etc., and one reads of them often well indicated in the advertisements of the quacks. No doubt many are cured by the random shot of a quack remedy. I must not instance any kind in particular lest I figure myself in their next publication; but that slight heaviness, confusion of ideas, inaptitude for work, uneasiness at the epigastrium, flatulence, palpitations, etc., are

often removed by brisk purgation, which is the nature of many of these patent medicines, and thus are nipped in the bud, is highly probable, but these and like symptoms already described are the forerunners of actual insanity.

The specialist has seldom the case to treat until it is confirmed, when his remedies are of less avail.

But when the change in such a case does occur there are certain signs which indicate the commencement of a return to health.

The progress toward recovery is very gradual; the indications first shown are a growing interest towards their fellow patients (I am supposing the case to be in an asylum), and an abnegation of self—of the self which has been so over-absorbing in the first stage. When I saw a patient walk with another in the pleasure-grounds at Hanwell, or listen to another's tale, I used to view it as a promise of ultimate recovery. Another pretty sure sign is an alteration in their own personal appearance, as more tidiness of toilet or dress, showing a desire, that is, for the opinion or approbation of others. But another sign of improvement, and an important one, is the return to a natural expression of feature. I was once naïvely asked by a lady who was going round the female wards at Hanwell, whether the good-looking ever went insane, as all the patients were so extremely ugly. Though beauty gives no immunity, yet it seldom continues during the attack. Female beauty especially, which depends so much on symmetry and regularity of outline, I suppose is interfered with by the contortion of feature, and untidiness of toilet; certainly it often disappears, but again returns on convalescence, and the return of beauty thus becomes a symptom of a return to sanity; but even with those who have no claim to good looks, the return of the sane expression of the features is equally a sign of convalescence. Another sign is a returning wish for occupation in some way; a greater order and obedience to the rules of the asylum, together with a cheerfulness and gratitude to those who have had to nurse them. The last and best sign of all is the gradually awakening of the patient to the fact that he has been insane. The acknowledgement on the part of the patient of having been insane, is generally looked upon as the crowning evidence of recovery; and it is a very safe proof of the return to sanity.

The progress toward recovery may extend over weeks or months, and be scarcely perceptible to those much with the patient. The progress, too, is not usually uniform; the symptoms from day to day appear to go backward or forward, like the waves of the retreating tide, but viewed from month to month or week to week, the improvement becomes manifest. In one description of case, that with muscular immobility (melancholy with stupor), the change often appears to occur suddenly, but the convalescence is often more in appearance than real. The fact is, the motor symptoms only undergo the sudden change, the state of the mental symptoms remaining unchanged. The sudden alteration of the motor symptoms, the return of more animated expression of feature, and the great change of a dogged immobility to an ordinary amount of activity, is a great contrast, and strikes the observer, but when the mind is critically scrutinised there will be found to remain much disturbance of its functions. There is usually, in the former condition of the patient, a great reluctance to speak, and the mind appears to be more affected than it really is; and hence, when the immobility ceases, the mind appears to undergo a greater change than actually occurs.

So much for the progress of the disease in the first direction, or that towards recovery, and which usually occupies from three to six months in primary attacks.

It is not easy to obtain exactly the proportion of recoveries in these cases, because in the statistics published no separation of them has been made from other forms of the disease. But recovery will take place in from 75 to 80 per cent. at least. The chance of such an event, was estimated by Dr. Thurnam in his work on Statistics of Insanity, to be greatly enhanced by an early attention to the case. He found, in fact, that cases of all kinds of mental disease, if admitted within three months of the commencement, recovered in the proportion of 78·18 per cent. The recoveries at St. Luke's, where these cases only are received, excluding those of paralysis and epilepsy, are about 75 per cent., and when death occurs as will be shown presently, it is often through a complication with other forms of disease.

2. *Second Mode of Termination.*—The next mode of termina-

tion of a case of acute insanity, which will be considered, is the *fatal termination.*

When death occurs, it is more frequently due to what may be called the accidents of the case, rather than to the ingravescence of the original malady.

Among these causes may be enumerated: — Suicide, including exhaustion from persistent refusal of food; various intercurrent diseases induced by exposure, &c., the principal intercurrent disease is phthisis; different forms of visceral disease aggravated by the neglect and habits of the patient, as pyæmia, following upon suppuration of boils, and by a form of chest disease, more common among lunatics than others, gangrene of the lungs; also not infrequently by disease of old standing of kidneys, heart, as well of diseases of general system, anthrax, syphilis, scrofula, besides atheroma, apoplexy, tubercle of other organs—which will, however, be considered under the subject of morbid anatomy.

I am not aware that any very accurate calculations have been published of the number of deaths that occur, and are attributable directly to the mental disease. But I find from such calculations, as I have been able to make myself, that about one half of the deaths that happen in acute insanity, may be attributed to the disease itself, or more accurately in the proportion of 25 to 45. The total number of deaths in acute cases, cannot be more than one-tenth of the occurring cases; and since in round numbers about 75 per cent. recover, and 10 die, it follows that 15 per cent. pass into a chronic stage, in which state some few more ultimately recover. These proportions are however but rough estimates.

When death occurs from a distinct severity of the attack, it does so with all the symptoms of meningitis or encephalitis; but for details the reader is referred to subsequent chapters.

Before proceeding to the consideration of the next stage, it will be as well to mention certain cases—which are more connected with the acute than the chronic stage, and which have been considered by some to be distinct kinds of disease; I allude to what is called—

Puerperal insanity.
Phthisical insanity.
Hysterical insanity or hysterical mania.

After long and careful attention to the above, or to cases complicated by the puerperal state or with phthisical or hysterical symptoms, I can perceive nothing which should constitute such cases as examples of a specific disease. Doubtless the puerperal state, as well as a condition of phthisis or hysteria, may modify the course of the symptoms; but when insanity occurs in subjects affected as above, the symptoms take the same order, follow in the same course, and terminate in the same way, as other cases.

In what way then do they modify the symptoms.

Firstly, as regards what is called puerperal insanity. It must be admitted that cerebral symptoms occur in various other conditions besides insanity, *e.g.* a somewhat sudden outbreak of delirium attended with violence, and resembling the maniacal paroxysm, occurs as a symptom:—

1. In certain cases of anæmia, as during the convalescence from fever, as well as after some puerperal cases.

2. Maniacal outbreak is often nearly the first symptom in recurrent insanity and general paresis, and occurs also in connexion with epilepsy.

3. In cases of delirium tremens, as an early symptom in acute specific disease and in acute carditis (Watson's *Lectures* vol. ii, p. 61, 4th edit.).

With regard to puerperal insanity, a patient may during pregnancy, at the time of delivery, or immediately after delivery, or during lactation, be taken with the symptoms of mental disease of any form. I have had patients at these epochs with ordinary insanity, and with general paresis. A patient, unmarried, of respectable character, became pregnant, endured much mental misery in looking forward to the exposure, became insane and was admitted into Hanwell and went through all the symptoms, (see cases in appendix).

Another case was sent to Hanwell during the time when the admissions were confined to recent cases. In order to admit her, she was certified to have been ill a few weeks; but the certificate also stated that she had the delusion that she was giving birth to 800 children a day. Such a belief was clearly a delusion, and delusions do not occur in the early stage. I therefore detected the fraud which was attempted, and the friends gave a

history of eight years of insanity. Was this a puerperal case? The patient had gone through a melancholic stage, and had clearly then not puerperal mania,—had the disease changed? Another patient was admitted with a child at the breast, remained in the asylum eight months, and was discharged cured. Fifteen months subsequently she was re-admitted. What was the second attack? There was no puerperal cause for it. Was the first case puerperal insanity, and if so, what was the second? It may be argued that these cases were instances of ordinary insanity, simply occurring at a particular epoch, as I consider them to have been; but as to any other cases, which have different features entirely, such I have never seen.

A puerperal woman does not enjoy any immunity from an attack of mental disease, but rather the contrary. Single women have often to bear considerable anxiety, and suffer in various ways. Then the puerperal condition, and especially parturition, is a very exhausting process, and is often attended with great loss of blood. And certain cases of so-called insanity are simply cases of delirium from anæmia. In my practice I have met with many such, and have strongly urged the friends not to send the patient to any asylum, and the cases in a large majority do well. The condition resembles more nearly traumatic delirium, and is relieved by the same means.

Patients with a tendency to insanity in the recurrent form, are often seized with an attack in the puerperal condition, so that they have an attack of insanity with each parturition. Such cases obey the usual law of recurrent attacks which are liable to be brought on by anything which disturbs the system, (see Recurrent Insanity, in the sequel).

We have thus, three kinds of mental signs liable to occur in connection with the puerperal condition.

1. Simple anæmic delirium.
2. An attack of ordinary insanity.
3. An attack of recurrent insanity.

The first is no case of insanity at all. However, cases have been reported which eventually become so.

The second and third obey the same order in their course,

as other cases of insanity, and are in no way exceptional.*

2nd Stage. Mania.—By referring to the diagram at p. 108., it will be seen that supposing the termination of the case is not by recovery or death, there remain two modes by which the acute condition of melancholia may be continued, viz., by passing into mania or into chronic melancholia.

In speaking of the first stage of melancholia, it was stated that about 75 per cent. of the cases terminate by recovery; it should be rather 'ultimately recover,' because a large proportion (but in what ratio, it is difficult for many reasons to say), of such cases before recovery, pass into the state of acute mania and in that stage get well. No statistics that I know of, separate these stages; the same cases admitted as melancholia, in fact are reported as recoveries from mania.

What is meant by the term mania? It is given in different treatises in various formulæ of words, but the condition is best described as consisting in excitement and violence. The various definitions of authors amount to little more than this; Esquirol calls it a chronic cerebral affection, ordinarily without fever, characterised by disturbance and exaltation of the sensibility, understanding, and will. Guislain writes, the characters are exaggeration, exaltation and agitation, and aggressive passions. The patient exhibits petulance, violence, and furor. These characters should be considered in conjunction with M. Guislain's ideas of treatment by restraints (*vide* Treatment, infra). M. Baillarger defines it as "over excitement, general and permanent, of the intellectual and moral faculties." There appears to be, at all events, a condition of abnormal impressionability of both afferent and efferent nerve action.

* "So-called puerperal insanity is ordinary insanity, appearing at, and only slightly modified by the child-bearing circumstances." Dr Thompson Dickson, *Journal of Mental Science*, Oct., 1870,—in a paper, with cases, read before the Medical Society of London.

Dr. Ripping, M.S. of the Asylum in Siegburg, Stuttgart, gives the following results in 168 cases of the psychosis of pregnancy, childbed, and lactation. He concludes that oligæmia (anæmia) is at the root of all puerperal cases, and found it to be strongly marked in 153 cases. He denies anything specific in the nature of the cases. *Journal of Mental Science*, Oct., 1878.

Most authors, including those cited, treat mania as a distinct disease. I consider it simply a condition, or a group of phenomena which happen together, and which may be conveniently expressed in the general term "mania"; this group occurs under other circumstances than that which we are now considering, which will be shown further on, at present we have to consider the maniacal state as *a stage* in a case of insanity proper.

The condition of mania usually follows the melancholic stage in a very gradual manner. At first it shows itself as a mere exaggeration of the restlessness (in the case called melancholia agitans for example) and the mental depression may still predominate, or a maniacal violence appears to be induced by excessive and morbid apprehensions and fears, as though in supposed self-defence, or to escape from injury, much more rarely in my experience from malevolence as in M. Guislain's practice.

The maniacal stage in primary attacks, and which alone I am at present occupied with, is seldom so completely developed at once that one could fix upon the date of its commencement; and even after it has been distinctly established, it may alternate with melancholic symptoms to such a degree that on many occasions it has been impossible to say which condition predominates, mania or melancholy. Sometimes the patient, still greatly depressed in spirits, becomes simply more energetic in manner, following in this respect what is natural in the expression of grief, when grief increases to a degree to become at last unbearable. The excitement and the violence seem to be the result of impatience, and one can readily imagine how by opposition, resistance of force to force, the condition can be aggravated till blows, oaths, rending of clothes, smashing of glass and furniture are the consequence; or the tormented patient seeks an outlet to his excited impressions in shrieks, curses, etc.; all this time grief and the painful moral emotions may be the condition of the patient's mind. Though of course malevolent ideas may arise in some, spontaneously, especially in uncultivated minds. Still, treatment has much to do with the amount of violence and excitement, but where coercion and opposition most prevail, there is always the most violence and excitement as the result.

That the state of mania follows in a case of insanity upon a state of melancholy is no new doctrine or discovery; and that the

two conditions alternate and intermix, and are not therefore easily separable has long been known. Still melancholia and mania continue to be described as two diseases instead of grouped phenomena in one morbid chain of symptoms. A writer in A.D. 1672 says in his chapter of mania, "post Melancholiam, sequitur agendum de maniâ, quæ isti tantum affinis est, ut hi affectus sæpe vices commutent, et alteruter in alterum transeat."

Griesinger quotes the following with approval and says he entirely agrees with it: "the anonymous author in the *Dictionnaire Abrégè des Sciences Médicales*, in speaking of melancholia, says, 'these transitions or transformations of melancholia and mania are not made suddenly, the patients pass from one state to another, by innumerable intermediate degrees, which present, so to speak, all the states of admixture in a thousand different ways.' Hence one must conclude that all those groups of symptoms out of which one has striven to make several diseases form degrees of the same morbid state, and that which proves it is, that in an accession of mania which manifests itself in a melancholic patient one observes in succession the greater portion of the phenomena indicated."

By an analysis of the phenomena of the maniacal stage of insanity, it will be found, that with respect to both mental and motor symptoms, there is an exaggeration of them in every direction; the impressions from without produce a greater excitation and the corresponding efferent results are intensified. The sensations are sometimes even painful, there is often distinct photophobia and intolerance of sounds as well as impatience to the sense of touch, while every outcome is an excess, the ideas flow more vividly, and often in the greatest confusion. They are expressed in rapid and loud speech, the words are stormy and vehement, there is loud shouting and swearing, and exhibitions of considerable violence and anger. The limbs are violently agitated, the patient is restless and violent in conduct, and will attack the bystander, destroy furniture, or glass, and smash everything around; such is the state of the acute outbreak.

But that which is the chief feature of the maniacal stage of acute insanity, is that it exhibits for the first time in the case, a

distinct extension of the mental symptoms to the intellect proper. Patients in the early stage have their powers of perception, and their reasoning faculties clear and though they have various false sensations as foul smells, disagreeable tastes, in other words illusions, they are able to correct the impression by an act of intellect, but when this phase has passed into mania, the patients exhibit distinct aberration of intellect; they talk incoherently, rambling from subject to subject, showing considerable disturbance in the association of ideas; they begin to believe in the reality of their false sensations, and from only complaining of a foul taste, they begin to believe in having been poisoned; the voices they hear are now believed to be real. The patient's power of attention is lost, his replies are irrelevant. His energies or violence are called forth without obvious cause, and all his emotions are in the same wild and uncontrolled condition. As the state increases every natural instinct or feeling is thrown into disorder, and every decency or propriety is outraged. While the actions, which are performed with ease and precision as in health, are excessive and misdirected in their character, the patient is wild, ungovernable, violent, dangerous, abusive, incoherent, disgusting and blasphemous in language, filthy and degraded in habits, regardless of decency, cleanliness, or modesty but not usually lewd, though frequently dangerous to others.

With all this some patients have distinct and special mental characteristics, which run through the whole of their actions resulting perhaps in vicious tendencies of a distinct character. The direction of the insane acts of such patients, has lead to a large introduction of fresh names and so-called kinds of insanity, but since most of these peculiar characteristics form a more prominent feature in the chronic stage, than in this which we are now considering, their enumeration had better be deferred. Still some few of these particular features belong to this stage also, such as the tendency to hysterics, to sexual excitement, to destroy articles by fire or burning, to suicide, to various disorders of movement approaching to a state of catalepsy, to walking round and round (*en manége*), etc., to noise, shouting, etc.

The development of maniacal symptoms, however difficult to treat, does not add any unfavourable character to the prognosis. On the contrary where the melancholic stage has been prolonged,

the change of the symptoms to those of mania yields a better prospect of recovery.

The bodily symptoms.—The bodily symptoms of the acute stage will be considered in a future page. It may be as well, however, to mention that there are several states which may occur and show the approach of general improvement. Besides the appearance of less excitement or more rational behaviour, the occurrence of boils, and falling off of the hair are of good augury. When the menstruation has been interrupted, its reappearance is favourable, but I have known this function to occur with great regularity through the entire course of maniacal disturbance. When the function has been suppressed, as it is probably quite as often as not in the early stages of insanity, the re-establishment of regularity is a favourable sign; inasmuch as it is a sign of returning health. I do not think it is at all certain that it influences the insanity in any other way.

With respect to intercurrent diseases in the course of an ordinary insanity, and the modifications which may occur in different conditions of the system, as during the puerperal state, or period of lactation, etc., my remarks will be postponed to a future page.

Firstly.—The progress of a case of acute mania is towards recovery, as shown in the diagram, p. 108.

Recovery.—The progress towards recovery is to be noted in the gradual return of the patient to quieter habits and behaviour; this is accompanied, especially in females with a greater disposition to cleanliness and tidiness of person. The state of increased tranquility is prefigured particularly in the expression of the face. The features put on by degrees a more natural expression, and patients either men or women, but particularly the latter, change from a state of ugliness, positively repulsive, to a pleasing and even comely appearance, little anticipated by their attendants, who were not acquainted with the patients prior to their illness.

The general health too, improves by degrees and one particularly good sign, and a delicate one for testing the change is a gain in weight, for patients when quite convalescent often become fat. The disturbed bodily functions, in fine, gradually take their normal action.

The mental phenomena as well, show a gradual improvement, delusions fade, maniacal tricks cease, the patient ceases to pick himself, his sores heal therefore, the hair begins to grow and he takes notice by degrees of his companions. He begins to occupy himself in various ways, or he will allow himself to be amused. Even in private asylums, where occupation is peculiarly difficult, the patient will gradually show some bent to occupation by walking, reading, etc. Often as the delusions or wild fancies disappear, the patient appears a little sad. He is as it were ashamed at the recollections of many of his insane acts, when his self-control had deserted him.

A test of recovery generally allowed, is the patient's admission that his acts have been those of an insane person, and that he has been wandering in mind, the lunatic who was the loudest in his assertion of unjust incarceration and who has demanded with greatest vehemence to be discharged, gradually ceases to demand his liberty, and will even go so far as to say, that he would prefer to abide the doctor's time.

The next mode by which ordinary insanity or insanity proper may progress, is towards a fatal termination (see diagram, p. 108).

Death. Death in the acute stage of maniacal excitement, occurs in a small proportion of cases; I have no statistics on this subject. Most primary cases, whether melancholic or maniacal, and which terminate fatally, are reported as dying of exhaustion or debility. Thus, in Sir Charles Hood's statistics of Bethlehem Hospital, we find it reported, that 25 per cent. are reported as dying from exhaustion and only 5 per cent. of mania.

It is, however, well ascertained, that of the deaths from all causes, more than half die in the first two years, therefore mostly in the acute stage, and out of these one-third only, would be by general paresis, so that death of the rest must occur from acute insanity. So that by a rough estimate, nearly a third of the patients admitted die in acute insanity.

But though they die in the course of the disease, it does not of course follow, that they die by the disease, or on account of the brain symptoms. Speaking from memory and general impressions, I should put the proportion of such deaths to be much fewer.

I find this to be the conclusion of others, Dr. Marcé, (*Traité des Maladies Mentales*, p. 291), writes, "death occurs rarely in the course of acute mania." Griesinger says, "death may happen in mania through the brain disease, by excessive hyperæmia—more rarely by extravasation." More commonly the patient succumbs to a state of collapse after the maniacal symptoms.

When a patient dies in this early stage of mania, it is after a very short stage of melancholy only, and the symptoms are those which are given as encephalitis in works on medicine. Dr. Bristowe says, "of acute general inflammation of the encephalon, there is little to be said, the cases are rare. The symptoms which they present are vague; and the morbid changes which are observed after death are, to say the least, obscure." So that death from cerebral mischief is equally uncommon in general hospitals, as in asylums.

In making this statement, we must leave out of question, local cerebral inflammation set up around apoplectic clots, or in the vicinity of diseased bones, or from tubercle which may from time to time occur in asylum practice.

Among my own notes I have record of several cases of death occurring in the acute stage. The symptoms which I have described of great excitement, raving, insomnia, and typhoid type of general symptoms occurred; the patient in two cases showed well-marked cessation of delirium and comparative rational state just prior to death, there was severe convulsions in one and strabismus in two of them.

Death occurs more frequently in the course of the chronic stage, which will be described in the sequel. But it has been shown by Dr. Wood (*On the Plea of Insanity*, p. 83), that "insanity after the violent symptoms of the acute stage have passed off, does not necessarily tend to shorten life; and that the prospect of an average life is greater among those, whose malady is confirmed, than among those, who suffer from it in a minor degree." This conclusion Dr. Wood arrived at from an examination of the duration of life in patients at Bethlehem, and comparing their cases with the tables of the Equitable Life Assurance Company. Doubtless the care that is taken of the poor in our pauper asylums has something to do with this result.

Recapitulation and general review of the bodily symptoms in insanity proper in the acute stages of melancholia and mania.

In a typical case of ordinary insanity in a primary attack, the first mental symptom has been shown to be melancholia; but prior to this, the bodily health has begun to suffer. The first disturbance of health is a condition of dyspepsia, not different perceptibly from an ordinary disturbance of the stomach functions. There is undoubtedly in stomach disturbances, or what is called by the public a bilious attack, a certain amount of depression or low spirits; such attacks are common and frequent and pass off; these cases are usually the result of errors of diet, but they show how a slight defect in the blood-making organs may affect the spirits. A case of course is not called insanity, however, until it has advanced further than this in its effects on the mind, and usually the first symptoms of bodily disturbance are brought about through a different course.

It is not easy in every case to find a cause for the commencement of an attack, but many are traced distinctly to what is called a moral cause, as to the loss of child or relation, to a loss of property, &c. In the statistics published by the Commissioners in Lunacy such a cause is attributed in one-third to one-fifth of all the cases, but in their table all kinds of cases are included. In the statistics of Bethlehem, published by Sir Charles Hood, moral causes were attributed in much larger proportion. M. Georget, as quoted by Sir Charles Hood, says, "that in at least 95 per cent. the causes were moral,"—that is, from effects on the moral faculties.

As is often the case, however, it is probable that one kind of cause reacts on the other; impaired blood-making process, leads to depression, the depression leads to neglect of the ordinary rules of health. The disease thus gradually increases until the general depression amounts to a state of melancholy. When this condition has been reached the patient is unheedful of his state, often ignores his bodily symptoms, and if questioned would say his bodily health is good; and in this stage, perhaps, the patient eats well; only a physical examination can then establish the fact, that the digestion process is defective.

It will usually be found, that a patient in the early stage has a coated tongue; that his breath is offensive; his bowels are

constipated; he is troubled with wind; his appetite is capricious; he eats hurriedly perhaps, and suffers after each meal. Females often complain of a feeling of anxiety at the heart; the hair is rough, harsh and dry, the skin dry, and later on emits a peculiar odour; the urine is abnormal and the catamenia suppressed. The circulation may not show any disturbance as to frequency of heart's action, but the blood shows a deficiency often of red globules, and a state of chlorosis, with anæmic murmur heard at the base of the heart, often exists.

As the disease progresses the bodily symptoms are often aggravated by the mental. Thus, the patient from a mental cause may refuse food, and thus increase the anæmia and debility. One symptom is often met with, and which occurring in ordinary insanity would seem attributable to defect in the sympathetic system, is intense flushing after eating; there is also often blueness of the roots of the nails, chilblains, and other consequences of defective circulation. To the same condition of the system is probably due the common occurrence of insomnolency which is a distressing symptom, and is present through the early even to the advanced stages. The general practitioner, as distinguished from the mad doctor, would be incredulous if he heard that a patient never slept; but such happens with the insane for very long periods. It will be seen, in fine, that in this the earliest or melancholic stage, all the symptoms point to an error in the process of blood-making; and it will be remembered, that the mental phenomena are those of modified rather than perverted cerebration.

But the bodily symptoms are somewhat modified when the disease passes into mania; the debility is less or is merely masked by the excitement; there is a recklessness in all the actions of the patients; the expression of misery is now no longer visible in their features, nor by their words or conduct, they will eat anything that is given, and show no symptoms of pain or inconvenience of dyspepsia if they exist, but the physical signs remain and increase. The tongue is often at this stage red and glazed, the mouth clammy, especially if the patient is noisy, talkative or shouts. Sordes may be present on the teeth, the bowels may continue bound, or diarrhœa may set in, or even dysentery, induced probably by the filthy

habits; for without care the maniacal will cram their mouths with dirt or filth, and some will eat their own fæces, or drink their urine, pick up any dirt or mud, stones, &c. It is of course rare for them to transgress in this way in well managed asylums, but they have the propensity, which is the symptom, and the bodily symptoms may perhaps be greatly accounted for by the propensity. Besides the visceral disturbance the skin is also still more offensive, and emits a more decided odour of peculiar kind. This too appears to be a real phenomenon of the disease, still it may arise from, or at least be increased by the habits of the patient. Maniacal patients, gentlemen or educated females, of refined feelings during health even, may be so transformed by the maniacal symptoms, that they act as the most depraved and abandoned of human beings. A lady or other patient in this stage, will tear off her clothing with complete disregard for everything and when clothed in the dress which is put on her of a kind which cannot be torn, will dance, shout, with her hair dishevelled, or filled with dirt from the garden, she will grovel in the mud, begrime her skin with fæces or any other filthy thing she can obtain; the skin of the patient is thus in a condition calculated to aggravate the disease. Patients, however, often on the advent of mania appear to gain strength, and frequently in females the catamenia, which have been absent, re-appear; and I have known the function to recur regularly through many months of the acute maniacal stage. They also gain flesh and when this occurs it shows of course a favourable turn of the disease; and an attack of mania following on the acute melancholy is always of good augury.

There is too another bodily symptom which arises at this stage and is a good prognostic, the occurrence of boils; these have been very generally observed and some have called them critical, these boils occur in different parts of the surface and follow in succession often for a month or two, they usually pass through the ordinary course. In one case in which they occurred to the degree of carbuncle the patient's life was endangered by exhaustion, in another patient the suppuration of a large boil was followed by purulent poisoning and pyæmia, but usually the boils, after troubling the patient for a period, gradually cease, and the patient becomes convalescent in mind and body.

Death, however, occurs in the maniacal stage and when it does so it takes place by: 1. the severity of the morbid processes of the disease; or 2. through some accidental or intercurrent cause.

When death occurs in the maniacal stage under the first of the above conditions the symptoms are those of other acute cerebral diseases, and the immediate cause of death appears to be owing to exhaustion of the powers by the constant raving and delirium and there may be all the usual symptoms of cerebral inflammation with effusion, as strabisms, convulsion and the like. I have known also other more rare phenomena as opisthotonus and catalepsy.

It must be mentioned, however, that there is nothing to distinguish the mania of insanity from the delirium of other cerebral diseases, or perhaps from the outbreak of general paresis, as will be shown hereafter. It may be also readily confounded with delirium tremens, unless a clear history of the case is to be obtained, there is seldom any of the usual prodroma of meningitis of tubercular origin, seldom any vomiting.

2. It is more usual perhaps that the cause of death belongs to the second category and occurs from exhaustion due to the constant raving, want of sleep, and refusal of nourishment, rather than to the failure of the nerve functions proper. Death also occurs in this stage from the occurrence of intercurrent diseases, pneumonia, going on to gangrene even, in the lung, to pyæmia or white deposits (embolus) in the lungs, spleen, etc. and to marasmus. It is especially in such cases that the thermometer affords information which is not obtainable from the patient in any other way, the temperature should be carefully taken during the progress of these cases, and it will afford valuable information of the real state of the morbid processes.

Treatment in the Acute Stages.—In order to keep the treatment distinct from the enumeration of the symptoms, I have preferred to postpone this subject in its general aspect and especially that part which relates to the moral management of the insane, to the end of the history of the progress of the case; but it will be necessary to consider the subject in its different stages, since the management of one stage differs from that of the other, especially in regard to the first stages.

The case of ordinary insanity also differs from that of the case of other forms, and the primary case from that of secondary attacks.

As already stated, the first stage of insanity is a condition of melancholy; the general review already given of the bodily symptoms, points to the fact that the first stage of treatment must be with the view to correct such symptoms, as occur connected with the organs of digestion and assimilation.

Should the patient have restless nights or not be able to sleep, I think 20 grains of chloral at night a valuable remedy, I am not disposed to combine it with the bromides. I have used chloral extensively and have never experienced any ill effects in any case from its use; opiates, on the contrary, I have not found so beneficial.

The constipation which is often obstinate and of considerable duration, is in my opinion best treated, unless other things prevent its employment, by aloes; and the form I prefer is equal parts of aloes and mastiche, taken at noon in five to ten grain doses, usually five grains daily is best. The action is slow—appears in fact to be as chronic as the symptoms. The stomach derangement in young people will often be relieved by soda or potass: when there is any gouty tendency, I prefer the latter. We cannot always get our patients in asylums to persevere in a lengthened course of tonics or other medicines that are indicated, so that often the remedy must be concealed. Bitters can be hidden by beer; quarter to half grain of aloine can be dissolved daily in the patient's dinner beer, and will not be observed. In a patient, at Hanwell, with strong apprehensions of being drugged or poisoned, and whose bowels had not acted for nearly a fortnight—who was suspicious of every thing brought to him, as powders in his bread and butter, and who would eat no meat unless he saw it cut out of the centre of a joint, and was supported almost wholly on eggs, I managed to deceive with a dose of elaterine, the dose of which is one-twenty-fifth of a grain. He kept his own beer mug or rather tin, which he polished out himself and which he saw filled from the beer jug. This small quantity was with some skill poured into his tin, behind the stream of beer.

In young females the bodily condition often requires ferru-

ginous tonics. In cases of refusal the tartrate of iron may be concealed in porter. Its taste is easily concealed by decoction of liquorice or sarsaparilla—or as often when the patient is capricious, iron can be given in chocolate cake or lozenges or made up with ginger-bread nuts; in the melancholic the chloric ether is useful and may be combined with the iron. Morphia in small doses, with chloric ether has been extolled; I have not found morphia useful.

These being the chief therapeutical agents for correcting the altered functions, and which on speaking in such general terms, only are applicable, a more important portion of the treatment remains to be considered. The general hygienic management of the patient.

In the maniacal stage supposing the case goes on to this, the same tonic and hygienic means must be persevered in. In this stage especially frequent baths are necessary, particularly for cleanliness. In the early stages of melancholy the Turkish bath has been tried but without marked effect, it is more useful in the second or maniacal stage. When the patient's cutaneous surface is dry and harsh and emitting a bad odour, the temperature should be kept up until some perspiration is induced which is often no easy thing, the body should be shampooed to be followed by a free use of soap, this may be repeated once a week or oftener according to patient's strength. Warm baths are also serviceable in mania; some physicians have prescribed a bath to be kept at a good temperature (101° to 102° Fah.) for a period of three to five or six hours. It is probable that the ablution was an important part of the benefit that was derived from such a process.

Cold baths in my experience are not useful in acute mania unless locally applied to the head. Cold shower baths have been used extensively; but it is doubtful whether purely as a curative, but rather as a corrective measure, but cold shower baths of one or two minutes duration in summer have been useful and enjoyed by some patients. For a maniacal patient they are not applicable.

I am inclined to believe, though at one time much opposed to it, that wet packing is often a remedy that is useful in a maniacal outbreak, the objection to it in my mind was that it

seemed to be a mode of mechanical restraint and simply a substitute for the discarded strait jacket. In several very furious maniacal outbreaks, however, I have seen it induce a profuse perspiration terminating in sleep. The mode of packing is now pretty well known, a sheet is lightly wrung out of water (if the patient is feeble, the water may be tepid, otherwise the water is to be cold) and the patient swathed entirely in the folds, the body being stripped and the arms by the side, the sheet enclosing them; in the course of a very few minutes I have found that the patient ceased to resist and gradually became quiet and slept after soporifics had failed.

Exercise of all kinds should be employed, the diet simple but nutritious, the patient requires support if feeble; I have seen much benefit in mania from cod-liver oil.

Blisters to the nape or head, I have seen used, but in my opinion they should be avoided, as they are often followed by troublesome sores which from the patients' dirty propensities are very difficult to heal.

Should the insomnia continue in the maniacal stage and the patient be very excited, $\frac{1}{15}$ of a grain of hyoscyamine may be useful. Some good authorities are opposed to the use of this alkaloid on the ground that it produces so great a depressive effect as to amount to a chemical coercion; this lowering effect is dependent a good deal on the dose, $\frac{1}{150}$ or $\frac{1}{200}$ of a grain, is followed, in those in whom I have administered it, by an elated or satisfied condition of mind in perfect contrast to the excitement for which it was resorted to.

In a very early period of my life, when the extract of hyoscyamus was made from the fresh leaves by ourselves, I have prescribed 4 grains of the extract with uniform sedative effects, but I have seen a drachm used of the drug supplied from the druggist and no effect to follow. I have not used hyoscyamine in one grain doses, as others have, but I have seen the effect of repeated doses of $\frac{1}{4}$ grain which seemed to have a depressing effect on the patient with coldness and blue condition of the hands and feet.

Prognosis.—Before proceeding to describe the next stage of a case of ordinary insanity, it may be as well to say a few words on the prognosis of the case at this period. The disease so far

as our description has extended, may be considered to be in the acute stage, and so far at least as its duration in time is concerned there is nothing to warrant an unfavourable prognosis.

But the artificial stages which have been adopted for the purpose of description, are, it must be remembered, mere expedients, and are not actually separated the one from the other by any well defined line of demarcation.

To estimate the probable chances of a favourable or unfavourable termination for such cases as have reached this epoch, we must refer to the phenomena present in each case.

As a general rule every case still in the acute stage of melancholia or mania may be deemed curable, there are, however, phenomena which would contradict such a very general conclusion.

In the first place, when the mental symptoms appear to include the functions of the whole organ, the chances of recovery are less than when the symptoms are confined to a portion only. Next, when the phenomena themselves point to an actual organic change (when probably they would involve the whole of the functions), the prognosis is unfavourable. On the other hand, when the symptoms appear to be simply an exaggeration and not an alteration of a mental function, the chance of recovery would be greater.

In explanation of this statement, it must be remembered, that the division of the mental functions into classes, as into emotions, intellect, volitions, etc., is a purely artificial arrangement, and the terms denote mere abstractions. The functions of the brain are nevertheless one and entire, so that when the symptoms merely have reference to one of these artificial divisions, as for example, with the emotions only, there is no indication of organic disease. When the symptoms are connected with two of these divisions, as with emotions and voluntary movements, the prognosis is less favourable, and when the intellect proper, the volitions or voluntary movements, and the emotions are all involved the case becomes less favourable still.

Evidence of any distinct brain disease is also of adverse kind, as the presence of local paralysis, ptosis, aphasia, facial paralysis, any affection of the movements of the eye, or deafness, or disease of the internal ear, etc.

With respect to voluntary movements, restlessness or excitability of action, being merely an exaggeration of a normal function, is not unfavourable; but when there is a great degree of stupor, and as it were, no response in the afferent motor function as in severe cases of melancholy with stupor, the prognosis is less favourable.

Emotional disturbances are nearly always present, their presence does not add therefore any distinct bias to the prognosis in one or the other direction. Not so, however, with the intellectual anomalies. Still the mind may be considerably disturbed, and is so in acute mania, without adding weight to the prognosis. In general disease, the thoughts and ideas wander in delirium without at all affecting the organ permanently, a mere delirious excitement of ideas is therefore of no bad augury in insanity. But when the process of ratiocination shows a permanent defect, the prognosis is different and unfavourable. With the presence of a true delusion or permanent false belief, and incoherence of ideas (or inco-ordination in the process of ideation), the prognosis is bad. When such occur the emotions are also involved, though the volitions and voluntary movements remain in ordinary insanity intact.

Section II.

ORDINARY INSANITY—THIRD STAGE.

Third Stage of Ordinary Insanity—Evolution of the symptoms in the chronic stage—Addition of Anomalies of Intellect proper—Symptoms of third stage, Delusions—Ocular, Auditory, Tactile, Gustatory and Olfactory—Delusions connected with nutritive functions, with generative functions—Anomalies in Speech—in Actions, Temper, Habits, Memory, Character, Motility.

3rd Stage. Chronic Insanity.—We arrive next at that stage of the disease when it may be considered to have become chronic. As regards the period at which this stage is reached, this of course varies, but after nine to twelve months or at furthest eighteen months we may assume that the disease is chronic, a better criterion to go by, however, is the nature of the symptoms which are present.

After the case has lasted the above period the original melancholic stage will have, firstly, persisted in the form of melancholy, or with predominating melancholic symptoms; or secondly, will have developed into acute mania, that is, will have exhibited symptoms of excitement and violence.

After a given time either case continues in one of three ways. (See diagram, p. 108).

1. The acute melancholy may become chronic melancholy.
2. The acute melancholy, after going through a stage of acute mania becomes chronic mania.
3. The case in becoming chronic alternates between a condition of mania and melancholia.

The symptoms of chronic mania and chronic melancholia, may be discussed together. They are, in fact, so intermixed in the progress of many cases, that it is better perhaps to use the term of chronic insanity for both. Remembering always that when the term chronic melancholy is used, it denotes the preponderance of melancholic symptoms in the case, and when chronic mania is used, it would indicate a greater tendency to violence, etc.

It is to these cases occurring with such variety in the symp-

toms that we find attached so many fresh names. In French it is called *manie chronique* or *monomanie*. In German *Wahnsinn* or *Verrucktheit*. There are also many other names based upon a prominent symptom which will be explained in a future page.

The line of demarcation between the stages to note the chronic from the acute, is as usual not sharply defined. One stage as it were overlaps the other, but the difference may be made at the epoch, when the mental phenomena pass from the category of emotional disturbance merely, to that of the intellect proper also.

The description of the phenomena will be given in the same order as that adopted in describing the first stage.

The order of the symptoms in the first stage was as follows:—

1. Depression of spirits.
2. Morbid apprehensions.
3. Alteration of affections and instincts.
4. Illusions.
5. Motor alterations; to which must be added in this stage
6. Delusions and disorders of the intellect proper. The motor phenomena remaining the same in both stages namely being in excess or in diminution of activity.

It will be seen that No. 1. 2. 3. are connected with the emotions. 4. and 6. with senses and intellect.

Depression.—In the chronic stage the main difference in the character of the phenomena is in the greater extent to which the senses and intellect are involved; the depression may therefore not show much change. We simply say that in chronic melancholy the painful emotions predominate, and are exhibited in depression of spirits and morbid apprehensions. On the other hand in the case of chronic mania, it is the intellect and motility which are the seat of the most prominent symptoms.

It is difficult, however, as already explained, to say in many cases whether the painful emotions are really present, and if so whether they predominate, and, as will be shown presently, in particular cases the opposite conditions alternate:—"Hi affectus sæpe vices commutent."

All that therefore can be affirmed with regard to depression of spirits in chronic cases, is that in a certain number it persists. (Example, Case XII).

Depression is a *state*, not a *kind* of emotion, the ground of low spirits often is some delusion, for in this stage of the disease, illusions will have passed into delusions. The intellect proper being now involved and the morbid belief taking an uncomfortable starting point, the source of misery becomes more persistent. The morbid apprehensions, which in the first stage are fears that evil will arrive, are now a belief that the fear has a real basis, that the calamity feared is a reality; as for example, the fear of death may become in them a belief that they are dead; but since the basis of each cause of depression is connected with delusion, it will be better to describe this in conjunction with that phenomena. So long as the fears of the patient are illusions only, they belong to the emotional anomalies; but when they become objects of belief, they are anomalies of intellectual faculties, and are true delusions.

Delusions.—It will be convenient to consider some of these more common delusions in the same order as that adopted with illusions, or as connected with each special sense, but some of the patient's insane symptoms have a more complex foundation and such will be reserved to be considered subsequently.

Auditory delusions. — The alterations connected with the sense of hearing become more pronounced, the patient who hears voices, now believes in their reality, and the voices constantly torment him. What the chronic patient hears is of various character. Sometimes it is painful in the extreme; they hear the cries of their children in danger calling for help, they hear commands to do this or that, and sometimes are impelled to act upon such commands, however absurd or horrible they may be. The sounds are not always human voices, and they seem to come from various sources, from above, from below, from the wall, from their own interior, etc.

One poor woman at Hanwell was tormented by what she believed to be the cries of her children from below, and would implore me to let her go to them. I have often indulged her by accompanying her towards the supposed source of the sounds, but on reaching the storey below, she still imagined the voices came from below, if we followed them till we came to the basement, the voices still spoke to her from below.

Another patient, a lady by birth and education, but reduced

by her malady to pauperism, heard the voice of her deceased husband calling to her from the next room. She would stand for hours and answer him. On my approach she entreated me to open the door, if one endeavoured to reason with her no attention could be got from her, and in complying with her request, she went only to the next door, with the same endearing words to the voice she believed she heard. In both these instances the delusion was of painful character. The case, on account of the energetic excitement attending it, might be considered by one as mania, by another melancholy. In other cases the delusion of the voice is of more terrible character and excites the patient to fearful outbreaks of violence, and at least to violent and loud denunciations.

The subject of the delusion through the auditory sense may be of course connected with nearly every subject of thought, but it is rare for mere abstract ideas to be the ground of false belief. The delusion is not so much a result of the reasoning process upon abstract propositions, but rather upon the concrete ideas produced primarily on the auditory organ.

The false belief does not, however, depend upon sensation itself, but upon a mental process which is attributed by the patient to a real sensation; patients do not mistake one sound for another, but having a morbid process going on within their cerebral organ, they attribute the result to the organ of sense. When a patient hears a voice, there is no voice or even sound perhaps to produce it, but the centres which are normally affected through the auditory sense, are morbidly excited.

And not only is the direct sense centre morbidly affected, it is clear that its associated ideas are also brought into play.

And since all the sense centres are closely allied together or associated, a false belief connected particularly with one sense involves false beliefs of most of the other senses and the judgments founded upon them. Auditory delusions are therefore generally of complex kind.

To auditory delusions may be attributed probably, the phenomena which some years caused much wonder among the public, that of the popular belief in the gift of speaking in unknown tongues, which was caused by certain insane females, who roared during a religious service, and gave utterance to a jargon of extraordinary kind.

One of the speakers was under my care as a chronic lunatic many years subsequently.

Ocular Delusions.—As regards delusions which seem to be principally dependent on the ocular centres, such are perhaps less frequent, and the form which these false beliefs take, is founded mostly upon the reasoning or mental process following upon ocular impressions. As an example of this a lady in the chronic stage asserted that nothing around her was real, "but only pretence," that the leg of mutton I was carving, she said, was only a sham one, that I pretended to carve it and those around the table pretended to eat it, but all the pieces would be put together again, and the joint would appear again to-morrow. One young lady at the table she said was not real, her teeth were porcelain and her eyes glass. She politely asked an old gentleman sitting near, to oblige her by taking off his head.

Tactile Delusions or delusions connected with the sense of touch or feeling; to this category we must attribute the delusions probably when patients believe that they are dead or that they have lived in some former period. A gentleman, a member of the medical profession, whose case was called religious melancholy, who passed through a stage of mania, and was now in the condition of chronic mania, had this delusion (to which the name of *mania* or *melancholia metamorphosis* has been given.) He believed that he had lived in another body. I saw him admiring a handsome Newfoundland dog on one occasion, and asked him what he thought of it, his answer was, "Oh, I knew him in the other world, he married my aunt." Such delusions as these one could multiply to any extent. These and such like are more than merely false beliefs, they are anomalies of the entire intelligence, they involve every faculty, and show errors of memory, association of ideas, reasoning faculty, judgment, and denote of course a serious disturbance of the organ. Such delusions denote a confirmed or chronic condition and therefore give an unfavourable prognosis. A girl in Hanwell was screaming with affright one day and on asking her the cause she said that they had changed her hands, "these hands," she said, "are not mine, mine were pretty little hands, these are too large." This was another example of delusion of metamorphosis I suppose.

Gustatory and Olfactory Delusions.—Delusions founded on these special senses are occasionally observed, but less frequently than those based upon the other senses. Patients are sometimes annoyed by the delusion that they stink, and are offensive to others, that their food has an offensive odour or bad taste. Such delusions are usually associated with melancholic symptoms.

The above are examples of delusions connected with the special senses, and of illusions passing or passed into delusions.

There is another description of symptoms which is connected with the emotions and the instincts, and may be thus classed:—

1. Symptoms connected with the nutritive process.
2. Symptoms connected with the generative process.

1. Patients have innumerable delusions about eating, in this stage as well as in the former, believing that they should not eat at all, that they have already eaten too much, that what they eat is human flesh, that it stinks, that they have no gullet, that they cannot swallow, that they should retain their urine, or their fæces, and that it would be death to part with them and they will endeavour to seize and re-devour them.

Belonging to the same category are the following. Some imagine that they are immense, that they are ten feet high, that they cannot pass through the door, that they have an animal in their inside, that they have no inside at all, that they are pregnant, and males not uncommonly entertain this delusion, others that they are too small, too light and will be blown away, that they can fly, that they are birds, and are covered with feathers. A poor lady under my care used to stand long periods under a tree making futile efforts to spread her wings.

Some believe that they have no heart, no liver, no head, that their head is made of wood, that they would melt in the sun. One delusion I have met several times, patients ignore their children after they have grown up. One patient entirely lost her identity, her real name was Stevens, all events happening before her illness, she referred to the history of Martha Stevens, all that happened since she referred to her new condition in which she was Molly Dodd. On her son, whom she left a child, visiting her when he was twenty, she said he was a very nice young man, and was Martha Stevens'. One lady visited by her son, after many years would not own him and called him an impos-

tor. Others still speak of their children as infants after years of absence.

2. With respect to the generative system. One woman under my care had the delusion that she gave birth to 800 children a day. Virgins and males believe themselves to be pregnant. Some take the literal interpretation of the text, if their eye offends them to pluck it out, and attempt to enucleate an eye, or men to emasculate themselves by mutilation.

In speaking of delusions and connecting them, for order's sake, with the special senses, it is not meant of course that delusion is an anomaly of the sense organ. Such alterations would be called anæsthesia, hyperæsthesia, dysæsthesia, etc. The delusion is an intellectual product and is connected with the ideas based on sensation.

We have next to consider some other errors of the intellectual class, which are of more complex character as regards their origin, and many of them as much dependent on the emotional as the intellectual division of the faculties, as the anomalies of language, of ideas, of association of ideas, memory, imagination, consciousness, apprehension, reasoning faculty, and the still more *complex* acts, behaviour, disposition, character, propensities.

They may be arranged roughly into two classes:—

1. The more simple, as expressed through language.

2. More complex, shown by acts chiefly.

The former are the more purely intellectual, the latter are much mixed with emotional faculties, not but that every idea is more or less an excitant of emotion; for though we separate the mental faculties artificially, they are one, and intimately blended in nature, we can scarcely have an idea, especially a concrete idea, without at the same time a feeling, which is emotional.

Anomalies of the Ideas. Of course all those delusions already considered are of this class.

Mal-association of ideas is a prominent symptom in chronic insanity, whether the form be melancholic or maniacal. It is shown in speech, oral or written. It is called also Incoherence; there are two degrees or modes in which it is shown. The first, incomplete—or as a mere discursiveness in speech, or rambling from subject to subject, the sentences being more or

less formed; and secondly, the Incoherence is complete, and there is no connection between the words even. Incoherence is sometimes not readily detected when it is oral, unless the observer is well accustomed to the investigation, but when written it is at once discoverable. I have known a patient to talk rapidly and never finish a sentence, but be diverted at the penultimate word into a fresh idea. This is partially shown in the following written specimen:—

Hanwell.

"My dear Son, if I can find him.

Wherever you may be—you will do well to remember me. Wisdom progresses though the people stand still. I am waiting for somebody who I fear is ill, to leave this place with, I shall have to prove who I am, having been a dead letter so long, perhaps to all forgotten by all that is mortal. Humanity, being only selfishness sincerely do I desire to be out of Hanwell. I curse the day I saw it first, a lasting bondage, nothing but tolerating ignorance. Wilful injustice being the vogue. Weakness the suckcumbing fool. Ignorance the Master. Usurper and tyranny directors to the already oppressed and grieved. Robbed and wronged. Patience insulted. Obedience rediculed, made a fool of. Reason out of season at Hanwell. There is not Order nor Justice of a Bawdy House, it is murder distinguished under disguise."

The writer was an educated person and had been a governess. She had no son.

The letter shows a mild degree of incoherence, it is clear the writer had begun the epistle in a different frame of mind from that at which she arrived, or intended to arrive. The next specimen is rather more incoherent, the writer was supposed when she wrote it to have been wrongfully sent to Hanwell, and the magistrates at the first interview called upon me to show why I thought her insane, which opinion I certainly entertained, and from the incoherence, adjudged her to be in the chronic stage as well. The patient is still insane and in Camberwell House.

Hanwell Asylum. *March*, 1863.

"My dear Dr. and Mrs. Sankey,

We have asked him, and (to-day written for the Prince of Wales' grant of 1862) which we never then refused, but as a bird in the hand is worth two in the bush, we on that 5th of November day capably carried a law case, and the judges judgment was "the money to be paid forthwith. Daily bread and common sense depended upon the recovery of 10£ suit on hand—Ladies could not encounter a London crowd thro' wh. the greater sum of 40£ or 80£ pr. annum was said to be available having received no written order how could you go through a thicket without a ticket as upon all such occasions such as the

police Pass. We knew before we came here the grant was said to be placed at the 'disposal of an English and Continental Lawyer in a representative Law Case, of which Prince John of Saxony under reported slander of my character wished to be unconsciously the respectable head of course we refused his kindly desire to aid, and judicially with it, which was groundless and childish—Retrospectively and prospectively, looking at our present History we say let Friendship take the place of representation necessitation as money is our friend in the King's coin."

A greater amount of incoherence even than this is often exhibited in the written communications of the insane.

The incoherence often is shown, or as it were produced, by a pun, a play upon words, or a rhyme, the train of thought is easily led off from its normal course; there are instances of the turn of ideas by a rhyme in both the above specimens. It may be called a want of co-ordination in ideas.

Patients show often a fancy for allegorical and cabalistic writing—they quote texts, applying them as they like; some seem to have a change in their appreciation of colours; those who amuse themselves with painting, will use the most violent contrasts; vermilion skies, and bright purple trees. An artist at Hanwell, whose ability was well known before his illness, produced while there some very eccentric effects in colours of this kind.

The power of reasoning in the chronic lunatic is by no means always lost, nor always materially weakened, though there is some difficulty in estimating to what degree the faculty is affected; the reasoning faculty, and its result—judgment—is of course often interfered with by the presence of delusion, so that the basis of ratiocination is bad, but when this is not the case, certainly in very many cases of chronic insanity, the process of comparing, weighing, and concluding remains.

As regards the imagination the same difficulty occurs. The vagaries of the insane mind often seem like products of pure imagination, but perhaps they are more like strange results, produced by a miscellaneous juxtaposition of ideas. The tendency of the powers of reasoning and imagination are in all toward feebleness or imbecility, to which condition all the faculties gradually incline

Anomalies as exhibited in actions.—As examples of change under this head the following may be enumerated as occurring in the chronic stage, and therefore somewhat permanent.

1. *Manner.* Patients sometimes assume a haughty manner quite foreign to their natural character, but perhaps in accordance with a delusion of their exalted condition, but sometimes the manner is quite incongruous. A patient at Hanwell, who believed himself to be Jesus Christ, had a very affected Dundrearyish style of speaking, and the matter was equally absurd, consisting of an incongruous admixture of Christian exhortation, emphasized with blasphemous oaths. A rude and sneering manner, even in ladies, is quite common which disappears on recovery. Irresolute, hesitating, vacillating manner is often observed. One patient will go hither and thither, change his mind and return, or he will do this, and then think another course would be better, etc.; others will accuse themselves of causing this or that catastrophe by some trivial act of themselves, such as starting to go up stairs with the wrong leg first.

2. *Alteration of the feelings and emotional anomalies* are often present, the patient is miserable, misanthropic, or over-joyous, as will be referred to under *Disposition* below, or he takes a violent dislike or hatred to former friends.

3. *Temper.* He may be impatient, peevish, morose, irritable, irascible, and also as frequently very mild, easy, an optimist in every thing.

4. *Habits* become greatly changed, and most chronic patients exhibit obvious change in this respect, they become often slovenly, unkempt, untidy, regardless of all appearances, and dirty in every way; regardless of the calls of nature, even in respect to their dejections, filthy in their clothes or in their mode of eating, or in what they eat, picking up disgusting food. They are greedy, or hanker after drink, which they did not in health; some, and this is a very common propensity, like to deck themselves out in fantastic colours with pieces of tin, glass beads, feathers, coloured worsteds, with which perhaps they decorate their head; some do the same with texts or cabalistic writing.

Among *Habits* must be mentioned that of masturbation. Though placed here among the phenomena of chronic insanity there is no evidence that would fix the habit to any particular period of the disease. It is, however, more evident in the chronic patient and in the fourth stage or that of imbecility.

The subject will be again referred to in a subsequent page as an assigned cause. When carried to a great excess, as it is sometimes in the chronic lunatic, both in men and women, it appears in some to arise from local irritation, or the abnormal increase of the sexual appetite. This naturally is more developed in some than others, and perhaps is increased in some by special disease. There is in such cases an open and shameless practice of the habit. One of the worst cases that I have known occurred in a young woman of about 28 to 30 years of age. She was sent home from India, after having been confined in an asylum there. She was emaciated to a great degree, highly irritable and what is called nervous. After residence in the asylum and with plenty of nourishment—wine and cod-liver oil, the habit disappeared. The cause in this case was due to a general erethistic condition of the nervous system. In men, I have witnessed the passion to be periodical, especially among epileptics. I consider the practice to be due to the condition of the system, which may be ameliorated by good nourishment. In men, circumcision is said to be a cure.

5. *Disposition.*—It is also in this direction that the chronic patient shows his insanity. Besides the tendency to suicide which occurs in the period of depression, in some cases the same propensity becomes chronic, and in this stage it is even a more dangerous complication than in the earlier period, in that stage the patient's propensity is constantly obtruded, he talks of it, and makes constant attempts to carry out his purpose, thus keeping the attendants constantly warned, and ever on the watch. But in chronic cases the disposition recurs at distant intervals, very frequently without warning.

It is the same with the homicidal propensity. It is fortunately not a very common form; but a less degree of it, a tendency to violence or to do personal injury, is common. This too, often occurs almost without warning. A young lady under my care who had been insane several years was liable to this form of excitement, suddenly without having received the least provocation she would fly at the throat of any one near, and after the attempt was fully thwarted by the interference of the attendants, she would cry with apparent vexation and then go off to sleep. This propensity will be alluded to also in a future

page, and its resemblance to the epileptic seizure spoken of. All these intermittent and sudden violent acts seem to be allied in character, the outbreak is equivalent to a seizure (or abnormal neural discharge). The act of violence having been carried out, they seem relieved and relapse into a quiet and resigned attitude. In the section which is now under consideration, or the condition of chronic insanity, the disposition to an outbreak seems a mere temporary paroxysm. The condition is a continuous one of insanity, the mind is irrational and all the acts denote chronic insanity, but in the cases to be spoken of the patient is often at intervals much more free from mental symptoms, and the attacks appear to be recurrent. Among other insane dispositions observed in the chronic stage are various anomalies, perhaps more correctly coming under character, for which see below.

6. *Ideas, Intellect.*—Disorders of this kind mostly come under either illusions or delusions, but there are some which do not, as the Reasoning faculty, Judgment forming, Propositionizing—a word proposed by Dr. Hughlings Jackson, and Imagination. The powers of reasoning, &c., if diminished, merely amount to imbecility; the reasoning powers are never increased, and the case with imbecility belongs to the next artificial division of our subject.

Memory.—When the case has become chronic and remains in that stage without much change, or in other words, when the morbid processes are at a standstill, which happens in a very large number, leaving the organ implicated more or less damaged, it often happens that the patient's memory remains unimpaired; and perhaps there is no mental faculty which remains untouched so much as this. I cannot say that the memory is at all a test for the state of mind or degree of insanity.

I had a patient in whom the faculty appeared increased. His case was one of chronic insanity which could not be easily attributed to chronic melancholy or chronic mania. He was the subject of very distinct delusions, however; this gentleman remembered every incident that occurred with the precision of a note-book. As an example:—Once in my presence and his, some one spoke of a white pony I possessed. I was remarking

that it was very old, and perhaps 20 years, for that it was acknowledged by the dealer of whom I bought it to be 12 years, and I said that must be 8 or 10 years ago. My patient remarked, "it was 12 years and 2 months and 4 days ago to-morrow." All his recollections were given with the exactitude of the above. Wishing to test his accuracy, I turned to my account books and found by the date of the cheque given for it, that I had bought the pony 12 years 2 months, and six days, and not 4 days previously. I told him that I had found him very nearly correct, or within 2 days. He explained: "You may be right, and no doubt you are, but I should have said that the day I named was the first day you made use of it," and he related the purpose for which I used it, viz., to take my child for a ride to a neighbour's. He could tell me the date that any one called upon me for years back, or the conversation that occurred at the dinner-table on any day for equally long periods.

The fact is of interest psychologically if not of any diagnostic utility.

The circumstance that idiots sometimes possess the faculty of memory in a wonderful manner is of interest in connection with what I have related in regard to chronic lunatics.

In certain cases in every stage memory may be affected as a special symptom, and not as it were, as a regular feature of the disease. The absence of memory appears to have for anatomical cause an anæmic condition of the brain, hence it occurs in the old, and after emaciating diseases, as after fever, or other exhausting disease. Such a condition of circulation is not common in chronic insanity, but at times after long continued refusal of food, patients become greatly exhausted and in that state their memory is affected.

A case of almost absence of memory occured to me in a gentleman, an officer of the army; when I first saw him he had been refusing his food and he was in a very weakly condition. He had ceased to refuse food when admitted into Sandywell, but he was much emaciated and anæmic. This gentleman's memory was so bad, he could not dress himself, he could not remember the order in which to put on his clothes; when he had put on his shirt, he would continue to look for it in his room; he would call for his bath, when he had just come out of it; he would

wander out of his room and be unable to find his way back; he would get one newspaper after another under his arm, and call all the while for the *Times*. He would set down to breakfast, and call for coffee, cup after cup, and say he had never had any, or after taking a hearty meal, he would say, "now I will have my breakfast;" in walking out he was always making, as he supposed, for his former residence, but he could be easily directed to take any turn so that he returned home, on arriving at which he entered and greeted us as strangers, not recognizing the servants nor the house. This case, however, scarcely belonged to the chronic stage, though he was passing into it; the history was not complete. He died I believe of a cerebral tumour, but no examination was made.

When in a *chronic* case the memory fails, it is to be taken as an indication of approaching state of imbecility.

In illustration of the connection between memory and the circulation I met with an instance in a patient, well known for his literary attainments and eloquence, who found during the latter period of his life, that he often could not command a flow of words while erect, but if he lay down his choice of language was restored.

7. *Character.*—In chronic insanity it is almost universally observable that the patient's character is changed, and propensities quite foreign to their sane condition are exhibited.

It is not always, however, that the subjects are the worse for the change, but most frequently such is the result. Among our chronic patients we have innumerable eccentric characters. The dispositions are changed in every direction, the profane become religious and the religious profane, the amiable become captious, suspicious and capricious, the modest become immodest, and careless of decency, etc., etc. Some show a propensity to hoard, and collect stones, trifles, scraps, as though they were treasures and rarities. Most become jealous and selfish. Some neat and particular in dress, others deck themselves in trumpery.

Motility in chronic insanity.—Alterations and anomalies connected with the motive powers, may be considered under two heads:

1. Altered movements from mental causes.
2. Altered movements connected with motor apparatus.

By this division it is intended to separate those anomalies which essentially belong to mental disease, from those other deviations which occur from other causes as convulsion, chorea, paralysis, local or general ataxy, etc. which sometimes are met with in the insane.

The anomalies of movements in insanity occur in two forms.

1. With excess.

2. With diminution of activity.

1. As regards the cases in which the movements of the patient are excessive. The excess which is indicative of general excitement, and which was observable in the patient while in the acute stage may continue into this or the chronic period of disease. The increase as in the previous stage may vary in degree from restlessness or fidgetting to violence; when the excitement is very prominent, the case belongs to the division of mania. Chronic melancholic patients will sometimes walk to and fro for hours together, traversing only a mere corner of a room, and pacing four or five steps in the garden in one direction and then in the opposite, confining themselves to a few yards of ground only, till they wear a hole in the carpet or polish a piece of the gravel walk, they will perhaps continue all the while to moan and make a monotonous noise. Some others will stride round and round a garden walk as though life depended on their haste.

The above phenomena as well as the opposite condition of the motility, appear in the first stage, they become more pronounced as the disease progresses, and it is in this, the third stage, that the symptom is best marked.

2. With regard to the other condition of motility in which the patient exhibits a torpidity of all the voluntary movements, the degree varies to a still greater extent. In some cases it seems even only a slight exaggeration of the normal state; on speaking to the patient, instead of replying, he will seem to deliberate more than usual. In sitting down to dinner he will not commence. He is slow in all his actions, especially in the commencement of any act; as though the current was not passed down to the motor mechanism—a telegram delayed in transmission. Others when they are called upon to do anything seem to be deliberating, and stand or remain motionless

for an indefinite length of time. A patient of mine taken into town could be very safely left at the corner of any street and would be found there after a considerable interval. In the garden he allowed some tame antelopes to nibble his coat tail, and to eat his pocket handkerchief which protruded from his pocket. Some chronic patients may have a propensity to stand in a constrained position for hours, maintaining a posture which it would be difficult for a sane person to assume. This feature is characteristic of the case called melancholy with stupor (see p. 121), the following case is taken from the first edition of my Lectures, and it was drawn up with the patient present. "The patient exhibits an expression of the greatest hebetude and stupor. The facial muscles are all in a state of relaxation, the countenance has a dull and heavy appearance; while the tonicity of the whole muscular system seems to be equally involved. The patient sits listlessly, never notices what is passing around, seldom moves; her arms dangle by her side, and however awkward and constrained the attitude, she does not exert herself to change it; if addressed, at the most she raises her eyes, not her head. She allows herself to be scorched rather than remove from the fire. She lets the flies settle on her face, or walk across her eyelids without interfering. The saliva and nasal secretion dribble as she sits, the lachrymal secretion dries on her cheek. She passes all her dejections as she sits. She will make, in fact, no effort whatever, either to eat, drink, or to avoid discomfort or pain. To such a degree is this immobility carried that the circulation is interfered with, or possibly the motor functions of the circulation may be included. The hands are habitually cold and blue, and swell with the dangling position in which they are carried, till they resemble in shape gloves stuffed with bran." The above was a severe case, the patient, however, eventually improved sufficiently to become useful in household work.

Various other anomalies in the movements also occur. I had a patient who always walked in a straight line, if he came against a wall he stood with his face against it; if his attendant wheeled him round, he would march in the opposite direction until arrested by a similar obstruction. Another had a trick of touching objects or persons. Some will stand on one leg, or lie

on the back or face, for long periods; and besides these there are met with some anomalies known to have a distinct origin in brain lesion. Such as a tendency to walk in a circle, which I have seen in several cases.

Chronic lunatics have in many instances distinct organic changes in the nerve centres, and exhibit therefore the various forms of symptoms—local or general, due to the nature of the disease. As these are not *special* symptoms of insanity it must suffice to refer the reader to works on General Pathology for the interpretation of them.

As the variations in the symptoms are so wide in chronic insanity in different cases, it will be as well at this point to recapitulate the characters, using only general terms.

In chronic insanity then, the symptoms connected with the emotions continue, and to them are added distinct lesions of the intellect proper; while the motor powers are as before, in some cases lethargic, in others excited; so that each division of mental faculties, as Intellect, Emotions, and Voluntary Movements, are simultaneously affected.

The sympathetic system is not involved.

As regards the proportion of patients whose disease becomes chronic, I found at Hanwell, that after five years, there

Died	31·49
Recovered	24·00
Removed	5·00
Remained	39·51
	100·00

and after ten years :—

Died	39·80
Recovered	25·16
Removed	4·30
Remained	30·74
	100·00

It has been shown in the foregoing, that a case of chronic insanity is sometimes called chronic melancholia, and sometimes chronic mania, according to whether a state of excitement

or depression is present. There is still another case which has to be described.

There are certain well recognized variations in the progress of chronic insanity, which indeed are evident in the earliest or first stage, but are more pronounced in the stage under consideration.

The state of depression or excitement, in some chronic cases is not persistent, but they alternate "sæpe vices commutent," and the change greatly alters the features of the case. This was observed in the ancient author Willis, but it was reserved for the moderns to multiply the species of disease out of this tendency. Sometimes the melancholia merely alternates with the maniacal state. The French call this *Folie à double forme.* Sometimes, however, there is a lucid interval between, thus, melancholy —mania—lucid interval:—melancholy—mania—lucid interval, and this they call *Folie circulaire.* There is more excuse than usual for these terms, at all events they are more useful; but their use is merely to signify a tendency of the disease in its progress. The terms do not, and must not, be allowed to mean that these phenomena mark a distinct form of mental disease.

The main point to be noted is the fact that in the course of chronic insanity there is a tendency to alternation in the character of the symptoms, or between a state of depression and a state of excitement. This periodicity is to be observed to some extent *in nearly every chronic case.** In some it is faintly marked, in others, the alternation is well marked, and takes the course pointed out by the French authors; but the period itself is liable to many variations. In some, the oscillation is a diurnal change, in others, one or other state may be the longer—in some, one period may occupy weeks or months.

In the case of that variation called *Folie circulaire,* with the triple change of character, there arises a fresh source of difficulty.

When the symptoms merely change from depression to mania, there is of course no difficulty about the case, the patient is considered a chronic lunatic; nor is there any doubt about dealing with him if he is one day melancholic, one day maniacal, and one lucid. But when the lucid interval is prolonged, even

* See Recurrent Insanity, p. 166 *et seq.*

though the two other states are also prolonged, and this may frequently happen, it becomes a question, while he is lucid, if the patient is well. The doubt is greater, of course, the more prolonged the lucid interval is. I have been frequently called upon to discharge a patient, on account of this lucid interval, (a case in point is given in the sequel) and very many such cases occur; they will be considered by themselves under the term of recurrent insanity in the next section.

As regards these cases of *folie circulaire*, and *folie à double forme*, there are some features which may require a brief notice The alternation, as before observed, had been mentioned by old writers, and Esquirol also distinctly mentions the fact, and went so far as to propose binary, ternary, etc., to distinguish the variations, but attention was particularly directed to such cases by MM. Baillarger and Falret in 1854. The descriptions all agree in the characters and also in the prognosis, which is always bad; and obviously so, because these cases all belong to the chronic stage. To the chronicity it is that the unfavourable result should be attributed, and not to the periodicity, for that feature may be observed in all cases more or less, including the acute or curable. The relation, however, of these cases to what I call recurrent insanity is of much interest.

Up to this point of the description of the symptoms of ordinary insanity, the phenomena may be considered to belong to the course and progress of a single case. We have traced the disease from its invasion to its chronic condition. The next stage according to the table at p. 108, is a stage of imbecility and dementia, but before we consider that state, there are questions connected with the course of these chronic cases which will need further explanation and examination. There are certain cases which I call cases of recurrent insanity, which from their relation to ordinary insanity and to the legal relations of the disease deserve special description.

Section III.

CHRONIC INSANITY OR THIRD STAGE *(Continued)*.

Alternation of Symptoms in relation to Recurrent Insanity—Examples of Recurrent attacks—Their relation to Epilepsy—Their importance in *Medical Jurisprudence.*

Recurrent insanity.—This name is not adopted to convey an idea, that what is about to be described, is a distinct form or species of the disease, on the contrary it is merely to carry on the description of the course of ordinary insanity. Few writers employ the term. In that exhaustive treatise by Drs. Bucknill and Tuke the term occurs in connection with mania, but every one at all familiar with mental disease will at once recognize the phenomena which the title above is intended to pourtray.

Recurrence of attacks of insanity is only too common. Out of 11,758 admissions in 1879, 1,499 were re-admissions or about one-seventh; these numbers are from the Report of the Commissioners in Lunacy.

The universally quoted paragraph from Dr. Thurnam's statistics leads to the same conclusion, that second attacks are numerous. He wrote, "in round numbers, of ten persons attacked by insanity, five recover, and five die sooner or later during the attacks. Of the five who recover, not more than two remain well the rest of their lives, the other three sustaining subsequent attacks, during which at least two of them die." So that according to this, of ten in

First attack :—	5 recoveries	5 deaths.
Second attack:—	2 ,,	2 ,,
Third attack :—	0 ,,	1 ,,

Or in other words in 100 cases of primary disease, there are 30 which are second attacks. This is a higher proportion than that of the Commissioners, as calculated upon the relation of re-admissions to the gross admissions in one year, and it is higher than my general impressions would lead me to believe.

But after all, the statistics give no very accurate data, for in the one case, the Commissioners' table does not take into consideration the number of patients attacked, for the same patient may be re-admitted in the same year and thus be counted twice, and as regards Dr. Thurnam's cases, there is no separation of the forms of insanity, nor the reason of discharge. Moreover, statisticians vary very considerably on the question. Dr. Hood found that 48 per cent of his cases at Bethlehem were relapses, otherwise secondary cases. I found at Hanwell 20 per cent. were secondary cases. In France in 1858, 17 per cent., and among the re-admissions in the Salpêtrière and Bicêtre Asylums, out of 268 admissions 170 occurred in patients who had been discharged in less than one year.

Bearing well in mind the tendency to periodicity, already described, which is manifested in the progress of insanity, we may readily perceive the relation of these recurrent cases to ordinary insanity.

There is no difficulty in recognizing the links that connect the two phenomena, or the two descriptions of cases into one and the same species morbi.

Doubtless there occur cases which are truly second attacks; that is, the patient has absolutely recovered from one attack, and has been seized a second time: for there is no suspicion that an attack of the disease gives, like an eruptive disease, an immunity from a fresh attack. I have met with a few cases which were perhaps of this kind.

Much more commonly the second attack differs in its characters from a primary attack, and is really a relapse not truly a new attack, such is the view which my experience has lead me to adopt, and the following are the grounds of my opinion.

1. The second attack differs chiefly in the suddenness of the advent of the active symptoms, and as a rule by the absence of a melancholic stage.

2. These attacks follow at all variations in the interval that has elapsed since the previous attack, and between those cases of "*folie à double forme*," in which there is no interval of lucid mind, and those cases with short lucid interval there is no appreciable difference, and one form often merges into the other;

and again between the case of lucid interval of a week, and the case in which it is a month no difference can be made; so neither can there be in such cases in which the lucid interval lasts two or three months. The latter case, and especially if the mind was very lucid, would be called a recovery, and the recurrence, a second attack, and in my view the cases belong to the same category, they are simple examples of chronic insanity.

3. Still further in many of these cases even with lucid interval of months and years, there is generally something not quite correct left in the patient's mind, there is something peculiar, eccentric, changed from the primary condition, which intelligent friends can perceive.

4. Another reason for considering these as simple cases of chronic insanity is that the course of them is the same, their progress is towards imbecility when they cannot be distinguished from other cases; though it is quite true that some of them ultimately recover, as do some cases of non-recurrent chronic insanity.

Illustrations of recurrent insanity.—All cases which are not primary may be considered to belong to this section, that is, all second, third, fourth and ultimate attacks. As already stated the secondary attack may commence at any interval after the real or apparent termination of the first. The same patient may vary also in this respect, in other words the period between the attacks may be regular or irregular. Some writers have mentioned cases in which the patient was attacked at regular periods, as every month or every autumn,* but it is more common I think for the interval to be less regular, this may be, however, that the patient has overcome intervening threatenings or such have passed unnoticed.

It was a question which I attempted to solve, but without perfectly satisfying my own mind, whether a recurrent case was of such a distinct kind, that on the first outbreak in the primary attack there were phenomena to distinguish it from other cases, and whereby we should be able to predict that the patient would be liable to recurrent attacks; the second attacks for instance occur often without a preliminary melancholic stage, are they therefore on this account different in species

* Griesinger, § 119.

from ordinary insanity. As far as I have been able to trace these cases I have found them to obey the same law as ordinary or non-recurrent cases, and to go through the same stages. There is a good deal of difficulty in this investigation. I have treated patients in their second, others in their third, fourth, fifth and sixth attacks, and some few only in their first and also in a subsequent attack. But in all those which I have observed in the first attack, and who have had subsequent attacks, the disease began by a stage of melancholy, and in all those of which I could get a reliable history there had been melancholic prodroma.

This kind of case, however, not unfrequently has proved one of very great difficulty, both legally and medically and requires therefore more than usual investigation. The readiest way to describe it will I think be by giving clinical illustrations of it.

One of the most perfect cases that has occurred in my own practice is the following which is here given in outline only.

Case I.—B. C., married, æt 32, wife of a naval officer, of good education, well formed, and handsome in person. Admitted in June, 18——. Attack reported as the second, the former attack occurred three months after the birth of her first child; the present after the birth of another. In the former attack she was melancholy. Much insanity in the family. Her mother, mother's brother, and the latter's son have been insane. Has a brother of feeble intellect, the rest of her brothers and sisters are of feeble intelligence, and of very inferior bodily development to the patient.

The patient, in fact, being the only capable person in the family, much was left to her management, and "she had everything her own way." She contracted a very imprudent marriage. What means she possessed were speedily dissipated. She became much reduced, and had to return to her father's house. These adverse circumstances it was supposed led to the first attack, and from which she ultimately recovered. The note unfortunately does not give its duration, but since another child was born and it was four months old, it is clear she had been considered well for upwards of a year.

The second attack followed immediately after a difference in the family on money matters. The family solicitor had called on that day, and she did not get her own way as she expected. She became greatly excited and angry, took to drinking large quantities of ale, and left the house.

The following is a copy of the certificates on which she was admitted, two days subsequently:

Facts observed, &c.

"She is exceedingly violent, and obliged to be placed under restraint, is very indelicate in her actions, rending her clothes and exposing her person. She is at times very incoherent, and very vulgar in her conversation."

Other facts communicated, &c.

"The Porter of Workhouse states she has been twice brought to the in-

firmary by the police, having on both occasions collected a mob of persons by her strange and violent behaviour."

It appeared that she was taken to the Station-house for knocking a policeman's hat off in the street in broad daylight.

She continued for three months in a very excited condition, raving incoherently, laughing, shouting, and rushing about; exposing her legs and bosom without regard to decency. Was both wet and dirty day and night, that is, passed her dejections quite unheedful of decency. Bodily health was fairly good. She had a blister to the nape soon after admission and there were still boils and pimples around it. She took food well, menstruated regularly. Pulse 84. Lost a little flesh at first which she has regained.

At the end of six months slight amelioration was reported; boils and pimples continue.

Ninth month. Improvement continues; hair falling off; boils still appear; menstruation rather profuse.

Tenth month. Improvement continues; is now free from excitement; cleanly in habits; health improved.

Eleventh month. Converses rationally; gained flesh.

Thirteenth month. Discharged, recovered.

In this case there was, according to the account received from the friends, a primary attack with melancholy and a recovery. The second attack commenced, quite suddenly, she was transacting business with a solicitor, and on the next day at furthest, was knocking the policeman's hat off his head; it is true that she took large quantities of ale, but if the first symptoms even were due to intoxication, the subsequent six or nine months of mania had no such cause.

Case II.—The next case which may be quoted is that of S. C. a highly accomplished governess, who had been in several asylums on previous occasions and was brought to Hanwell strongly handcuffed, in October, 1861. She was then raving, shouting, and acting in a wild and strange manner. She refused to reply to questions, had a haughty manner and demanded to have brandy brought to her: the outbreak lasted a fortnight, when she became orderly, quiet and well conducted. She was discharged in about three months from admission. She would not acknowledge that she had been out of her mind, said, "she knew perfectly well what she was doing." (This denial is quite characteristic of these recurrent cases).

After this discharge she was employed throughout the whole of the Great Exhibition of 1862, as a pianist to exhibit the power of a pianoforte maker's instruments.

She was discharged in January, 1862, and re-admitted on December, 1862.

On this occasion she was found raving in the Park, was taken by the police, and in due course brought to Hanwell as a wandering lunatic. When brought the police did not know her name. The account of the commencement of this attack was obtained from the husband, of whose address we at the Asylum were cognizant. The husband was an attorney's clerk, the present he said would

make her fifth attack, but this was only by counting the worst attacks; she had had several minor seizures which did not amount to distinct outbreaks. She was again obtaining her livelihood by teaching music to several families. I had myself recommended her. It happened that she had been particularly assiduous in these duties, and had complained of headaches, for the relief of which she had again resorted to brandy. The husband said she soon began to talk of the Revelations and the Seventh Seal, and he knew by experience what to expect; and to avert a paroxysm he persuaded her to go with him for a walk in the park. While he was obliged to leave her momentarily she seized the opportunity to make her escape and though he at once sought her in every direction, he had been unable to find her, or hear anything about her at all the stations, until he received my note about a week afterwards.

It seemed that she had sold some of her clothing, and it was supposed she had bought brandy with the money. She passed through the same changes once more, but was a longer time under treatment. She was discharged in the summer of 1863.

It will be observed that on each occasion related she took to brandy drinking, but it will also be noted as well, that the case in no respect resembled delirium tremens, notably in the continuance of the symptoms so long after all supply of stimulants was stopped.

She was once more admitted in December, 1863. She was again discharged cured, but my connection with the asylum had ceased. However, in 1874, or '75, while visiting Dr. Stocker's Asylum, Peckham House, with some pupils of my clinical class, I requested to be referred to any case of recurrent insanity, that was under treatment. Dr. Stocker at the moment was unable to recollect any instance, when I heard the voice of this patient and recognized it. S.C. denied all knowledge of me, and betrayed herself by addressing me by name. I then learnt that the patient had been in the house for some period and was considered an imbecile with tendency to occasional excitement and violence, in other words the termination of her case was like that of ordinary insanity. It will be observed also that the attacks followed at first with shorter and shorter periods of lucidity and the maniacal periods gradually got longer and longer until the case was wholly one of chronic insanity.

Case III. The next case is from documents published by Dr. Lockhart Robertson in his annual report, and partly from notes sent him by Mr. Huxley of Barming Heath Asylum. C. T. aged 25, single, admitted into Kent Asylum, August, 1855. History of symptoms not given, but on admission had been nine months insane. Had at the time of admission delusions that he was a prophet,

and inspired, and heard voices; which he was obliged to obey; wrote numerous letters to a married lady of amatory kind. From this brief account it would seem the symptoms were those of acute insanity, with melancholia, probably, and religious symptoms and delusions. He was removed by his mother after two months residence. having been quite harmless, and quiet, and believed to be quite under control. Fourteen months subsequently he was transferred from Maidstone gaol back to the same asylum. Had been committed for a breach of the peace. A note from Mr. Huxley to Dr. Robertson stated that the patient was subject to attacks of impulsive homicidal mania. On admission Dr. Robertson reported the patient as calm and collected in his manner. He gave a most accurate account of his previous history, expressing extreme regret at the misconduct of which he had been guilty. Altogether says Dr. Robertson, "I failed after repeated observation and examination, in detecting the slightest trace of intellectual disorder." This was dated November 6th. On November 19th, the Commissioners asked for a further report, which was given on Jan. 6th. 1860, or about two months after admission. Dr. Robertson was able to report that he continued quite free from any symptoms of Mental Disease; that his conduct had been most exemplary. He had mixed freely with the other patients, and joined in the weekly balls. Had undertaken by request the duty of chapel clerk. Thirteen days subsequent to this, after complaining overnight of a little faintness, and of not feeling very well, when he had also a white tongue and looked rather out of sorts, he suddenly and without the slightest provocation attempted, with a sharp piece of wood he had concealed about him, to destroy the Assistant Medical Officer's eye; the blow glanced fortunately off the forehead, but was so severe as to knock Mr. Gwynn down. He made the attack with great premeditation, besides preparing his instrument out of wood and concealing it. While Mr. Gwynn was in the Airing Court the patient came up and shook hands with him as usual, and drew him aside, saying he wished to consult him about some money matters of his own.

On being secured he was excited, said he always had an objection to Medical Officers, he had done it and his victim had had a lucky escape.

During the time he was in the Kent Asylum he made numerous similar attacks on attendants and Medical Officers. Mr. Huxley was twice attacked, his assistant three times, an attendant once very seriously. He was described as being very treacherous in these attacks, taking the opportunity when an attendant was temporally alone, the weapon used was as above, a piece of wood or bone sharpened, and once an old rusty knife, with a handle formed by himself, to increase the grasp of it, and the injury intended was the destruction of his victim's eye. The intervals are not given, the paroxysms are five or six that are mentioned, and he was four years in the Kent Asylum.

Imperfect as the above may be, yet from the point of view which is now under discussion, there is enough to show that the patient was attacked primarily with symptoms closely resembling ordinary insanity, and was even quiet and harmless in conduct during the early period. That in his more lucid intervals he was prone to justify his acts. That in the secondary attacks there was a certain periodicity of the phenomena; the character

of the relapse of paroxysm was an homicidal character of particular kind, and that the patient had distinct lucid intervals in which no intellectual unsoundness could be detected.

The sequel was, the patient passed gradually into the next stage, that of imbecility—in which stage I have frequently seen him.

Case IV.—The case of Dr. Pownall which is given by Dr. Davey, October, 1860, *Journal of Mental Science*, is one illustrative of recurrent mania. "At the age of 22, Dr. G. Pownall suffered from his first attack of mental alienation from which he was supposed to have completely recovered. He, it seems, remained well for 14 years, during which time he conducted a large and first-class general practice, and became highly respected and chosen chief magistrate of the town in which he resided. He was as described naturally an amiable and estimable man. His second attack first showed itself by a mistrust of his nearest relatives, and apprehensions of injury and poison; followed by acts of violence and attempts at suicide" (*all the usual symptoms of insanity*). "In the second attack in 1854, he shot a person, who was out shooting with him, in the leg, and the Coroner's inquiry on the fatal issue of the injury, went to prove that the injury was the result of accident; but there were those who took a different view of the case. In the third attack in 1859, when he must have been 40 or thereabouts, he made a murderous attack on his mother-in-law, whom he usually respected and loved. For the last 2 or 3 months he had become an altered man, was low and desponding, and made an attempt to destroy himself." Dr. Davey found him, on admission into his house, calm and subdued, and he expressed the deepest sorrow for the violence shown by him to his mother-in-law. In a month he was trusted by Dr. Davey to walk out alone, and he joined the family and children in their walks, and rode with Dr. Davey and his son. No symptom of mental disturbance showed itself.

Dr. Davey could find no symptom affording the least pretext for detaining the patient, and placed himself in communication with the authorities, in respect to the proper mode of dealing with the case. Negociations proceeded, but were not so far completed as to obtain the discharge of the patient until the tenth of August. It must be admitted that Dr. Davey was placed in a difficult dilemma. He had no evidence, from one point of view, of the patient's present insanity, and therefore no authority to detain him; while in case of relapse, almost inevitable, he would render himself liable to a grave responsibility. Dr. Pownall was discharged, however, to reside in the house and under the care of a medical man, Dr. Davey sending a note to the medical man by the hands of Dr. Pownall, which was never delivered, but found in Dr. Pownall's pocket afterwards. He went to reside with this medical man, Mr. Leete, on the 10th of August. On the 2nd of September Dr. Pownall cut the throat of Mr. Leete's female servant with a razor. It is curious that Mr. Leete should have overlooked the danger of allowing a suicidal and dangerous lunatic his razors, and still more curious that the razors were sent to Dr. Pownall by his brother-in-law, another medical man; but I have frequently known men not in constant care of the insane to be thus thrown off their guard.

Dr. Pownall was sent to Bethlehem under Dr. Hood's care, who thus speaks

of the case in July, 1860. Dr. Hood said: "I must confess from that time up to the present, although I have watched him with no ordinary care, and though I should say he was a man with weak mind, I do not know that I could attach any particular symptom to him. And supposing he was a private patient in my asylum, and the Commissioners in Lunacy asked me why I detained him, I do not know that I could give any definite reason for it."

This patient's mode of outbreak differs from some of the previous patients; in all other characters it corresponded.

We find the phenomenon of the outbreak sometimes of one sort and sometimes of another; it is not always exactly of the same kind in the same patient, but very often is so.

There was a patient at Hanwell who had outbreaks of violence from time to time, with intervals of comparative lucidity; but at the best was always grumbling—accusing the authorities of unjust preferences shown to others; able, however, to argue with acuteness, very rigid in sticking to his own views. He had made several attacks on attendants, and was considered to be dangerous. Once he found his way into the kitchen, and taking up a knife swore he would kill some one, unless the girls in the kitchen gave him a kiss all round. This difficulty was compromised, but not before the patient had shown much violence of language; but he kept his word, when the servants had completed their part of the compact.

On one occasion the hall of my colleague which was a veritable Glyptotheca, was found strewed with fragments of broken busts and works of art. For a time it remained a mystery how this was caused, when it was discovered that the patient alluded to had quietly concealed a hammer and had entered the house unobserved, and had smashed nearly every specimen. This was done apparently without much excitement. The patient, at all events, had subsequently so long and so clear a lucid interval, that he was at the request of his wife allowed to leave on trial, and afterwards was discharged. His case had almost passed into oblivion, when one day there occurred an account of a sacrilege mysteriously committed in Marylebone Church, and a reward of £100 was offered for the discovery of the offender. There was also an iconoclastic attack made on two equestrian images of the Queen and Prince Consort, which stood under the portico of the Colosseum in Regent's Park. One of the attendants at once recalled the propensity of this patient, gave in-

formation, and received the £100 reward. The patient was convicted, found insane, and sent to Broadmoor, where, after being considered a quiet patient for some time, and clearly well trusted, he again became conspicuous. He was at Chapel one day, and sat immediately behind Dr. Meyer, the Medical Superintendent, and from his position it is presumed he was considered quite harmless, but he rose up suddenly and with a bag of stones in his hand, brought it down on Dr. Meyer's head, fracturing his skull, of which injury the doctor eventually died.

A remarkable feature, and a very dangerous feature too, in these cases, is the degree to which this lucidity arrives in some of these patients. Such a state of apparent sanity is exhibited, that it seems scarcely justifiable to retain these patients under surveillance. This difficulty has occurred to everyone. M. Morel, at p. 480 of his *Traité des Maladies Mentales*, thus writes :—

"I have remarked for a considerable time, a certain class of patients in whom the accession of the excitement, which was like, and was in reality a state of mania in the most rigorous acceptation of that term, alternated with periods of remission, so perfect and prolonged, that there could be no room for doubt in my own mind, that the patients had completely recovered. And it has been only after being painfully and repeatedly deceived on this point, that I have been obliged to give a more special attention to the course and development of the disease in this class of patients. That which has struck me more especially has been the sudden invasion of the morbid phenomena after remissions, which have varied in duration from several months to intervals of years. The friends whom I have carefully questioned, have not been able to particularise any premonitory symptom or warning of the attack. On the eve of the paroxysm, the patients neglect their ordinary occupations, but make no complaint. There is to be observed simply an increased activity in their movements, and a peculiar excitability; the patient then suddenly breaks out in the same manner that characterised his former paroxysms, in extraordinary acts of violence; in exhibitions of the most dangerous propensities and irresistible impulses; so that I have had to sincerely regret that I have ever authorised the discharge of these patients, so deplorable have been the circumstances attending their relapse."

"On re-admission, these patients," M. Morel goes on to say, "after a period of excitement equal in duration to that in the former attack, suddenly return to their former quiescent condition exactly as before, presenting the same evidences of recovery as those which led me to discharge them from the asylum. My experience," he adds, "however, has made me more prudent; and the exhibition of a phenomenon which had remained in a larval condition, has allowed me to place these cases in the class to which in reality they belong. These patients have presented a close resemblance to epileptics in the character of their ideas and actions; but to such an extent only as to leave me up to a certain time in doubt as to the true nature of their disease. It has occurred to me since to have several patients whose attacks had all the character of the relapse, the intermittence and periodicity that I have described, and who have subsequently been the subject of well marked epileptic seizures."

I have myself had precisely the same experience. The following is an epitome of two cases, which occurred to me at Hanwell.

Another feature in such cases, and one which has a great pathological interest is their relation, and perhaps alliance with true epilepsy. There is the same periodicity in the cases; the same impulsiveness, and the same ignorance or blindness to their own position; and though the acts of violence are not attended with any unconsciousness, yet they seem scarcely voluntary. In the next place, certain cases of epilepsy which we have to consider hereafter, resemble these cases in having maniacal outbreaks, in which the patient performs acts ordinarily of purely volitional character, acts of wanton cruelty, homicide, &c., as are to be referred to further on. Lastly, a proportion of these very patients, become truly epileptic. Dr. Morel was led to propose for these cases the name of *Epilepsie larvée.**

* A critic made a point as he believed against me for latinising, in my published Lectures, Dr. Morel's term into *epilepsia larvalis*, asserting that all that was meant by Dr. Morel was "*masked epilepsy.*" The French dictionaries to which I had access have only the word larvè, a grub-larva or worm; the latin word larva is translated mask or vizard, in the sense of something put on to frighten with, a ghost, etc. I suspect that Dr. Morel really meant that the disease was in an undeveloped or larval condition, if he meant masked what should have hindered him from writing "*masquée.*"

Case V.—E. T., was left an orphan at a very early age, with £200, which was left in trust for her education. Her trustee entirely neglected her, allowed her to play in the streets in the lowest neighbourhoods, and at last deserted her. She was taken in by a poor neighbour. At sixteen years of age she had an illegitimate child. This was felt by her very keenly as a disgrace. She went to the workhouse, where, according to her assertion, she was ill-used and unjustly treated by the master. For several years she spent her time between this workhouse and the house of correction. She was a noted character in both on account of her violence. A great sensation was made about her by certain philanthropists, and the medical officers of the prison were requested to give an opinion about her sanity. They considered that there was no evidence of insanity in her. I was requested by the authorities also to examine her, in conjunction with Mr. Marshall of Colney Hatch Asylum. We recognised at that period the resemblance of the case to epilepsy undeveloped; and my colleague especially distinctly gave it as his opinion that the case would terminate in well-marked epilepsy. There was not, however, at that period, such an amount of proof of this, or of any mental disease, as would warrant a certificate of lunacy. We were precluded, by law, from signing a certificate ourselves; and we did not feel that we could, on our view of the case, recommend the officer of the prison to call the case insanity. The patient was, however, shortly afterwards admitted into Hanwell, under my care. Her intellect probably was never very strong. Her instincts were under little control. She was in person well developed, of short and thick-set build. She endeavoured to create a morbid interest about herself; but this was prevented by the measures taken. She showed evident chagrin if not treated with more particular attention than the rest, and accused the nurses of favouritism, etc. She made several unprovoked attacks on the attendants and female officers, and required for some time great caution in treatment. These periods of excitement alternated with periods of perfectly quiet behaviour, lasting sometimes a fortnight or longer. The menstruation on admission was suppressed. After residence in the asylum, this function was re-established, and her conduct improved. She became industrious. She never was untruthful, nor dishonest. She made herself very useful in the Asylum, and after fourteen months of improved conduct she left on trial, under the care of her early protectress. This friend happened to keep a china shop, and E. T——'s conduct at intervals during the month was such as to keep the owner of the china in a continual fright. She was brought back to the asylum, and after another period was allowed another trial, a benevolent lady undertaking to employ her as a servant; for a time she beheaved very well. One morning, however, on coming down stairs, the mistress found E. T. sitting on the stairs, she accosted her mistress rudely, and threatened violence. She was again brought back to the asylum. She again became calm and thoroughly well behaved, kind and attentive to a girl patient, and was remarkable for her straightforward, truthful conduct, though from time to time she changed, and clearly made great efforts to control herself. She was taken into the service of the asylum in the kitchen department. Soon after she was seized while at work with well-marked epilepsy, and the attack continued to recur at short intervals. Her disposition underwent a marked change from this period; she was more quiet and subdued, though rather irritable just previous to a fit, when she would use very foul language. Her memory rapidly failed, her mind became very feeble. She took poison, it was believed intentionally, and died.

In this case the dormant epilepsy was manifested at the close of the case which is the more usual course. In the next case the reverse order occurred.

CASE VI.—E S., was taken up in Chelsea by a policeman for creating a disturbance. She got into a doctor's brougham while it was standing at a patient's house, and vociferated to the coachman to drive on. She could only with great difficulty be dislodged from the vehicle; she resisted very violently, and was taken to the station, then to the workhouse, and after making a great disturbance there, was sent to prison. In prison she disobeyed the regulations and was several times punished. At last she was sent to the asylum. On admission she behaved well for a time, then began to make extravagant demands for indulgences, if denied she broke the windows, and threatened and attacked several of the female officers. She broke and destroyed with great dexterity her rooms however strongly secured. Her violence, when it commenced, lasted several days, and then for a corresponding period, she remained quiet and well-behaved. She was at times neat and tidy in her person, and at times filthy and disgusting. She had no attack of true epilepsy while under my observation (about eight months). It was a case which from the intellectual integrity and apparently wilful perversity would be unhesitatingly considered by many, and indeed was by very many, to be a case of moral delinquency, and it would come under the title of "Moral Insanity" by those who consider that there is such a species of disease. After having been under my care some months, she was visited by her sister who related the history of the case. The patient up to the age of twenty, about four or five years previously, was a quiet, hard-working, well behaved girl, of retiring habit. About the age of twenty she lost her mother suddenly; she became melancholic and out of her mind, and was sent to an asylum in Ireland. She was there some time, and while under treatment had epileptic fits, which she continued to have regularly for several years. The fits had only left her shortly before she became insane again.

The notes that I have of other cases of recurrent insanity exhibit but unimportant deviations from the cases quoted:—One case is that of a female, who, between the ages of 18 and 30, had had as many as 9 or 10 attacks. Three or four years elapsed between the first and second attack. She had been nine or ten times in Bethlehem, and during the early attacks was discharged after three or four months. The duration of each attack, however, became longer and longer, and the last time she was at Bethlehem she remained 18 months—the rules being that patients should be discharged after one year, unless special circumstances existed. She was received at Hanwell from Bethlehem and recovered in three months, and was discharged; was re-admitted in twelve months, and remained there several years, as long as my connexion with the asylum lasted. In this case,

and in the next, it was reported that the first attack was accompanied by fever. However, thirty years had elapsed since, and the memory of friends on such matters is apt to err. The other case, which was reported to have begun with febrile symptoms, the notes say, the first attack occurred after an illness—the patient herself says, after scarlet fever; and the informant also says, she "broke out in violence and excitement suddenly," and was removed to the Oxford County Asylum. A sudden outbreak without premonitory symptoms would be a very exceptional course, and it rests only on the evidence of very illiterate persons, who are apt to ignore such slight phenomena as depression of spirit and fanciful apprehensions, and if they saw them, to have their impressions obliterated by an outbreak of violence. However, the fact is of interest, since there was also hereditary predispositions in the family. The mother was a patient in the Wilts Asylum; a brother was not quite sound in mind. However, I have also had another case not very dissimilar, in a young lady, the daughter of a lady subject to epilepsy, who was quite well up to an attack of scarlet fever, when on the subsidence of the fever she was found to be much altered in mind, and in a state of childishness, but with a tendency at intervals to outbreaks of violence. She attacked the servants, her father, and a medical man with whom she was placed, and who on account of her violence was unable to retain her in his house. She gradually became somewhat calmer, but had several slighter outbreaks of unprovoked violence. She was wet and scarcely decent in behaviour, and childish in mind, and so remains. In this case a true epilepsy may be impending.

As a general *résumé* of the subject of these secondary or recurring cases, I consider that the examination of all the phenomena leads to the following conclusion:—That in many or even most of these recurrent cases, there has not been an interval of complete recovery. The interval, however lucid, if closely investigated would show some indication of unsoundness. There will be detected, a want of intellectual power, an infirmity of temper, a change in affection, slight eccentricity of character, sufficient to betoken the infirmity. That there is a general resemblance in these cases, though the mode in which the outbreak is manifested may differ. That the nature of the out-

break has a tendency to simple violence, or to suicide, to drink, arson, murder, rape, iconoclasm, stripping naked, &c., does not change the nature of the case pathologically considered. That these cases, on the one hand, have relation to ordinary chronic insanity, and in another direction with epilepsy. That they vary from the former or chronic insanity only in the more marked periodicity or trenchant character of the phenomena of lucid and insane periods. Between ordinary or continuous chronic insanity, and the best marked periodic cases, all shades of difference are met with, from the alternation of good and bad days of a patient with no actual clearness of the mind, from the changes of *Folie à double forme*, or the phenomena of *Folie Circulaire*, to those cases which have marked lucid intervals for months or even years, and yet have an undercurrent of insanity always present. While by this very character of periodicity (a character of utmost importance in their pathology) they are allied to epilepsy, and in certain cases actually terminate in well marked symptoms of that disease; especially when our views of epilepsy include all the phenomena and variation of the *petit mal*, now generally classed with true epilepsy.

Notwithstanding the authentic instances of recurrent insanity shewing intervals of lucidity for very long periods, so that the disease is known to be dormant for years, it is by no means to be inferred that every case that is a second attack belongs to such a category.

There is one very important matter with respect to these cases, which has yet to be mentioned in connection with the bearing they have on criminal actions.

It has already been shown that the commencement of the paroxysm takes place often without warning, or with very little. The patient has a little malaise, uncomfortableness, or complains of not feeling quite himself—a condition easily overlooked by the friends—and the act of violence occurs, and as M. Morel says, it is often a very deplorable catastrophe. The outbreak resembles the seizure of a fit of epilepsy, and as already mentioned, the attack of epilepsy resembles it in being sometimes attended by an act of violence. The two morbid conditions are, as it were, amalgamated in character. The outbreak, though it may be of any kind, is not unfrequently an act of great violence,

and brings the patient within the criminal jurisdiction, and then arises the question which has raised so much difficulty between the lawyers and the medical expert.

It has already been shown that in many of these cases the state of the patient that preceded the outbreak was a lucid interval. Common witnesses, and not a few medical men (for insanity unfortunately forms no necessary part of medical education), are puzzled to comprehend that the accused was not responsible; and this is not only from the patient's apparently lucid state immediately before the criminal act, but also immediately after it. Another source of confusion has arisen in the understanding of these cases from the dogma of moral insanity, or insanity without intellectual fault. The dogma of the existence of such a disease, as well as of impulsive insanity or insane impulse, was started by a German named Marc, who collected a series of cases of these horrors, and made of them a sensational book; and the cases have been quoted from book to book ever since.

It is not only important to know that the propensity exists in certain morbid conditions to break out into these criminal acts, but it is equally of importance to know that when one of these apparently motiveless acts is committed by a *lunatic*, there will always be found a history of insanity in the accused's life; for such outbreaks in a lunatic *are only met with as phenomena of second or subsequent attacks;* this fact is important. Such particular criminal acts, with or without apparent motives, and often of the most atrocious character, are the very symptoms or manner in which a relapse in recurrent insanity shows itself; and such acts never occur as a first or even early symptom in the first invasion of the disease. There ought, therefore, to be no difficulty or obscurity in the legal bearing of a case of the kind. The history of the patient's life ought to settle the question whether the act was an insane act or a purely criminal one.

There are only two other causes which may be in operation, but neither render the accused a responsible agent.

1. When the case occurs in an epileptic; what has been already said of the relation of epilepsy and recurrent insanity, scarcely renders it necessary to distinguish this from the cases under discussion. 2. Certain cases of idiocy; these will be alluded to hereafter, but neither these nor epileptic cases render the person responsible.

Numerous cases are quoted by M. Brierre du Boismont, some known to himself, and others quoted from Mittermaier, and as far as I am able to trace their history, the criminal act was sudden and apparently causeless in all of them, and was preceded by evidence of previous mental disorder. I have watched these cases now for years, as reported in the newspapers, and I have never known a case in which the criminal act was the first evidence of insanity, or rather in which the first symptom was a sudden act of violence.

It may, however, be that the act of violence appears to be premeditated, and a reason for it given by the accused; but the explanation is generally, in a lunatic, outrageously inadequate, and not at all like the reason for a criminal act of revenge. One lunatic killed his mother-in-law, as he never did like mothers-in-law.

There are two cases reported in the *Journal of Mental Science* in Jan. 1868. One, of Louis Bordier, whom Mr. G. Simpson, Surgeon to Camberwell Workhouse, who was called, considered insane, but who was nevertheless hanged, and it seems chiefly because the Surgeon of Newgate had not seen any signs while under his care. It must be remembered that in recurrent insanity the mind appears rational often immediately after the outbreak (*vide* supra). Drs. Laycock, Wood, and H. Tuke, considered the man insane, and wrote to that effect to the Medical Journals. Dr. Maudsley, on the other hand, opposed that opinion, writing that he "looked with extreme suspicion on the madness which, like Jonah's gourd, comes up in the night and vanishes in the morning." But this is exactly the character of these recurrent cases to which kind of case it seems to me that of Bordier belonged; and it is to be noted that there was evidence of a period of apparent melancholia some time before, and his outbreak or seizure being sudden, and passing off like an attack of epilepsy, would be quite in the usual course.

The second case in the same article is that called the *Alton Murder*, in which a solicitor's clerk murdered a little girl and coolly entered in his diary, "killed a little girl, it was fine and hot." The deed in its details was so atrocious as to attract much feeling, "in the first place, it is a libel on the beasts to call such a crime brutal," wrote one commentator, "brutes do

not violate and murder one another in that way;" this murderer was executed; evidence was given at the trial that a near relative of his father was in confinement suffering from homicidal mania, and that his father had had an attack of acute mania, that he himself had exhibited singular caprices of conduct and that it had been necessary to watch him, for fear he might commit suicide, so that in this instance the sudden act of atrocity was foreshadowed. He had at least an organisation prone to madness or what the same writer called "the tyranny of a bad organisation to contend with." It may be that such cases lie on the confines of both idiocy and criminality, if not of disease and crime.

Another remarkable case of recurrent insanity which is typical, is that of Dr. James Pownall related by Dr. Davey, *(Journal of Mental Science*, Oct. 1860*)*, already given.

In illustration of some of these acts of lunatics, I extract the following epitome of cases, collected by Mr. Gaskell, the commissioner in lunacy, in a paper entitled, "On the want of better provision for the Labouring and Middle Classes when attacked or threatened with Insanity." I give the cases as they are recorded, omitting one only that has no particular bearing on this question, but in all the rest it will be perceived as I have already insisted on, that these homicidal or suddenly violent patients are all chronic lunatics, that in very many besides there existed a proof of a previous melancholic stage in some part of their case.

"In a single number of the 'Times,' of May 15th, 1857, we read the account of a woman killing her two children and accusing her husband of the deed. She had recently been discharged from an asylum, and was proved to be insane. In another column of the same paper we find that a labouring man suffering under religious delusions destroyed the attendant placed by his friends to take care of him."

"In the month of January, 1858, a young man who 'for five or six years had not been of sound mind,' and had lately become worse, put an end to his father's life by great violence."

"In the following May, a journeyman printer, who according to the evidence of his medical attendant, had, 'for some time been suffering from unsound mind,' suddenly and without provocation took the life of a fellow-workman in presence of his companions, and then mutilated the body."

"In August following, a farmer in good circumstances, who had been insane nine years, and had twice attempted suicide, fatally assaulted the man who was engaged to attend him."

"In the following November, a seaman who had been several times in an asylum, and had twice attempted suicide, was placed on trial for killing his grandmother, which he did 'in a paroxysm of mania, in the belief that he was destroying a man who was attempting his capture."

"In the same month, a commercial traveller, proved to have been 'for some time a raving madman,' nearly severed the head of a sick friend with whom he was on good terms."

"In the next month, a wool-sorter, who 'for some years back had shown a gloomy tendency of mind,' which had increased, killed his wife by ripping open her abdomen with a razor, and immediately committed suicide by cutting his own throat."

"In the same month, a working silversmith, 'under medical treatment for a nervous complaint, was suddenly seized with a violent frenzy,' and furiously attacked his wife with a poker, and then committed suicide by nearly severing his head from his body with a razor."

"H. B., an agricultural labourer, first exhibited symptoms of insanity in the early part of 1856. In the month of June, in the same year, he became violent and uncontrollable, was tied to his bed with ropes, handcuffed by the constable, and taken to the Macclesfield Workhouse as a lunatic. After remaining in the workhouse a month he made his escape and returned home. He continued to be manifestly insane, the money earned by him was entrusted to his wife; and in a journal kept by the patient frequent allusion is made to the temptations of the devil. On the 20th of April, 1858, he went to a relation in Stockport, who noticing him to be 'much worse,' procured an order for his admission into the Stockport Workhouse; on the same day the patient returned home and dashed his wife's brain's out with a cleaver, saying, 'I've killed the devil.'"

The following is from "the Echo," Aug 22nd, 1871:—

"At Stow Bedon, yesterday Mary, the wife of a labourer, cut the throat of her female child, aged fifteen months, almost severing the head from the body, and also cut the throat of a deaf and dumb idiot, aged eighteen years, a daughter of her husband by his first wife. The murderess complained of illness on Sunday night, but said she was better when her husband left for work yesterday morning. Soon after this, when her little girl of five years awoke, she saw her mother cutting the throat of the infant, after which the wretched woman took hold of the little girl, and attempted to murder her, but desisted on the child appealing to her as her pet. She then carried the child through the room where the idiot was lying wounded, and went to a neighbour and told her that she had killed the other two, but that the one in her arms had got over her. The poor woman was insane seven years ago, and attempted suicide twelve months ago."

"G. R., who 'in the year 1857 was of unsound mind, when he attempted suicide', cut his wife's throat in September, 1858."

"W. G., who had been a patient in the Suffolk County Asylum, soon after his discharge killed his aunt and his sister."

In all these instances the outbreak was an act of murder, in all there was clear evidence of a pre-existence of insanity, every one of the cases would be quoted doubtless, without the history given by Mr. Gaskell, as proof of homicidal impulse.

Similar cases have been given as illustrations of emotional insanity. In Drs. Bucknill and Tuke's *Psychological Medicine*, at p. 193 we read:—"In 1854, a boy shot his stepmother in France. He confessed the act, but said it was the result of a mysterious 'irresistible impulse.' . . . . He admitted an aversion to his stepmother; there was no disorder of the intellect apparent; there was an hereditary predisposition to insanity on both sides." (Quoted from *Ann. Med. Psy.*, April, 1856.) Now I give this case from Drs. Bucknill and Tuke's treatise, because it is given as an example and proof of the emotional insanity, which is described as a special variety of insanity. If the proof of this special disease rests on no better evidence than this, how can we admit it into our nosology? Yet it is on the narrative of such cases that whole sections on emotional insanity are based. It will be perceived that there is not one word of how long the lad had been ill, nothing about his previous symptoms. Indeed, nothing but that there was no disorder of the intellect present, and that he shot his mother. I quote the case from Drs. Bucknill and Tuke's edition of 1858. It happens, that one knows something more about this lad, for in the *Annales Médico-Psychologiques*, for April, 1862, there is an account of his afterwards shooting himself. He shot his stepmother on November 10, 1854, and killed himself in February, 1859, on the tomb of his victim, and in his pocket-book were found these words: "I am about to die close to her whom I so fondly loved and so greatly deplored."

This lad was considered insane at the time of the commission of the first act by several men of eminence, among whom was the celebrated M. Calmeil. He had cherished this deadly animosity against his relative for nine years before he shot her; he shot himself five years afterwards.

There are several pages occupied in the works quoted in the narration of violent acts done by lunatics, whose cases are cited as examples of emotional or moral insanity, but in my opinion these accounts do not establish the existence of such disease as a distinct morbid species, as really all they show is,—that a certain number of persons committed acts of great violence. In nearly all these cases the mere act of violence is given, there is no history in most of the cases. In thirty-one cases in

which the act is reported to be committed without premeditation. Two were idiots, six had a history of previous insanity, twenty-two no history of case is reported, and one was epileptic. Out of the six in which the history is recorded the case already quoted is one. Another was that of an artist, who had had a severe cerebral affection of which he had been cured for several months, he attacked a barrister a perfect stranger in the Palais de Justice. He told Esquirol, "I went to the Palais de Justice as an idler, as I should have gone elsewhere, I had no ill-will against this advocate, he was entirely unknown to me, I might have been directed to any other person." Esquirol adds, "he was perfectly tranquil next morning, quite calm, without anger or resentment, on the same day designed a picture."

The question of moral insanity is examined at length in Dr. Blandford's work, *Insanity and its Treatment*, and the cases of Dr. Prichard to whose authority the existence of such a disease is due, are there fully analysed. He concludes thus (p. 317) "thus I have briefly commented on all cases of moral insanity related by Prichard, that in some of them insanity existed without insane delusion for some time I admit, but that it existed without alteration or defect of the intellect I deny."

The following names may be found in authors and described by some of them as separate diseases, but which are simply case of recurrent insanity and in which the outbreak occurs by different modes. As already said the attack is ushered in more or less suddenly, it is sometimes by a condition of melancholy and refusal of food, etc., but when the outbreak is by violence it may take various characters as by murder, rape, drinking. The following are some of the names founded on this basis:—dipsomania, oinomania, homicidal mania, suicidal mania, pyromania, nymphomania, satyriasis, iconoclastic mania, etc., etc. (see p. 190 *et seq.*).

In pursuing the history of a case by reference to the table (p. 108) it will be seen that a case of chronic insanity has three modes of termination.

1. By recovery.
2. By death.
3. By passing into imbecility.

Recovery.—The chances of recovery are greatly diminished,

obviously so by the very duration of the disease, the question is after what period is a case to be deemed chronic and after how long a duration of insanity is recovery possible, this must depend on the duration and severity of the disease; or 1. the nature of the disease, and 2. the constitution of the patient.

1. By the form of the disease and kind of symptoms actually present we may form some prognosis. In those cases in which the whole range of mental faculties is not involved, there is much greater reason for anticipating, or at all events hoping for a favourable result, whether the duration be short or long.

Lord Brougham once said in giving a judgment "the human mind is one and indivisible and if a man is mad in one point, he is mad on all," undoubtedly such is a safe maxim for a lawyer. Yet it certainly happens in practice to find a patient, who is undoubtedly insane in conduct and in feeling, yet retain a considerable amount of reasoning power. When there is integrity of so much it is obvious that the disease must be partial as regards its seat; if there are on the contrary symptoms which impair the intellectual faculties, the senses or one of them and the motor faculties, even though partially, the chances of recovery are greatly diminished. In cases where the understanding is so far involved, that the powers of reasoning, the coherence of ideas, and the beliefs are involved and true delusion exists, the case is obviously more serious. A mere raving, with a wild flow of ideas and emotions, may exist in what is called delirium and may pass off, but when such a calm judgment exists and is at the same time faulty, as when a man believes he is a king or God, it is obvious that a very deep inroad has been made into the mental integrity.

There may be, however, such a state of things as is called by Neüman *Ein Heilung mit defekt*, a cure with permanent defect, as one who has broken a leg may recover, but be permanently lame. One can imagine that the morbid processes may have come to an end, but the damage left may be such that perfect sanity cannot be restored. This is a hypothetical case, however, and a more usual condition of things found is a gradual decline towards mental weakness. A state of "backening or backsliding, *Verrücktheit*," of the faculties.

2. Certain considerations in the condition of the patient may

modify the unfavourable prognosis, though the unsoundness may be general as regard the faculties, if the disease occurs before full growth is attained, or in females just prior to the climacteric periods these epochs may have a favourable influence.

Cases of recovery are reported after ten years from nearly every asylum, and some after eleven and twelve. I have known many after seven and eight years and who have remained well fifteen or sixteen years afterwards, but such are exceptional of course.

Death.—As regards the termination by death, that event may still occur from bodily disease arising out of the mental; or more commonly death is due to some intercurrent disease, but when the mental disease has become chronic it is no longer a cause of death.

It is, however, the fact that chronic lunatics are very liable to disease of different kinds connected with the nervous system, to apoplexy and to hæmorrhages involving different portions of the nerve centres causing local and partial paralysis, ataxy, etc., but as these are not at all special as regards the insanity they need not be more definitely stated.

When the patient's disease does not terminate by either recovery or death, its next stage is imbecility.

Imbecility.—The word imbecile or imbecility is the most frequent termed employed in asylums to denote the patient or his condition in this the last stage of my scheme (p. 108).

It is true that there are degrees even in this stage of the disease and some patients are called demented or the subject of amentia, when the condition is at the lowest point, these terms correspond to the English weak-minded and demented. In discussing the morbid states, it is as well to reserve the terms idiot and idiotic, for another division of our subject (Subdivision B1. page 104).

It is of course quite an arbitrary measure, where we draw the line between our two artificial stages (the third and fourth p. 108). Griesinger divides his chapter *Die Pathologie und Therapie der psychischen Krankheiten* into:—I. States of mental depression, II. States of mental exaltation, and III. States of mental weakness, and in considering the latter he makes four degrees or excluding the last, idiocy, three degrees of mental weakness. The first

of these three divisions is *Verrücktheit*, the second *Verwerrtheit*, which he translates as *dementia*, and the third *Blödsin*.

Verrücktheit corresponds to our word imbecility; but Griesinger was, he says, criticised for including this, which as was said above, literally means a defect in intellect, among the states of mental weakness, since in certain cases according to his own account there remains a good deal of tendency to violence. He says, "although the original morbid state of the sentiments has considerably diminished or even entirely disappeared, the individual does not recover, but remains affected in such a manner, that the aberration of mind is now most strikingly exhibited in certain fixed delirious conceptions, which are cherished with special preference and often repeated."

We should in England consider such a patient a chronic lunatic, but where the line is to be drawn, as already stated is quite arbitrary, one artificial division in the progress of a single case is shaded off into the other, and it is not possible to say exactly at what point the title of imbecility should be given or when chronic lunatic is more appropriate.

In all cases of chronic insanity, there is more or less rapid tendency according to my observation toward imbecility, if not toward recovery or death. In general the state of melancholy and mania or depression and excitement gradually cease, and even when the expression of grief becomes as it were stereotyped on the patient's mind, he seems usually to feel mental pain less. A gentleman under my care, who for more than six years was constantly bewailing his lot, at last on becoming quite imbecile, repeated constantly, "I'm very comfortable I can do more." Another patient who continued to bemoan her fate, in violent terms, was always ready to join in amusement of any kind.

As pointed out in the passage quoted from Griesinger, though the state of depression or excitement ceases, in other words, the emotional disturbance has subsided, the intellectual defects remain. The delusions especially or false beliefs, the incoherence of ideas, and eccentricity of conduct become more and more confirmed, but with these in nearly every case there is a gradual and general weakening of mind progressing.

States of imbecility.—In all asylums, and in all workhouses there are a large number of imbeciles collected, gathered from

the following sources:—1. the incurables from insanity, 2. imbeciles from epilepsy, 3. congenital imbeciles and idiots, 4. imbeciles with general paralysis, 5. imbeciles from age, 6. from drink and some other diseases. Each of these present particular characters.

1. The imbecile from insanity, will generally retain some eccentricity or delusion, "an antic disposition," with a tendency in most cases to excitement from time to time. 2. The imbecile from epilepsy presents a childlike curiosity, with drawling speech, he slobbers and laughs vacantly. 3. The character of idiot varies; 4. the paralytic, has a haggard heavy expression; 5. the aged imbecile is simple and garrulous and often restless.

The diagnosis is easy, but one condition is likely to be mistaken for it, viz., the apathetic condition of melancholy with stupor, which some have called acute dementia.

The cases at this stage have but one mode of termination. The imbecile in asylums often pass a long and not unhappy life, secure from want and trials and vicissitudes, and safer from the griefs and miseries the sane have to endure. In well managed asylums, secure from exposure and alternations of temperature, and with sufficient diet, they escape many sources of disease and often live to a great age. (See Dr. Wood's calculation, *On the Plea of Insanity*, p. 84).

Treatment.—With regard to the treatment of this stage it will be the same as that of idiocy which will be considered in a subsequent page.

Bodily disorders.—These present nothing which can be called special, in speaking of the morbid anatomy the changes in the organism will be mentioned. It will be seen that various conditions need special attention as against what is called wet or dirty habits, but with proper management, there should be no interference with health from this cause.

Before leaving the subject of ordinary insanity it will be well to allude to the various so-called kinds of insanity which find a place in many works on mental disease, some of which have been alluded to incidentally; but, nevertheless, it will be useful to refer to them collectively.

Section IV.

VARIOUS SO-CALLED KINDS OF INSANITY.

General Recapitulation of Terms to be found in different authors for so-called varieties of ordinary insanity at different periods or different phases in its progress.

Certainly one of the main difficulties connected with the study of insanity is the multiplicity of names which have been introduced in the subject. This evil, for it is such, has extended to an absurd length.

In my former edition I endeavoured to classify these names thus:—

1. Names derived from a prominent symptom occurring in the progress of the case.
2. Names derived from some presumed cause of the attack.
3. Terms founded upon the modifications of a case during its course.

I will endeavour to enumerate some of the most common terms and give a short description of each.

Amenomania (from amœnus), a pleasant or gay sort of mania or insanity. There is no such disease in any sense of the word. Lunatics may be gay and cheerful in the chronic stage and many are so, and most chronic lunatics are cheerful on some occasions. I have had many pleasant insane patients. The state of mind in general paresis is usually more than simply cheerful, the word elation of spirits describes the condition more correctly.

Aidoiomania (αἰδοῖα, pudenda), *vide* erotomania and nymphomania.

Dæmonomania.—This is of very occasional occurrence and it simply means that a patient has a delusion or merely a fear that he is a devil, or is possessed of a devil, or in fact has any symptoms at all relating to demons; this notion or delusion in the general mental disturbance may occur in any case, and the phenomenon is a mere symptom; it may occur in acute insanity, or it may persist and be present in chronic insanity.

Erotomania.—This word has perhaps been more employed than most of these terms, writers have even discussed its varieties and bearings; but it is but a symptom, and is a mode in which insanity occasionally shows itself, there is an exaltation of the sexual passions, or an outspoken exhibition of lustful feelings; the passions belong to the emotions and emotional disturbance occurs in the early stages of ordinary insanity, the exaltation of the passions is also an early and prominent symptom in general paresis. Some writers are desirous of separating this symptom into subdivisions, as:—erotomania (ἔρως love) as the word to distinguish the state when the love is pure, unsensual, but it is more frequently meant to include all symptoms connected with sexual passion; they apply the terms nymphomania to the condition of lustful feeling in women, and satyriasis when it occurs in men. Aidoiomania was proposed for the condition in women, but it is not much used.

Folie circulaire, Folie á double forme.—These conditions are found in chronic insanity, but some degree of alternation of symptoms occurs in many cases in the early stage, or in general paresis, but the terms apply to a well recognized condition which is fully described on p. 163.

Hysterical Mania—Insanity occuring in a hysterical patient, it has no special characteristic as regards the mental phenomena, it may be connected with any stage. The subject of hysteria has been discussed in a recent work by Dr. Legrand Du Saulle, (*Les Hysteriques*, Paris, 1883) in which the connection of hysteria and insanity is fully treated. In examining the different cases given in illustration, and a chapter is devoted to hysterical mania (p. 292), I think the following results may be established. There are certain symptoms shown in hysterical patients, whether insane or not and which are of motor kind, such as cataleptical and paralytical kind, the patients go through various clonic motor conditions, as standing in some awkward position for long periods, or kneeling in prayer in constrained attitudes, apparently being in a semiconscious condition all the while, and they may perform some unconscious movements, and after a time, return to their natural condition without being aware of what has passed. Some on the other hand, exhibit various bodily symptoms, as retention of urine, borborygmus, tympa-

nites, distension of the abdomen, etc. These conditions are probably nearly related to Jacksonian epilepsy on one hand, as shown in a certain periodicity in these attacks as pointed out by Dr. Du Saulle himself; but as epilepsy itself, as already shown, is nearly allied to recurrent insanity, so some of these hysterical cases have also all the symptoms of insanity.

Two cases are given in the sequel, in illustration of these varieties.

Homicidal mania.—The best marked cases which have received this name are connected with second and subsequent attacks in recurrent insanity as described p. 167, the outbreak is often sudden without much warning and the exhibition of the paroxysm is by a homicidal attempt. The name is derived therefore, merely from the propensity of the patient, this propensity often recurs in the same form, but it sometimes takes another shape; if the act of violence is to take to drink, the case has been called oinomania; if an act of suicide, suicidal mania; to an act of incendiarism, pyromania; to smashing of statues, etc., iconoclastic mania; to rape, satyriasis, etc.

Kleptomania.—A propensity to steal is particularly observed in an early stage of general paresis, but it is but a transient propensity and it cannot, therefore, have any pretension to constitute a variety of disease in such case. It may occur also in the chronic stage of insanity, there is scarcely a crime or a virtue, that may not be associated with this stage. It has no distinctive character, as a symptom in disease. It may be a feature, and more frequently is, of idiocy. It ought to have no place, however, in nosology.

Moral Insanity.—This term has been applied to morbid delinquencies of various kinds, evinced generally as sudden impulses in cases in which there is a certain amount of mental power. In fact all the cases that I have read of, would come under the same category as the case of homicidal mania, and connected with recurrent insanity, as described in the proper place (p. 167). The subjects of recurrent insanity retain a considerable amount of mental integrity, and can argue and assert their sanity, and up to a very brief period before the outbreak, act rationally, and then suddenly they commit some great offence against morals; but they are, however, impelled by disease, as much as an epi-

leptic is impelled to struggle, and such cases are often actually connected with epilepsy or terminate in that disease, and most of the patients gradually become imbecile.

As examples of this kind, Dr. Hammond narrates several similar cases under the term of Reasoning Insanity (*Treatise on Insanity*, p. 373), but the previous history of the subjects are not given.

Hypochondriacal Insanity.—It is a moot question whether hypochondriasis itself is not insanity. Cullen defines hypochondriasis, thus: "Dyspepsia cum languore, mœstitia, et metû ex causis non æquis in temperamento melancholico," and subsequent writers have not improved on this description. Sadness and fears without due cause are depression of spirits and morbid apprehensions, and though the power of arguing remains, that would not *exclude* the case from *melancholia*, or as a variety of insanity. Hypochondrical patients are therefore insane. Hypochondriasis may continue into the second stage of the disease.

Lycanthropy.—In the sixteenth and seventeenth centuries there was an epidemic of what was probably hysteria, rather than absolute insanity. It raged in different parts of the continent, and among the most ignorant peasantry; the subjects of it asserted that they were turned into wolves at night by the devil, and they left their homes and rambled in the woods, killing children and it was said eating them. It chiefly existed among females, who said the devil had carnal connexion with them. The priests took the disease in hand, and burnt the patients at the stake (see Hysteria, p. 191).

Lypemania.—This word is not often met with now. It was, Dr. Tuke says, introduced by Pinel, and means simply depression of spirits, it occurs in the early stage and goes on in certain cases to the chronic period.

Melancholia has been subdivided into as many varieties as there are patients under observation, it would seem the forms most common have mostly been spoken of, and the terms explain themselves, as:—

Melancholia agitans, the patient is restless, (see p. 121).

Melancholia errabunda, he wanders away and hides, (see p. 121).

Melancholia metamorphosis, the patient imagines he is en-

tirely changed, either wholly into some other person or into a lower animal, cat, dog, etc., or that some part of his body is changed. The case is not uncommon and the impression is usually a persistent one, and so it constitutes a true delusion and therefore occurs in chronic cases only. This term is notable as having afforded a writer the opportunity, or the craze, for dividing and subdividing into the varieties which prevail in our literature. Heinroth, as quoted by Neümann, not only makes a separate disease called *Melancholia Metamorphosis*, but divides it into sub-species, as when the patient believes himself to be changed into a beast, and this he again divides into four varieties, 1. when the patient believes he is changed into a wolf, 2. when he believes he is a dog, 3. when he believes he is a horse, and 4. when he believes he is an ox. After such a system, it is only wonderful that the author of it, did not extend it a little further, as when a man may consider himself some other quadruped, an ass for example.

Suicidal melancholy or suicidal mania.—The propensity to commit suicide occurs in two kinds of cases, both of which have been described in their proper places; the propensity, however, can give no just ground for separating the case from those of ordinary insanity, the symptom occurs in the first stage, when the patient seldom conceals it, and makes numerous abortive attempts and thus keeps the attendants on the watch, but suicide is a mode in which the outbreak occurs in recurrent insanity, the act is then often sudden without warning and when the attendants are off their guard, such cases are therefore particularly dangerous, (see p. 117).

Melancholia with stupor, has been alluded to (p. 121, *et seq.*).

Melancholia religiosa, (see p. 113).

Monomania.—This term has been used in different ways, by some it is taken to mean that a patient was mad on only one point or one subject, such was not the signification meant by those who proposed it, and such a condition does not exist, most writers have agreed to abandon the term.*

Nymphomania (see Erotomania).

Oinomania, Dipsomania, Mania à potu.—These terms are often found in different works; in my opinion they represent no dis-

* Griesinger, *op cit.*, § 45.

tinctive kind of mental disease. We meet with several kinds of cases in some way connected with alcoholic poisoning, and all of them may be found among the inmates of asylums, but they do not constitute a distinct species morbi. The cases come under the three following categories.

1. Chronic alcoholismus, which will be alluded to under the division B or symptomatic conditions in a future page.

2. The case of the common drunkard, who will drink whenever he can obtain the means, and which is simply a case of vice or insufficient control, and more allied to idiocy than disease.

3. There is the case of the patient who is the subject of recurrent insanity, and in which the relapse is shown by a tendency to excessive drinking. The patient is sometimes even, during his lucid interval, a highly respectable and very temperate person, and the drinking is a mode in which the outbreak is shown. (*vide Recurrent Insanity*, p. 166, *et seq.*).

Puerperal mania (see *ante* p. 128).—In my opinion there is no distinct disease or species of insanity, which deserves the separate title of puerperal mania, or puerperal insanity. There are three kinds of cases in which insanity and the puerperal condition are co-existent, the ordinary symptoms may commence during pregnancy, or after parturition. The puerperal state is of course a great disturbance of the system. Firstly, a patient may be taken during pregnancy with the symptoms of either a primary or a secondary attack of ordinary insanity, or with the symptoms of general paresis; and in single women the mental emotion caused by the impending disclosure of immorality may induce an attack of mental disease. Such cases will take pretty much the usual course in their progress. Secondly, the patient may be taken subsequent to delivery, in this latter case the symptoms may occur in two ways, but both be brought on probably by the great stress or strain upon the system incident to the circumstances. Patients who have had a previous attack of insanity, or are the subject of the recurrent form of the disease, may have the attack induced, when it will take the usual course of that form. In the third kind of case the symptoms are more like delirium from anæmia, as seen after fevers, etc.

The majority of these cases do well. In recurrent cases there

is a natural tendency in the case to change and toward cure, which care and good nursing will expedite, and in the primary or anæmic delirium, the case usually improves by good and judicious feeding. The recurrent case is very liable to occur at each pregnancy.

It is quite unwarrantable from a pathological point of view to exalt these cases into species of disease, they go through the same course of symptoms as others; in the wards of Hanwell, I could always point out cases of melancholy, mania, paresis, imbecility, or recurrent insanity, cases with stupor, with chronic symptoms, delusions, etc., etc., which commenced during the puerperal condition. "If," writes Dr. Tuke, "insanity arises in a woman who has been suckling about three months, we call it a case of insanity from lactation, while if only two, we perhaps call it a case of simple puerperal insanity," on such grounds are mental diseases multiplied.

Phthisical mania is simply insanity in a phthisical patient. In the earlier periods of phthisis sometimes that disease is kept in abeyance by the insanity, and will break out after the mental symptoms have disappeared, if this does not happen the course of the phthisis may be hastened by the insanity.

Pyromania is when the desire to commit arson exists, it may be the mode of outbreak in recurrent insanity.

Satyriasis.—See supra Erotomania.

Stupidity.—Another term for melancholy with stupor.

Syphilitic mania or syphilitic insanity. This is treated as a distinct disease in Bucknill and Tuke's *Psychological Medicine* and in Quain's *Dictionary of Medicine.* That cases of true insanity occur in persons affected with syphilis, there can be no reason for questioning, but such accident cannot afford a basis for establishing a fresh kind of disease, any more than any other accident, as the single or married state of the patient; unless it could be shown that syphilis was either the actual cause, when the symptoms would be uniformly developed in all cases of it, or that the presence of syphilis so acted upon the prime cause as to divert the progress of the symptoms in a given direction; that in other words insanity plus syphilis, took a different course than insanity alone, and then the case would be only entitled to be called a variety.

But no such uniform deviation does occur according to my experience, and the best authorities, who have greater experience on syphilitic disease than I possess, are of the same opinion.

When mental disease arises in one with syphilitic taint, it obeys the same laws in its evolution as other cases, the mental disease may be either ordinary insanity or general paresis, and perhaps more frequently the latter.

On the other hand syphilitic disease of the brain is equally variable in its symptoms. Dr. Hughlings Jackson (*Journal of Mental Science*, July, 1875, "On the syphilitic affections of the nervous system"), says "the syphilitic affections of the nervous system are very indirectly of nervous origin, such names as syphilitic epilepsy, syphilitic insanity, though convenient (?) are not scientifically accurate terms, these terms are sometimes used as though they embodied clear pathological accounts, those who use them evidently do not even know that they do not know the pathology of the cases of which they speak so freely.

"There is nothing in any kind of nervous symptom which enables us to diagnose syphilitic disease of the nervous system, the pathological processes by which syphilis causes nervous symptoms, simply imitate non-syphilitic morbid processes. I know nothing of syphilitic diseases of the nervous system, except in the sense of there being disease beginning in the connective tissue of nervous organs or their arteries. I know nothing of syphilitic changes beginning in nervous tissue."

Other terms not much used or useful.

Agoraphobia, dread of being in a large space (Westphal).
Kenophobia, dread of being in a large space (Gelineau).
Claustrophobia, dread of being in a confined space.
Astrophobia, dread of lightening.
Anthropophobia, fear of society.
Monophobia, fear of being alone.
Mysophobia, fear of polution.
Panphobia, fear of indefinable kind (morbid apprehension).

Anxietas tibiarum, uncomfortable feeling in the legs.
Nostalgia, a form of depression or home-sickness.
Pyrophobia, dread of fire.
Syphilophobia, fear of syphilis.
Spermatophobia, fear of spermatorrhœa.
Hydrophobophobia, fear of hydrophobia.

(All the above quoted from Dr. Hammond's *Treatise on Insanity*).

Aboulomania, paralysis of the will, irresolution.
Iconoclastic mania, disposition to destroy statuary (see p. 173).

Section V.

EXAMPLES OF INSANITY PROPER.

Case VII.—E. M. *Melancholia; Religious Fears; Suicidal Propensities; Delusions about the Devil "Demonomania;" Recovery.*

Blister, sedatives, saline purgatives of little use; improvement commenced after taking aloes regularly.

Admitted April 29th, 1862. History from aunt. Entered by Mr. Ellis, Assistant Medical Officer. Æt. 23; single; for a short period a dressmaker, the last few years a servant. Is reported to be suicidal; the present attack is said to be of 14 days' duration, and to be the second attack; no clear account can be ascertained about former illness.

15*th Day.* Note by myself. Was admitted yesterday; says she is tormented with the thoughts that she has "rejected Jesus," that "she did not believe him—that she rejected him;" answers coherently and describes her condition with much fervour and expression of anxiety, says she has curious sensations and violent beatings of her heart, and feels that her "thinking mind" is gone; complains that she cannot sleep, and when she shuts her eyes all the events of the last fortnight come before her mind; is very restless and agitated. Tongue moist; bowels open; takes her food well; pulse 90.

24*th Day.* Continues to be much depressed, imagines she is given over by Jesus and that she cannot repent, says "it seems as if she has no control over her feeling or thoughts;" this she says in a rapid, anxious, eager manner; is continually on the move, as if she could not stand still; is moving about while she is speaking to me.

35*th Day.* Says she is possessed of the devil, that she was obliged to say "God preserve my body and the devil take my soul," and since that she has been wretched, feels strange sensations in her inside, like something hot. Countenance is more haggard. Has no headache. Eats heartily. Tongue more furred; bowels act regularly. Pil. ij. and haust. cath.

43*rd Day,* The aperient has been repeated since without any benefit. Mind is more distressed. Eats but little. Sleeps less. Haust. opii, horâ somni

48*th Day.* Continued the opiate and slept better, has been rather less agitated. The aperient draught has been repeated. The opiate now begins to lose effect; the strength of it was increased and vomiting occurred in consequence, and the appetite was worse. The same feeling of wretchedness continues, with constant restlessness and agitation, and belief that she is tormented by the devil. Mr. Ellis ordered her head to be shaved and blister to be applied on following day.

49*th Day.* Is extremely agitated, has made several attempts to seize the carving knife, both yesterday and to day; continued to exclaim "the old devil's got me," rushes about from place to place. On the following day a slight difference was observed in the pupils, the left being the larger.

52*nd Day.* Continues to be extremely agitated, moaning loudly and constantly in a kind of monotonous drawl "that old devil," rushes about the ward or airing court, and tries to get away, when addressed cannot stand still, rocks backwards and forwards on her feet, fidgets with a part of her dress, bites her fingers and nails; has a wild and anxious expression; has made several attempts to injure herself, snatched at a knife again to day. Complains of pain at the chest. Sleeps well. Has ʒiss of Tr. hyoscyami at bed time, takes food well. Pulse 120.

56*th Day.* Is more tranquil, but same delusions continue, though with rather less force; says she is prompted to evil by the devil, that the devil makes her think all sorts of wicked things, says she is to live for ever. Has continued the hyoscyamus, the pupils are both large and act unequally. Sleeps better. Tongue clean, takes food well.

78*th Day.* Mental distress continues. Has always an eager and anxious expression and a hurried and restless manner, says she is married to the devil. Has the delusion that a fellow patient is the Saviour, and kneels and prays to her, the patient in question is annoyed and speaks angrily to her, which causes E. M. to be greatly affected. She is thinner, but takes food well. Bowels act daily.

84*th Day.* Has now the delusion that another patient is the Virgin Mary and a baby in the ward is the infant Jesus. The husband of the same patient, who called to see his wife, she says is God. Agitation and restlessness continue; has not made such determined efforts to injure herself lately; is still tortured by various vain regrets—if she had done this, or not done the other, then certain consequences would have occurred, etc., she might have been happy; frequently is emploring God to pardon her, is constantly on the move, cannot sit still, bites and picks her fingers and nails till they bleed.

123*rd Day.* Still with the same delusion about the devil; follows me about saying "Oh do give me another chance of getting well." The bowels of late have been constipated. Has not menstruated since admission, says she feels that she has no inside. Pil. aloes and mast. daily.

128*th Day.* Bowels act daily; slight general improvement, is more tranquil, but begins to moan when addressed. Has gained some flesh.

138*th Day.* Is improved in mind and is stronger; still cries occasionally. Ordered to be taken for a long walk daily.

154*th Day.* Has been employed in the laundry, is still fretful, has continued the pills.

182*nd Day.* Has been working regularly in the laundry, was for some time still depressed, and moaned and cried as before, but worked well. Is now looking better.

Continued to mend by degrees from above date, subject to periods of depression. Went to Officer's House to work, where she was entrusted with knives, etc. She continued the aloetic pills and menstruated on the 187th day for the first time; continued regular from that period; was not considered fit to be discharged, however, for eight months afterwards, at which time she was cheerful and well behaved in every respect.

CASE VIII.—*Chronic Insanity.—Chronic melancholic symptoms; (Monomanie of the French); Symptoms:—delusions; exalted ideas of herself; Phthisis; Death.*

This patient was not seen by me till the 7th year of her malady. History from a brother after that length of interval. She had been discharged as incurable from Bethlehem; she exhibited a mental change in nearly every particular, in manner, emotional feelings, temper, habits, disposition, intellect and character. The intellectual change was in the delusion that she was royal, there was nothing at all like weakness present, she could read and write and understand when she could be got to attend.

The parents of S. P. kept a boarding-house, which was much frequented by theatrical people and operatic performers. The patient had therefore frequent opportunities of attending different places of public amusement. She availed herself particularly of the privilege of attending the opera. She was naturally of very haughty and ambitious character. She was well educated, a good musician, and spoke French and German, and she read much. About the twenty-sixth year of her age, she wrote a ballet which was accepted at the opera and was placed in rehearsal. About this time she gave birth to an illegitimate child. The informant who related the circumstances to me, seven years after the occurrence, did not remember whether the event of the birth of the child preceded her melancholy or not, but believed it did; but she was very depressed, and felt the disgrace of her misconduct keenly. The seduction had been under promise of marriage. The father of the child was connected with the operatic profession. He refused to marry her, and disowned the child. The ballet was never produced. The patient on the birth of the child, became very greatly depressed, *(depression of spirits)*. She was disgraced—all her ambition was blighted. She never suckled the infant—had no milk. She gradually became altered in disposition. One of the earliest symptoms that the brother remembered was a suspicion that some one was about to poison her *(morbid apprehension)*. She also thought she was watched, and got bags of straw and stuffed them up the chimney, to prevent people getting into her room. She refused food, and was in danger of starvation. She took a great aversion to her brother *(alteration of affection)* whom she accused of various things. She was kept at home several months, and then sent to Bethlehem, where she remained a year and a half and was discharged uncured. She was next in a private asylum for a short time, and was admitted into Hanwell in about the fourth year of her malady.

She was a patient in the asylum about six months prior to my appointment there.

When I first saw her, her condition was that of a chronic lunatic, and she remained in the same condition till her death. The notes taken at different times during subsequent seven years, give the following account of her state.

She is tall, rather thin, of good figure and proportions, erect; was about thirty years of age on admission. Her complexion was of an unhealthy hue; the lips rather livid; conjunctiva injected; the eyes were weak; her hair scanty and dry. She moved with ease, and walked with a certain degree of style, but rather too majestically. Had a constant propensity to wear her bonnet, which she liked of a date somewhat old. She usually was to be seen pacing or marching in a dignified manner up and down the airing court or gallery, talking to herself

loudly, or declaiming in a theatrical and somewhat pompous tone, asserting her right to the throne, (*delusion and intellectual symptoms*). Her language consisted mostly of the same set form of sentences, but these were sufficiently varied to give a coherence to her declamations; these speeches continued in the same form; they were much to the following effect:—

"Miss S. P., England's royal and state prisoner, demands to know by virtue of what authority her royal person is detained, fraudulently, illegally, and unjustly, within these walls. Be well assured, that each and every one will have to give a full and perfect account of their conduct in this matter. My lord chancellor will see that no one, who has a hand in this affair, shall go unpunished;" and then perhaps, addressing some fellow-patients who approached too near, she would say: "Get out, vile lunatic reprobate!" Again continuing her oration, she would ask: "Where are my palaces, my equipages, my royal robes, my jewels? Where are my trusty soldiers, my cavaliers? Have they forgotten their royal mistress?" &c., &c. This kind of declamation continued incessantly throughout the entire day. If she went into the garden, she would continue to walk in the same stately way, still continuing her soliloquy, though there was no one to hear it. She went regularly to chapel, but would not sit with the rest; but turned away with a contemptuous sneer when any of the patients spoke to her. When addressed by an officer, she did not answer at all, or in a condescending tone. While in chapel she made the responses in a slow and pompous style, and finished every sentence long after the rest of the congregation. She read in a correct manner, and with good emphasis. She could never be induced to engage in a distinct conversation. I made numerous attempts to speak with her, but never obtained a hearing. She was very correct and cleanly in conduct; very peculiar in her choice of food, at one time ate scarcely anything but potatoes; always refused meat; but latterly had fish daily, and wine.

No change in her mental condition occurred; she gradually got weaker and emaciated. She would allow no one to examine her, nor would she allow a nurse to see her undressed. About three days before death she complained of diarrhœa; but in spite of all entreaties she would get up. On the morning of her death she arose and dressed herself, but lay down again, and I was allowed to examine her for the first time. She had every external appearance of phthisis; such was my suspicion of her case before I examined her; she, however, died of dysentery.

A prolapsus uteri of long standing was found after death, which was not discovered during life; it was this fact that elicited from the friends the real history of the case, which had before been kept a profound secret.

There was in this case a melancholic primary stage, no distinct or acute maniacal stage, as far as I could discover, and a termination in chronic mania. This case, from the oneness of the delusion, would be called, it is presumed, monomania.

Case IX.—*Acute Insanity in a phthisical patient commencing very insidiously; by depression; Illusions of smell and taste; Apprehensions of injury; Violent and maniacal symptoms; Recovery; Death by phthisis nine months subsequently.*

A. A. H., female, æt. 26, single. In a good station socially, is tall, fair, slight, appears in delicate health, but has not suffered from any particular

malady. The attack is said on the certificate to be of a few days' duration, but on close investigation it appears that she had been altered and melancholy more or less for two years, and has had numerous fancies or illusions, and has complained of bad smells, has imagined that she has had things given to her which have altered her taste, these symptoms were attributed by her parents to "a naturally morbid temperament." About a week ago became more restless and excited and began to have the idea that she was going to be ravished. Dr. Kerr in the certificate reported. "She believes a nurse in attendance to be a dear friend of hers, that her bed is made by God and must not be touched by anyone, that a spot on her bed is a mysterious something which being transferred to the wall of the room has been wished away, is violent to others and attempts to injure them, she has broken a door and destroyed clothing." From Dr. W. Williams certificate, "she has been in a state of maniacal excitement for the past week with marked incoherence, refuses to get into her bed declaring that it is God's bed and she has been greatly tempted in it." Soon after admission she became very excited in conduct and manner, having been tranquil the first day or two. She talked in a rambling and absurd manner, was restless and unable to control herself, she mistook an attendant for an acquaintance and insisted upon waiting on her. There was no depression but she was irascible and excitable, very restless and fidgetty.

The bodily health very delicate, the pulse is feeble, 84, tongue is clean, bowels constipated, has no cough, there is slight dulness beneath the clavicles.

9th Day after admission. Is restless, talks much and somewhat incoherently, speaks of various sensations and alludes frequently to sexual feelings, as though she believed she was about to be abused, becomes very excited in speaking on this subject. She is neither elated nor depressed in spirits, was restless during the night but had some hours of sleep, takes food well, bowels confined, pulse 84 feeble.

18th Day. Is more tranquil and rational, is excited at intervals, but excitement quickly passes, erotic symptoms continue, has numerous fancies connected with the sexual functions. Ol. jecoris.

38th Day. Has been gradually becoming more excited, is now in a maniacal state, tears her clothes, endeavours to injure herself by dashing her head against the wall, attempts to stand on her head, her talk is constantly about being ravished, is alarmed at my visit, imagines that I am bringing people to injure her, etc.; had chloral and slept for four or five hours, ʒj. Bromide of Potass. twice a day.

48th Day. Gradual improvement again; a few days after this, though her mind was confused and she was incoherent, she was able to join the dinner table, and go out walking daily, has menstruated.

60th Day. Varies from time to time, a day or two she is quiet and then rather elated for the same period, when she will endeavour to injure herself; has gained strength and flesh; no cough; excitement was rather increased during the catamenial period.

75th Day. Is not so well; more dirty in habits passing her fæces on the floor and smearing it with her hands; has a wild and rambling mode of talking, is erotic; takes food well; bowels are rather constipated has passed the period without catamenia. Pil. Aloes. et Mast.

85th Day. Was calmer; menstruation has not occurred, but appears improved in health; no elevation of temperature night or morning; physical chest signs the same, occasional cough.

112*th Day.* Is better mentally but still does strange things and imagines things which are not correct; has taken during the last 14 days, Mist. ferri co.

6 *Months after admission.* Improving gradually in mind; her general health is better, but she has a troublesome cough with loose expectoration; pulse 90, temperature normal, no morbid physical chest signs except slight dulness on supra scap. region of one side; has not menstruated, continued mist. ferri.

7*th Month.* Menstruated, is gaining flesh, is quiet and well behaved; tidy in appearance; still has a few fancies.

8*th Month.* Menstruation again appears, the improvement continues; occasional variations; cough is less.

10*th Month.* Went home for a day or two from time to time; discharged on trial at twelve months, discharged finally three months later; remained clear in mind but phthisical symptoms increased; and she died nine months after final discharge of phthisis.

CASE X.—*Acute Insanity in the first stage and passing into second epoch; suicidal propensity; præcordial pain; constipation; employment of purgatives; recovery.*

Mary H., admitted into Hanwell Asylum, June 21st, 1883. History from son. She is 45, widow of a painter. Formerly resided in the country with husband. She had a shop and sold bonnets. Husband involved in local politics, lost his business, removed to London, became reduced and underwent great anxieties; about a year ago the husband was missing, and after several days was found drowned, supposed by suicide. She was much affected by this, and at the same time had a son dying of phthisis. The son died. The patient got gradually worse and worse and more depressed; some time after showed alteration in her conduct towards the other children, neglected every thing, and began to threaten to destroy herself; her mother states that she has been desponding ever since the husband's death; of late has been violent and destructive; used to howl and gnash her teeth; was sent to Marylebone Infirmary, she was there three or four months and escaped and returned home, was allowed to remain, but in a fortnight became unmanageable and was taken back.

Dr. Randall certified that "she is excitable and melancholy, noisy, tears her clothes, threatens to destroy herself, and says she must die, is restless and dirty, sleeps but little, attempted to tie a piece of stocking, which she had torn, around her neck."

Condition on admission.—The first symptoms commenced from eleven to twelve months prior to admission. Is now in fair bodily condition, but is stated to have lost flesh, has been much stouter. Has numerous small bruises, all slight; several small boils, a bald spot on the top of the head, where she has pulled out her hair.

Speaks in a melancholy and desponding tone and strain, says she must destroy herself, answers questions freely and coherently, and states that she was in the workhouse three weeks, which is correct, that she was sent to the Asylum because she was too fidgetty; says she is worried in her mind, her troubles have aggravated her, that she has been drawn to desperation, points to the epigastric region, says "it is all here," "a working," "an agitation;" complains that she cannot sleep, she is, however, quiet during the night.

Tongue is clean, bowels stated to be open; appetite stated to be normal; pulse 84; no morbid physical chest signs.

July 7th. Fourteen days after admission. Bowels reported to be constipated. Pil. Aloes et Mast. daily.

July 9th. Manner less agitated; denies that she ever attempted to commit suicide or had the desire. Her son, who has just visited her, reports that his mother told him she was determined to effect it. To have porter daily.

July 17th. Bowels act daily. Speaks in a more cheerful tone, and appears in good spirits. Has begun to employ herself; sleeps well; says she no longer thinks of suicide, and regrets what she has done.

July 25th. Continues to be cheerful and active, and assists the nurses, is looking much better in expression and condition, has shown no suicidal propensity.

Continued to improve. *Sept. 9th*, or three months after admission, discharged on probation. *Oct. 9th*, returned to report herself. Her mother says she never saw the patient in better health. That she has freely trusted her while away, and feels sure the suicidal propensity has gone. Daughter expresses herself very grateful for the kindness shown her, and apologizes to the nurses for the trouble she caused. Discharged cured.

CASE XI.—*Acute Insanity.—depression; fears on religious topics; apprehensions; maniacal symptoms; illusions of sense and smell; suicidal attempts.*

E. R., male, æt. 43, single, retired merchant, admitted Oct. 2nd, 1867, fair complexion, 5 ft. 7 in. in height, well nourished, well proportioned, somewhat military bearing, no hereditary predisposition. Has been living with an invalid sister, very retired. Strong religious impressions; very retiring disposition; has dabbled with hydropathy and homœopathy, assisted as lay visitor in his parish; has kept gradually more and more aloof from society; during the last six months has been depressed, walking always alone with downcast eyes, shunning observation; went into a hydropathic establishment for a period; has lately drank more, and has taken a good deal of opium; has been worse during the past three months; during the last week has had the idea that he was being accused of incest with his invalid sister, and that people were after him; says that his body gave off offensive smells; called himself the devil; said he was surrounded by fiends. A few days before admission became violent and dangerous, requiring several men to restrain him. On his way to the asylum attempted to injure himself by grasping his throat. *On admission* was depressed, had numerous morbid apprehensions; accused himself of various sins; says he cannot be saved, that he is dead, and that his body stinks, is free from excitement.

Certificate by Dr. Sherlock, Worcester County Asylum. Facts indicating insanity:—paroxysms of acute maniacal excitement, asserting that he has been salivated by opium draughts, that he is surrounded by fiends, that he is now in hell, and tormented for millions of years, that his sister has been killed to-day, and is dead, all which are unfounded and are delusions.

Six days after admission. He is depressed in spirits; has numerous morbid apprehensions; says he is to be destroyed, that he is eternally lost, and cannot be saved, that he is unworthy to live, that he is dead, that a fœtid smell emanates from his person. Bodily, is well nourished, good general powers. Some disorder of digestion.

Ten days after admission. Bowels appear constipated. Aloe and mast. pills daily.

40*th Day.* Slight improvement, is more sociable, but same delusions continue but less obtruded.

60*th Day.* Has been more sociable, and associates with us more readily.

90*th Day.* Wrote to his sister, says he has not had the heart to do so before.

120*th Day.* Improves but has several morbid apprehensions, *e g.* will not pass the churchyard.

150*th Day.* Still avoids society, but dines with the family, never alludes to returning home. Still appears to have some dread in connexion with it. Continued to improve; was allowed to go out in the park and grounds alone; about seven and a half months after admission was visited by two friends, who were very injudicious. On seeing them imagined they had come to announce the death of his sister, they did not understand him, and did not for a time attempt to re-assure him.

Continues much disturbed since the visit, says they came to report to me things concerning him, great sins and crimes that he had committed; says he is to be shot; has refused food and medicine, says he is to be poisoned. At nine months, or six weeks after this visit he again recovered somewhat, took food better, and amused himself on the harmonium, which he plays with skill. The friends who visited belonged to some peculiar religious sect and they wished the sister to try the influence of a certain preacher, the sister wrote to him on the subject. He says that he knows he is to be shot. Has been more depressed and worried during the discussion of the subject. He left about eighteen months after admission, and subsequently died, as reported to me, of phthisis.

CASE XII.—*Chronic Insanity.—Melancholia from acute to chronic stage; illusions and delusions connected with sense of smell; morbid apprehension of hypochondriacal character; duration from three to four years; fatal termination.*

M. F., a dressmaker, 62 years of age, single, the present is said to be first attack, no further history; had an uncle insane.

Was treated some time in the workhouse, the only relative who visited her does not know how long. Heard that she was admitted for some uterine disease. In June 1860, she began to say that she was infected with disease and not fit to live, that her womb was diseased and rotten.

August 1860. Says she is dreadfully decayed, does not know what she is to do, that the smell from her is detrimental to other patients, says the bowels are confined. Nurse reports this not to be the case, no disease or discharge discoverable by ocular or manual examination of organs, all the parts of generation appear perfectly normal.

Is very restless, constantly on the move going from one end of the ward to the other, or out of doors, cannot stand without rocking and fidgetting. Expression indicative of pain and care, has gained flesh since admission and is tanned, tongue is slightly furred, at meals will not sit to eat, but gets up frequently, but on the whole eats sufficiently, pulse 70, skin moist, says her head ached this morning but that is not the case usually. Ol. ricini ad 3 vices. The bowels more freely moved, though the patient continues to deny it, the same restlessness continues and she worries much on trifles, *e.g.*, on a visit from her sister, for some time afterwards, said she told her sister to take the wrong turning, and could not be pacified.

Three months after admission. Is much excited and walking rapidly up and down, a few strides only each way, and saying, "Oh dear!" "Oh dear!" is flushed, is reported to eat ravenously, the same delusions of being rotten, offensive, etc., continue.

Four months after admission. Has had several sleepless nights, says she smells and infects the others, that the devil has got into her lights, loses flesh, warm bath twice a week, then a few days later opiate at night, after which slept several hours, says it makes her very unhappy to sleep, is very restless always on the move. A few days after this says she was pushed down and came in from airing court lame. Mr. Ellis, the assistant, was called to her and found no injury. She continued to complain of her hip, but forgot which hip was injured.

One month after continued to complain of the right leg, the leg first said to be injured was the left, the same hypochondriacal delusion continued, still the same worry about trifles,—that her niece would lose her way home, that various ills would occur; wished to see Chaplain who visited her without satisfying her, no change in symptoms.

On *March 10th*, 1863, the following note was made:—

Has been getting thinner for some time, the mental depression has even increased, is morbidly apprehensive on the most trivial circumstances, says on seeing me, "Oh pray dont go there it is wrong" and is painfully excited, expression is of great anxiety, it is the same on my going from her, "not there, not that way," continues to say she is decaying, that she is rotten and offensive, not fit to be with others, frequently paces the ward, crying loudly, has taken food sparingly of late and refused her wine, has taken no dinner to day, tongue is furred and brown, still limps in walking, nourishment and wine as much as she will take prescribed

March 12th. Is lower and refuses food altogether, is in a constant state of trouble, crying out "Oh! my God! my God!" all day, when quitting her room cries out loudly to me not to go, is weaker scarcely able to stand.

March 21st. Reports since above show gradual diminution of power, and continued resistence to food, was conscious at visit, pupils equal, is still greatly depressed but answers questions, powers gradually failed. Death.

Autopsy, March 23rd. Body much emaciated, limbs somewhat drawn up, rigor mortis in all joints including fingers.

Calvaria well formed, internal measurements 6½ by 5¼ inches. Dura mater normal Pia mater very moderately injected, strips readily. Cerebrum 39 ounces, cerebellum 5¼ ounces, spaces between convolutions wide, serum in meshes of pia mater to a moderate amount, no marked injection of cerebral substance, the layers of grey matter not well marked, but line between grey and white matter distinctly defined, specific gravity of grey matter 1·033 of white 1·043 of cerebellum 1·043.

Thorax—Pleura normal throughout, both lungs collapsed, one or two absolute tubercles in both apices. Heart weighed 6 ounces, mitral valve thickened, opaque and beaded to a great extent. *Abdomen*—stomach contracted, pale, intestines generally of a purplish colour externally and internally, large intestines contained dark semi-solid feculant matter, no ulcer, coats of dark crimson, gut thin and contracted, right ovary adherent to side of pelvis near to the internal inguinal ring, womb and external parts normal.

CASE XIII.—*Acute Insanity.—Melancholy with stupor; depression; morbid apprehensions; convulsions; torpor of motor functions; cataleptoid condition; died convulsed.*

A. L., at the time of admission, æt. 32, married, wife of a fruit hawker, had borne two children the youngest of whom was 12 years of age, education very moderate, habits sober; said to have been insane two years and a half. The parents attributed the attack to the ill-treatment of her husband, who when drunk (which was frequently the case) was in the habit of beating her savagely. She had been separated from him for two and a half years. The mother, a country labourer's wife, gave but an imperfect account of the early symptoms, says when her daughter was first taken, she appeared silly or simple; and soon afterwards became slovenly and neglectful, and then very timid. She "was afraid to be left in the dark, and said she was going to be killed." These symptoms thus described by this peasant, were probably the usual first signs of melancholy—dulness, listlessness, carelessness, and neglect of home, morbid apprehension of imaginary dangers. At the end of two years and a half from the commencement of the symptoms, the patient fell down in a severe fit "she fell, foamed at the mouth, and struggled much." She began immediately afterwards to show a further alteration in her conduct. "One Sunday she went from pew to pew and shook hands with everybody, gentlefolk as well as poor people." Her morbid fears continued; she still imagined she was going to be destroyed, and became afraid to go to bed.

Note on admission. March. She was feeble. Her manner strange; but she was neither depressed nor elated; was quite quiet; appeared harmless. At times, sat listlessly for some hours, and seemed disinclined to speak.

The patient continued in this condition for several weeks; had several slight attacks like syncope, at intervals of two or three days; but without convulsion. This continued through April and part of May, when she refused food for several days consecutively. In June, she had several attacks of excitement, but without any act of violence. In one of these attacks, stripped herself quite naked in the airing-court, and appeared to be in a state of ecstasy. The features, however, expressed dulness and hebetude. At times she was taciturn; but at times, as it were by a sudden impulse, became talkative and voluble. On one of these occasions, said, that she conversed with God; that God told her this or that; and occasionally made use of disgusting language. In some of her paroxysms appeared in a semi-cataleptic state. She had several of these attacks, which appeared to have at first all the characters of feigning. In one of them, however, (on August 10th), their real character was placed beyond suspicion; and she was removed back to the infirmary. The note which is brief, says that on this day "she lay as she was placed, and had scarcely moved since she was put to bed some hours ago. If placed in another position, she continued in it for long periods. When the hand was lifted up, it was slowly drawn back. She drank much and had passed a large quantity of urine. Her appetite was indifferent, took food as it was given, and answered questions when spoken to." This state of indisposition or indifference to move lasted six or seven days. It was succeeded by a state of mental excitement. She made numerous frivolous complaints, and behaved with an air of contempt towards the nurses. The cataleptiform seizure being at about the fifth month, at the date of five and a half months, the following change occurred.

Became more strange in her conduct. On my visit was excited, and jumping about in a grotesque manner. Spoke in an incoherent strain, and addressed imaginary persons. Her words were chiefly abuse directed against her husband. She was somewhat grandiloquent, and said in a preaching kind of tone, "The water follows me," and "The sun follows me," etc.

Six days later, the entry is: "puts herself into constrained postures, which she maintains for long periods; *e.g*, rests on her toes and knees, and on her vertex; and says it is when she prays that she does this. At times she sings and repeats the words of her song correctly from memory."

Seventh month from admission. The same peculiarity of motility continued. She usually sat in one position and in one place, and did not move till she was told; moved to the dinner table only when told; began to eat when directed, but not before. Her attitude was often very obviously an uncomfortable one, but she did not alter it unless bidden. Her bladder was one day found to be enormously distended; and when questioned about it, she said no one had told her to pass her urine; and on being told, passed according to the rough estimate of the nurse, nearly half a gallon. The pulse was 84. Her bowels were open. She took her food well; but she was emaciated slightly.

During the eighth month but slight variation in the above condition took place. About the middle of the month she complained that she could not remember her catechism, and was much annoyed and excited about it.

Ninth month. The motor symptoms continued. She sat in an awkward posture, like an image, and without moving for very long periods. She allowed the flies to feed on her face and hands undisturbed, and said they wanted food as well as she herself. She waited to be told to pass her urine, and if not told, she wetted the bed or her clothes. She took her nourishment well, and assisted in the household work as heretofore, but always waited to be told.

About the tenth month she was visited by her mother, who brought her a bible; the patient became considerably excited about this, put the book on the fire and said there were lies in it, that God was unjust, and upbraided God that she had become dirty in her habits. The statue-like immobility continued.

About the eleventh month she fell in a well-marked epileptic fit, in which she was much convulsed. One week afterwards, began to show a difficulty in articulation; she stammered, but protruded the tongue well. This difficulty gradually increased. She was quite conscious of the change, and complained of it; complained also about this period of occasional headache, and a sensation in her arm which she called "a jumping of the bone."

After this she became gradually excited, and disposed to be violent. Her movements were stiff and slow. The excited conduct extended from the eleventh to the fourteenth month from her admission. Her general health was not greatly impaired; she took her meals, and retained her usual amount of flesh. She had no return of fit. On May 10th (fourteenth month after admission), she was, after a day of great excitement, taken with vomiting. The bowels were also confined. She would not take medicine, but was relieved by an enema. A few days afterwards (May 14th), she became libidinous in her actions.

May 15th. She continued very excited; threw herself about in a wild manner and somewhat indecently. The skin was moist, and emitted an extremely offensive odour.

May 17th. She had a restless night, and had a very violent fit this morning. At my visit about 2 p.m., she had a second fit, from which she did not rally. She died in the convulsion; the face being flushed, and the limbs contracted.

CASE XIV.—*Melancholy with Stupor. Depression; Illusions and delusions of the sense of hearing; Erotism; Gradual stupor of movements; Sudden change of this; No result known.*

A. K., primary attack, æt. 34, married, was formerly a lady's maid. She lived, previously to her marriage, eleven years in one place, and married the the butler. This appears to have been an unfortunate match. The family made frequent inquiries about the patient. The husband took very little interest about her. He attributed her disease to stubbornness; and requested by letter that she might be treated with firmness and "well routed." The medical certificate accompanying the order of admission gave the following description of the patient just prior to her reception:—"She sits weeping and miserable; says she has broken her husband's heart; that she is better without food. Her landlord and fellow-lodgers found her in a state of complete exhaustion from want of food. The children also appeared half famished. She declares she heard voices forbidding her to eat or drink, or light fire, or go to bed."

In this hearing of voices there was evidence of distinct psychical disturbance or illusion. It never, however, manifested itself afterwards.

On admission (Oct. 21st, date of disease uncertain), conversed quietly and correctly, though in a weak tone of voice. She said she had been living in London with her children in a lodging. She had no headache. The tongue was much furred. The bowels were confined. She took beef-tea only for dinner; had no thirst. Pulse 60, feeble. There was no cough, nor any morbid chest-signs. She was ordered full diet, one egg, and two glasses of wine daily.

Oct. 24th. She was up; was pale, but had considerable turgescence of the vessels of the conjunctiva. The tongue was red; bowels not open. An aloetic draught twice a day was ordered.

During the first three months she continued constantly depressed; was always more or less indisposed to exert herself; would not dress herself. She declined in strength, but made no complaint. During my temporary absence from home her head was shaved and blistered without apparent benefit. The bowels continued obstinate; but she would seldom take an aperient; and occasionally refused food.

Jan. 8th (three months after admission). She varied from day to day. One day refused all food, and said she did not require it; that she could do without it. Another day ate ravenously. The bowels seldom acted. She refused medicine. Some emaciation was visible. Pulse 70, regular. There was no cough or chest-symptoms. She was always listless and depressed. The expression of the features was dull and heavy.

Jan. 13th. Her mind was in the same state; but she ate ravenously; would gorge herself if not watched, and filched the meat from the other patients' plates.

Jan. 20th. She again refused food. Sat moodily in one position for long periods. Her features were dull and expressionless. She allowed the nasal secretion and saliva to dribble from her as she sat.

Feb. 10*th* (four months after admission). Motility was still more involved. She sat for long periods in one posture, indifferent to all around, and apparently too lazy to move; was like a statue in immobility, but the attitude was expressive of hebetude. Her head drooped; the features were relaxed, and did not change; her arms dangled by the side of the chair as she sat. The secretions were dropping from the mouth and nose, and the lachrymal secretion had dried upon her cheek. The breathing was slightly accelerated. Her bowels were confined. She was at the present date eating largely. Three grains of podophyllin were ordered.

Feb. 26*th*. She was moving down the gallery at a snail's pace. Her head drooping, and her arms hanging heavily by her side. Her dress neglected. She had not menstruated since admission. Compound iron mixture was ordered.

March 2*nd*. She would not take the medicine; was still more dull and heavy; stood about in one position, obstructing the passage, and did not move to allow one to pass; appeared motionless and statue-like. Her arms and head drooped. The saliva and nasal secretion dribbled from her. She dropped her fæces about, and wetted herself as she stood; never attempted to dress or wash herself. The pulse was 60; circulation appeared torpid; nose and lips were purplish; the hands cold and puffy. At times she would eat, and at times she would refuse food for days together; she had, however, gained flesh since her residence in the asylum.

March 9*th*. Asked voluntarily for some note paper, and sat down and wrote a letter to her sister, requesting her to send some needlework. The letter was correctly worded and spelt; but rather less neatly written towards the close; and it was without signature.

Great improvement in the appearance of the patient took place from this date, and increased. The work was sent, and she took to it at once.

163*rd Day* (or five months). Her expression was greatly improved. She was now quite animated. The features had undergone such a change that she was scarcely recognisable. She was tidy, cleanly, cheerful, and disposed to be rather mischievous, playing tricks upon the other patients.

The sudden amelioration of the symptoms in these cases of melancholia is not uncommon.

However, from the above date, the progress towards recovery was less satisfactory. The patient continued to work well at her needle. Her health improved; menstruation became re-established. On several occasions she exhibited libidinous feelings, as shown in watching the workmen and following them whenever she could get the opportunity. She wrote several times to her relations; her letters were correctly and clearly indited. She had one or two attacks of hysterical character; and has been more than once again depressed for a short period.

At about the 400th day of residence was still in the asylum, and passing gradually into a state of mental imbecility.

The case illustrates the degree to which torpor may be present, giving the appearance of dementia, while the intellect is comparatively but little affected. It is also an example of the occurrence of erotism in melancholia, which is the form of in-

sanity with which that symptom is most frequently connected; and it illustrates also the suddenness with which the symptoms of melancholy or depression sometimes pass away.

CASE XV.—*Acute Insanity. Melancholia with religious fears and apprehensions about health; refusal of food; delusion (?); gradual recovery in twelve months.*

S. C., admitted May 2nd, 1862, history from father; æt. 28, single; barmaid; can read; Wesleyan; first attack. Five months prior to admission left her situation to be married; her intended was a lay missionary; himself under very strong religious impressions. He spoke frequently and ardently to the patient on religious subjects, as of sin, worldliness, &c., and succeeded in making a very powerful impression upon her. After attending numerous prayer meetings with her intended the parents observed that she became very much depressed; about four months prior to admission depression was more marked; cried frequently; was often reading the Bible; soon after received the sacrament with intended, and at once and persistently since has accused herself of receiving it unworthily, and of being very guilty. Has become much altered in conduct, has sat alone, and appeared wretched, paid no attention to anything; entirely ceased to occupy herself; accusing herself continually of guilt, and unworthiness, &c. The parents believing the lover was the cause of her misery at length denied him the house. This appeared to make no impression on her. "She was too far gone for that." For two or three months has taken little food; had always to be persuaded to eat; for one month has had to be fed by force. Has gradually become indisposed to speak. Is greatly reduced in strength and flesh. Has been deaf some years, and worn ear trumpets.

Cause. Circumstances related above. No hereditary predisposition.

On admission emaciated and feeble, had to be supported into the ward, too weak to be bathed. Some wine administered which she took without opposition; expression anxious and careworn, says "nothing can save me, they say I am not right, but I am," is restless and fidgetty, repeatedly reiterates "I am right, I am sure I am." (*Intellect proper not involved*).

Day after admission (*about* 150*th of case*). Expression anxious, says she has no headache, pupils are large, but act readily, equal, is deaf. Complains of pain at pit of stomach, says the bowels are not open, which is contradicted by the nurse, tongue moist, takes food sparingly, pulse 84, breathing 36 and catching, says she is subject to cough, both apices are slightly dull, and some puerile respiration in both, more marked on left side, is very weak and walks with a feeble gait. Prescribed good diet. *Three weeks after above.*—Depression continues, expression painful and anxious; takes food better, is very weakly. Wine added. *Five weeks after admission.*—Has occupied herself some time with needlework; now assists the nurses, and is stronger, and has gained flesh; the depressions and fear of "having done wrong" continue. *One month later.*—Has persisted in saying she was constipated which is not the case. Has had several doses of castor oil. Aloes and mast. pills. Still employs herself and is industrious and stronger, but says her constipation is due to an evil spirit eating her food (*delusion?*). Shortly after this again refused food and would only eat by nurse insisting upon it, makes numerous excuses, that she is depriving other poor creatures of

it, says that none of the other patients eat. To have aloes and mast. pills daily. Has not menstruated since admission. Three weeks after this or eight months from commencement of attack, became more fretful, refused food more pertinaciously and vomited after taking it. She had to be fed, vomiting continued for more than a month. She again lost flesh. Continued to say her bowels never acted. Complained of a sense of oppression at the epigastrium, is constantly craving for aperients. She was ordered cod-liver oil and continued the aloes and mastiche pills. She kept the oil down and the vomiting entirely ceased, again began to work and is disposed to do more than she should, appears over anxious not to cause trouble, became once more tormented by religious scruples. *At the commencement of fifth month after admission (about tenth of attack).*—Expression more anxious desires to see the chaplain, with whom she conversed in an excited manner, exhibiting very great emotion and cried much after he had left; cries much to me, says it is no delusion, no disease, but wickedness, the bodily health has not much changed; she is able to assist in the ward a little and was very anxious to be useful, pulse 84. Tongue still furred; bowels act, but she continues to assert the contrary, pupils equal and act readily. Has not menstruated, ordered to have enemata regularly. She improved again after this, but had some return of vomiting, which did not last. *At the commencement of eleventh month*, the improvement continued, she no longer refused food. She occasionally said she was too wicked to live. She continued the aloetic pills; went to work in an officer's house as domestic servant. Delusions and fears gradually subsided; she gained flesh. She went home on trial at the end of the eleventh month; remained well at the end of the twelfth month. Recovery.

Case XVI.—*Example of rambling ideas of so-called Melancholia metamorphosis.*

A patient admitted September 17th, 1863, æt. 30, slight, received from Wapping, had been sent home from India, without history, was landed in London and thus became chargeable to Wapping.

On admission was very incoherent and excited, crying and occasionally shrieking with fright; while examining her health she suddenly uttered a piercing cry and said "they have put a horse's head on me, and given me horse's knees," is considerably disturbed at the thought. Says she is easily taken to pieces and put together again; calls herself by various and very numerous names; says she was left in an alms house, and she threw off her limbs, that Dr. Goodeve put her head together again, this is all said without pause or break in a rapid manner, that she wedded John Locke, that these large legs that she had got on were on a tall boy, she knew the legs by a mark; her legs were nice little legs. A patient approaching her she gave a shriek and said she was a bear.

On another occasion the note entered is, "says she is a poor, cracked, damned thing;" hearing some music, became very angry, said it was a brutal noise made by her stolen fingers.

There was no fixed delusion of what I may call a concrete kind, though the general idea that she had been generally metamorphosed continued throughout; the particular change varying constantly. She was an educated person, but no clue to her history could be gathered from her.

On my leaving Hanwell she was still a patient and in a chronic stage of the disease.

CASE XVII.—*Example from Dr. Legrand du Saulle as Hysterical mania, but which I should call simple acute insanity with suicidal propensity.*

The following letter was written by a lady to her husband, she had just experienced a great blow in the death of her little daughter.

My dear Husband,

It is Sunday, I have been to church, (one more sacrilege that I have been guilty of). Since my return from the baths, I have been guilty of sins by thousands, of lies and false promises. Listen to the account of my life. Up to 25 years of age I believe that I was good, a good wife and a good sister, and now I am entirely different. I was only a monster escaped out of hell, a perfect hypocrite, I have never loved anyone but myself, I have even been a coward, I have never loved to be industrious and to crown all, I shall now be the death of my father, my mother and of you, dear husband. My brother too is ill. If an assassin, a thief were to place himself in the hands of justice and confess his crimes and acknowledge himself worthy only of death, they would kill him. So now your wife deserves to die. You must be her judge. Human laws permit those who give life to take it. Take the train, on your arrival you will find me to all appearance cured. We will purchase something at the chemist which will make me die in my bed. In seven or eight hours our honour will be saved. You can believe what I say that I deserve to die. I am the most wicked person on the face of the earth. After you have let me die, in a fortnight you will be rid of me. The more you have done for me, the worse I have been, yet I have one request to make, if I die in this house lay me near my little child. Poor dear, I never loved it, its father, its grandfather and its grandmother loved it, its mother only had no affection for her child, I never received her last sigh. Oh, what misery for my parents in having given me life. What misery for you to have asked my hand in marriage. Heaven is my witness, had I known my own baseness, I would never have joined my hand to one so good and kind. Alexander, I know that you can kill me, without committing a crime, you know that I know good and evil. You would not wish my father to die before me, hasten then to come, my father, my mother and you still suffer for me. If I die here let me be buried at C——. Kisses if you will still accept them, pray to God that your wife may die, for your happiness and the happiness of all.

I am, what I dare not say,

Your wife,

E. L.

Forgive, forgive all I have done, come quick, in a fortnight perhaps I shall be no more.

CASE XVIII.—*Example of hysterical mania quoted from Dr. Legrand du Saulle* (*Les Hysteriques*).

Case from Dr. Morel.—Hysterical mania, (*folie hysterique*) a congenital imbecile with hysterical and epileptic symptoms.

Elisa C., a child of an intelligent mother, but whose father was of feeble mind and disposed to convulsive attacks. Menstruated at the age of twelve. Always of sullen character, capricious, fanciful, had never shown any affection

toward her parents. Would cry or laugh without cause; abandoned herself at a very early age to all kinds of eccentricities and follies. Having been placed with a dressmaker to learn the business, the mistress was unable to keep her on account of her insolent and bad language. Soon after showed decidedly insane acts, common to such individuals. One day she crowned herself with flowers, took a guitar and said she was going to travel the country. She rose in the night and began to wash her clothes in the night utensil. She had attacks of convulsive character, mewed like a cat and tried to climb up the wall. She became violent and dangerous and at length sank into a stupor. These attacks became periodical, and twice it became necessary to send her to an asylum (p. 295).

This case I should consider bordering upon idiocy, or natural imbecility or weak-mindedness ending probably in true epilepsy.

Section VI.

THE ETIOLOGY AND PATHOLOGY OF ORDINARY INSANITY OR INSANITY PROPER.

Etiology of Mental Disease—Remote causes, moral and physical, influence of age, sex, condition as to marriage, social position—Physical causes, hereditary influence, drink, venereal excesses—Anatomical characters after death—the pathology proper, and explanation of the phenomena.

Hitherto we have been considering the phenomena of ordinary insanity or insanity proper in its various stages, and investigating its progress toward one or other goal. There remains for us to enquire into the true pathology of the disease, and to trace the changes in the organism on which the phenomena during life, or the symptoms, depend.

For a thorough investigation of this part of our subject, we may enquire into :

I. The supposed causes.

II. The anatomical characters as found by post mortem examination, and

III. The explanation of the phenomena of the altered functions or the true pathology of the disease.

I. *Etiology.*—On entering upon this part of the subject, I feel it necessary to make a few preliminary remarks. I have already alluded to the use that has been proposed of etiology in the classification of the forms of insanity. I imagine that there must be much difference of opinion upon the exact meaning of the terms used as applied to causes in general. I will therefore quote, what I conceive to be the proper signification of the terms, or as I interpret them. Dr. Gregory in his *Conspectus Medicinæ Theoreticæ*, a work treating of the Institutes of Medicine, says, § xxxvi:—"Causa multifariam dicitur apud medicos cum de morbis disserunt; et sensu profecto aliquantum diverso ab eo quo hoc vocabulum usurpari solet, vel in scriptis philosophorum, vel in communi hominum sermone," in brief that the medical signification of the term "cause" is peculiar. Gregory divides medical causes, into the proximate and the remote, and the remote into predisposing and occasional, or exciting or producing. The

proximate cause is that "quæ præsens morbum facit, sublata tollit, mutata mutat.

The predisposing cause is that which renders the body liable to a disease, so that on the application of the exciting cause the disease is established, lastly the exciting cause is that which acting on a subject already predisposed establishes the disease.

When we speak of a disease being due to a certain cause, we should know which is meant, the remote or proximate cause. Nearly all the causes cited in treatises on insanity are remote causes, they may be of interest to study, as throwing light on some of the characters of the disease, but it is only the proximate causes which can give any explanation of the phenomena presented, that is, the cause "quæ præsens morbum facit, sublata tollit, mutata mutat," in other words, the real pathological change in the organism.

It may be observed in passing, that a classification on such a basis would be scientific, but one on the remote causes can never be.

We will first pass in review the facts that have been brought together by statistics connected with these remote causes and which have been a favourite study among the specialty. They have been further divided into physical and moral, but it is not easy to divide them in this way, as some remote causes which are thus divided, are of a mixed kind, for example, marriage may be of either in its remote effects on the individual; there is scarcely a physical cause which may not also have a moral influence.

I will confess that I do not place much weight on the study of these remote causes, the subject usually occupies a large space in all works on insanity, but it is to be feared without producing much practical good. All the lunacy official reports are filled with statistical tables, but the mode in which the facts are collected does not impress my mind with their value.

I find these remote causes divided in the tables published into :—

1. Moral causes, as anxiety, grief, loss of friends, love affairs, disappointments, etc.

2. The physical causes mentioned are chiefly drink and hereditary predisposition, etc.

Since all of these must more or less be of mixed influence, I

shall not attempt to follow the arrangement. There must be it is true, cases in which the prominent remote cause seems to be what is called of moral kind, as when a mother goes insane on the death of a child, or when a man becomes insane after a long course of hard drinking. But neither the one or the other can be wholly the cause of insanity.

I will endeavour, however, to epitomise the results which the statistics furnish.

The following is from the table given in the report of the Commissioners in Lunacy and represents the proportion of the liability to attacks of mental disease of each social class to the entire population.

	Proportions per 10,000.
Officers.—Persons engaged in the defence of country	27.5
Peers and Squires.—Persons of rank and property not engaged in any office or occupation	17·1
Merchants and Traders.—Persons who buy and sell, keep or lend, money or goods of various kinds	17·3
Professionals.—Persons engaged in the learned professions	10·7
Innkeepers and Actors.—Persons engaged in entertaining	9·5
The rest range about	6·0

In looking at this list it would seem that omitting the first category which includes of course soldiers and sailors of all kinds, the rest follow much in the ratio of their education; this result which to me, was unexpected, seems to point to two different causes; 1. sensitiveness and refinement, rendering the subject more easily affected; 2. the responsibilities and anxieties necessarily accompanying station and property.

I fancy the large liability of the first on the list, must be attributed to the debauching and intemperance of the mass of soldiers and sailors, and also to their enforced single life.

The professional class are, or should be equal to the peer in intellectual work, and are probably as much exposed to anxieties, though not of such luxurious habits, calculated to heighten their sensibilities.

Dr. Hammond says, p. 121, that since the emancipation of slaves in America the negroes have become more liable to insanity.

The results arrived at by the Commissioners were a surprise to me, for if we compare the number of the insane to the sane in different conditions of life by another mode, the difference seems to be very remarkable, the estimated population of England and Wales in 1857 was 19,408,464, and at the same date there were, according to the Poor Law Commissioners a total of 843,430 paupers. At the same period the Commissioners in Lunacy stated there existed in England and Wales 21,344 lunatics of whom 16,657 were paupers, and 4,687 not paupers. We have therefore the following equation :—

$$\text{Paupers} \begin{cases} \text{Insane } 16{,}657 \\ \text{Sane } 843{,}430 \end{cases} = \frac{1}{50}.$$

Or in other words, a proportion of one-fiftieth of all paupers insane.

On the other hand, the non-pauper class are estimated by deducting the number of paupers from the gross population, and the result will be as follows :—

$$\text{Non-paupers} \begin{cases} \text{Insane } 4{,}687 \\ \text{Sane } 18{,}565{,}034 \end{cases} = \frac{1}{3982}$$

It is quite true that this large proportion of insane paupers may consist of many persons who were made paupers by their disease, and do not therefore belong to the class of habitual paupers. But the question depends rather upon the social status, than upon the accident of eleemosynary assistance, and this perhaps can be as well shown by the degree of education found in the inmates of pauper asylums as compared with those in non-pauper asylums.

At Hanwell in 1855, one-tenth of the patients admitted were classed as educated, and about one half of no education at all. While at the same date, of the patients admitted into Bethlehem Hospital, which is a non-pauper asylum, 87 per cent. were educated and 12 per cent. uneducated (Sir Chas. Hood, *Statistics of Insanity*, p. 28).

After making every conceivable deduction from the latter estimate, there cannot but remain the conviction that the wealthier and therefore surely the more educated and civilized class, is less liable to insanity, than the middle and lower classes.

As regards the state as to marriage, table xvi of the Commissioners' Report shows the ratio per 10,000 patients to the whole

population at the census 1871 and from which it appears that the widowed are much more prone to insanity, than the single or married, as prone in fact as the single and married put together. The totals are :—

For the single 4·0 per 10,000 of the population.
Of the married 7·6 „ „ „ „ „
Of the widowed 11·7 „ „ „ „ „

The same result is thus arrived at by this enquiry, that it is those obnoxious to *most anxiety and trouble* who are most prone to attacks of insanity.

The same general conclusion may be drawn from table xii of the same report which gives average annual increase of insanity in nine years in different counties, the largest increase is found to be in Middlesex 341, Lancaster 201, Surrey 133, York 103 ; all great centres of active life ; while there has been a decrease in the counties of Devon of 35, Suffolk of 18, and Pembroke of 15.

These returns from the large numbers in which they deal must approximate to the truth in many particulars. I think they are more subject to error, when they deal with opinions rather than dry facts, as when the causes are tabulated. The cause of the malady is a nice point to estimate and there are a multitude of ways open to error in our search for a correct conclusion. Besides the pre-conceived notion of the medical practitioner, or a favourite conclusion of popular opinion which induces relatives to lay particular stress upon one kind of fact rather than another, there are in many cases inducements to concealment of facts ; and above all it is highly propable the causes set down are not entered by the medical man at all. Such was the case at Hanwell in my time ; as a rule I believe, the cause is assigned by the relieving officer, who has a line to fill in and is not often interested in giving much attention to minutiæ. It is from such returns, in many instances, that the official statistics are compiled.

Temperament.—This certainly deserves mention as a predisposing cause, though I do not find it alluded to among the usual statistics that are published officially, probably on account of the difficulty of clearly defining in what temperament consists ; the term is an abstract one and embraces therefore a wide field of facts. The older physicians mention four kinds : 1. Sanguineous, 2. Melancholic, 3. Choleric, and 4. Phlegmatic ;

terms which have almost lost their meaning in the advance of science. Still we can distinguish certain differences in the general nature of different individuals for which these terms were coined.

There are some subjects of greater nervous energy, more readily moved to action, and whose excitment in one or other direction is more pronounced, and there are others who are placid, deliberate in all their actions, not easily moved to either anger or mirth; some who are disposed to take a melancholy view of every circumstance, and those who are hopeful under any misfortune, and certainly these variations of character have their influence in predisposing to insanity, quite as distinctly as the conditions of the married or single state, etc.

In ordinary insanity the energetic certainly appear to be more prone to mental disease than the apathetic, though the latter enjoy no actual immunity. But it has occurred to me to notice that those patients with one resource only, persons of one idea, appear to supply a large proportion of lunatics, this fact comes out often in our effort to divert the patient's mind by some varied kind of occupation. Too often I have found that the insane are ignorant and uninterested in any but a single pursuit, they have no conversation, no means of occupying their minds on games or other diversions, once removed from their sphere they become unable to take up another kind of life.

This, however, applies chiefly to the patient suffering from ordinary insanity, the general paretic is of a different temperament as will be described in the sequel.

With regard to the physical causes. These are also estimated in the returns by the Commissioners in Lunacy in their report for 1880 (p. 41), based upon the total number of admissions amounting to 13,101 during the year 1879.

According to this table, 14·2 per cent. of all causes was attributed to drink; 18·8 per cent. hereditary influence; 12·9 per cent. to previous attacks, these are the chief assigned causes; accident or injury occurs as 3·2 per cent.; old age 3·9 per cent.; puerperal condition, including pregnancy, 4·8 per cent.; self abuse and venereal disease, or sexual intemperance conjointly 2·3 per cent.

Among the pauper class drink therefore appears undoubtedly above all causes the most frequent. When it is remembered

that the primary effect of alcohol is on the cerebral organs, this result is not surprising.

Heredity.—It is beyond a doubt that a certain condition of the organism renders one individual more obnoxious to an attack of mental disease than another; mental individuality is transmitted from parent to offspring as well as physical resemblances and morbid tendencies as well as what is called the "constitution" of a man.

In particular cases it has been observed that even the peculiar character of the case is transmitted, and the peculiar tendency to suicide. I have myself met with cases in which numerous members of one family have committed suicide, and even by the same mode. Griesinger quotes an example of a man and his wife aged forty-two and thirty-six, both of whom became insane, and both committed suicide; the husband hung himself, and the woman committed the act by drowning; the daughter poisoned herself at twenty-four; the son strangled himself at twenty-one; another daughter threw herself down from the top of the house. In this case one recognizes another element, which is probably not inactive in other cases, the force of example. Of course there was nothing like hereditary influence between the man and his wife.

Hereditary influences may act not only therefore through the physical conditions, the force of example would act as a constant impression on a mind and give a bias not only in health, but in disease. The child whose ancestors, one after another had immolated themselves in different ways, must have ever present in his mind the painful reminder of the acts.

M. Morel is disposed to believe that not only is hereditary tendency a powerful agent in causing insanity, but that it causes a peculiar kind or form of the disease. If this could be shown to be so, it would go far to separate such cases from the general group and to make them a distinct form or species of insanity. Before this can be admitted, much stronger proof is required and my experience tends to a contrary direction.

In an investigation that I made while at Hanwell with the view especially of determining the question of the identity or non-identity of ordinary insanity and general paresis, I found that heredity existed in one-fifth of the cases of ordinary insanity.

Another cause, so-called, needs a few remarks on account of the views which have been expressed concerning it, viz. venereal causes, the total according to statistics gathered from 13,101 cases was 2·3 per cent., but the point on which most error has arisen is on the question of masturbation.

Masturbation.—This has been spoken of as a habit which is found in the insane. It is a subject on which many opinions have been expressed, both in regard to its character as a symptom, and as a cause of disease. I propose here to examine the question from this double point of view.

1. It has been considered by some as a cause of insanity, and *Masturbational insanity* finds a place in the classifications of the Scotch alienists, who say that its characters are distinct. This is not my opinion, and I must say that I have found in several recorded cases, the cause of different neuroses attributed to masturbation on very insufficient evidence. In one case (by a slip of the pen perhaps), a state of idiocy was attributed to masturbation and in which there was discovered after death the absence of the corpus callosum.

The fact is, the investigation is surrounded by innumerable difficulties and so far from being an obvious cause I consider it a most obscure one.

In the first place, it is a habit of which no one can say when it exists, nor in whom it exists; and whether it is more common among one class than another, is an undiscovered fact; we have therefore no data on which to make a comparison or conclusion. The habit is confessed by some, it has to be watched for very closely to be detected in others, it may be suspected, but more often than not, not proved. In children and idiots it is discovered more frequently, not because it is more frequently practised probably, but because there is less art in concealment. In males the presence of semen on the linen, shows of course, a discharge of semen, but gives no data beyond; we find semen in urine, but the habit need not necessarily give any such evidence. We have only in fact direct information from those who are willing to confess, and in what proportion those are to those who are not willing to confess, no one can tell. The insane in the early stages are prone to self-accusation and morbid fears of all kinds; these fears are sometimes greatly exaggerated by imprudent accusations of all kinds, by the announce-

ments of "manhood advertisements," etc. This source of evidence therefore or the subjective is not available or reliable.

The objective evidence is also as weak. Among the symptoms said to be observed in such cases are a look of shyness and shame, an abnormal appearance of the lips, which are in my belief merely phantastical imaginations of the observers, such an appearance or any other may occur in a known or confessed masturbator, but there is no means of knowing in what proportion since we cannot ascertain the prevalence of the practice among the general population.

If we attempt to enquire into the mode in which the practice is detrimental or capable of causing insanity, it would seem that the habit must act in one of two ways : either by its debilitating effects or by the condition of nervous irritability produced on the system.

Mere debility would be an inadequate cause for the production of insanity, and there would be no excess of irritability unless the practice were carried beyond the point of satisfying a natural appetite. We know from observation that certain morbid conditions of the nervous system do produce such sexual irritation. It appears to my mind therefore, that masturbation is much more frequently the effect of a neurosis, than a cause. That the habit is found, however,to a great degree in the insane cannot be denied.

We meet with such cases in lunatics in the acute and chronic stage and particularly in general paresis. This may be fully admitted, but it leaves the question of masturbation as a cause of insanity entirely unproved.

II. *Pathology and Morbid Anatomy of Ordinary Insanity.*

1. *The anatomical characters as discovered by post-mortem examination.*—This division of our subject is more nearly connected with the proximate causes of the disease. In a previous page was given a general outline of the pathology of the two kinds of mental disease, with the view of rendering the description of the symptoms more readily intelligible.

In this place the subject of the pathology will be considered in relation to the morbid anatomy and in my exposition of this part of the subject I shall adopt a mode of procedure employed in legal matters, namely I will state firstly, the conclusions which I consider that the facts of the case are calculated to prove and then give the evidence in detail.

The main distinction between the two diseases, ordinary insanity and general paresis, I stated (p. 106) to be in general terms, that in ordinary insanity the disease was induced through the nutrition processes, while the origin of general paresis was by a shock or direct action on the nerve tissue.

That whereas every act of cerebration required the inter-action of the two agents, that is to say, 1. the nutrition process (or for brevity sake, let us say the blood), on one hand, and 2. the nerve tissue on the other. That the one disease begins in the one agent or the blood, and the other disease in the other agent, the nerve tissue.

Hence we found that the first symptoms, or mode of attack, in ordinary insanity were gradual and confined at first to the emotions, leaving the intellect proper intact, that later in the progress of the disease the intellect shows that it is implicated in the morbid process, but that the motor faculties, and the functions of nutrition remain unaffected, which phenomena are in certain cases suddenly dissipated and the patient has a lucid interval, or his symptoms undergo certain periodical changes, as described, showing during life a varying condition of integrity and impairment of function, such as might be explained by a morbid condition of the blood-supply.

What we have now to do is to examine the changes discovered after death and to interpret those appearances, to ascertain in fact if there be any traces of an abnormal condition of the blood in the organs generally.

Our examination may be conducted in the following order:— 1. Of the cerebral organs and its appendages. 2. The condition of the other organs chiefly concerned in the nutrition processes.

In this enquiry I must depend largely upon my own examinations, since few of the published accounts are available, as very few authors have separated the appearances found in ordinary insanity from those of general paresis.

In examination of the brain and its appendages, I will first enumerate the appearances gathered by unaided vision and reserve the minute changes for the results yielded by the microscope and other means.

In the *Journal of Mental Science*, I published the annexed table of morbid appearances found in 36 cases (vol. ix, p. 479).

The table consist firstly of acute cases of ordinary insanity of which there were eight; secondly, of chronic insanity of which there were also eight; thirdly, five cases of imbecility and dementia; fourthly, fifteen cases of general paresis.

	8 Acute Cases.	8 Chronic Cases.	5 Cases of Simple Imbecility. — Epilepsy, with Imbecility and Dementia.	15 Cases of General Paresis.
Membranes abnormal—				
Dura Mater	1	—	—	9
Arachnoid opaque	2	3	—	12
Serum beneath it	3	3	—	11
Pia Mater				
Adherent	1	—	—	8
Injected	5	4	—	15
Anæmic	1	—	2	—
Opaque	—	1	—	—
Serum effused	3	4	2	9
Tubercle	1	—	1	1
Bony plates	—	—	1	—
Lymph	—	—	1	—
Brain Substance. Weight. Ratio* of Cerebrum to Cerebellum	6·49 to 1	5·77 to 1	6·45 to 1	6·54 to 1
Specific Gravity—				
White substance†	1·041‡	1·039	1·042	1·039
Gray substance§	1·039‖	1·032	1·027	1·034
General consistence of Brain—				
Firm	7	4	1	3
Flabby	—	2	2	3
Altered in colour	7	—	—	—
Congested	4	—	—	8
Convolutions closely packed	7	3	—	—
,, open	—	2	—	9
Gray Matter—				
Pale	4	2	3	3
Dark	3	—	—	8
Injected	4	5	1	12
Firm	4	—	—	5
Soft	1	1	—	—
Layers distinct	3	7	—	5
Morbid growths	—	—	1	—
White Matter—				
Pale	3	3	2	4
Dark	2	2	—	2
Injected	6	5	1	8
Firm	2	—	2	8
Soft	3	1	—	5
Atrophy	1	—	—	—
Bone—				
Increased in thickness	—	4	2	7
Diminished	—	2	—	—

* Normal ration, 7·8 to 1. † Normal, 1·040. ‡ Varied from 1·045 to 1·039.
§ Normal, 1·034. ‖ Varied from 1·029 to 1·049.

The above table which I reprint here, since it illustrates several facts to which reference is about to be made, shows lesions occurring in various stages of insanity as well as in various kinds.

It will be seen by this summary that there were well-marked deviations from healthy tissue in a large proportion of these selected cases. Five of the cases were primary attacks, two others were second attacks, and the eighth was a case of melancholia well marked, but which continued in a melancholic condition from two to three years.

It is a well observed fact, however, that cases are not unfrequently met with in which no marked or discernible lesion can be found, nearly every recent writer on the subject has mentioned this fact.

Griesinger remarks that many cases that terminate fatally in the acute stage present pretty much the appearance of the normal brain—often enough to lead to the conclusion, that the symptoms during life were due to some disturbance in the process of nutrition, as yet unknown to science.

M. Parchappe says, (*Traité de la Folie*, 1841, p. 441). "From the foregoing facts it results absolutely that neither in acute insanity nor in chronic is there such an essential and characteristic cerebral lesion which may be considered pathognomic."

Dr. Bucknill writes (p. 559, Bucknill and Tuke's *Psychological Medicine*), "The form of Mental Disease which destroys life in the early period of its course is comparatively rare, and has been thought by many modern writers to be a distinct form." "In the brains of persons who have died while suffering from this form of insanity, (acute insanity), the strongly marked characteristics of hyperæmia of the substance and the membranes, even to the subarachnoid ecchymoses described by M. Parchappe, undoubtedly exist. *But in recent cases of mania and melancholia of most frequent occurrence, if death were to occur from some accidental cause or intercurrent disease*, which did not interfere with the state of the cerebral circulation, it is by no means so certain that strongly marked signs of hyperæmia would be found to exist."

In the observations of the above paragraphs, I entirely concur.

It has occurred to me many times to examine the brain of patients dying in the asylum, without discovering the slightest lesion. I have also submitted many to microscopical examination with the same result. This tends to show that the symptoms were caused by some evanescent condition in the organ, such as the interference of the circulation to which I have alluded.

But the table also shows, and there is a general consensus of experience to the same effect, that when any change is discovered in acute cases, it is one of hyperæmia. It must be mentioned, however, that it is likely that among the earlier writers, some of these hyperæmic cases might be cases of general paresis; about half of the acute cases of my table showed evidences of hyperæmia. In those—in which the patients died of the cerebral diseases, the whole of the functions, the intellectual as well as the emotional, showed great disturbance. In such cases structural changes at all events had commenced, for the specific gravity of the substance white and gray pointed to interstitial changes.

In chronic cases structural changes are much more obvious, even to the naked eye, and are connected with every part of the calvaria and its contents; that is with bone, membranes, and brain substance.

We are I think thus justified in the conclusion, that in all the course of the disease the circulation has been in a state of hyperæmia.

The symptoms also point to the same conclusion while the hyperæmia is very active, there is insomnia; where the hyperæmia has induced structural changes, there is confusion of function.

Besides the state of hyperæmia or the condition of fulness of the vessels, we have further evidence to be derived from the state of the vessels themselves; but this question as well as that of the atrophy of the organ, will be considered under the results yielded from microscopical examination.

There are shown in the table various other lesions, especially in the chronic cases. Such as increased thickness of the skull, diminished thickness, which are unequivocal and obvious structural alterations, adherent arachnoid, &c.

But so far as this mode of examination of the brain goes, the conclusion which we can arrive at is, that in the early stages, there is scarcely any lesion or change of structure of such a degree as to leave a permanent or very obvious mark after death; while in the latter period of the disease there are to be discovered the traces of long operating morbid changes, especially connected with increased blood supply.

Other modes available for estimating the degree of cerebral lesion, shew the same conclusion as the weight and specific gravity.

The weight of the brain has been examined by different observers and particularly by the late Dr. Skae, of Morningside. Dr. Skae suggested a mode of comparing the weight of one part of the encephalon with another. He says in his *Report of the Morningside Asylum*, for 1854. "This mode of estimating the results appears to me, to be free from the source of fallacy arising from the small number of cases compared;" it is also free from error, arising from difference in the weight depending upon different height or size of the entire body, and it is better than comparing the weight with the entire weight of the body, since obesity and emaciation would considerably disturb the proportions.

Dr. Skae, in the Appendix to the Annual Report of the Morningside Asylum, for 1854, thus sums up his conclusions:—"The ratio between the cerebellum, with the pons is given at different ages distinguished," and he found in almost every instance the cerebellum in the insane was heavier in relation to the cerebrum, than it is in the sane. This remarkable result has been further investigated. It occurs naturally to our mind, however, whether it was the cerebellum was heavier or the cerebrum lighter than normal.

On this point Dr. Skae says, "that whereas the relative weight according to Dr. Peacock, in the sane is 1 to 7, in the insane he found it to be as 1 to 6·7. Mr. Clapham, *West Riding Reports*, analyses 1200 cases with regard to this point, however, and his results do not agree with Dr. Skae's in every respect.

He found that the average proportion at all ages to be 1 to 7·68.

In General Paresis	1 to 7·30.
,, Idiocy	1 ,, 7·33.
,, Imbecility	1 ,, 7·36.
,, Organic Dementia	1 ,, 7·57.
,, Brain Wasting	1 ,, 7·64.
Normal . .	1 to 7·68
,, Chronic Mania	1 ,, 7·72.
,, Simple Dementia	1 ,, 7·72.
,, Senile Dementia	1 ,, 7·80.
,, Acute Insanity	1 ,, 7·81.
,, Epileptic Insanity	1 ,, 7·99.

The different conditions of disease are arranged in the above table according to the relative ratios of difference. The cerebrum is shown to have a less ratio than the normal in the states of mental weakness, beginning with general paresis; and a greater ratio than normal, in the more active morbid states.

In this the results differ in some respects from those obtained by Dr. Skae, they show with him that the cerebellum is relatively heavier in the active morbid states, but relatively lighter in the states of mental weakness.

Mr. Clapham's cases, it is to be observed however, were 1,200 in number, which is much larger than those of other observers, and he corroborates Dr. Skae's conclusions in another respect; of course a preponderance of the cerebrum in relation to cerebellum may arise from either, an actual increase of cerebellum or *vice versa*. Dr. Skae came to the conclusion that there was an actual increase of the cerebellum. In some conditions, Mr. Clapham found that this was so, and notably in cases of general paresis; and at the same time there was a decrease in the weight of the cerebrum, as compared with the normal.

In epileptic insanity the contrary was found, in this the cerebrum was about the normal weight and the cerebellum less than normal.

These general remarks are mentioned here because it is convenient to insert the table in this place, but our present use of

these data is to examine them in regard to ordinary insanity and it illustrates the pathology of that disease and corroborates the position which has been advanced; or that in those cases of ordinary insanity, which die in the acute stage, the weight is above the mean—or in the ratios of 1 to 7·8 to 1 to 7·6 which itself points to some interstitial change in the cerebral tissue; the relative weights at the same time show that at the subsequent stage of chronic insanity and dementia, there is a gradual atrophy supervening.

Evidence of the same kind is afforded by the examination of the specific gravity of the brain substance.

I published in January, 1853, a series of experiments, which I instituted relative to the specific gravity of the brain. I was led to undertake the investigation from the unsatisfactory result which had been arrived at by taking the gross weight only in different diseases, and especially in cases attended with delirium. The actual weight of the brain of course varies, not only with the age and height, but with the configuration of the individual. On the publication of my experiments on the brains of persons dying with and without cerebral symptoms, Dr. Skae, of the Royal Edinburgh Asylum, instituted similar experiments relative to the brains of the insane, and the following are the conclusions at which he arrived:—In his own words "the specific gravity of the gray and white substance of the brain was taken in eighty cases, of which thirty-nine were males, and forty-one females. A glance at his table, will show that the specific gravity in the cases of insanity was almost uniformly higher, and this observation applies to both the gray and white matter.

"In Dr. Sankey's cases the lowest specific gravity of the gray matter was 1·028, in the asylum ones the lowest was 1·030. The highest in Dr. Sankey's was 1·046, in men 1·049, while the average specific gravity in all the cases of both sexes was in the former 1·034, in the latter 1·038, showing an increase in the cases of insanity.

"The lowest specific gravity of the medullary substance in the healthy brain was 1·032, in the diseased 1·032. The highest in the healthy 1·048, in the diseased 1·053. The mean of all the cases in the sane, 1·041, and 1·042 in the insane, show-

ing an increase in specific gravity of the white matter in cases of insanity.

"The results," Dr. Skae goes on to say, "are corroborative of those obtained by Dr. Sankey, in his observations at the London Fever Hospital; where in all the cases complicated with cerebral symptoms of a grave character preceding death, such as convulsions, strabismus, paralysis, and utter unconsciousness, the specific gravity was of higher average, being both in the gray and white matter 1·041."

The cases of Dr. Skae are of mixed kinds, they do not therefore show much more, than that the cerebral substances in insanity of all kinds, on the average, is higher than in health. In the table (p. 226) I have separated the different kinds and stages of disease, and by this mode the same result and that the brain substance is involved, is shown, that in the acute cases the grey matter was but slightly increased. In chronic cases it went down to normal, and in imbecility it fell still lower.

Dr. Bucknill also published his investigations on the same subject—and here I must make my friend the proper amend for in the previous edition of my lectures, I was not aware that he had published a second series of experiments, in 1855, and stated that he had not separated the gray from the white matter in his experiments. In his second paper this was done, and I quote here from it.

In examining his tables there are several prominent facts; in one case the specific gravity of the gray matter was as high as 1·048, which is much higher than I have ever met with in my cases, and it occurred in a case of mania with phthisis—and there are several, some eight or ten cases of greatly increased density, connected with epilepsy and general paresis; and all the cases, as a rule, appear to have a higher density than normal.

But the general average of his 63 cases, shows a density of the white substances rather below that which I found in sane brains. Dr. Bucknill remarks, that the lowest density was found in connection with a watery and œdematous condition of the brain. He remarks, that a brain may have a low specific gravity from an increased quantity of fat globules in its tissue and doubtless a high specific gravity is due to protein compounds, the result

of hyperæmia. In my published cases from the Fever Hospital, all the high densities separated by an abrupt line all the cerebral affections from the rest of the cases.

Our argument here is thus borne out by this mode of examination, viz., that while little is visible often in the recent cases of insanity if the patient is cut off by accident in an early stage, as by suicide, and very little is to be discovered by the naked eye or ordinary modes of examination, nevertheless there is a process probably going on which eventually leads, first to the increased density, due to protein interstitial matter, and afterwards to diminished specific gravity, caused by degeneration of such deposition, an order of events observed in the diseases of other organs.

The facts, it must be allowed, do not place this on such solid basis as could be wished, since *the cases have not been separated according to their character or duration*.

My own 36 cases are open to the same objection, but so far as they go they show alteration in the different stages; in the acute stage the gray substance was slightly above the average, in eight chronic cases it fell below the average, and in imbecility it sank still lower.

The result of these experiments tend to the conclusion that there is in the early stages of some cases, dying in the acute stage, some increase of density in the cerebral tissues which is reversed in chronic cases both in insanity proper and general paresis.

The next mode of examining the brain and its membranes which is open to us is the microscopical. A very considerable amount of labour has been expended in research by this means.

In all microscopical examinations it may be frankly admitted that much toil and experience are necessary, so that in admitting the description of appearances of an observer, a considerable latitude for eclecticism is legitimate. Always remembering at the same time that an observer may obtain facts from a particular preparation, by a close and attentive study of his own specimens, which would not be obvious at first view to another. Nevertheless to admit any microscopical appearance as proved, it should be supported by unequivocal corroboration. I have myself given much attention to this mode of investigation, and

the following is the result of my own experience collated with the observations of others.

We may divide the microscopical examination of the brain and appendages, in ordinary insanity, into two parts.

1. The condition of the cerebral tissues.

2. The state of the blood vessels.

1. The microscopical and morbid characters of the cerebrum must obviously depend much upon the stage of the disease.

In the acute stage of the disease, I cannot say that my own microscopical investigation have given any result, which I could call unequivocal. It may, however, be inferred from what is found in chronic cases, both by microscopical and ordinary examination, that pathological changes in their cerebral tissue commence at an early period of the disease, but the same kind of evidence negative and positive shows, I think, that the primary symptoms are due to altered condition in the blood circulation—a condition not yet, by our present means of examination, capable of demonstration. In the microscopical examination of the cerebral substance in chronic insanity, the changes are more obvious and have been specially studied by several observers, particularly by Dr. Major. We may divide this enquiry into the condition of the neuroglia and the condition of the cells.

As regards the neuroglia, the normal appearance of this cannot be said to be settled. It is described by some to be amorphous, by others finely granular; its functions are also variously given, by some as a connective tissue and by others as nerve elements.

It has been suggested that its granular appearance seen in mounted preparations, is due to the hardening medium, chromic acid, spirit, &c. It is not easy to say whether the appearance is not due rather to the management of the light, at all events under certain circumstances a finely granular appearance may be seen as a kind of stroma (neuroglia,) in which the cells and vessels are imbedded.

It has been stated that in *acute* insanity the number of the smaller cells are increase. Undoubtedly, in some examples taken from brains of patients dying in acute insanity, the cells appear more numerous than in others; but if a section is thicker in one preparation than in another, there would be an appearance of a greater number of cells present. Besides, since

the normal distribution of cells differ in different localities, to base any deductions upon degree in this respect is scarcely warrantable.

After a careful examination of the subject with specimens, and comparison of my own results with the views of different observers, I think that all we should be justified in concluding is, that in the microscopical examination of the brain, as to cells and neuroglia, that in acute cases nothing as been as yet absolutely decided.

On the other hand, it is quite true that appearances are to be met with in many such cases, which indicate a possible commencement of structural change; but neither with such uniformity or constancy as to enable us to fix upon any definite appearance as the character of this stage of the disease.

In cases of chronic insanity, the microscopical characters often seem quite normal, as regards both cells and neuroglia; but when the patient has become demented and reached a great age, I have seen certain changes which I formerly supposed might be due to disease, but which were quite as likely to be normal or due to senile decay. The change was observed in the large cells. In several cases some of these were found to be unusually large, and presented an inflated appearance at the central extremity. On several occasions I have seen a degeneration of the cell-body, the body containing finely granular matter of dark colour, which was collected together, leaving a vacuity in one angle of the cell; in some, the cell-body instead of being angular was more or less rounded in shape, and presented an appearance described by Dr. Major as pigmentary degeneration. Dr. Wiglesworth describes similar appearances in cases of melancholia with stupor (attonita), *Journal of Mental Science*, October, 1883.

I think also that in most *chronic* cases the smaller and more superficial cells appear particularly numerous, small, and crowded. Yet my general conclusion is, that so far as I have had an opportunity of examining, I could not say that any definite or special lesion or appearance can be fixed upon as the essential pathological change in either the cells or the neuroglia.

I would adopt a remark by Dr. Major, who writes (*West Riding Reports*, vol. iv.): "After giving in detail the result of

my examination of various cases, I was driven to the conclusion that in all (I would say many) I was able to discover decided pathological changes; yet that, so far as my experience had gone, in none could I put my finger on any point and mark it out as being constant and distinctive of the affection to the exclusion of all others."

2. The state of the blood-vessels in both acute and chronic cases of insanity is, I think, less equivocal, and especially in the chronic case.

I have seldom had an opportunity of examining the blood-vessels in an acute case of a few weeks' standing; but in a case which died after a somewhat longer interval, the vessels, all the small arteries to the size of capillaries, appeared simply engorged.

In chronic insanity, the condition of the small arteries is remarkable, and Dr. Major's description of what he met with in chronic brain wasting coincides exactly with my own experience. These vessels have "acoarseness of appearance" (Plate III, fig. 6). They show clearly both an increased calibre and thickness of walls. When the vessels are separated, by washing out, from the brain tissue, they lie in the field of the microscope like rounded thongs instead of flaccid tubes, the circular fibres are coarser and evidently hypertrophied, and there is, as Dr. Major expresses it, an enormous multiplication of the minute nuclei scattered over the whole of the walls (see Plate III., figs. 5 and 6).

If examined *in situ*, or in their sheaths, there is often found a hyaline membrane thrown out around the vessel. In cases of ordinary insanity this does not appear to be affected, at all events, to such an extent as is found in general paresis; it is not rendered opaque, nor are the amber granules to be found so frequently; the disease or change appears more confined to the walls of the vessels themselves. I have seldom found anything like varicosity or aneurism in cases of chronic insanity. In one case, however, of chronic insanity which became ataxic, a varicosity was discovered. (Plate III., fig. 3).

So far then as the microscopical examination lets any light upon the true pathology, it seems in my opinion to corroborate

the view I laid down at the commencement, or briefly, that in the early stages the changes may be of evanescent character, and therefore are probably due to a condition of the blood supplied to the cerebral organ; but as the disease progresses, the nutrition of the organ is affected.

The above results are obtained solely by examination of the calvaria and its contents, an investigation of the other organs of the body, and especially of the glandular or blood making organs have to be considered. These may be considered in the order of:—1, the respiratory; 2, the circulatory and the digestive organs.

I must again chiefly rely upon my own cases, since the published cases, and especially the tabulated cases, deal with every asylum case collectively and irrespectively of the form of disease.

1. *The respiratory organs.*—Disease of the lungs, and especially phthisis, was formerly considered to be particularly prevalent among the insane, and if so, the cases would all belong, or in very great majority, to insanity proper. I have met with a case of general paresis complicated with phthisis, but consumption is not rare in asylum practice in insanity proper. But the question here is, is it more common in the insane than in the sane. I have arrived at the conclusion that it is not.

There are various circumstances which must be taken into consideration in examining this question, or an erroneous conclusion will be the result.

The following are the remarks on this subject in the first edition of my published Lectures, p. 203:—

"With respect to phthisis or tuberculosis, very much has been written to show that it is a very common morbid appearance found in insanity; there is scarcely a writer on insanity who has not apparently quietly acquiesced in the opinion that it is, beyond all proportion, the most frequent pathological condition met with. For example, Griesinger writes, 'The frequency of tubercle in insanity has been established from observation from the time of Lory to the present day; that although strict statistical proof is still wanting on this head, its frequency is apparently greater than any other kind of pathological condition.'"

The following is Griesinger's summary on the point:—

Esquirol states tubercle existed among the melancholic in the rate of	$\frac{1}{3}$, or 33	per cent.
Calmeil found tubercle in	$\frac{2}{5}$, or 40	,,
Webster	$\frac{1}{4}$, or 25	,,
Pinel	$\frac{1}{6}$, or 16	,,
At Vienna	$\frac{1}{3}$, or 33	,,
Prague	$\frac{2}{5}$, or 40	,,
Dr. Clouston	$\frac{3}{5}$, or 60	,,
Palermo	$\frac{5}{11}$, or 45	,,
Hanwell (Dr. Hitchman), Females	$\frac{1}{5}$, or 20	,,
Sutherland (St. Luke's)	$\frac{3}{11}$, or 27	,,

The mortality of the entire population of England from phthisis has varied from 17 to 12 per cent., but since lunatics are almost exclusively adults, the comparison is not a just one; the comparison should be, of course, with persons of like ages. "The mortality from phthisis," says Dr. Aitken, "produces nearly half of the whole mortality among the dragoon guards." Again, "The mortality numerically from consumption is much higher than from any other disease in this country." And again he writes: "Amongst the class of society resorting to Assurance Offices, the mortality (from phthisis) seems to be about one half of the whole."

The above table gives an average of one-third, so that the mortality by phthisis in the sane and the insane does not seem to vary very greatly. But there have been mixed up in this matter two distinct questions, namely, death caused by phthisis, and the discovery of tubercle by post-mortem examination; which latter mode of estimating the frequency of tubercular disease yields the higher average. Of course, to know the relative frequency of tubercle in the two states, we ought to compare the same things. In a paper by Dr. Webster, published in the *Medico-Chirurgical Transactions*, tubercle is reported to have been found after death in 29 out of 67 autopsies, or in the proportion of 43 per cent.; but he does not say that phthisis was the cause of death in any.

The age most liable to phthisis is from 20 to 35 (Bristowe),

and this approximates very closely to the age most prone to attacks of insanity (*Commissioners' Report*, 1880).

Dr. Clouston also examined carefully into another question in connection with phthisis, and which is of the utmost importance in forming a correct pathology of insanity, viz., whether the conditions of asylum life induce tuberculosis, or whether the insanity induces it; and he concludes that long-continued insanity does not tend to the development of tubercle.

Of other diseases of the lung, the most important are pneumonia and gangrene. Plastic pneumonia has been observed in many of the insane, and chiefly in those of deteriorated constitution, as in patients with general paresis. Calmeil found it in one-fifth of his cases, and other observers have found it in proportions varying from one-fifth to one-ninth. Whether this liability is a part of the essence of the mental disease or is an adjunct, or epiphenomenon arising from accidental causes, such as imprudent exposure to varieties of temperature, it is, of course, difficult to determine, and I have no data which will throw any light on the question. It is worthy of remark, however, that the pneumonia may arise as a sequel of a blood disease.

Gangrene of the lung is certainly a more frequent disease among the insane than among the sane. It is said to occur frequently in those who refuse food. In patients who refuse food for any length of time, there is a great accumulation of epithelium, or fur, on the tongue, and this causes the breath to have a most offensive odour. We must not therefore conclude without a physical examination of the chest, that gangrene has occurred in the lung. I have known this error of diagnosis to be made. Gangrene also occurs in other organs, as the scrotum; and it also occurs, as in all exhaustive diseases, from pressure. But the frequency of gangrene of the lung is a well observed fact, as a special morbid appearance in insanity.

Gangrene of the lung certainly occurs in ordinary insanity. I have never seen it in connection with general paresis. Pneumonia from stasis is more frequent in the latter disease, since the patients die from exhaustion, and especially since they lie for long periods in one position. When death occurs in acute insanity with lung disease, the symptoms are of a more sthenic character.

2. *The circulatory and digestive organs.*—With regard to the condition of the organs of circulation, we may firstly consider the heart, and secondly, the vessels.

1. As regards the condition of the heart we must bear in mind again the relative liability of cardiac affections at the different ages, and ascertain in this instance whether the ages of liability are not coincident with those of sane people.

In consulting former authorities on insanity, I find great difference of opinion on the condition of the heart. Thus, Dr. Bucknill writes (*Psychological Medicine*, p. 589), "Disease of the heart is common among the insane, although Griesinger affirms that the newest and most reliable statistics show only an average frequency." Still earlier writers vary considerably on this point; thus, Esquirol says it is found in one-fifteenth; Webster, one-eighth; Bayle, one-sixth; Calmeil, one-third; at Vienna, one-fourth; Guislain, one-sixth. These proportions it must be remembered are calculated from all kinds of cases, are in fact, the result of examinations of persons dying in asylums at all ages, many of whom were doubtless very aged.

I have no means from my own observations of arriving at any conclusion, whether these cases belong to ordinary insanity or to general paresis,* but since the latter disease is of much shorter duration than ordinary insanity, and the patients reach a greater age in the latter, doubtless the heart disease was most frequently found in connection with ordinary insanity. Death by heart disease, unlike death by phthisis, does not coincide with the average age of attacks of insanity.

The relative frequency of death by heart disease in the insane and the sane, was also investigated by Sir C. Hood and is given at p. 114 of *Statistics of Bethlehem*. He found that the relative number of deaths by heart disease, in the general population for 1838, was 1·07 per cent.; while the ratio per cent. in the returns of the Retreat at York, was 6·40; in other words heart disease occurred six times more frequently among the insane in York Retreat, than among the general population. It may be concluded, that the greater number of these lunatics were cases of ordinary insanity, and the majority aged individuals.

* Dr. Burman found that the weight of the heart was greater in general paresis, than in other forms of insanity affected with dementia.

Dr. Burman in an article in vol. iii. of *West Riding Reports*, 1873, p. 216, has examined the facts and analysed them in an exhaustive manner. His general conclusions are, among others: "That there is a remarkable relation between heart disease and insanity, in that co-existing with the gradual but steady annual increase of insanity, there has been a similar and more than *pari passu* increase of heart disease."

"An examination into the state of the heart in the insane as found after death and during life, shows that heart disease in its various forms is exceedingly common amongst them, and presumably much more frequently met with in asylums than out of them."

As regards the condition of the other viscera, that which is of most importance in connection with the blood-making organs, is perhaps the state of the kidneys; the older pathologists have differed much on this point. On first entering upon my medical duties among the insane, I was much struck with the frequency with which kidney disease occurred in my autopsies. The statistics on the subject available at that date, gave but a small proportion of renal disease, and which results were due, I think, to a want of due appreciation of what constitutes a morbid condition. These statistics were most of them of a date prior to the investigation of the minute anatomy of the organ. I found adhesion of the capsule to occur in nearly one half of my own autopsies, and besides this there existed in a large number abundant evidences of disease, as atrophy of the cortex, fatty degeneration, waxy disease, and general atrophy. In Dr. Bucknill's review of the subject, he says, that the kidneys were remarkably free from disease in Devonshire; but quotes Dr. Howden of the Montrose Asylum, who found disease of the kidney in 97 out of 235 autopsies, of which 55 were fatty and 31 had cysts, he does not mention adhesion of the capsule.

An altered condition of the bones throughout the body has not infrequently been observed in old lunatics, but not sufficiently often for us to consider it a change connected with the mental disease. Such a state is due more likely to mal-nutrition generally. An individual who has lived on pauper asylum diet for many, perhaps fifty years, may be readily conceived to be but poorly nourished, he is not only poorly provided with food

but often deprived of the natural instinct, in taking nourishment of any kind.*

There is found in some chronic cases of long standing, and not unfrequently, an increased thickening of the skull, as well as a diminution of the thickness, but these changes are confined to cases of long standing; the same condition of increased thickness is also occasionally found in general paresis, when that disease has existed three to five years.

The general *résumé* of all the foregoing may be thus given of the morbid anatomy of insanity proper. During the earlier period of the disease, the symptoms are due to an alteration of the blood, in its quality and in its amount; next, there is some congestion and interstitial deposit of serum and of protein compounds, then of atrophy of the brain substance, and hypertrophy of the vessels. The alteration in the vessels is the result of the usual law: at first they resist the influx of the impure blood by contracting, then the heart takes on an increased action to overcome the resistance of the contracted vessels; the contracted vessels thus called upon to antagonize the heart, gradually become hypertrophied. At first the symptoms are due to the circulation of impure blood, they next are due to excessive supply, then they evidence the imperfect functions of an altered cerebral tissue.

On looking over my notes of microscopical appearances in chronic insanity, I find the following changes mentioned.

A. M. M., Jan. 22, 1863. Chronic insanity, fatty degeneration of carn. colum. of heart. Arteries of the brain opaque and thick, and under microscope show irregularly disposed longitudinal fibres and fibrous looking matter. On some portion of the small arteries this gives the artery the appearance of an elongated aneurism, but by careful focussing it appears the lumen of the vessel is not altered; the enlargement is due to fresh matter on the exterior of the vessel. There are scattered a few oil globules. Plexus choroid are studded with hard rounded opaque bodies, soluble with effervescence in weak acid.

Burton. Senile imbecility. Injected with a solution of carmine. Several of the capillaries coloured with injection, cerebral substance is interspersed with spots of more or less oval shape, which are more transparent than the rest of the substance in which they seem imbedded. Their outline is not defined they

* The cost of food in public asylums varies from 3*s.* 6*d.* to 4*s.* 6*d.* per week, or say from 6*d.* to 8*d.* per day per patient, and out of which the staff of servants, &c., are fed.

appear to be lost into the surrounding brain substance (Colloid bodies), they are not turned purple by iodine, but are stained brown. After soaking in ether they can no longer be discovered, but the section is shrivelled and nothing positive can be averred about it. A second portion washed in ether and water mixed, the same bodies are found but they appear less distinct—the section is not corrugated. Iodine turns the whole brown. In all the sections there are small aggregations of particles collected in little heaps, and are rather irregularly dispersed and remain after maceration in water and iodine and ether; on the addition of acetic acid they slowly dissolve.

A portion of the brain mounted to show vessels, which are seen to be universally hypertrophied. (Plate III., fig. 6).

A. K. Insane many years and in asylum 21 years. Sister also in the asylum. Chronic insanity. Capillaries cleared by washing off cerebral matter under a stream of water. Numerous oil globules, apparently imbedded in the walls of the vessels—query fatty degeneration of the arteries. Very few branches are to be met free from this appearance, here and there are a collection of similar particles congregated together and occupying the angle of a branch. The fibrous coat of the vessels at places appears irregular; the walls are thicker and the cut mouths of the vessels remain open—no bumplike enlargement found. Some of the vessels isolated by washing and afterwards stained, show a thickening down to the smallest branches. Some of the branches are tortuous or slightly so.

Mr. H., a case of chronic insanity of many years duration. Died Dec. 25, 1863. The vessels of the pia mater and cortical substance are transparent, and give a clear view of the interior or tube. The circular fibres are well marked and are hypertrophied one fifth of the whole vessel. Seen in profile, these circular fibres appear like irregular circular bodies of different size, by focussing they are seen to give transverse stria on the inner coat of the vessel. Some of the smaller vessels exhibit numerous nucleated cells on this surface. Sections of gray matter exhibit, scattered throughout, very numerous and minute granules, of uric acid colour; congregated in groups and arranged also singly. They are not affected by acetic acid or soda. Some of them are iridescent. They are pretty uniformly distributed to every part. None of them appear adherent to vessels.

III. *The pathology or résumé and interpretation of the morbid phenomena.*—In conclusion, the question which we have to answer is, what constitutes the true pathology of ordinary insanity or insanity proper? It was stated at the outset, that the opinion which I had arrived at was, that the symptoms and morbid anatomy show that the disease consists in a morbid state of the blood, or of the processes concerned in nutrition.

We have now to review the evidence which has been brought forward and show how it supports this conclusion. The examination of this question may be divided into two parts.

1. What evidence is there that the blood is morbid?

2. How an altered condition of the blood can produce the phenomena observed.

With respect to the first question, it is true that we are not in a position to detect the change in the blood, whatever it is, either by chemical analysis or by the microscope; but we may obtain proofs from the ravages which an altered condition of the blood is known to produce.

I must quote here the words of Dr. George Johnson from the *Pathological Transactions*, in support of what I am about to submit as evidence of this altered condition of the blood.

Dr. George Johnson writes:—"1st. That in advanced stages of the various forms of chronic Bright's disease, there exists, in association with hypertrophy of the left ventricle of the heart, a true hypertrophy of the muscular arterioles throughout the body.

"2nd. That the hypertrophy of the heart is caused by an impediment to the circulation resulting from contraction of the systemic arterioles, excited by *blood contamination*, consequent on degeneration of the kidney.

"Bernard, Brown-Sequard, and others, by a laborious series of experiments, established the doctrine which is now universally accepted by physiologists, that the function of the muscular arterioles, under the guidance of the vaso-motor nerves, is to regulate the blood supply to the various tissues and organs. The contraction of the arterioles narrows their canals, lessens the blood supply to the capillaries, increases the arterial tension, and excites more forcible and frequent contractions of the left ventricle to overcome the obstacle. The function of these contractile tubes appears to be sufficiently well expressed by comparing them, as I some years since ventured to do, with a stop-cock."

The title of Dr. Johnson's paper is "On the changes in the blood-vessels and in the kidney in connection with the small red granular kidney." He goes on to explain how the cause of the hypertrophy of the left ventricle of the heart is so frequently associated with advanced degeneration of the kidney, and it occurred to him that the explanation might be found in the state of the muscular arterioles, which being stimulated to undue contraction by the morbid quality of the blood, impede the circulation and thus give rise to cardiac hypertrophy.

The series of events is then as follows:—Impaired function of kidney; impure blood; resistance to its circulation by the arterioles; increased action and hypertrophy of the heart; increased resistance and hypertrophy of arterioles.

Taking this as established, as I believe it to be, we may draw this conclusion, that hypertrophy of arterioles shows impurity of the circulating fluid. The same impure state of blood induces, or at least is found in conjunction with, a morbid condition of certain organs connected with the blood-making processes, as the heart, liver, kidneys, &c. That such impure blood also leads to mal-nutrition generally is obvious.

In our examination of persons dying in the different stages of ordinary insanity, we have exactly all the evidence of the same changes in the system which, as Dr. Johnson says, are induced by an altered condition of the blood, or that alteration of it, which takes its origin in disease of the kidneys.

Doubtless, the changes in the quality of the blood-making organs may be produced by other means than through disease of the kidneys; the kidneys are but a portion of the apparatus on which a purity of the blood depends. The kidneys are depurative, their office is, as it were, removed from the first source of the blood-making organism, and certainly they are not the only organs on which a healthy circulatory fluid depends. The alimentary canal stands, as it were, nearer to the threshold of the apparatus, if the first process of assimilation is in fault, it may require the depurative action of the kidneys to correct the fault, and doubtless their arterioles, and the arterioles of the whole system will be affected by the presence of an impure state of the blood. In our examination of the viscera in ordinary insanity, we find the tracks of this unhealthy blood:—At first, or in the earliest stages, the most we find after death is mere disturbance in the quantity of blood in the different organs and in the brain, and in most cases dying quite early we can detect nothing at all. The traces of arteriole contraction are obliterated in the act of dying, no hypertrophy having as yet been produced. But when the disease continues through several years, then it is common, and indeed it is the rule, to find just those very organs showing lesions which are affected by impure blood—the kidneys and the heart, as shown in the previous

pages; and when the disease is old, very often the arterioles of the brain are also found variously diseased.

It is not meant that insanity is a disease of the kidneys, far from this. I consider that disease of the kidneys, where it exists, is only one phenomenon in the train of the morbid processes; it is not universally found to be present, though according to my own observations it is very frequently. So likewise the heart lesions are but consequences of long-continued deterioration of the blood. Disease of the heart or kidneys is not found as a constant in recent cases, nor is the altered state of the walls of the arterioles constant. The condition of the blood must continue some time before it brings about such lesions. In disease of the kidneys leading to hypertrophy of the heart, the kidney disease is the primary affection, and possibly the lesion may commence by structural change in that organ, and the impurity of the blood may be the consequence of such primary kidney disease. In insanity it is rather the opposite course that occurs. The changed condition of the blood is due to an error of assimilation, and when the kidney becomes involved it is probably, or quite as likely, a secondary result, induced by the state of the blood.

At the risk of seeming to reiterate the statement, I would desire to say, in other words, that I do not consider the true pathology of insanity to have any necessary relation to kidney disease; but when kidney disease is found it shows there has been an alteration of some kind in the quality of the blood. In the course of mental disease the kidneys may become structurally altered or rather their arterioles may; but such a condition is not a necessary change. There may be increased action for a while of the arterioles without actual hypertrophy of the walls, and it seems more likely that hypertrophy would not occur till a late period, and this is what is observed on examination after death. In recent cases no change is observable in the brain or its vessels. The hypertrophy is discoverable only in chronic cases, and degeneration in the last stage of all. Plate III, fig. 4 shows the hypertrophy of the arterioles in one stage, and fig. 3, in the last stage; and the other changes of the arterioles, as atheroma, or other degeneration, are only subsequent changes, and are not as in kidney disease, universal.

The symptoms as well as the appearances after death bear out the same conclusions. In the early stage of ordinary insanity, the mental change is one of degree, not kind. It shows an inactivity of the organ and which I explain by the corrective action of the arterioles; the blood not being of healthy quality, the stopcock action inhibits the supply, the patient's mental condition is one of torpid action, the torpidity of melancholy; if roused the patient's reasoning faculties appear unaffected, though they quickly relapse into apathy. So long as the arterioles can thus act beneficially and control the influx of the impure blood, there is little fundamental change in structure or function, but after a period more or less brief, the activity of the circulation may be restored in either of two ways, by a gradual improvement in the quality of the blood, when the signs of restoration to health will appear: or secondly the activity of the circulation may be changed, by the yielding of the muscular contraction of the arterioles, or a forcible impulse *a tergo* may overcome their contraction, and thus the impure blood may circulate. In this latter case, the function of the brain would show a deviation from the normal and eventually the structure also. Should no improvement in the blood take place, of course the nutrition would be interfered with and degenerative processes commence.

2. With respect to the second part of the question or how it can be shown that an altered condition of the circulation can produce the phenomena observed, it has already been pointed out in the preliminary statement, that foreign products introduced into the circulation produce certain known abnormal effects. It is also a very well established observation that in certain cases of ordinary insanity, as in *folie circulaire* and in those which have the lucid interval, that a state of depression alternates very rapidly with a state of exaltation or excitement. If we admit that the act of cerebration depends on the organism at all, which is our standpoint, we are driven to the conclusion that the integrity of the function must rest between the nerve tissue on the one hand, and the blood (or nutrition) on the other. To account for the change of function we have these two factors, the phenomena we are seeking to explain is a rapidly changing one, its cause should therefore be a changeable agent: the

change too is not only rapid, but it is often transient, the cause therefore must be in the function of changeable kind. In the circulation we have such kind of agent, nerve tissues are permanent; for a changing effect we must seek a changing cause.

Admitting that the whole phenomena of the disease point to an altered state of the circulation, it may yet be asked is this change in the quality or quantity of the circulating fluid.

If the phenomena are due to a deficient amount of blood, the deficiency must be only local, as a condition of general anæmia is not a phenomenon observed. If the deficiency is local there must be a local cause and not a general one.

The cause, however, appears to be general as proved by the state of the organs found in the old chronic cases after death. If therefore, the ultimate cause is general, it must be in the quality of the blood in circulation.

The altered quality may be *sui generis* as *all* altered conditions of the blood do not produce insanity; or otherwise, the nerve tissue may be more obnoxious to the action of impure blood in one individual than another, and heredity is a well-known remote cause of insanity.

The changes which an impure circulation would produce in the organism may be, for a time more or less long, quite transitory, and leave no discoverable lesion after death; but no organ can be furnished for an unlimited time with impure blood without suffering in its nutrition. And in old cases such changes of defective nutrition are found. Impure blood too, need not be of uniform impurity, it would change from time to time; it may yield to inherent curative powers for a time, and from time to time give the phenomena of lucid interval and the alternation of states described.

It may be sufficient to say, that, with this impaired condition of the blood, the function of cerebration is imperfectly performed. It seems highly probable that this is so in the following way:—

The earlier phenomena of the disease may be due to the impurity only, or the phenomena may be due jointly to the impurity itself, and to the stop-cock action of the arterioles; both of which would be evanescent and not to be detected after death. Or the disease going on towards mania, the stop-cock action may be overpowered by a *vis a tergo*, and excessive action or

excitability of the cerebral tissue, would result. But, as pointed out by Dr. Wiglesworth, (*vide* p. 97) it is highly probable that there is a continous development of nerve elements. If the process of evolution implies a perpetual superposition of high upon low centres of co-ordination, so that those which were at one stage of development, the highest centres, become, at a more advanced stage, subject to the control of still higher centres, and are themselves relegated to an inferior position, it would result, that the younger centres developed, under unfavourable circumstances, would be less efficient in action. Or to adopt the the mode of expression of Dr. Hughlings Jackson in his Croonian Lectures for the present year on Evolution and Dissolution, "As each normal act or thought is, or signifies the fittest state of the topmost (or newest) layer of the highest centres, the normal highest level of *Evolution*; if this layer be rendered functionless, this would be *Dissolution*; to which the patient's insanity would answer. His positive mental symptoms are still the survival of the fittest states," are "survivals on the lower, but then highest level of evolution," and when this inefficiency was carried to great degree or extent, the state of incoherence and imbecility would result.

Section VII.

GENERAL PARESIS.

The term Paresis; a distinct species; different views relating to this—Doctrine of Unity and Duality—Definition, Dr. Mickle's, Author's—Preliminary statement—Symptomatology, typical case described—First Stage, diagnosis in early stage—Second stage, phenomena of—Acute progress of symptoms—Chronic course—Fractures—Various symptoms, kleptomania, delire des grandeurs—Physical signs,—Optic disc—Motor difficulties—Remissions—Third Stage—Reflex symptoms, varieties in the disease—Disease likely to be mistaken for General Paresis.

Class A.—Idiopathic Disease.

Subdivision *(a)* Pathological.

2. *General Paresis.** *History.*—The next division of the subject, it will be seen by reference to the diagram, p. 108, is that of General Paresis.

This form of mental disease is now pretty generally admitted to be distinct from ordinary insanity. When I first became connected with this special subject, the question was still a mooted one. In a paper in the *Journal of Mental Science*, I reviewed the question and arrived at the conclusion that the two forms of mental disease were distinct; at that period the French pathologists advocated this opinion, while the German advocated the opposite and considered that the motor symptoms were merely epiphenomena engrafted upon an ordinary case of insanity. As the question may now be considered settled, there is less occasion to discuss it to any extent, but a statement of the grounds for the conclusion that the two are separate, will assist in the diagnosis.

The question of the nature of general paresis occupied the

* The term Paresis, or General Paresis, was first proposed in this country by Dr. Ernst Salomon, a Swedish physician, who visited England in 1862 and wrote an article on the subject in the *Journal of Mental Science*. He remarks that the term general paralysis is singularly inappropriate, for one who is paralysed universally is dead. He therefore suggested the term paresis (παρεσις), the meaning of this word in some lexicons is given as an incomplete paralysis. The word paresis has now become more common for such a condition, and by joining with the term general the phenomena of the disease is correctly indicated. It has been suggested to me that chalasis (χαλασις) might define the case equally well if it were wished to give the disease a special nomenclature.

attention of the pathologists of France very widely, from 1822 to 1846—50. The following account is extracted from *Recherches sur la Folie Paralytique*, of M. Jules Falret.

The subject was studied with great care in 1822 by M. Delaye and in 1826 by M. Calmeil and M. Bayle. Their attention it seemed was directed to the question by a note by Esquirol, and it was found also that Haslam in England had alluded to the disease in 1798.* (Mickle). By MM. Foville, Parchappe, 1838 to 1841, and M. Baillarger in 1846 to 1847. MM. Sandras, Brierre de Boismont, Duchenne also wrote, and in 1853 M. Falret says: As a résumé of this question, there seems, at this time 1853, four principal opinions upon the nature of this disease.

1. The oldest is, that the paralysis is a simple complication and even a mode of termination of insanity; this was held by MM. Delaye, Calmeil, and Georget.

2. The second view held was that it was a distinct and special form of mental disease, characterised both by mental and physical phenomena; this was maintained by MM. Bayle, Parchappe, and Duchenne de Prague.

3. The third set of pathologists considering only the paralysis, confounded in one class cases with, and cases without, mental symptoms, as MM. Requin, Baillarger, Lunier, and Hubert Rodriguez.

4. Another opinion advocated by MM. Sandras, Brierre de Boismont, and Duchenne de Boulogne, is that there are two principal species of general paralysis, one with mental alienation and one without.

In examining this question for myself, it seemed to me that

* That the phenomena had been observed long before Haslam's time, appears evident from the following taken from Willis who wrote in 1672.

"Observavi in pluribus, quod, cùm cerebro primum indisposito, mentis hebetudine, et oblivione, et deinde stupiditate et μωρώσει afficerentur, postea in paralysin (quod etiam prædicere solebam) incidebant, ... propterea enim prout loca obstructa magis, aut minus ampla fuerunt, aut paralysis universalis, aut hemiplegia, aut membrorum resolutiones quædam partiales accidebant . . . ."

"Particulæ oppilativæ à cerebro delapsæ, inque medullam oblongatum provectæ, nervos quarundum faciei partium musculis destinatos subeunt, inque ipsis spirituum vias obstruendo, linguæ paralysin, modo in his, aut illis, oculorum, palpebrarum, labiorum, aliarumque partium musculis resolutionem pariunt."

admitting fully as we must do, that there are cases of motor paresis (or incomplete paralysis), which are general as regards the motor functions, but with complete mental integrity, that we may at once place such cases aside, they at all events do not belong to mental disease, and reserve the term general paresis for the mental disease only.

And this we are fully entitled to do, for the word 'general' embraces the mental functions in the paresis, and a state of paresis, not including these is not 'general,' though we might call it a motor paresis.

There remains after eliminating the non-mental cases, the question with regard to general paresis, whether general paresis is a disease, *sui generis*, or merely a variation in the symptoms of ordinary insanity. That, as we see in certain cases the mental disease terminates in the annihilation of the intellectual faculties, so, in other cases, the disease may terminate by affecting the motor functions.

The following were the facts which led to my conclusion, that it is a distinct species of disease, which I extract from my previous edition of these lectures.

1st. It appears to me that if the paretic symptoms are mere epiphenomena, then the duration of the disease should be longer in general paresis than in insanity generally; but the reverse is the fact.

2nd. If the motor symptoms are merely, as it were, ingrafted upon ordinary cases of insanity, then cases of second and third attacks should be equally liable to have the paretic symptoms ingrafted upon them as first attacks. But such is not found to be the fact; at Hanwell I admitted 456 patients in their second, third, or fourth attacks, and if these had motor symptoms, in the same proportion as the primary attacks, there ought to have been twelve cases of paresis among them; but there was not one. There were five among the general paretics who had been re-admitted, but they had not been discharged as cured, so that the attack was not, in fact, a second attack.

3rd. If the paretic symptoms are epiphenomena, they should occur as frequently among the old inmates of asylums as among the more recent cases. If, indeed, these symptoms are to motility what imbecility is to the intellectual faculties, we ought to

find general paresis more frequently developed in the old cases than in the recent; but such is not the case.

4th. If the disease is identical with other forms of insanity, and the paresis a mere accident, then the frequency of the predisposing causes should be the same in all cases; whereas I found in my paretic cases hereditary predisposition existed in 14½ per cent. instead of 20 per cent. among females, and 17½ per cent. instead of 22 per cent. among males; and in examining into the evidence of hereditary predisposition in paresis there was found to be evidence of paralytic symptoms in many of those from whom the predisposition came.

5th. If general paresis is one and the same disease as insanity, then in those instances in which several members of a family are insane it should happen that some should be found with paretic symptoms and some without. There were fifty-five patients in Hanwell related by blood to other patients also under treatment. There was but one also who was an epileptic, with motor paresis, the niece of whom was also in the asylum. The niece was affected with epilepsy, but remained without motor symptoms during the time she was under my observation.

Lastly, general paresis, besides the difference which it manifests to insanity generally, in affecting the sexes, the different classes of society, and different localities to a different degree, also appears to affect individuals of a peculiar temperament. Among the patients affected with it, we find chiefly those who have lived a fast life, reckless, imprudent individuals, who seem from their history to have been swayed through life by their lusts and passions. In going through the cases of these patients it is remarkable how many of them had led irregular lives, and especially had been guilty of sexual impropriety of some sort.* The above was written in 1863.

The question, however, will be better understood after the consideration of the symptoms, course, and progress of the disease, and the appearances found after death.

Nearly every writer who has described the disease has divided

* My paper appeared in the *Journal of Mental Science*, Jan., 1864, and was translated by Dr. Rousselin in the *Annales Medico Psychologiques*, in March, 1865. Dr. Salomon's paper *On the Pathological Elements of General Paresis*, which it examined, appeared in the same Journal, Oct., 1862.

it into three or four stages. This, it is unnecessary to say, is merely a devise for facilitating the description. The characters of the disease vary in different cases which may be due to various causes, such as variation in the precise seat of the lesion and the different constitutions of the subjects attacked. It need scarcely again be insisted upon that the description of any disease can only be relatively true. We must deal in the abstract to give an account, which would embrace all the important phenomena, but our description should include the essential characters of the disease.

Dr. Mickle, the latest writer and almost the only one in this country, who has devoted a whole work to the disease, gives the following description of it.

"General paralysis (paresis) is a disease of the nervous system, especially of the brain; marked clinically by:—

1. Certain general disorders of motility, viz., ataxy and finally paresis, usually following a certain order, course and development, and especially obvious in the apparatus of speech, and of locomotion also but in less degree; by 2, sensory disorders or defects; and marked also by 3, mental symptoms which invariably tend to dementia, but in the earlier stages often consist in part, of exaltation of feeling or even expansive delusion."

Before proceeding to describe the disease, I think it will facilitate the grasping of the various details if I give a brief outline of my own convictions of its pathology.

This mode would be inexcusable in an investigation, but in this place I am only describing the results which investigation has afforded; the following are my conclusions as to the nature of the disease.

Preliminary remarks. — While ordinary insanity according to the views already enunciated, commences in the organs connected with the blood supply, general paresis commences in the nerve tissues; the immediate cause of the attack being often distinctly traced to a nerve-shock. While the predisposing cause is often found in a naturally super-sensitive temperament. The seat of the disease is mainly, if not entirely, at first, in the cerebrum. The earliest symptoms are, therefore, to be found in alteration of the mental faculties; the general health not being affected. I would therefore give the definition of general paresis in the following words.

A disease of nervous centres generally; involving sooner or later every kind of nerve function, whether mental, emotional, or the functions of voluntary or involuntary motion, including also those which are connected with animal life; commencing by excitement and gradually progressing to paresis and paralysis of these functions.

The word 'general' is important in the definition, the disease seems to spread its influence over the whole group of nerve functions. The extent of lesion, though complete, need not necessarily be uniform in intensity in different localities; the different parts may be variously involved originally, the morbid processes may proceed unevenly, so that we might expect to find some variation in the phenomena, and such is the case; but if one division of nerve function is entirely omitted, the disease of course would not answer to the term general.

The most prominent symptoms for the practical man to seek for, are:—1. the mental, which are peculiar; 2. the motor, which should be general; and include not only those of the voluntary kind but the involuntary.

By way of describing the disease, I will sketch a typical case.

Symptomatology. First stage.—A male of about 40 or 45 years of age, single (or widower).

Physically* of robust habit and of good previous general health, (with the exception in certain cases of a syphilitic taint), and without distinct hereditary predisposition to insanity, of sanguine temperament.

Mentally intelligent, more rarely accomplished or highly educated; active and energetic in business, speculative, sanguine of success, and disposed to be changeable and fickle. Fond of society, a bon-vivant, and self-indulgent in every way with tendency to excesses in drink and sexual indulgences.

After perhaps a sudden reverse of his hopes, preceded sometimes by a period of anxious expectation or other kind of mental strain, the patient shows a distinct change in his character and conduct, in very rare instances by great depression, more frequently this alteration is first made evident by an unusual mental excitement, often amounting to a distinct elation, and in com-

* For predisposing and exciting causes see the liability to the Disease, in the sequel.

mon phrase 'elevation' in mind; the patients' spirits are high. He exhibits in fact just that kind of change in manner that an extra glass of alcoholic stimulant produces, and viewed throughout the whole course of the symptoms, there is maintained a great resemblance to the effects of an inebriate. The patient goes about busying himself in various matters, exhibiting a constant garrulity and an entire absence of reticence with egotistical bragging. He will stop and as it is called, button hole different persons, even persons with whom he has but a very slight acquaintance, and will relate matters of a delicate or confidential kind, entirely foreign to his natural or normal character.

There is very little physical change at this epoch, it may be that his 'elevation' may lead him to some social indulgences, and if one of the lower order, to drink, but apparently more for social than physical gratification. But the patient may thus be actually drunk; and not unfrequently the alteration of behaviour observed in a patient, is set down to intoxication, and therefore is the less heeded by the friends.

The mental character shown in this stage may be described by the word 'recklessness,' to this is added by degrees mental confusion. Soon the patient may be led by such state to commit acts of stupid folly or crime, such as *faux pas* of various kind, acts contrary to good manners, and delinquencies of all sorts; making extraordinary purchases, committing thefts in the most open manner, indecently exposing himself or herself, not necessarily from any notions of indecent kind or libidinously.

As examples of this conduct, the following may be cited. A gentleman walked into a drawing room, without removing his hat, and during his visit began to light a cigar. A poor woman, the wife of a prison warder, went to the window of a Resident Officer, and took some plants quite openly. A woman coming out of a church took a handful of silver from a plate held at the door, without any attempt at concealment. A married woman, sat herself by the roadside in the country and began to undress herself. A woman ordered a pair of breeches for her husband, a bricklayer, to be made of moire antique, etc.

When acts of this kind have been shown the friends very often become aware for the first time that they are evidences of disease

—not unfrequently the acts committed openly and publicly lead to the interference of the police, and in many instances the patient is committed to prison.

In this early stage even, there is often sufficient evidence to diagnose the case from ordinary insanity:

Thus in General Paresis there is—	*In first attack of Ordinary Insanity—First Stage—*
Garrulity.	Taciturnity.
High spirits.	Depression of spirits.
Extravagance and lofty ideas.	Gloomy forebodings.
Desire for company.	Desire for solitude.
Reckless conduct.	Apprehension of danger.
Mental confusion.	Clear intelligence.

All the above may be called the premonitory symptoms, they are elicited only from the friends and after the patient has been certificated, this we may call the first stage.

Second Stage.—In the second stage, that is only a little later in the progress, the previous symptoms are exaggerated and some fresh added. It then happens that the attention of the friends is more emphatically directed to the real state of the case, and this may be impressed upon them by some extraordinary act, or by a distinct maniacal outbreak. The progress of the disease may then take a rapid course to a fatal termination, or it may proceed less acutely and run its course on to complete annihilation of mind and motion.

1. When the disease takes the former course, the case has scarcely time to develope many of the characteristic symptoms of the Paresis and it is in my belief often set down as Acute Mania; the symptoms are those of acute meningitis, the prodroma are eclipsed by the active symptoms now presented, the course is more or less rapid, the symptoms are delirium with raving, violence, and destructiveness, the patient cannot be retained in bed, is wet and dirty, the bodily symptoms are what used to be called of typhoid character, that is, a dry tongue with sordes on the teeth, hot and dry skin, injected conjunctivæ, contraction of pupils, insomnia, the patient dies in this state,

covered probably with bruises from falling about and possibly with fractured ribs, which accident will be alluded to further on.

Such cases, which I believe are not very rare go to swell the column of Mania, and to establish such a disease as idiopathic in our nosologies, they may be recognised, however, as being the early stage of general paresis, by firstly not being a second attack, and secondly the early history.

If the patient has distinctly had a previous attack the occurence of maniacal symptoms thus suddenly would prove it to be a case of recurrent insanity or relapse after a remission of general paresis. It is not often that this latter case presents such typhoid symptoms and the remission occurs after several of the peculiar characters of paresis have already been present.

2. But the commencement of the second stage is more commonly less acute, nevertheless it dates frequently from some explosion of violence, or maniacal excitement. This is often the cause for which the patient is brought to an asylum and the case constitutes the expansive variety of the French authors. "This mode of *debut*," says Dr. Falret, "is much more frequent and better known. When the patient has arrived at that state of restlessness or over activity which to a certain point may be considered not actually abnormal or contrary to reason, and which constitutes the first stage, there supervenes and quite suddenly an explosion of delirium obvious to everyone and characteristic of the disease. A patient who has perhaps evinced restlessness merely, may pass in the space of one night or a few hours into a state of maniacal agitation with well marked *delire des grandeurs*." It is this abrupt outbreak of maniacal excitement, says Dr. Falret, which has led to the opinion, that the disease has commenced by this violent manner, but if closely investigated he believes that certain perversions of mind or acts have always been shown as prodroma, though such may be of very brief duration. (*Falret, Folie Paralytique*, p. 29). I have frequently observed that the outbreak of violence is actuated by the apprehension of impending danger of some kind.

But there need not be a display of actual violence, but only an exaggeration of insane conduct which commenced in the first stage; the patient is more restless than he was, is perhaps more aggressive and thus gets into various altercations; the general restlessness is increased and there is a greater eccentricity of con-

duct, the patient perhaps drives about in cabs, or if in the country drives himself and drives furiously, makes long calls on his friends and perhaps forgets to pay the cabman or he walks away and leaves his own trap at the door; the visits of such patients are not perhaps according to the received usages of their station, at such interviews they will talk excessively, perhaps make several proposals of marriage to different persons in the same day; there is in all their conduct an exhibition of irreticence on every subject; and in some cases even of the better class there is entire absence of attention to their dress; their clothes will be unbuttoned or buttoned wrongly, the neck loose, etc., and the rest of their costume untidy and unbecoming.

Among the lower class, the same abandon is shown, but in a different manner.

In all there is a disposition to spend money and acquire every object they see, the rich will buy pictures, plate, jewellery, and wine, the lower class will show the same propensity in a different style.

In both there is a great desire for company and in their interviews with friends it thus happens that the patient, especially of the lower class, is perhaps lead to some excess in drink and it is to this perhaps that the excitement or maniacal outbreak is immediately due.

It is, however, in this stage of the disease especially, and that is while the patient is free to do as he likes and is perfectly unprotected, that accidents from violence often occur and especially that of fracture of the ribs. It is not generally allowed that those cases, in which fracture of the ribs has been the cause of death in newly admitted patients, are cases of general paresis, but in no case at so early a stage is there so much violence, and death occurs perhaps before a distinct diagnosis of the disease is made, and therefore they have not been placed to general paresis.

So frequently may this accident of fracture of ribs occur and be concealed by the patient's excitement, that no medical man should undertake the care of a patient without a thorough search for this injury. It is a rule also which I have always carried out, to have every bruise or mark on the patient's body entered on admission.

These fractured ribs have been explained in various ways, and usually to the detriment of the attendant's character for care and forbearance. It is not the question here of blame or the opposite, but to investigate the fact of the frequency of this lesion, which is a real feature of the disease.

I have known a patient to be admitted into Hanwell, with nine ribs broken on one side and four on the other; and in spite of such injury, the patient has shouted, fought, and rushed about wildly, regardless of anything like inconvenience, such an absence of ordinary feeling becomes thus a phenomenon in the symptomatology of the disease, and shows clearly a condition of dulness of the ordinary sensation, in this part of the disease.*

But to pursue our examination of this second or middle stage of the disease, we shall find that the nerve symptoms are connected with every artificial division of nervous functions.

The symptoms connected with the cerebral functions may be divided for our examination into those of emotions, intellect, and volition.

Emotions.—As in every other division of the mental functions, the alteration of the emotions is in the direction of weakness, the patient is very self-satisfied at all times, and when the disease is advanced is usually very pleased with all that is around him. Some of those expressions which have been called *delire des grandeurs* by the French, are more appropriately perhaps also named *elation of spirits;* the "grand ideas" (which will be considered further on) have much of emotional feeling in them.

* In thinking upon these cases I was led to conclude that this very dulness of sensibility which is remarkable might really be at the foundation of the fractures. Not only is there evidence of dulness to pain, but I think of slowness in the motor response to excitants. It is well known that a man may receive a very powerful blow on the chest, if he sees it coming; there was the story of a man, often related in Mr. Stanley's Lectures on Anatomy, who had the name of Leather Coated Jack and who for a pot of beer would lie down and allow a cart to be driven across his chest, which he submitted to without injury, and doubtless because he erected his intercostals into a powerful arch to receive the blow. In a prize-fight, the weight of a blow on the chest is often very considerable, the receiver has time to receive the weight with ribs well backed by the intercostals. A paretic patient on the other hand makes none of these precautions and it is probable that the reflex movements would be too slow in their action if the blow were foreseen, the catastrophe is thus a proof of the morbid condition of the nerve centres.

But on the least appeal to the patient's feelings, he will exhibit the change in his emotions in various ways.

By very little difficulty, the patient's feelings can be changed from grave to gay, and gay to grave again. Any slight amount of compassion shown towards him will lead him to shed tears, and in the next moment he can be brought by flattery into his former notion of his power and happiness.

Intellect.—Under this head we may first examine the *sensations*, there is some difficulty in estimating the changes in this direction, as the patient's state of self satisfaction and bragging, leads him to give a too favourable account of them, but the condition appears to resemble that of a stage of drunkenness in which all the impressions are benumbed, but if no subjective evidence can be gathered, the objective is conclusive by itself. When a patient is asked if a pinch is felt he will say in a bragging tone, "No! nothing hurts me," and perhaps he will strike himself roughly to show his power of bearing pain. The insensibility to ordinary pain is shown in such cases as broken ribs, or other bodily injury. The same dulness is evidenced in the special senses, especially in the sense of taste; they will eat the most nauseous things, and probably the boulimia which is a feature in the disease, is due to an absence of the feeling of satiety.

The readiness with which the patient's feelings and emotions, or his opinions may be influenced and turned from one extreme to the opposite is remarkable, and is called by the French a *deficient spontaneity*. It deserves to be recorded as a distinct symptom of the disease, it is clearly evidence of a feeble mind.

Kleptomania is a symptom of this stage, it is pretty nearly the only case in which theft of this kind is a feature in mental disease, but it does occur in certain cases of chronic insanity. It is but a symptom, though spoken of as a form of disease; it seems to be due to a desire of *acquisition*, the same propensity that leads the patient to make large purchases already mentioned. The theft in this as in the first stage is open without attempt at concealment, the symptom does not often extend beyond the early part of this stage, this symptom also shows true feebleness of intellect.

Delire des Grandeurs. This symptom is marked in every

typical case; it has been called also *megalomania* and "elation of ideas." I consider it belongs to the intellect, though it may be emotional in some of its aspects; the examples quoted by every author are very striking, among my own cases I may give the following. A lady insisted that she was the wife of the Saviour, also of a certain Duke, that she had other husbands, more than a million, that God gave her a large quantity of jewels of the most rare kind, that she had twenty Koh-i-noors, she exhibited also in these notions a good deal of erotic tendency. A gentleman said he could easily run 600 miles in a minute, that he could fly, that by cutting out his entrails, he should make himself so light, that he could jump a mile, and by constant springing could mount higher and higher indefinitely, that he could speak all languages. He would mix all his food together on a plate, meat, sweets, vegetables, which he called the kosmos, which would make him strong, etc. Another patient was going to invest a hundred pounds in a scheme which would pay 500 per cent, and by re-investing he should become rich enough to buy up all the Insurance Companies. Another declared that he was going to bring the sea up to the house, he should build a town and a cathedral, etc. One patient wrote me a cheque for a million pounds on an imaginary bank.

In scrutinizing these ideas of largeness one readily may perceive an element of imbecility in all. Far from being imaginative or exalted they are usually the suggestions of surroundings of commonplace kind. A patient was saying to me that she was an angel and that all the birds knew her and came to her, on looking up I saw a sparrow seated on a branch close to the window, which suggested the idea, there is in all these so called grand ideas about the same amount of fancy.

Motion, voluntary and involuntary.—The next division of mental faculties is that connected with will and volition.

With this portion of the subject we may trace the same parallelism of the phenomena with those of drunkenness.

In the previous stage there has been described a degree of restless activity, this is at first increased and (as has been said) often ushers in this second stage by some great catastrophe of violence, with or without shouting and raving. This condition is one of mania in all its force, some-

times with evidence of vindictiveness, sometimes with high spirits and hilarity, this continues often both day and night, but more frequently the patient can be appeased by quiet means, and by diverting his attention. There appears no difficulty in his movements at this period nor for some time afterwards, as already described the case in this stage may go on to a fatal termination, but more frequently by care and treatment, and by the rest and the isolation from exciting objects which an asylum affords, the state of active violence will subside, but reappears perhaps from time to time in minor outbreaks of excitement.

Involuntary motion.—It is on the subsidence of the violence and raving and as the patient begins to assume a more tranquil state in every particular, that the first symptoms of motor paresis appear.

The advent may be detected: 1. In the state of the pupil and optic disc; 2. In the speech or the articulation of the labial sounds; 3. Then gradually in the gait.

The pupils will be found to show various changes, there is irregularity in the shape of the pupil instead of being circular it may be squarish, or elongated from above downward, there may be difference in size of the two pupils.

Optic disc in general paresis has been examined by various physicians.

Dr. Allbutt examined fifty-three cases, with the following results:—"1. That atrophy of the disc occurs in nearly every case of general paresis. 2. That it is not to be distinctly seen until the end of the first stage, as it slowly travels down from the optic centres. 3. That it begins in a pinkish suffusion of the nerve without much stasis or exudation, and ends in simple white atrophy. 4. That the atrophy of the nerve is not in proportion to the ataxy of the muscles of the orbit. 5. That it is in relation to the state of the pupil, which is contracted in the early stages and dilated in the fully atrophic stage. 6. That as the symptom is not a very early one, it probably has not much diagnostic value. Its pathological significance is probably considerable."

I extract the above from Dr. Aldridge's paper in the *West Riding Reports*, p. 223. Dr. Aldridge compares the above results with fresh observations made by himself; he says "it would appear that the affection commences by inflammation and slight exudation

and ends in atrophy." As regards the pupils he found, they were active in twelve cases, sluggish in nineteen, inactive in five, and unequally active in seven.

Dr. Tebaldi found the optic discs differed according to the stage of the disease, the changes consisted in hyperæmia, œdema and exudation, and atrophy of the optic nerve.

Dr. Monti found similar changes.

Dr. Noyes of the State Asylum, Utica, in ophthalmic examination of eleven cases of general paralysis, found that in nine there was hyperæmia and infiltration of optic nerve and retina (*Journal of Mental Science*, April, 1873).

Speech.—The first symptom of the motor paresis may be detected in the tongue and corners of the mouth; this symptom may be often found in the commencement of the second stage, but perhaps requires a practised eye to discover the condition so early. It is a common thing, however, to find evidence of paresis on the admission of the patient into an asylum, that is, as soon as to the ordinary observer the patient is insane.

On the protrusion of the tongue it will be seen generally to be relaxed and to show a vermicular quiver on each side of the mesial line, that this quiver is on both sides is a fact which is of importance as it shows the universal nature of the disease and the tongue does not deviate to either side; at the same early date in women, and in beardless men, there may be detected a similar quiver in the muscles around the mouth (clonus ?) more marked on attempting to speak.

At first this appearance is slight and the specialist often has a difficulty in demonstrating its existence to one not experienced; as the disease increases it becomes more and more obvious, towards the end of what I have called the second stage, the muscles of the face are involved in the want of action, and thus give an expression of marked kind. While at rest the face in general paresis is peculiarly blank, the lines of expression are, as it were, effaced; the folds of integuments, which are in fact the coverings of the muscles of expression in tonic action, are smoothed out and obliterated; there is a mask-like doughy look, a "flabby appearance" about the face. A parallel here also exists between the phenomena of drunkenness and general paresis, but the characters are still distinct. In

drunkenness, when the countenance is at rest, the expression approaches nearer to that of coma, there is always some degree of stupor in it; but in general paresis, there is far less sleepiness about the expression, there is always some degree of lassitude, but from the different state of the emotions the features are more contorted; the face owes some of its distinctness of character to the abscence of turgescence, which usually is associated with the drunken face. It must be remembered that the muscles of the face differ much with respect to their normal action, some are more constantly in tonic action than others; thus the muscles closing the jaws and lips and those opening the eyes are especially in a state of tonicity or contraction; but they differ in degree, even in this respect, and the paresis appears to have more effect on one set than another, and thus the state of contortion alluded to arises. The following is the result of my observations on this point. I find the levator menti is frequently contracted, the chin becomes pursed or corrugated, the orbicularis oris is usually more paralysed, at all events it is more frequently relaxed, and the former muscles appear to be brought into action to assist it, the lips become thus a little pouting; and sometimes the centre of the under lip is bent in upon the incisor teeth. Again, the orbicularis palpebrarum and levator palpebræ seem to require the supplementary action of the occipito-frontalis, for often there is a very sleepy look about the eyelid, but with it a raising of the eyebrow,* which gives an expression of a very peculiar kind—one part of the face is expressive of one emotion and another part of a different; an incongrous general effect is thus produced, characteristic in its entirety. It is characteristic in its unmeaningness, and reminds one of a badly executed portrait, in which the features do not harmonise in their expression.

While the disease is only apparent about the mouth, and in the quivering of the tongue, described, and which may be called the appearance during rest. The same parts in motion show even more unequivocally the motor paresis.

* M. Moreau de Tour, has described also a certain prominence of the eyeball which is due probably to similar causes; but it requires a previous acquaintance with the patient's features to recognise this alteration. He found it in half of the cases.

In speaking all the same muscles are more or less twitched, the lips especially appear involved, and the articulation is confused, which is particularly to be observed in the utterance of the labial sounds, this symptom commences very gradually, at first perhaps the patient merely stammers on one or two words, later his speech is mumbled and drawling, and still later it becomes indistinct.

Before the alteration has arrived at this marked condition of paresis with regard to the mouth and face, which for convenience of description is narrated above, the motor symptoms will be evident in the limbs, especially in the legs, shown while at rest by the position and by the gait when moving. In standing, the weight is poised on both legs equally—there is no "standing at ease," no throwing the centre on to one limb mainly; the hands, too, in this the second or middle stage, are not placed in any easy attitude, there is the opposite of the "jaunty" about the patient. In sitting, there is a square and graceless pose—the head is slightly pendent, the thighs parallel, and the knees bent at just a right angle, each hand resting on a knee or on the elbow of the chair; at least such is a favorite posture.

In motion, the difference is still more marked, the gait is characteristic. There is naturally a particular expression in gait, even in a dog, one may divine the errand the animal is upon; the expression of the paretic is that of one who is taking an objectless walk, and with his attention addressed to the performance, it is less automatic than in health. He seldom looks to the right or left, nor does he notice anything around.

In the gait itself there is an absence of elasticity or spring, the legs as the paresis increases, are kept wider apart, giving a slight straddle, there is often an appearance or expression of having to poise his head carefully, or to keep his head accurately in the centre of gravity. Each limb is called upon to do its own share. When the foot is raised, it is scarcely lifted, and is quickly replaced, so that the steps are short and shambling. It happens often from the tendency of the patient to brag, that he is very willing to show off how well he can walk, when all these characters are demonstrated. As the paresis increases the patient's walking becomes more a matter of business to him, he

looks down at his feet before starting, if spoken to, he must stop to attend, as though he could not walk and talk at the same time. When this condition has arrived however, the patient is close upon what we artificially call the last stage.

While the division of the disease into stages may give the description some order, there is this disadvantage in it, that in nature the different stages often run into one another, and overlap, so that it is difficult to make a line for their separation. Then again the phenomena of the succeeding stage are often but slight and gradual modifications of those of the preceding.

Before all the symptoms already described have reached the intensity which is spoken of, it sometimes happens that the patient's progress downwards is arrested, and an almost complete remission of the symptoms occurs.

Remissions.—It is a well established fact, that in certain cases, during the progress of general paresis, an improvement in the patient's condition occurs, and gives rise to false hopes of recovery, which are never to be realized.

The improvement is generally very gradual, the word "remission" has been employed to describe this deviation from the more common course of the disease. Dr. A. Sauze, physician to the Asylum at Marseilles, studied these cases, and his paper appeared in the *Annales Medico-Psychologiques*, and has been translated in the *Journal of Mental Science*, July, 1861. He remarks that there are three modes in which remissions may be found, 1. all the signs of the paralysis disappear, 2. the mental symptoms improve, but the paralysis remains *in statu quo*, 3. the two sets of symptoms undergo amelioration equally.

He insists, however, and in this my own experience entirely concurs, that in the best marked cases of remission a practised eye may always detect a something left of the disease.

The different writers on general paresis do not all rigidly confine their nomenclature to what I consider the typical case. In fact many consider that a definition of "mental imbecility with paralysis of any kind" constitutes the whole phenomena of the disease, in speaking therefore of the remission of symptoms or improvement in the case, they may not be all speaking of the same kind of case.

Period of Remission.—From my own experience I admit fully,

that in many cases, the disease, after entering upon what we have called its second stage, and certainly after the excitement of this stage has been thoroughly established, a gradual improvement may take place, very deceitful to any but a practised observer. The remission, I should say, as a rule takes place before the motor symptoms are very obvious, not perhaps before there has been any change in the action of the pupil, but before any stammering or mumbling of the voice has become noticeable. The delirium, with its "monomania des grandeurs" becomes less and less, the patient's mind returns almost to its normal state, I say "almost," on very close scrutiny the mind will be found to have lost some of its former power in every case.

This condition of the symptoms may lead and has led to various legal questions, and may give rise to embarrassment where interests are in contention.

I had a patient under my care, the principal of a legal firm, who had been admitted with all the characters of general paresis in the typical form, and in the second stage, the active symptoms after about 6 months gradually subsided, and the patient passed into this condition of remission.

During the period immediately prior to his outbreak, which led to my introduction to the case, this gentleman had done several extravagant and insane acts, which were not fully known to his friends. He had also the affairs of several clients in his hands, and which during his illness, no one could fully understand or unravel, on account of the confusion in which they were left. It became a question therefore of great moment, whether the patient in his improved state, might not be able to render assistance; to do this, it was necessary that he should be discharged. He was discharged; and I believe was able to afford valuable information on several important matters. During his illness my opinion was asked as to the probability of his recovery, I gave of course a very unfavourable prognosis. I considered his ultimate recovery most unlikely, and the only room for doubt being, that I had mistaken the nature of his disease; which of course I admitted as possible, as there were no unequivocal motor signs in the case, and there had only been the character of the delirium and the absence of a melancholic stage of ordinary insanity. It appeared that on the strength of

my unfavourable opinion, his friends disposed of his practice; when the patient returned home, the purchaser, who had called on me previously to purchase, to take my opinion, was also much disturbed, and threatened me with an action for the opinion I gave to him. It was evident, therefore, that the remission appeared very complete to ordinary observers. I told my visitor that I adhered to the opinion I had given. He replied, the "patient has recovered; he is well; there is nothing at all the matter with his mind, and he is quite as able to transact business as ever he was." This is evidence of the extent to which the remission of the symptoms may occur.

The patient had left my care some time. I proceeded then to cross-examine my visitor and to see if there was any sign of mental feebleness at all, a little examination brought out certain notable changes; he was not quite so active as usual in his business. He was fond of going into the room of his head-clerk, and talking of trivial matters, contrary to his former custom; and seemed to delight in matters of prurient kind. He seemed strong and in good health, but he complained of his legs feeling heavy. I told my visitor that these were unfortunate indications for my patient, but I think his successor went away relieved and in better spirits himself, though he did not show any appreciation of my ability to relieve his mind. The patient died in about nine months afterwards of the disease.

The apparent absolute recovery of the patient was illustrated in another case. I had the son of a very intelligent veterinary surgeon under my care, who watched his son's case very closely. The patient was first seen by me in August, 187—; he was very excited, had well-marked *delire des grandeurs*, irregular pupils and indications of other motor symptoms: in December, cramps in the limbs; in January, improvement began; in May, complete remission and discharge; from June, he remained well till October twelvemonth; relapsed and died in November, *i.e.* after a remission of about 16 months.

I had given the father my prognosis of his son's case, on the admission of the patient; the symptoms were very closely watched by the father and the remission also. The father frequently reported the progress of his son's case to me, which

went on improving month by month during the 16 months that the remission lasted. I saw the patient from time to time in the interval; mentally he was entirely free from delirium of any kind. He said he did not feel himself well enough to return to the practice of his profession, and that reading soon fatigued him. He attended closely to his health and was very temperate in his diet. In the course of the summer following his discharge, he complained of a feeling of weight in his limbs; the weather was hot and he took a walk early every morning in the park, and he said he occasionally felt a tightness in the fascia of his legs; he was quite rational, there was no impediment in his speech at my visit, but he told me at times he had a momentary stammer. It was in October, 16 months after the first remission of the characteristic symptoms, that I met the father accidentally and asked after the patient, he told me he had just seen his son, and added "Doctor, this time your prognosis has been wrong, my son is well; the recovery is complete." The father was a more than ordinary observer, and a man of decidedly superior intellect and with a good knowledge of medicine and of human physiology. A few days after this report, the son was admitted into Bethlehem and died in the course of the month in a convulsive attack.

The case is interesting since the testimony of one with more than ordinary observation, pronounced the entire recovery of the patient, and some judges and legal practitioners would depend upon such, it seems, more than on a specialist's opinion. Its legal aspect, however, will be discussed hereafter.

At the Annual Meeting of the British Medical Association in 1883, Dr. Savage read an account of several cases, which had come under his own observation, in which the remission had lasted several years, and in some of these cases appeared to be permanent, that is in other words, they had terminated in cure. I have never seen any such in my own practice, I have read of many, and several are related in different authors, but on very close investigation of all the phenomena, I came to the conclusion that many of the patients were affected with melancholy with stupor. But Dr. Savage's experience and judgment seems to be conclusive. Admitting this, we must admit at the same time, that there must be some fundamental difference in

the pathology of the cases, grouped together under the title of general paresis. We can scarcely conceive that such changes as are shown in Dr. Wiglesworth's preparations (Plate II) would admit of recovery, unless, which is not likely, the lesions found were partial or unilateral.

The relapse, which is thus almost inevitable, as a rule takes place somewhat suddenly, there is sometimes some violence, more frequently a return of the motor difficulties, sometimes convulsion. The case on relapse will then enter the last stage of the disease which we will next consider; when there has been a remission, the relapse if it can always be so-called may be simply a return of the symptoms remitted. It has always appeared to me that the real pathology of these cases is this, that since the first stage of the disease is apparently one of exaltation of the cerebral functions or an increase in activity of the circulation, and the end of the disease is the opposite when the circulation is more torpid, there must of necessity be an intermediate stage in the transition, when the mental condition is half way between the two poles or normal, and so far as exaltation and deficiency of energy is concerned, the mental condition of the patient at a stage appears in a neutral state, but the mind, after the excitement has subsided, shows a loss of power.

The relapse will be both in the mental functions and in the motor. When the motor have been ameliorated, there is a gradual increase in the stammering, in the facial expression and in the gait.

Mentally, the patient who has appeared improved, exhibits a gradually increasing imbecility of mind. There may be no return to excitement, perhaps, nor to utopianism; but the patient has a happy and contented frame of mind; he is as much inclined to brag of his prowess as formerly, or of his health and strength, but in a more fatuous way.

The last stage when fully established exhibits the patient in a most pitiable condition, as regards intellect, emotion and motility.

Intellect is almost annihilated, special senses are dull and slow, emotional feelings, &c., in the lowest condition of fatuity. The patient smiles or cries by turns; he is no longer attentive

to the calls of nature; if his sphincters are still able to respond to volition, the power of control is gradually decreased.

The motor functions in the same manner become more and more impaired. The patient's expression of face is more dull and stolid, all the lines of facial expression are obliterated, the face is like a smoothened mask; if he tries to speak the muscles around the mouth are thrown into spasmodic action or sardonic grin; if he attempts to protrude the tongue, at first, it is jerked out and withdrawn, or later when asked, the patient involuntary raises his hand to assist in the protrusion; but in these impaired movements it will be noticeable that they affect both sides apparently quite equally. The patient's hand-grasp becomes more and more feeble, but in this there is often some difference on the left or right side.

There is now distinct ataxy present. While the patient can still walk the gait is more remarkable and the performance more and more difficult; at last the patient is unable to stand at all. The feebleness at first is more marked after sleep or on awaking. The process of waking is slow, in other words, the change of the cerebral circulation is feebly performed. When the patient's weakness confines him to bed, his power of articulation is often so far gone as to render him unintelligible, and there is often a disposition to grind the teeth. Another motor feature is the trick of rolling up the bedclothes; the patient lying on his back continues to gather up the clothes in a peculiar way, which mode may be seen in all classes of patients and in all countries. At this stage, of course, the patient is wholly unconscious of his dejections, and as a rule passes them involuntarily.

In the last stage of all, the patient's limbs become contracted. At first there is simply a tendency shown in the patient to lie with his knees drawn up. This gradually increases, the limbs can be straightened and do not at first resist, but when loosened by degrees they return to the same position. This contraction increases till the thighs come in contact with the belly and the heels with the buttocks.

Patients have, as a rule, no particular proneness to sloughing, but from their habits, if not kept scrupulously clean, are very liable to excoriate.

In this last stage there is a tendency to convulsive attacks.

As enemata generally relieves this, the attack is probably due to the irritation of accumulation in the bowels.

Apoplectic seizures also sometimes occur.

As regards reflex movements the authorities differ, and for this reason, the cases differ in this respect. It will be seen hereafter that the seat of the disease has been attributed by some to the spinal cord chiefly. That, in my opinion, is going too far; but in most cases there are ataxic symptoms, that is spinal as well as cerebral lesions, but to what extent, may differ in different cases.

Certainly, in certain cases and in those which I call typical, in the last stage of the disease the reflex movements are abolished. Dr. Bucknill stated this, and it was contradicted by Drs. Falret and Brierre de Boismont. I examined several patients under treatment at the time I first read his remark, and found that tickling of the soles of the feet produced *no* reflex movements in any. Since that, however, I have seen patients in which the reflex movements were distinctly increased, and existed at other points, cremaster and epigastrium, &c. It is not easy in a patient in this last stage to examine for knee-jerk, as the limb is contracted; but Dr. Mickle examined this question, and in a paper in the *Journal of Mental Science*, the following are his results, and the phenomenon is of interest, in connection with reflex phenomena.

He found that there were cases in which this phenomenon was within the normal range, others in which it was absent or very much lessened, and thirdly, cases in which it was well marked or exaggerated.

It must be borne in mind that the description given here is of a typical case. There are of course many deviations from this, almost as many as there are cases. Nevertheless, according to my experience, there is found a difference in different cases of other reflex movements.

It is in this last stage of the disease that the patient is liable to choke while taking food. This accident is so common that a probang should always be at hand in the sick room. I consider this accident tends to show the loss of reflex movements, the action of the muscles of the pharynx not responding, or responding too slowly to the presence of the food.

There are other phenomena which have been investigated with great care.

Temperature has been examined by Dr. Mickle, *Journal of Mental Science*, April, 1872. His general conclusions, I think, show that there is nothing special in regard to temperature in general paresis. He found, speaking in general terms, that when the disease was advancing rapidly, there was a slightly higher evening temperature, and on the eve of an attack of excitement or convulsion there was a rise in temperature, and also as death approached. He found, however, in certain cases, a difference of temperature on the two sides of the body.

With regard to the other functions as those of respiration, circulation, and digestion, investigation has been equally active. The organs of the chest, as a rule, are healthy, and present no special lesion; when any such exist it is accidental. The pulse to the touch gives no indication of change.

Dr. Mickle (*General Paralysis*, p. 49), observes, "In the early stages the pulse is full and hard, and the beat of the heart powerful, the first sound clear and full, the second accentuated, the arterial tension increased. This condition, however, is very far from being always present or persistent. Voisin finds indications of vaso-motor paralysis in the full compressible pulse, whose sphygmogram displays some elevation of the percussion stroke, a plateau at the summit, oscillations on the line of descent, and a variable degree of dicrotism. This condition increases in proportion as the malady progresses. In the final periods the tracing is reduced to a slightly and irregularly wavy line."

This is interesting in connection with the state of the arterioles to be mentioned hereafter.

The digestion throughout the whole course of the disease is seldom disturbed, but in the early portion of the disease the diet requires to be regulated on account of the boulimia which is nearly always present, and later in the last stage care must be taken to prevent the patient from choking. Paretics have often a tendency to eat largely and unless closely watched will thrust large pieces of food into their mouths. The bowels are usually regular and the dejections not unhealthy; when any disturbance occurs it is attributable to this propensity to gorge;

there is a tendency to constipation when the patient takes to the bed, which seems to be due to the paralysis and its accompanying dysæthesia. When the large intestines become loaded it induces a convulsive attack.

The secretion of the kidneys has been studied by numerous observers. In the early stages it does not show much change either in quality or quantity. In the later stages when the urine is retained or when the catheter has to be used, it is frequently found alkaline and offensive. Dr. Meeson, *West Riding Reports*, vol. iv., p. 93, thus sums up an examination of the urine in six well-marked cases: 1. The quantity of urea varies above and below the average of health, being in the majority of cases considerably increased. 2. The chlorides and phosphoric acids notably diminished, the sulphuric acid is normal. 3. The specific gravity varies within wider limits than in health, the means do not differ. 4. Absolute quantity estimated according to the weight of the body is slightly in excess of normal.

In connection with this subject Mr. Wolfenden states in an article on Ptomaines in the *Lancet*, Nov. 17, 1883, that Selmi found in the urine of patients suffering from progressive paralysis, two volatile bases, the one like nicotin, the other like coniin.

As regards the respiratory function this is usually unaffected until the very last stage when hypostatic pneumonia may occur.

Thus it would seem that the symptoms are confined to the neural functions; the nutrition processes are but rarely implicated.

The early symptoms appear to be wholly cerebral and the closing symptoms point to spinal complication and to disease of diffuse degeneration chiefly of the lateral columns; there is usually absent any marked wasting of the limbs and not till quite the close any great disorder of the sensory functions, as anæsthesia, etc.

The foregoing description, is that of an imaginary and typical case, and is intended to give the phenomena, most usual in the disease, but there are many variations, in the course and progress of actual cases. Most writers on the subject of General Paresis, have attempted to describe such principal varieties.

Assuming for the present, that the disease is one due to changes in the nerve centres—or brain and cord, it is obvious that the lesion may involve different portions of these organs and to a different degree in different cases, and again the disease may commence in different parts of these centres, and proceed in a different course, so that it is natural to suppose, that the symptoms may vary in their progress in the individual examples of the disease. The most probable, and the most received opinion of the nature of the lesion is, that it is a degeneration, and if so, this may readily be supposed to be seated in different degrees in different localities, and since there is a certain uniformity and continuity of structure in the whole of the central nerve organs, we should expect to find a general spreading of the same morbid process throughout the whole, and this is what appears to be the case.

Thus the French writers speak of:—

1. A congestive variety.
2. A paralytic variety.
3. A melancholic variety.
4. An expansive variety.

M. Baillarger insists upon a hypochondriacal, a melancholic, a monomaniacal, and a simple form. Dr. Mickle also admits of the same varieties in the symptoms. It is therefore abundantly evident, that the cases of general paresis show certain deviations in the course of the disease, but nevertheless there will be found running through the whole of each case, the symptoms more or less pronounced, which I have endeavoured to depict.

Every writer upon the disease, admits that such variation also in the advent of the various phenomena is not uncommon. As regards the order of occurrence of the mental and motor symptoms for instance, there are described three modes of invasion as possible.

Firstly, the case may commence by some disorder of the mental faculties—usually by delirium, or maniacal excitement—but in some rare cases with depression or melancholy, and on the subsidence of these symptoms the peculiar indications of general paresis, particularly those connected with the motor functions,

manifest themselves. This is admitted by most authors to be the most frequent order of invasion. Both Parchappe and Calmeil admit also, that the special paretic symptoms may follow the mental at any length of time, as after many years, though this is exceptional, and not the usual course.

Secondly, other cases occur, in which the mental symptoms, as mania, melancholia, and especially a state of dementia, are manifested simultaneously with the lesion of motility.

Thirdly, MM. Baillarger and Lunier assert that, as a rule, the lesion of motility precedes the mental phenomena, and most observers say that this is the case in some instances; are not these primarily ataxy?

The sequence of one set of phenomena to the other is obviously a question which requires only a careful observation to determine. The primary symptoms of this, and all diseases are faintly marked, it is easy to overlook them, and the paretic symptoms are frequently not recognisable by ordinary observers, even when pointed out.

There are however cases of morbid conditions, which seem to me decidedly different, and which are liable to be mistaken for general paresis, and since the prognosis of a true case of that disease is so bad, it is essential, that these should be clearly diagnosed.

Dr. Von Kraft Ebing gives the following list of diseases, which in his belief may be mistaken for general paresis.

1. Senile dementia with paralysis.
2. Dementia from cerebral disease, as apoplexy, tumours, chronic encephalitis, sclerosis, to which we may add syphilitic disease of the vessels.
3. Ataxy.
4. Dementia from epilepsy.
5. Alcoholismus chronicus.
6. Hysterical paralysis.
7. Lead poisoning.
8. Paralysis from muscular atrophy and spinal disease.
9. Pellagra.
10. Phosphoric and arsenical poisoning; to which I would add
11. Melancholy with stupor.

In the former edition of these lectures I enumerated some of these, and I still consider they are the most important, as most liable to be mistaken for genuine general paresis, viz.,

Certain spinal diseases.
Chronic alcoholismus.
Epileptic insanity.
Organic disease of brain.

But as these diseases come under the next division of our subject, or the *Symptomatic Mental Diseases* they will be discussed in a future page, and their diagnosis from general paresis pointed out.

Treatment.—As in former pages, only special treatment will be alluded to in this place. Remarks on the general or moral treatment, in other terms the general management, will be found in a subsequent page.

There has been of course in a disease of the fatality of general paresis, a great deal of attention directed to therapeutics, as applicable to the case, yet still without very consolatory results.

During the stage of great mental excitement digitalis, and digitalis and opium have been strongly recommended, and I consider that the effects are often good. I prefer the combination as recommended by Dr. Dumesnil in a paper in the *Annales Medico-Psychologiques* of opium with digitalis. I have usually prescribed it in the proportion of one drachm of Tr. opii to ♏x of Tr. digitalis every four hours till the patient becomes more tranquil and sleeps. I have less confidence in bromine, but the bromide salts have the advantage of being more readily concealed and the patient will take them more quietly. The dose may be repeated for a time without fear. I have no belief in the anaphrodisiac properties of the bromides, but if they possess any such property, they might be doubly applicable. Hyoscyamine will also quiet the excited patient, but I do not consider it preferable to opium combined with digitalis. Ergotine has been spoken of, but I have never tried it.

Counter-irritation to the spine was strongly recommended by the late Dr. Boyd. It is worthy of remark that in the several reported recoveries from general paresis, the patient had suffered from extensive boils and carbuncles at the back of the neck. I have seen blistering to the nape employed, but I saw no benefit

derived from it. If the patient is weak and emaciated, which would be quite an accidental circumstance, cod-liver oil or any other ordinary remedy would be indicated. There is a tendency in the last stage in some cases to sloughs from pressure, they are not usual in typical cases, but sores from lying, and from the dribbling of urine, require the ordinary care in such cases.

Prognosis.—As regards prognosis, it is invariably bad, the average duration of the disease is from two to four, or four and a half years, the longer periods would include a period of remission probably.

Section VIII.

THE ETIOLOGY, MORBID ANATOMY AND PATHOLOGY OF GENERAL PARESIS.

Preliminary statement—Division of Subject—Causes, Remote, Predisposing—Influence of Sex—Age—Temperament—Marriage—Social position—Education—Character—Habits—Syphilis—Injuries—Epilepsy—Race—Proximate causes—Morbid anatomy—Pathology proper.

It will tend to a clearer understanding of this part of the subject, if I pursue the course adopted in legal proceedings, that is to state firstly what conclusions I consider the facts of the case are calculated to prove, and then to give the evidence in detail.

In my opinion the explanation to be derived from a consideration of all the phenomena of the disease, is as follows, that the disease commences in the nerve tissue itself, and is caused by a severe shock of a moral or physical kind; that the nerve tissues are primarily envolved and in their entirety; that is, that every division of the nervous system, whatever artificial divisions of its functions be made, participates in the phenomena of the disease. In other words, the symptoms and the lesions are connected with intellect, emotion, the motor faculties, voluntary and involuntary, as well as those connected with trophic functions.

That the earliest symptoms are due to an excited or uncontrolled condition of the vascular system, which leads eventually to interstitial changes in the tissues themselves.

The same order will be pursued in the examination of this part of the subject in connection with general paresis, as was adopted in relation to ordinary insanity, viz., the subject will be divided into :—

I. The supposed causes or the etiology.

II. The anatomical characters of the disease or post mortem appearances.

III. The pathology or the explanation of the altered functions.

I. *The Etiology.*—This will be discussed in the following order:

A. Remote Causes.—(a) Predisposing Cause. "Illa quæ corpus tantùm morbo opportunum reddit."

(b) Exciting Cause. "Ea quæ in corpore jam proclivi facto morbum excitat."

It must be owned, however, that it is not always easy to distinguish between these in practice.

B. Proximate Causes. "Illa quæ presens morbum facit, sublata tollit, mutata mutat," or the real or pathological basis of the disease.

A. (a) The remote and predisposing causes of ordinary insanity.

Those causes which have been considered as predisposing or to give a greater liability to general paresis, are the following, which will be considered separately in the following order :

1. Sex most liable.
2. Ages most liable.
3. Complexion or physical temperament.
4. Condition as to marriage.
5. Social position.
6. Education.
7. Character and disposition.
8. Habits as respects temperance.
9. Syphilitic taint.
10. Heredity.
11. Injuries, etc.
12. Epilepsy.
13. Race or constitution.

1. Relative liability of the sexes to the disease as given by

Dr. Algernon Chapman .	22	males to		5	females.
Somerset Asylum . . .	8	,,	,,	2	,,
Dr. Mickle, England . .	14·1	,,	,,	3·2	,,
Calmeil	50	,,	,,	15	,,

The average of these may be taken to be in whole numbers as 5 to 1.*

2. *Age.*—Dr. Mickle from calculations, based upon *Thirty-second Report of the Commissioners in Lunacy*, states the relative ages of patients to be 14·4 per cent. between 40 and 50, and 13·5 per cent. between 30 and 40.

* *Journal of Mental Science*, April, 1879.

I found at Hanwell among the females.

Between	15	and	20	1
,,	20	,,	25	0
,,	25	,,	30	6
,,	30	,,	35	7
,,	35	,,	40	7
,,	40	,,	45	7
,,	45	,,	50	6
,,	50	,,	55	2
,,	55	,,	60	0
,,	60	,,	65	4
,,	65	,,	70	1
				41

These figures differ from the above, but they show that from 30 to 50 is the epoch most liable to the disease.

3. *Complexion.*—Dr. Burman examined this subject, suggested to him by Dr. Saunders, who had observed that general paretics as a rule were of dark complexion. Dr. Burman found 23 dark, 14 medium, 3 fair. In my own practice the dark have distinctly predominated; the proportion of dark and fair in the sane, however, I have no means of knowing.

4. *Married or Single.*—Statisticians have examined the relative frequency of the disease as to marriage. Dr. Mickle gives the following figures which he quotes from Dr. Algernon Chapman.

Of General Paretics.	Per 100,000 of Population of same age.		
	Males.	Females.	Total.
Single	30·4	5·4	16 5
Married	24·6	5·7	15·3
Widowed	29·1	7·0	15·4

This table points to the effects of other operating causes, thus single men suffer more than married or widowed, while widowed women suffer more than single or married. The recklessness of the young men and the straitened circumstances

and troubles of the widowed women being probably at the root of the different liabilities.

5 and 6. *Social Position and Education. Education.*—I stated in the first edition of these Lectures that the disease was more common among the poor and uneducated, than among the educated and richer class. Dr. Mickle differs from me in this, I have therefore re-examined the subject. I think the Commissioners' Report, which he quotes, shows the disease to be more common in the lower than in the upper classes. Dividing the Commissioners' Orders of "station in life" into three, general paresis occurred in 11·1 per cent. in the highest, and 16·9 per cent. in the lowest, and 17·4 in the middle classes. But there is a source of error which might be easily overlooked in these tables. It is reported that the disease occurred in the ratio of 24·1 per cent. of those in Order I., or of those engaged in the government of the country, taking this to be made up of magistrates, judges, lords, etc., it would show a high rate of cases among the upper class; but the order also includes, and in far greater number of course, all government clerks, messengers, government workmen, officers of law courts, policemen, prison officers, municipal, parish and union officers; while among plutocrats alone it is in the ratio of 7·9 per cent.

The records of private practice do not afford very good means for investigating the causes of disease, my own private patients are all of the educated class, and I find that nine per cent. were affected with general paresis. Dr. Mickle found in his own cases that is the ratio among the class of soldiers was 18½ per cent.

In the *Twenty-fifth Report of the Commissioners in Lunacy*, table xx., the proportion of general paralytics to total admissions in the private asylums was one-twentieth of the whole, and in the pauper asylums one-fourteenth.

Social Condition as to means.—As this condition is much the same as that of the degree of education; I refer to the conclusion in previous paragraph, remarking only that I am still of opinion that the liability to insanity in general is much more prevalent among the pauper than among the non-pauper population.

Dr. Burman after examining the subject *de novo*, arrived at the same conclusion. In analysing 341 cases of general paresis, as to

the social position of the patients, he concludes thus:—"Probably Dr. Sankey is correct when he states that the predisposition to the disease is in the following order:—

1. Males of the lower classes.
2. Males of the upper classes.
3. Females of the lower classes.
4. Females of the upper classes."

7. *Character and disposition.*—Dr. Algernon Chapman, *loc. cit.*, quotes cases in "a most active, pushing, energetic man," one "fond of society, bon-vivant, self-indulgent in every direction;" and in my own experience those of sanguine, ambitious, improvident, speculating, scheming and reckless temperament are certainly more prone to general paresis, and it is worthy of remark how often this is found in these cases, whereas in cases of spinal disease the cause of the disease is as a rule in a different kind of individual, in whom also the immediate or exciting cause is obscure.

Strong sexual propensity.—There certainly has been in most of my cases evidence of this. Still, it must be remembered, that the evidence is likely to be equivocal as there is no doubt that sexual excitement is a symptom of the disease, but that is quite different from being a cause and a predisposing one. There is a total absence of reticence in the patient at the same epoch. So that if one at all relies upon what the patient himself says, there would be sure to be abundant history of libidinous character.

"Out of thirty-five cases, of which the history of the disease was complete, eleven were known to have led an habitually irregular life, with respect to sexual indulgence; and of fourteen only was the information satisfactory as to the contrary state of things; even of these fourteen, one had borne an illegitimate child in early life, but since, according to her mother, had lived correctly; and one other was a married woman, who left her husband on the day after her marriage."

The above is extracted from my previously published lectures in 1866, my subsequent experience bears out the same kind of evidence of sexual irregularities. My own evidence, however, does not lead me to the conclusion that the *cause* of general paresis is excessive sexual indulgence. On the contrary, my own conclusion would be, that it is the *effect*.

There is much force in the remark of Dr. Mickle that the period of most liability to the disease, or between 30 and 60, does not at all correspond to the period of the strongest sexual passions, it may, however, coincide with the time when too great indulgence would begin to show fruit.

8. *Habits, as respects temperance. Drink, Intemperance, etc.*— Speaking of the *causes* of general paresis, Dr. Hack Tuke gives prominence to alcoholic excesses and dissipated habits combined; he adds in many cases with insufficiency of nourishment, there is scarcely an author who does not refer to this agent, and indeed many cases of general paresis are set down as *mania à potû*.

"Intemperance, by which is meant indulgence in alcoholic drinking, appears in every statistical table as the predominating cause of general paresis, above all other kinds of causes."

It is obvious that it can only be a predisposing cause, and that it should be so, is not surprising since the action of all alcoholic beverages is directly on the cerebral organ, and the symptoms produced by alcohol in excess, are very similar to those of general paresis; the phenomena of drunkenness are a close copy of general paresis, as the elation, bragging, thick speech, staggering gait, etc., in fact, a drunken man might be almost utilised for demonstrating the disease to a clinical class; 19 per cent. of Dr. Burman's cases of general paresis are attributed to intemperance, drink and dissipation.

Dr. Mickle after reviewing very numerous authorities who concur almost unanimously in the opinion that excess in alcohol is the predominating cause of general paresis concludes thus:— "In my own cases alcohol though perhaps rarely acting alone, has appeared to be by far the most frequent and efficacious cause of general paralysis."

It must be borne in mind however that the reckless disposition, the self indulgence to which the subjects are prone, in regard to all kinds of sensual excesses, may give some explanation for the intemperance in drink, and that the excess therefore may be the effect of the disease rather than a cause.

That it is not a determining or the actual and proximate cause of the disease is clear, for as M. Voisin remarks the anatomical changes, and the symptoms of alcoholismus are of different and well known character.

And I find that in private practice the predominance of alcoholic excess as a cause is by no means so great as in public and pauper asylums. In my small licensed house I have treated twelve cases of general paresis, and ten of these were in temperate subjects, one was decidedly intemperate and one of doubtful kind.

Drink however must be considered a very possible predisposing cause in many cases.

9. *Syphilitic taint.* This may be considered from two aspects, one from its moral bearing and the other from its physical.

As a moral cause however it only is an evidence of self indulgence and recklessness of character, already considered under (7) *character and disposition.* It may be admitted that syphilis is often present in the history of a case of general paresis.

That syphilis, however, predisposes to insanity of any kind in its physical operation, is not proved, the evidence tending rather to an opposite conclusion.

Dr. Broadbent in the Lettsomian Lectures, 1874, remarks, that the syphilitic affections of the brain would point to a different set of symptoms and morbid appearances from those found in insanity, such as thrombosis of the arteries and impaction of the vessels, and in syphilitic deposits.

Syphilitic growths occur in the brain and give rise to various symptoms, such as headaches, not common in general paresis, with other symptoms of cerebral origin, which vary in different cases according to the actual seat of the growths in the brain.

I see no reason therefore to alter the opinion which I expressed in the previous edition of these lectures, namely, that though there is a parallelism between these two diseases in their etiology, yet at present it has not been shown that general paresis is a syphilitic disease, and such appears to be the conclusion arrived at by several others.

Dr. Foville in a criticism on a paper of M. Tournier, thus expresses himself, that as yet there is no distinct origin proved of general paresis in syphilis, *Medico Psychological Journal*, January 1880.

M. Tournier in a paper, *Annales Medico Psychologiques*, January, 1879, designated "Pseudo General Paralysis of Syphilitic Origin," attracted the attention of Dr. Foville to the subject. After perusing the several cases given as examples of the syphilitic ori-

gin of general paresis, one is compelled to the same conclusion which I arrived at before, viz., that the same causes which made the subject prone to syphilis, rendered him also very obnoxious to an attack of general paresis, or the peculiar disposition and character of the patient.

Dr. Foville however, on the other hand remarks "that the diagnosis between general paresis and syphilitic tumours of the brain is extremely difficult if not impossible." He quotes, M. Lancereaux, *Gazette Hebdom.* 1873, who however seems only to say, that certain syphilitic lesions *may* produce a symptomatic *ensemble* greatly resembling general paresis.

The differential diagnosis between general paresis and syphilitic diseases of the brain will be found at a future page.

10. *Heredity.*—Has been variously estimated, usually it is based upon the tendency to any kind of neurosis. On this basis my own calculations made:—

14½ per cent instead of 20 among females.
17½ ,, ,, ,, 22 among males.

Or upon an average of 16 per cent of hereditary causes in general paresis to 21 per cent in other cases of insanity, thus showing a distinct difference in the predisposing causes of the two diseases.

11. *Cranial injury.*—Dr. Mickle, *Journal of Mental Science*, Jan., 1883, says: "In the cases which have come under my own observation where cranial injury has conduced to general paralysis, it has in the majority served to play the part of a predisposing rather than of an exciting cause." I have not seen any case myself, where general paresis was attributable directly to injury to the head, but in the case of a gentleman who came under my care, the patient had had a severe injury from a fall in a steeple chase and was nearly a week insensible, but eventually recovered and remained quite well for two years before the symptoms of paresis set in. I also was consulted in another case of general paresis, in which the patient had had an injury to his head many years previously, and bore the marks of cicatrices. What the injury had to do with the ultimate affection of the brain it is not easy to say. Dr. Mickle gives two out of twenty cases in which cranial injuries were alleged. In my experience cranial injury has been

* See also *Journal of Mental Science*, April and October, 1877, and Jan. 1880.

certainly much less frequently discovered, but Dr. Mickle's patients are much more exposed to injuries than mine, who were mostly females. I must have treated nearly one hundred cases, but cannot call to mind any case in which cranial injury could be an indubitable cause of the attack, but it certainly seems to be a remote cause in some.

12. *Epilepsy.*—The large number of cases in the return of causes of death from the different county asylums, in which epilepsy and general paralysis are combined, points to the possibility of epilepsy as being predisposant, but I have no evidence to show that it really is so. I should rather be disposed to believe that the convulsive attacks which are not unfrequent in general paresis have been set down as epilepsy.

13. *Race.*—An opinion has been expressed that race had influence in the liability to general paresis and this arose from the observation of many physicians that the disease was scarcely known in Ireland. An investigation was therefore undertaken by a committee of the International Medical Congress of 1881,* who drew up a report on the race-relationships of general paralysis, based on replies to the queries received from different observers, from this report, I gather that the disease is scarcely known, in the Irish Asylums. But the conclusion arrived at was that in the most thoroughly Saxon districts, the disease was more frequent than in the more Celtic races, and that the Celtics inhabiting Brecon, Radnor and different Welsh counties had also a comparative immunity from the disease. It appears also that in those districts in Ireland, which had the greatest immunity from general paresis, were those where the largest portion were agriculturally employed. In the same districts it seems established that syphilis also was extremely rare, this if fully proved would make another link in the evidence of the connection of syphilis with the etiology of general paresis, and especially as the underlying temperament which seemed to be the common cause of both diseases may be considered in this case as separated, for the sanguine temperament, recklessness of disposition, is not remarkably absent from the Irish.

I must admit, however, which I readily do, that the study of these remote and predisposing causes throws very little light

* Dr. J. Ashe's Report.

upon the real nature of the disease. It seemed to me necessary to consider them as they occupy the attention of most writers on this subject, but after all, I fear, it has been as yet, but work and industry wasted.

A. (*b*) *The remote and exciting causes.*—We next have to consider the remote and exciting causes, the results from the consideration of which are more suggestive.

There is much difficulty in determining in many instances among the remote causes, between what is an exciting cause and what a predisposing cause.

Some agents may act in either way, as drink. Notwithstanding this difficulty, as I have already shown, remote causes of the attack have been proposed as a basis of classification.

In considering the exciting causes of an attack of general paresis we may divide them into moral and physical, and I will endeavour to keep these separate.

An exciting cause must be a concrete, a predisposing cause is an abstract. Thus alcohol taken in excess may be the exciting, but intemperance is a predisposing cause.

Moral causes.—The frequency with which a distinct nervous shock can be traced is remarkable. Most authors allude to it; Mr. Austin calls it a moral agony; Dr. Mickle, an emotional over-strain. The Commissioners in Lunacy in their Report for 1880, found by the returns made to them that moral causes for the disease occurred in about 23 per cent. of the whole in general paresis. They divided these causes in the following manner:—Domestic trouble, 55. Adverse circumstances including business anxieties and pecuniary difficulties, 88. Mental anxiety and overwork, 67. Religious excitement, 3. Love affairs, 4. Fright and nervous shock, 10. That is 183 out of a total of 786, or at the rate of 23·28 per cent, (34th Report, p. 42).

But these are public returns, and I fear that not much value can be put upon them, and considering the very general opinion concerning the incurability of the disease, the value of them is not increased by the fact that out of 786 cases no less than 38 are set down as second attacks.

Individual testimony from those who have investigated the disease pathologically is of more value, and there is a pretty general agreement among these that moral causes have a large

share in the etiology of the disease. Dr. Burman (*West Riding Reports*, Vol. 1, p. 140), after tabulating 103 cases of general paresis from the records of the Devon County Asylum, found moral causes to be in excess and the ratio to be of moral causes 53, physical causes 50, or about double that of the Commissioners in Lunacy. Dr. Burman says, "the experience of this (the Devon County Asylum) tends to confirm the assertion of Austin, that moral agony is the cause in the majority of cases of general paralysis, for, as we have just observed, the the cause in the majority of cases was a moral one, and although, as an individual cause, intemperance would seem to carry off the palm, it is an open question as to whether or not in many of the cases it was not rather the effect than the cause of the disease. I can call to mind several cases admitted into the asylum, within my own experience, in which the cause assigned by an indiscriminating relieving officer or overseer was drink, but in which a careful cross-examination as to the history of the patient, showed that such was not really the case, but that it was as I have just surmised it to have been." (p. 143, *loc. cit.*).

We cannot, however, include all these to be exciting causes but the enumeration of them in Dr. Burman's paper shows that many of them were in all probability the true determining cause, as fright, 8; death or serious illness of near relative, 7; loss of ship in a gale, 2; then it does not appear that any single case had two causes assigned, so that the most obvious was in many instances probably selected, as drink, a physical cause in 19, very likely itself due to some "moral agony" as well.

In resorting to my own experience I have been able to trace the disease to a distinct "nerve shock" in very many instances. This shock has been usually of painful nature but not invariably; as examples I may give the following. A gentleman found that his son had forged his name for a large amount, the discovery was sudden, on going to the bank the cheque was shown him. A lady, a widow, lost her only child, by a fever in a few days, while travelling abroad. An officer in the Navy became engaged to a lady the adopted daughter of a bachelor uncle, a man of wealth, the marriage was favoured by the uncle on condition that the husband should give up his profession and reside with his wife, near to the uncle, who made them a handsome allow-

ance; the uncle over seventy just before his death, married his nurse and housekeeper, and altered his will, in which he left all his real property to the niece, and his personal property to his new wife. It turned out that very nearly all his land, which produced the chief of his income, was copy-hold, it was supposed that the testator was not aware that that ranked as personal property. The niece was thus suddenly deprived of all her expectations, the husband became affected with general paresis.

In this case however, the actual catastrophe probably only acted as an additional or exciting cause, for the husband had amaurosis at the time of the disappointment, and was thus predisposed to the disease.

A speculator on the stock exchange on losing a very large amount of money.

A gentleman a widower, was left with two sons, with their mother's property settled upon them on their attaining the age of 21. After carefully, and perhaps too strictly superintending their youth, he found on their coming of age, that they both, one after the other, threw off their allegiance, and launched into extravagance and vice. One of them speedily drinking himself to death, and the other was following the same course, this attack began on the death of the eldest.

A gentleman on returning from India with his wife and children soon after the mutiny, first lost his wife during the voyage, and then a child directly after his landing.

There are several other cases of similar character, which from circumstance, I am unable to give. Among my Hanwell cases, the following examples occurred. A hair dresser's wife, with a family of children, had been suffering from destitution, during the greater part of a winter, scarcely even being able to give the children enough food, the husband earning only a few shillings from time to time. One morning he returned home with the news, that he had got employment of permanent kind with good pay, and he gave her a sovereign which had been advanced to him. She was overcome at the time, and when the husband returned from his work that evening, he found her strange in conduct. She had spent the sovereign wholly in buying carpet slippers, which she said she meant to sell for a large sum. In this case it was over-joy.

A young woman of 18, living with her father, who was a bird-catcher, and who had frequently to go into the country for several days or a week together. On one occasion, on leaving, he gave her half a sovereign for house-keeping. As she was going to a shop, she dropped the money, and a man saw her pick it up. He accused her of stealing it, and gave her in charge; she was taken to the station, and the money was taken from her. On being taken before the magistrate, she was unable to make any reply, and was sent to prison for 14 days. On returning home, the father found her perfectly altered, she talked of her wealth, of having plenty of money, &c., and he was told, that while in prison, she had a kind of fit.

A young woman at the age of 16 or 17, of good appearance, was a patient in St. Bartholomew's Hospital, where she attracted the attention of a medical student. He sent her to a school for a year, and afterwards married her. They lived together in great extravagance for a term, when he, pursued by his creditors, deserted her. In this case, the causes where somewhat complicated, for on her desertion, the parents of the husband allowed her some money, but on finding that she was not *temperate* and was not as they believed, leading a regular life, they stopped the allowance, and she became insane, the dissolute life was perhaps the predisposing cause, the sudden stoppage of the means of living the exciting cause.

A young woman brought up in the country and a domestic servant, having an excellent character, married a painter who came from London to paint her master's house. She went to London while there she had three children; the husband turned out a very drunken and dissipated character, deserted her and left her almost in a starving condition. One of her children was taken ill and died; the friends said that she had never been the same since; she became loose in her conduct, was taken up for pulling up the shrubs in a gentleman's garden, and had gone up to two gentlemen in the road and thrown her arms round their necks and kissed them.

A kept mistress, after living in great luxury, keeping her brougham, etc., was suddenly deserted by her paramour, had been an epileptic in childhood.

Physical exciting causes.—I believe by far the most frequent

exciting or determining cause of general paresis is a nerve shock of non-physical kind as just described; but it seems that some of purely material kind have induced the disease, among which are mentioned by different authorities, injuries and sun-stroke; the latter being the attributed cause in 7 out of 50 in Dr. Burman's cases, and injuries of various kinds in 19 out of 60.

II. *Morbid Anatomy or the proximate cause of general paresis.*

The evidence to be gathered from the appearances after death may be examined in the usual mode, taking firstly the grosser kind or such as are brought to light by the unassisted vision, and secondly by aid of the microscope.

The examination by naked eye may be thus divided:

1. The appearances found in the brain and calvaria generally.
2. In the rest of the body.

The following table exhibits in detail the alterations found in fifteen examinations made by myself, and they are contrasted by placing them by the side of fifteen cases of appearances in ordinary insanity. I think the changes bear out the conclusion that the vascular system generally is much more affected in general paresis than in ordinary insanity; and incidentally this unaided inspection also demonstrates much graver changes in the nerve elements.

The following are the most prominent differences; opacity of arachnoid, serous effusions beneath it, adhesion of pia mater, increased vascularity generally. While the cerebral substance itself is decreased in weight absolutely, and in specific gravity, the convolutions are more open, the layers of the gray matter more indistinct.

Of course the fact should be also borne in mind, that death in general paresis much more frequently is directly caused through the nervous system; while death in ordinary insanity is more frequently due to intercurrent disease.

HEAD—I. EXTERNAL CHARACTERS.	15 Cases of General Paresis	15 Cases of Ordinary Insanity
(A) Form of Cranium.		
Profile.		
Frontal region large, occipital small ...	1	1
Frontal and occipital equal	9	8
Frontal small, occipital large	4	6
Plan or Horizontal Section.		
Oval form	9	10
Circular	3	0

HEAD—I. EXTERNAL CHARACTERS.—(*Continued*).	5 Cases of General Paresis.	15 Cases of Ordinary Insanity.
Egg shape, larger in front	0	0
,, ,, larger behind	2	5
Elevation.		
Vertex low	13	13
,, high	0	2
Irregular in form...	0	1
Measurements ... ... average	5 × 6¼	5 × 6
(B) Hair.		
Much	5	7
Little	6	6
Colour.		
Light	3	2
Red	1	0
Dark	7	7
Gray	3	5
(C) Integuments.		
Normal	14	15
Infiltrated with serum	1	0
(D) Periosteum. Normal	15	15
(E) Bone.		
Thickness normal, diploe distinct	8	7
,, increased, diploe indistinct ...	7	6
,, diminished	0	3
Consistence spongy	0	2
(F) Vascularity of Head, generally and externally		
Normal	10	11
Increased	5	4
II. INTERNAL CHARACTERS.		
(A) Membranes.		
1. Dura Mater.		
Normal	7	5
Abnormal, adherent to bone	4	3
,, ,, to arachnoid	1	1
Increased in thickness	0	4
Bony deposit	0	2
2. Arachnoid.		
Normal	1	6
Abnormal.		
Adherent	1	1
Opaque or thickened	12	4
Contents.		
Serous effusion	11	3
Lymph effused	2	1
Pus	1	0
Blood	0	1
3. Pia Mater.		
On surface of Convolutions		
Normal (strips readily)...	0	7
Abnormal non-adherent	7	7

II. INTERNAL CHARACTERS, Pia Mater (*Continued*).	15 Cases of General Paresis	15 Cases of Ordinary Insanity.
Abnormal adherent	8	1
Vascularity increased	15	7
,, diminished	0	1
Serum in meshes	9	5
Blood ,, ...	1	
Tubercle	1	1
4. Plexus Choroides.		
Normal	0	2
Vascularity increased	4	3
Opaque	0	1
(B) Brain Substance.		
1. General Characters.		
To Touch. Weight.		
Cerebrum ... ... average oz	34¼	35½
Cerebellum and pons ... ... ,,	5¼	5½
Ratio of Cerebrum to Cerebellum	6·54 to 1	6 45 to 1
Specific Gravity.		
White Substance	1·039	1·041
Gray ,, ...	1·034	1·031
Consistence generally.		
Firm	3	5
Flabby	3	4
To Sight.		
Colour. Congested	8	5
Form. Irregular	2	1
Convolutions open	9	3
2. Special Characters.		
(a) Gray Matter.		
Colour.		
Dark	8	3
Light	3	11
Injected	12	6
Layers distinct	5	7
,, indistinct	10	6
Consistence.		
Firmer than normal	5	4
Softer ,, ...	0	4
Morbid growths	0	1
Torn by removal of membranes	8	1
Atrophy	1	0
(b) White Matter.		
Colour.		
Dark	2	1
Pale	4	3
Injected	8	8
Consistence.		
Firm	8	4
Soft	5	4
Ramollisement	0	0

The table marks a great difference in the post mortem appearances in general paresis and in ordinary insanity; and though the cases are few in number they are distinguished from all other forms of disease; and the appearances given by most of the previous writers have consisted of all cases without such separation.

Such is not the fact, however, with all. Dr. Mickle in his valuable monograph on this disease is an exception, he writes, "the pia mater itself is thickened, coarse, usually hyperæmic either universally or in irregularly distributed patches." There is shown in the whole of the cases in the above table, some change in the pia mater, the vascularity was increased and in seven out of fifteen cases it was adherent to the cortex beneath. This condition of adhesion of the membranes has been supposed by some to be peculiar to this disease and to be universally found, this is not the case as the table shows, there was adhesion in eight only out of the fifteen. On attempting to strip off the membranes when they adhere, small portions of the gray matter are torn away, the reason of this will be readily understood when we examine the gray matter. Sometimes at least, when the membranes strip readily it is found to be due to an effusion of serum which bathes the surface beneath.

Dr. Crichton Browne (*West Riding Reports*, vol. vi), more particularly examined the seat of these adhesions of pia mater, for this purpose the membranes were removed by a chemical solvent, "by steeping the brain for a few weeks in a mixture of one part of strong nitric acid to eight or ten of water," the pia mater by this mode was destroyed, and the "convolutions left entire and bearing the marks of the adhesions," which were left rough, eroded and readily recognisable.

He found that the adhesions were confined to the anterior three-fourths of the brain and were not found on the posterior fourth.

Dr. Browne found that in other cases of insanity in which the membranes showed any signs of disease the same locality, the occipital region, was exempt from changes. The island of Reil he also found exempt from adhesions of membrane.

"The favourite site of these is undoubtedly the frontal lobe and no subdivisions of this lobe was exempt from adhesions. In

this locality the pia mater is often attached to the gray substance, not in scattered parts and patches, but over the whole of the summits of the convolutions, and tears away when removed, to what is apparently half the depth of gray substance."

In the majority of cases adhesions are found on the slightly concave surface of the orbital lobes.

On the surface of the parietal lobes, adhesions are commonly found and occur in this locality oftener than in other districts of the cerebrum, except the frontal lobes.

It will be observed that in many of these cases the membranes, stripped in the ordinary manner, were bathed in serum so that the adhesion is not due to drying of the surfaces.

Cortex.—The gray matter, in all those cases which I have hitherto examined, has presented some alteration from the normal condition. In every one of which I have taken accurate notes there has been some increase in the vascularity. In about three-fourths I have noted that the capillaries in its texture could be traced carrying red blood; and in those cases in which the vessels were not visible there has been a distinct blush of hyperæmia to be seen. The colour of the gray matter was also often changed, and was of a dark or slaty colour in full a third of the cases examined by me, and in one fifth it presented a yellowish or fawn or a pale colour. There was a loss of its waxen semi-transparency as well, and its texture appeared shorter, or more friable, and more opaque.

The white substance presents to the unassisted vision no changes which could be considered constant. In one-half the cases it was injected, in the same proportion firm, but in one-third it was soft.

The weight of the brain has been made the subject of examination by several physicians, the whole subject has been reconsidered by Mr. Crochley Clapham (in the *West Riding Reports*, vols. iii and vi) in a very thorough manner; the papers render any reference to the results of other observers unnecessary. Mr. Clapham's examination extends over a total of 1200 cases. He concludes, that the average brain of females and males is 1303·83 grammes. The average weight of cerebellum, pons and medulla = 169·7 grammes, the average age of his subjects being 47 years.

The ratio of cerebellum, pons and medulla to whole cranial contents or encephalon, 1 to 7·68, these figures serve as a standard of comparison for special kinds of disease.

As regards his conclusions in respect to general paresis calculated from 243 cases; the following table arranged with the results in all cases will show what difference exists; the upper line being the general results, the lower line, those of general paresis.*

	Male and Female Encephalon.	Cerebellum, Pons and Medulla C.P.M.	Average age.	Ratio of Encephalon to C.P.M.
General results all ages ...	1303·835	169·7	46·78	1 to 7·68
General Paresis	1270·271	174·0	41·610	1 to 7·30

Thus it appears that the cerebellum is not only above the average relatively to encephalon, but actually; while the brain itself is below the average; a result which corroborates the conclusion which Dr. Skae arrived at in the examination of thirty-five cases which I have quoted in my previous pages.

As regards the alteration of the cerebral substance as shown by its density, the specific gravity as been examined by others† as well as by myself, the general conclusions shown in general paresis is that in certain cases (probably in the early stages) the density of the gray matter is increased, while in the later stages it is below the normal. In Dr. Bucknill's sixty-two cases of which eight were of general paresis, there were five of increased density and three of diminished, in my own fifteen cases the general result was slightly above the average.

All these appearances point to the seat of the disease, as also do the symptoms, being in the cerebral organ and prominently to the cortex; there is evidence of increased blood supply, corresponding to the stage of mental excitability, then there is evidence of

* See also similar tables by M. Parchappe, *De la Folie Paralytique*, Paris, 1859.

† Dr. Bucknill, *op. cit.* Parchappe, *loc. cit.* Dr. Bastian, *Journal of Mental Science*. Dr. Skae, *Morningside Report*. See also Pathology of Ordinary Insanity, p. 231.

interstitial changes in the substance, especially in the gray substance; there is afterwards evidence of shrinking of the convolutions or atrophy; as in the widening of the intergyral spaces, and diminished weight of brain and diminished specific gravity.

With respect to the condition of the other viscera, they may be considered in the same order as before observed. *Chest* or organs of respiration and circulation; *abdomen* or organs of nutrition and excretion.

As regards the lungs, *Dr. Mickle* says that he found evidence of pleuritic affections in two thirds of his examinations and not unfrequently acute lung affections, tubercle in one third, lobar and lobular pneumonia and recent pleurisy in some.

The kidneys he found diseased in one third, and in one fourth of his cases he found abnormality of renal arteries, consisting of an unusual distribution of them.

The few reports of cases that I am able to give from personal examinations, bear out the above, with the exception of the frequency with which disease of the kidneys was found. I think this may be due to the fact, that my patients were all females; and considering how many of Dr. Mickle's cases indulged in drink, perhaps the disease of the kidneys was to some degree at least attributable to that cause. "In my own cases," he says, "though perhaps rarely acting alone, drink has appeared to be by far the most frequent and efficacious cause of general paralysis." His patients were largely drawn from the class of common soldiers.

Besides the evidence to be gathered by an examination of the organs after death, the condition of the blood during life and the state of the urine have been investigated.

Microscopical or Histological Examination.—The second mode of examination is that by the aid of the microscope.

Brain substance.—Sections made of brain tissue, exhibit under the microscope the following constituents:—Nerve cells, neuroglia and blood-vessels.

For the assistance in description of the morbid changes, the normal appearance of these will be first described according to what I myself view as normal, in the following order:—1. Cells; 2. Neuroglia; 3. Blood vessels; and we shall find that each of these in different cases is involved in the alteration of structure by disease.

1. The *cells* in the cerebrum are of three kinds; (*a*) small apolar; (*b*) middle polar; and (*c*) giant polar cells.

(*a*) The small cells (or corpuscles) vary slightly in size from being rather larger than red blood corpuscles to the size of white corpuscles, they appear to be without nucleus or processes, are of somewhat globular or ovoid shape, they are affected by stains, they exist in large numbers in the second layer beneath the membranes, increasing in number in the deeper part of this layer, where they are larger and more angular, they occur also solitarily or in small numbers between the cells of the deeper layers, and in the cerebellum (Plate I).

(*b*) The middle sized or polar cells of the smaller kind (shown in Plate I, fig. 1) occupy the deeper layers, the third and fourth of the cortex, and the rest of the gray matter: they are larger and longer than the preceding, they consist of body and processes; the body is angular and conical, the point, from which the chief process proceeds, being directed towards the pia mater or outward, the body contains a nucleus and nucleolus. M. Luys describes the body to be marked with fibres like wicker work: the processes proceed, from both ends, and are sometimes single, or occur in twos or threes, and appear to come from points in the body, the upper processes are extended in a somewhat waved line, and may in some instances be traced to nearly one-sixtieth of an inch in length.

(*c*) Besides these, there are large cells called giant cells, shown in Plate I, fig. 2. These occupy particular parts of the cortex and are believed to be motor. The drawing is from the paracentral lobe of the left side in a man who died of pyæmia, and of the age of 40, the preparation from which it is drawn was made by my son, Dr. Herbert O. Sankey. It is drawn to the scale of one-fourth to 1000 of an inch. The processes from these cells, as in the smaller cells, proceed from both ends. From one end the larger process is a continuation of the smaller end of the cell and is single, but occasionally it is branched. The smaller processes proceed from the bulbar end of the cell, and from angular points of it, they proceed less directly and in a lateral direction also. Such are the chief characters of the cells of the cortex, they have a resemblance to the cells of the cord, and to those of the cerebellum.

The large cells have been described as altered in various ways in general paresis, they have been found with the contents as it were undergoing degeneration, or converted into a granular mass, but this appearance is also found in senile dementia and in the aged. Dr. Major also says that the large cells appear fewer in general paresis than in normal brain, a result which I had noted in my own examinations and so frequently as to be in my opinion quite a characteristic of the disease. Dr. Major writes, "Instead of being arranged in rows or layers they are much fewer and but sparsely arranged" and he concludes that they must have disappeared by disease; he also notices what I have observed, that when found, they are much less sharply defined, there is a want of definition between their lines and the neuroglia in which they lie, they often appear more rounded, less angular, and the connecting fibres are not to be traced.

The small cells in certain cases have been found more numerous than in normal brains, by Dr. Major, (Vol. II. p. 5,) in both the superficial and in the deeper layer. The increase of these cells in the deeper layer causes the stratified appearance that is seen by the naked eye, and which I noted in one third of the cases reported in the table.

These general characters taken in the aggregate, show a material change in the microscopical characters of the gray matter, but if considered individually there is no change perhaps as far as regards the nerve cells, but may not be met with in brains of persons dying under different circumstances, and especially in the brain of those with senile dementia.

The general conclusion then to be deduced from examination of the brain cells is that they are certainly found in a diseased condition in general paresis, and though experienced observers speak cautiously and doubtfully on the question of any distinctive character of such lesion, yet the two points, the increase of the small cells, and almost entire absence in some cases of the large cells, or with an altered condition of them, taken together go far to establish evidence of disease.

2. *Neuroglia.* This is in fact the connecting tissue of the brain substance, and forms a matrix for the cells, vessels, and nerve fibres, which compose the white substance of the brain. When normal, it is described to be a clear, formless, somewhat trans-

parent or wax-like medium. As seen under high powers it gives an almost uniform, non-granular, semi-transparent, somewhat yellowish appearance, it is but slightly coloured by aniline or the usual dies, but generally, owing to the sections not being absolutely even, it may show a varying semi-transparency. When it appears at all granular, it might probably be owing to the operation of the transmitted light; if anything like texture is discoverable, aniline blue appears to bring out a very fine fibrous arrangement of irregular texture like the fibres of wood, but it requires higher powers to demonstrate this. When hardening media have been used the granular appearance is often more marked especially after spirit or chromic acid.

Up to a very late date unequivocal evidence of changes in the neuroglia had not been obtained. Analogy of the morbid processes had been leading to the opinion that the symptoms, and appearances were due to a cirrhosis of the cortex. There was the phenomena of atrophy of the cortex, with adhesions of the pia-mater and such would seem to favour this view. So long ago as 1864 in an article on the pathology of general paresis in the *Journal of Mental Science*, I alluded to the opinions of Rokitansky with respect to the hypertrophy (or *Bindegewebe Wucherung*), of the connective tissue in these words, "the presence of hyaline around the capillaries, the frequent occurrence of fibres traversing the preparations of cortical substance in general paresis, appear to be due to an excess of connective tissue fibres. Whether this excess is from what Rokitansky calls *Wucherung* or overgrowth of the original connective medium, or is thrown out by the capillaries, or is formed conjointly by both, is and must probably remain hypothetical; but *excess of connective tissue I think can be demonstrated.*" I added "its relation to the phenomena of general paresis, cannot yet in my opinion be clearly defined. The condition is not confined to general paresis. Rokitansky, as already described met with it in other forms of disease. It can therefore only be the essential morbid change in general paresis by occupying a particular seat as the cortical surface of the brain or by a special rate of progress, as by being chronic in one disease and acute in another."

At the date of making my own microscopical examinations which

formed the ground for the above remarks, the processes for microscopic examination were not so perfect as they are now, and the use of stains was scarcely known. Microscopical processes have since been considerably improved and Dr. Wiglesworth has succeeded in demonstrating this condition of the neuroglia in an unequivocal manner by the process recommended by Dr. Bevan Lewis. Having myself thoroughly examined his preparations and compared the engravings with the drawings, I can vouch for the faithful rendering of the appearance (Plate II, figs. 1 and 2).*

Dr. Wiglesworth corroborates the results which I had arrived at, that the appearance or hyperplasia of the connective tissue is to be met with in other forms of disease, but his means of examination enable him to say that in no case to such extent as in general paresis. "In two brains which we examined from cases of Bright's disease, one from a sane, the other from an insane patient, some distinct fibrillation of the first layer of the cortex was present, this fibrillation was, however, moderate in degree and not sufficient to create any difficulty. Dr. Bevan Lewis has, however, described and figured proliferation of the connective tissue from a case of senile atrophy."

"The conclusion hitherto reached," writes Dr. Wiglesworth, "is that the hyperplasia of connective tissue bears some definite and constant relation to general paralysis either as cause or effect," and further states his opinion "that the disease is a true cirrhosis of the brain, altogether comparable to cirrhosis of other organs, that the connective tissue hyperplasia is the primary element in the disease and the affection of the nerve cells secondary."

By Dr. Wiglesworth's generosity I have been enabled to give plates showing this condition of hyperplasia (see Plate II) and if these figures are compared with the sections in Plate I, the difference will be abundantly apparent, the drawings were made by myself, and I have been careful not to overrate the appearances.

3. *Vessels.* The cortex is supplied from the pia mater, there are two kinds of vessels, one long and the other short, the longer

* On the Pathology of General Paralysis, by Joseph Wiglesworth, M.D., Lond. *Journal of Mental Science*, Jan., 1883.

vessels penetrate to the fourth and fifth layer before they divide, the shorter penetrate only to the second or third layer and divide up into small branches. They are said to be contained in a sheath which is probable, as most vessels entering a parenchyma of any kind are so, that there is a distinct canal or open sheath, however, in the normal cerebral substance is a mistake, and such appears only in diseased brains, or brains shrunken by atrophy, or by artificial means of hardening reagents. If perivascular canals are found as distinct canals as in Plate III, fig. 2, the appearance is in my opinion due to disease or atrophy, and is analogous to bronchiectasis of the lungs.

The blood supply of the brain generally is of much interest and is given in the anatomical text-books, but what is of chief importance in cerebral disease is that the supply is in distinct areas. In injecting the brain by one vertebral artery, the injection is confined to its own area, and each arteriole appears to be subjected to the same arrangement, there is an absence of anastomosis, above that of the circle of Willis (see *Localisation of Cerebral Disease*, by M. Charcot, translated by Dr. Hadden, New Syd. Soc., page 58, *et seq.*).

The microscopical examination of blood-vessels in connection with general pathology, has been undertaken by numerous observers, and especially by the Vienna pathologists, Rokitansky, Wedl, and others. The vessels of the brain were particularly selected, since the brain affords the most ready locality to obtain examples isolated from their connections.

A theory was propounded by Dr. Salomon of S. Malmo, that the phenomena of general paresis were explicable upon a general morbid condition of the blood-vessels alone. Studying the changes that occur in blood-vessels in general, he suggested that the vessels of the brain became *constricted*, and thus gave rise to atrophy. The atrophy of the brain substance, he then described from Rokitansky. Dr. Salomon's explanation was an hypothetical one, nevertheless it is so far true, according to my observation, that the small arteries of the brain are in an abnormal condition in every case, and other observers, have made the same observation. But what has been found is not, as described by Dr. Salomon, an ischæmia or closing up of the vessel, leading to an atrophied condition of the cerebrum.

What I have seen most frequently in general paresis, I believe to be more the result of a paresis of the muscular coat; the same defects of nerve-action as observed in the iris and in the optic disc, extend to the apparatus for regulating the blood supply; all the symptoms show an irregular cerebration, as though the governing or regulating apparatus allowed at one time an excessive, at another time a scanty blood-supply; the heart at one time, acting with greater force, the blood sent to the cerebral vessels throws them into contortions and varicosities; and with such excess, there are simultaneously increased products as exudations of various kinds; and this is the condition which my autopsies have declared, and more recent observations have shown.

To examine the condition of the capillaries and small arteries the best mode appears to me to be that pursued by Herr Wedl, to take a portion, as a cubic inch of the cerebral substance, and in preference this should be from the frontal and parietal regions, and to separate it with all its membranes and submit it to a stream of water until the whole of the cerebral matter is washed away. It is necessary that the water used should be well filtered. After the membranes are freed from the cerebral matter, they may be stained with a colouring matter.

This is one mode, another way is to make sections of the brain substance as in preparing it for examination of the cells and nerve tissues.

By the former mode a vessel can be traced throughout its length, by the latter a fortuitous section will here and there be in the line of a vessel during a part of its course, and thus show occasionally the condition of the vessel *in situ*, it will also give its surroundings.

By the two modes, in all the cases of general paresis I have examined, I have seen that the small arteries are in numerous places thrown into varicosities and some of extremely complicated kind as shown in figs. 2 and 3. In several preparations there may be also a hyaline membrane surrounding or connected with the vessel, and small amber or reddish uric acid coloured particles adhering to the hyaline membrane, especially at the angles of a division of a branch.

In several of my examinations I have seen a knot of a small

vessel so closely invested by false membrane as to give the appearance of an aneurism (Fig. 2 and Plate III, fig. 4) and it could only be discovered to be a vessel, twisting on itself, by strong light thrown through it. I have never found in general paresis an actual aneurism present, nor any appearance except the varix described resembling one In chronic insanity appearances, resembling aneurisms more closely, may be met with.

Fig. 2.



Fig. 3.



By the other mode or ordinary section of the brain. The vessels are seen *in situ* which is a great advantage in some respects. In order, however, to make the section it is usually the custom to submit the brain substance to a hardening agent, chromate of potash, chromic acid or spirit. In studying the appearances after this process, this fact must not be lost sight of,

and especially as regards its effect on the channel in which the vessel lies, (which has been called the peri-vascular canal). If a section happens to lay open one of these canals along any distance, here and there will be found one of these twisted or varicosed vessels *in situ* (Plate III, figs. 2, 3 and 4). Out of many sections one is fortunate enough occasionally to display a sheath and its contents, but the chance can give no clue as to the number of these varicosities, and which by the mode of washing are seen to be very numerous in more or less degree. When the hardening process or natural shrinking of the brain substance has happened to open up the sheath, the artery appears in several of my preparations to be covered or surrounded with a formless or hyaline membrane, (Plate III, figs. 1, 2, 3, and 4), this does not in my preparations always appear to adhere to the vessel or wall of the canal, but to reach from one to the other at different points, or to stretch from one curve of the vessel to another, as figured in Plate III, fig. 1 and 2. Entangled in the hyaline membrane are small, uric acid coloured granules soluble in acetic acid, this membrane looks like an exudation so that its presence is evidence of a certain degree probably of stasis, as the twisted condition of the vessel is of its diminished tone or power of contractility, due to the paresis of the inhibitory action of the vaso-motor nerves.

Though this varicose condition was discovered in all the cases or nearly so of general paresis, I do not say that the appearance is confined to this disease. I have not had sufficient opportunity to examine other kinds of cerebral disease to enable me to speak on the subject. The same appearance, however, I found in one chronic lunatic with ataxy (as in Fig. 3, Plate III).

Beside this hyaline and contortion of the vessel, Dr. Wiglesworth has described a condition of artery show in Plate II, Fig. 1 and 2, in which by his mode of examination the vessels appear to be as it were entangled in a mesh of hypertrophied connective tissue (hyperplasia) in conjunction with a general increase of that element described above.

Spinal cord.—I have examined but few spinal cords in general paresis, chiefly from want of time, having 1200 patients under care at Hanwell, there was a difficulty in accomplishing so

much. I, however, did examine a few, and I furnished the late Dr. Lockhart Clarke with portions of cord for his examination, and his results were given in the *Lancet*. The cases which I examined were those having marked symptoms of ataxy and showed distinct signs of disease, in places the cord has seemed constricted, as though the membranous covering were irregularly diseased, both softening and hardening have been found by other observers (Mickle, *op cit*, p. 112); the subject deserves further investigation.

But besides the above lesions, there is one which at one time was supposed to be pathognomic, viz., a velvety appearance of the floor of the fourth ventricle, this is frequently, but not invariably to be detected, it is obvious to the touch and eye, but is better examined by lower magnifying power; it appears to be due to epithelium.

Dr. Mickle remarks "though as a rule in general paralysis the cerebellum is not markedly diseased, it is often involved, its meninges become hyperæmic, thickened and opaque, and near the median line, there is slight adhesion and cortical degeneration, this has been denied, nevertheless it is the case" *Op. cit.*, p. 164.

III. *Pathology, or the explanation of the phenomena observed during life and after death.*

This part of our investigation might be called the search for the cause, quæ præsens morbum facit, sublata tollit, mutata mutat.

It will be well perhaps to recapitulate some of the chief symptoms, and the general results of the post mortem examinations. This need be done only in a very concise and abbreviated form.

The observation of the symptoms is then as follows: the disease is apt to attack persons of excitable or impressionable or emotional kind, and of great mental activity, and during a period of their greatest mental activity, and is caused often by some great mental shock.

The first symptoms show great emotional disturbance and elation of spirits, which condition usually subsides after a period more or less long, and the patient appears in his normal state. This condition may remain for a variable period, so long in rare cases as one or two years, but after this, or when the remission,

as it is called, is very long, there is a certain feebleness of intellect observable; later on there commences motor difficulties which gradually increase to absolute annihilation of power.

So much for the life phenomena, the death phenomena are of course confined to the last condition of the morbid processes. No observations have yet been authenticated of changes during the course of the symptoms, we have therefore to draw conclusions of the progress of the anatomical changes from the results, to draw inferences from what we see of what has been the cause of the morbid process.

What we see after death are firstly and chiefly the hyperplasia of the connective tissue of certain parts of the cortical substance of the brain, as demonstrated in Dr. Wiglesworth's preparations shown in Plate II, there are evidences also of a grosser kind of the same part, in the adhesions of the pia mater to the brain tissue, and these are parts of an atrophic process is obvious from the general shrinking of the brain substance, which morbid conditions may extend to the cord also.

Viewing these phenomena as the results of the disease, we have in pathological sense to enquire into the cause of these changes, in other words to investigate the proximate cause, or that cause quæ præsens morbum facit.

The pathology of a typical case of general paresis appears to me after a due consideration of all the phenomena occuring during life and remaining after death, to be as follows:

As already stated I am led to the conclusion that the cause is *primarily* an effect produced upon, or lesion connected with the nerve tissue directly and which is the exact reverse of what I conceive to be the primary lesion in ordinary insanity.

At first this was not my impression, on the contrary, considering the close resemblance of the life phenomena to the toxic effect of alcohol, the first inference to occur to any one's mind would be that the disease is due to a similar or toxic influence operating through the blood. Many of the phenomena of drunkenness, as the bragging, the irreticence, the recklessness of conduct, emotional disturbance as the alternation of hilarity, and the drunken crying, as well as the motor disturbance exhibited in the excitement, followed by a paresis of motor function, as in the drunkard's speech, staggering gait, and general pros-

tration, the disturbance of equilibrium and double vision, run as it were in close parallelism to the symptoms of general paresis.

We cannot but admit a certain similarity of the effects, but as we investigate the phenomena more critically there seems nothing to prove any identity so far as regards the *primary* causation, both sets of phenomena may meet on the road as it were, but their starting points may be different. Both sets of symptoms at one part of their course may be, and probably are, due to a similar operating cause. In other words, the action of the alcohol may be to produce on the nerve tissues the same results as is produced by the disease, there is this wide difference, however, between these agents, that the effect of one is temporary and of the other permanent.

Supposing that in the disease, as seems to me to be the case, the symptoms are produced through a severe shock or violent stimulant or nervous discharge, which leaves the tissues exhausted or actually injured, the toxic effect of the alcohol may be to produce an effect of the same kind. We know that the effect of the hydro-carbons is to paralyse the nerve functions generally, sensory, mental and motor both voluntary and involuntary for a time, and we see the symptoms of the disease have a close analogy. The phenomena of drunkenness may be used, therefore, as a key to the phenomena of the disease so far as the similarity and the dissimilarity can be traced.

We may learn something by studying these conditions, and firstly, we may examine the phenomena as regards their resemblance.

The brain is an organ having the peculiar and special property of periodicity of action, of being, that is, thrown out of gear at certain more or less regular periods. There is a special contrivance to regulate this property, which depends much upon the action of the vaso-motor nerves, which nerves are of course closely connected with the entire nervous system.

What occurs in drunkenness is I conceive the following, and we may divide it into stages. When first the toxic material has entered into the circulation (where it is stated that it may be detected), the inhibitory centres of the brain very soon as it were, take the alarm, and cause the arterioles to contract, there is thus

produced a condition of brain, more or less deficient in blood, which may be called one stage.

A diminished blood supply to the brain is attended by well recognized phenomena, which differ slightly according to the degree of deficiency; but are as follows :—A slight deficiency or a moderate amount of anæmia, is attended by elation of spirits; persons dying of exhaustive diseases, as phthisis, loss of blood in hæmorrhagic diseases, and by starvation it is known are elated in mind. Marshall Hall relates the case of a gentleman, who endeavoured to commit suicide by dividing the veins at the bend of the elbow in his bath, and who as the blood flowed, became changed in mind, and sent for a surgeon to bind up his wounds, remarking to the surgeon "Had Sir A—— B—— been bled, he never would have committed suicide."

I have personally witnessed a similar change myself, as a student I was once called upon to bleed a gentleman, who was greatly depressed in mind, and as the blood flowed, the patient gradually changed, and before his arm was bound up, he began to joke and relate sea-faring anecdotes of the usual comic kind.

The first stage therefore of the disease attended with hilarity, may be due to the effect of the arterioles stopping a full supply of blood, as in the action of alcohol; but the early symptoms of the disease are not universally those of elation. The vaso-motor nerves are, it must be remembered, of two kinds, inhibitory and motor or excitory; a morbid action might affect either and the effect would be variable. But in the action of the alcohol the vaso-motor action is not morbid, but remedial, the arrest of the alcohol poisoned circulation is salutary and therefore more uniform.

The action of alcohol on the *bodily state* generally, has also been made the subject of inquiry by direct experiment, from which we learn, that in small doses its first effect is to decrease the body temperature, which effect passes off the quicker, the smaller the quantity administered.* The explanation of this

* "There is a fall in the body temperature, a greatly increased heat formation, varying directly with the strength of the dose," this continues for a certain time, till a climax is reached, after which there is a return to the normal temperature. Bevan Lewis, *Journal of Mental Science*, April, 1880.

is, that at first, there is a certain amount of vaso-motor contraction, which checks the thermogenic processes, and that after a certain space of time this passes off.

At this point, however, the two conditions, the alcoholic intoxication and the disease, diverge. The subsequent progress of the effects of the alcohol, depends upon the quantity taken; it is well known, however, that various phenomena connected with the nervous system follow, as double vision, vertigo, disturbance of the equilibrium, sleep, coma, paralysis, death, all of which are dependent upon the interference of the cerebral circulation and upon a deficiency of blood supply, (see Alcoholismus in the Sequel).

The argument here, however, is not the effect of alcohol but the effect of a deficient or defective supply of blood to the cerebrum; for since it is pretty clear that there is a state of deficiency in intoxication and the symptoms of the disease resemble the phenomena of alcoholic poisoning, it is a reasonable conclusion that the anatomical base of each is the same.

We have, however, to enquire how such a deficiency is caused. The toxic agent accounts for the phenomena in alcohol poisoning; the arrest of the circulation in those cases is a process of protection and cure, and which is brought about through the action of the vaso-motor nerves.

In the disease it is suggested that the action of the vaso-motor nerves are equally at the foundation of the results, but the difference is, that the vaso-motor system is involved primarily, and this is borne out by certain differences which may be observed.

The first difference to be noted, is in the rapidity of the operation, in intoxication the effects are produced in one hour, which in the disease take many months, of course one can easily admit that a slower introduction of a toxic agent, would produce a slower result. I have already suggested that such appears to be the true pathology of ordinary insanity, if that be admitted, then we see that the slower infection is accompanied by a totally different set of symptoms; if it be argued that the nature of the toxic agent may be different, and so fix the prime cause in a peculiar agent in the circulation in each case, we should expect to see bodily symptoms, disturb-

ances of digestive organs, &c. in both diseases, but in general paresis no such symptoms are observed, while in ordinary insanity they are the rule.

2. Dr. George Johnson has shown that in certain diseases, cholera, kidney disease, &c. in which the blood is vitiated, certain changes in the small arteries are found to counteract the effect of a vicious blood supply, the small arteries become gradually hypertrophied, we do not find hypertrophy of the small arteries in general paresis, though it is common in old cases of insanity.

3. Another difference between the action of a toxic agent on the brain and the effects produced by the general paresis consists in the fact that the toxic agent produces all the effects in proportion to the quantity taken, the subject may be quickly killed but he usually passes through the entire succession of stages, but there is every reason to believe that death may occur in a stage of the disease before any motor symptoms are exhibited.

4. The alcoholic poisoning has a natural tendency to cure; the disease has exactly the contrary tendency. The reason of which appears to be that the phenomena of the toxic case are processes of cure, and the shutting off the circulation from the cerebral centres is to save them, as it were, from injury. The process of contraction is due to certain vaso-motor centres connected with the cerebral organs and the shutting off is sufficiently complete to produce sleep, while those of the viscera, kidneys, etc., are free to act.

In the disease on the other hand the occlusion of the blood supply is *not a curative operation*, but is in fact due to paresis and is an essential part of the disease. The function of shutting off is seldom perfect or complete. Some physiologists hold that both action and relaxation are regulated by special neural apparatus, as by inhibitory as well as motor nerves, whether this is so or not, the action is never complete for neither coma nor insomnia is a constant phenomenon of the disease, nor does death occur as a rule by coma, but rather by convulsion or arrest of some bodily function, as of respiration or heart-action, or even through paralysis of deglutition.

The defect in the cerebral circulation, especially in the later stages of the disease, is not so much probably an occlusion as a torpid state of function due to the paresis of the arterioles and

which favours the hyperplasia which is found, and the formation of hyaline which is thrown out around the vessels.

The general conclusion to be derived from the foregoing is that the disease is due primarily to a fault of the innervation; that this is general in its extent, as the symptoms clearly show; that the lesion of nerve function is like that produced temporarily by alcohol, but it is not due to toxic agency. This affection of the nerve tissue, as shown also by the symptoms, is connected with the whole system, and probably the sympathetic is as early affected as any portion. The comparative restriction of the symptoms to functions of the nerve centres and freedom of the nutrition organs, marks the disease as a pure neurosis. If we examine the various nerve functions according to the artificial arrangement, this will become very apparent, from their universal implication.

The *psychical* phenomena are shown disturbed by the elation of ideas, *monomanie des grandeurs*, the *moral* functions in the alternating hilarity and despondency, the general tone of goodwill towards everyone, the *appetites* by the sexual excitement, the boulimia, the *volitions* in the violence and noise and then by the paresis, the *sympathetic* system in the affection of the pupils and the state of the circulation.

Then the changes found after death show distinct cerebral disease which in many instances has extended to the spinal cord, while there is also a freedom from visceral disease, or those changes resulting from blood diseases.

In conclusion, we are now in a position to review the phenomena of the two diseases, Ordinary Insanity and General Paresis, and to draw a contrast between them.

The difference appears to be in this, in ordinary insanity the injury produced by the circulation of an altered blood, is modified by the curative agency of the trophic system of nerves; but in general paresis the trophic nerve functions are involved with the rest of the nerve functions, in the essential nature of the disease.

This view brings general paresis as regards its genesis, into analogy with the affections of the spinal cord, with the diseases of which it has many points in common. The reader is referred to the section on spinal disease.

ABSTRACT OF CASES OF GENERAL PARESIS.

CASE XIX.—*General Paresis following a great mental shock. Rapid improvement. Remission and relapse. Death in two years from commencement of the attack.*

A solicitor, 58 years of age, in large practice and good position and highly esteemed professionally, met with a severe family affliction and reverse of circumstances. Soon afterwards was observed to be altered in his manner, committed many strange acts, showing an apparent indifference with regard to his troubles; with greater disposition to quarrel, and an unnatural peevishness of temper. Undertook several large schemes, at variance with his cautious temperament, and unlike his previous business habits. He would stop people in the street with whom he had no previous intimacy, and would tell them matters with complete disregard of ordinary reticence. He embarked in schemes on a large scale with utopian objects. His conduct at home became at last strange and excited. He would not go to bed, talked of being attacked by fenians, (an attempt had just been made on the Queen which greatly excited and alarmed him). He accused a certain Mr. F. of being his enemy; said Mr. F. was a fenian. Had all his doors and windows barricaded. On my visit he put on a kind of forced cordial manner, was very garrulous, but quickly quitted the room. He was admitted on the same evening.

On admission, his general appearance was good, he was well nourished and in his usual health. Was said to have been four weeks ill. Mentally, he appeared in elated spirits, talked much of the schemes that he was going to carry out. He should cut a canal from the west of England to join the mouth of the Severn, so that ships were to come right up to Cheltenham and Gloucester. He should build several towns on the Cotswold Hills, and a cathedral. He should raise large sums by loan to improve agriculture and would so realize a large fortune. He talked much of Mr. F., said Mr. F. was a great debauchee. Spoke openly to everyone of many private affairs, which are usually not mentioned; his conversation was interlarded with much prurient matter, and the manner of conversing evinced much weakness of mind. He was easily diverted from one topic to another, and was very open to slight flattery. He bragged a good deal of his own cunning, but has evident fears on the subject of fenianism. He appeared relieved on being admitted and to find a security against his foes; fancies he is in a cave in Leckhampton Hill (was admitted after dark). He had decorated himself with a blue scarf around his waist, on being talked to quietly, he appeared ashamed and removed this ornament.

On the day after admission, became aware that he was at Sandywell; he pretended that he was much pleased, and said that it was exactly what he wished, he praised all the appointments, it was a splendid place and he should purchase it. He gradually lost his fear of fenians. Occupied himself in drawing out the scheme for the cathedral, and churches on the hills around. Said he should spend several millions; the Queen would grant him and his wife each an annuity of £10,000 a year, and each of his daughters £5,000. It was observed that his fears and apprehension of enemies, etc., returned every evening.

A fortnight after admission, about the sixth week of disease, the report was:—Is

always elated in spirits, talks much and jokes with everybody and associates and addresses the most insane and imbecile of the patients, as though they were quite rational, and able to understand and enter into his schemes.

One month after admission. Same symptoms continue, those of grand ideas, of schemes, of money making, with libidinous conversation; fears about fenians, and antipathy to the Mr. F.; these were increased towards evening.

Five weeks after admission. Visited by wife and one daughter, at first refused to see them, but eventually received them cordially. His aversion to his wife, arose from a fancy that she sided with Mr. F. His fears concerning Mr. F. are weaker and he occasionally alludes to then as morbid, says he feels better, but complains of a sense of weight in his limbs, eats largely.

Eighth week. Spent a day at home. Has lost all fears about fenians and believes his antipathy to Mr. F. was a mistake, is in good spirits, converses rationally; expression much improved, says he feels well.

Ninth week. Left for six weeks on probation. His relations consider him quite well. Has been quiet and rational since the last note, but examined closely shows the following symptoms, slight feebleness of intellect, makes puerile remarks, there is a certain tameness in his conversation, not to be expected in one of his former position, the expression of the face is heavy; speaks of his health in rather too elated a manner, the disposition to eat largely (boulimia) continues, says he has no weight in his limbs.

Fifteenth week. I called on him at the end of the period of his probation; received me cordially, appears to have further improved, speaks of his former delusions, joking about "my friends the fenians," says he feels quite well and all he required was to get up his strength, was discharged as "relieved." Had been three months under my care.

I shortly after received a business note from him, in which he thanked me for my "kind care and attention during his visit to Sandywell," he added, "I do not get my strength so much as I would wish, and my legs fail me, but I hope soon to recover my walking powers. I hope Mrs. Sankey and your family circle are well, and with very kind regards, I remain, my dear Dr. Sankey, yours sincerely."

On his discharge he remained at home, was unable to return to business and I learnt from his ordinary medical adviser that his mind showed gradually declining power. He was in the habit of going into the clerk's room and talking in a childish trivial way, and was found of prurient anecdotes. He gradually neglected his personal appearance and was found one day sitting down in the street on the curb-stone.

He was discharged in March, 1872, was admitted into Barnwood Asylum in the following August, and died there in December, 1873. just two years from the commencement of the attack.

CASE XX.—*General Paresis, duration about two years. Death in the third stage. History of Syphilis.*

A. S., a female, married, 32 years of age, admitted into Hanwell, June 1861. Married twelve years, previously was a domestic servant, and of excellent character. She lived with her grandfather the parish clerk, people very much respected, was married at the age of twenty to a painter, who came from

London to paint her master's house. A.S. was of short stature and possessed considerable personal attractions. There were several children by the marriage, the patient's health failed in London, and she returned to live with her grandfather, and accounts varied as to the family trials, but apparently the husband was a worthless fellow, and infected the patient with syphilis. One or two of the children were weakly and died. On the death of one the patient's attack commenced, she was found insensible on 24th December, 1860.

In June 1861, she was taken up by a policeman for pulling up the trees in a nursery garden. She was also accused of having gone up to two gentlemen in the high road, and throwing her arms round their necks, and kissing them. Another account communicated by the relieving officer was that she had been leading a very immoral life with soldiers; and that her house was the scene of the greatest immoralities, drinking and every other kind, that the children were neglected and dirty. Her sister denied this, and says the first appearance of the disease was shown by her going about and ordering a quantity of furniture.

On admission. She was in a very dirty and neglected state, temperate, well-nourished, five feet one inch in height, pleasing features, dark hair and irides, presenting slight paresis about lips and face. Expression somewhat imbecile, is reported to have been insane since December, 1860. Had been six months ill on admission.

On the second day after admission. Is excited and talkative, says God is very gracious, she has a very nice husband, two children, that she is going to Margate, hesitates and drawls in her speech. Tongue protruded by an effort, not tremulous, coated. Says she has £17,000 in the bank, that her husband has 40 and then 70 millions.

Is feeble, and at times wet and dirty, is disposed to undress, requiring the the dress to be fastened mechanically.

Six month after admission, twelfth of disease. Is complaining of headache; eyelids swollen with crying, is destructive and violent, articulation indistinct and mumbling, hand tremulous, says she has "such beautiful sentiments." Tonics were ordered, first iron, subsequently Ol. Morrhuæ.

Tenth Month. Has not spoken for several weeks till to day; appears very imbecile and childish in manner, voice is tremulous and stammering, much twitching of the lips, superior and inferior, pupils nearly equal, walks with peculiar gait; has no grand ideas; is stouter; tongue clean, protruded well; is wet and dirty.

A seton was inserted in the nape, the operation did not appear to cause any pain.

At the eleventh month. Is able to stand but is very tottering, expression slightly improved, knew her mother who visited her and appeared pleased to see her, has seldom spoken of late, keeps her bed, but lies quietly, conversed with her mother, right pupil is larger than the left. Seton discharges well.

At twelfth month. Slight improvement, speaks out more cheerfully and says she is better, can stand more firmly, walked to day without assistance to the bath, takes her food well, and is well nourished.

Twelve and a half months. Answers questions more alertly and says she feels very well, can walk with the assistance of one person, right pupil dilated.

Thirteenth month. When in bed begins to lie with knees drawn up, cannot stand alone.

Fourteenth month. Knees constantly drawn up, is weaker and more restless.

Fifteenth month. Mind childish but not wandering, nor excited, knows where she is, says in Hanwell Asylum. Articulation very hesitating, syllables slurred; tongue protruded well; is wet and dirty; knees drawn up, says she cannot put the right knee down.

Fifteen and a half months. Is getting thinner, both knees contracted, visited by her mother, asked after the children, soon after forgot that her mother had been, when reminded, says the children are very happy, takes food well and swallows without difficulty, says "I like food very much."

Eighteenth month after admission. Continued confined to the bed, and gradually getting weaker, but appetite remained good, and she called for food at the proper hour; her bowels acted regularly; she continued to fail in power and to emaciate, notwithstanding she took food ravenously. Both legs were contracted, said she was going to die, voice was clear and stronger, but tremulous or bleating, gradually sank and died without convulsions, or other marked change on the same day, that she was said to have been found insensible, two years previously.

Autopsy. Height 5 feet 1½ inches. Body much emaciated, belly slightly green, slight discolouration on posterior parts of trunk, rigor mortis in all the joints least in elbows, the left knee is bent at a right angle, the right knee and thigh much flexed, the heel in contact with the buttock, a mark of seton completely cicatrized, pupils equal.

Head. Form, vertex low, circumference oval, forehead medium, measurement 6 by 4⅜, hair abundant, dark, integument, peritoneum and bone normal, diplöe distinct.

Dura mater adherent to arachnoid, very opaque, much serum beneath arachnoid. Pia mater strips readily, vascularity increased. Plexus choroides opaque.

Brain substance. General characters, weight of cerebrum 31 oz., cerebellum and pons 5 oz., sp. gr. of gray matter 1·033, of white matter 1·039, of cerebellum white and gray matter in equal proportion 1·044, brain firm to the touch, of dark colour, small, symmetrical.

Gray matter of dark colour; injected layers very distinct and firm.

White matter pale, in points on section injected, of firm consistence, fornix soft.

Microscopical examination of arterioles of cerebrum showed slight varicose condition in several, from one of which Fig. 2. p. 306 was taken.

Lung uncollapsed, of dark colour, strong tough adhesions on both sides. Pleura covered with old adhesions. Both lungs of increased weight, texture normal as regards cohesion, except upper part of right lung, where it is much congested, several vomicæ, varying from size of a bean to a small pea, exposed on section, each lined with a thick membrane; the lung is more or less crepitant throughout.

Liver normal. *Kidneys* the capsule is adherent to a slight degree, tubular portion is congested and extends to the surface, one rough calculus impacted in pelvis, weight of each 5½ oz.

Heart weighs 5 oz., healthy except slight opacity of aortic valve, right side distended with large fibrinous clot, the left contains a small quantity of black grumous blood.

Case XXI.—*General Paresis, death in the maniacal stage; duration about a year.*

F. C., æt. 40. Surgeon in the Indian Army, June 1st, 1867. History of case as gathered by fragments from various sources. He was in the massacre of Cawnpore, 1857, and escaped with a few others, and underwent many risks and hardships. Sometime afterwards his friends in India wrote that he was much altered in behaviour, afterwards that he had a sunstroke, date of this was doubtful, about a year ago his wife induced him to come to England, on the passage his behaviour was observed to be peculiar, his wife died on the passage. He was a good deal excited by this event and his behaviour called for the interposition of the ships authorities, on arrival his children where attacked with measles and the youngest died. On reaching Cheltenham his conduct was observed to be excited and strange. He was constantly going from place to place carrying a younger child on his hip in the Indian fashion, calling on different acquaintances and talking in an excited manner, behaving strangely to his mother's servants, whom he alarmed; he walked about the streets at night, addressed women whom he met and asked them into his mother's house.

Condition on admission. Is 5 feet 10 inches, square built, robust, well and active, has defective vision, requiring highly convex glasses, and some obliquity of the balls, amaurosis of the left eye, has dark brown complexion, general health appears good, is troubled with hæmorrhoids and subject to prolapsus, pulse of good power, normal frequency, no difficulties of digestion or chest symptoms.

Talks almost incessantly, conversation about himself, his plans, which he continually changes, talks to everyone he meets, to his servants of his own affairs, which are of utopian character, marked elation of spirits and feebleness in intellect. Talks much about marrying, thinks everybody he sees or meets would exactly suit him, has made proposals to several, he will extol and abuse the same person in the same breath. Expression of face somewhat sleek, facial muscles appear relaxed and expressionless. On the signature of the certificates it was left to me to fetch him from home, at first refused to come and was excited and angry, after a while came voluntarily, and drove me in his own trap, was persuaded with little difficulty. After arrival made himself soon at home; soon found occupation, groomed his own horse, was agreeable and sociable, but talked continually of his skill and reputation, and wealth, but was very close in spending his money, which seems to be his normal character.

After three months. Mental characteristics the same, less excitement, talks to everyone with total absence of reticence. Occasionally trips in his articulation running one syllable into another (slurs), eats largely, reads a good deal, novels chiefly, in which he becomes much engrossed and repeats the incidents to everyone he meets.

After six months. Health continues good, stammers rather more, mind rather weaker; is now full of a plan to make his escape, which plan he discusses with everyone including myself and attendants, etc., has taken everyone into his confidence in the matter, eats enormously, continues to ride and drive out daily.

Eight months. Still occupied with the same plan, and was out riding to day, while out went into a public house, leaving his horse with his attendant and bolted across the fields, the man encumbered with two horses followed, found him at his mother's and brought him back, mind now is more feeble, made two

offers of marriage of late to two ladies, first to one and then to the other, continually changing and in the presence of both, writes numerous letters which are less connected in matter.

Tenth month. Is more restless and irritable, more feeble, talks more of his great wealth and the great schemes he is going to undertake (*monomanie des grandeurs*). Has a propensity to purloin, was discovered concealing a pair of boots in the bottom of his portmanteau, speech is more affected, increasing difficulty in pronouncing the labials.

Ten and a half months. After a bad night was excited the first thing in the morning, which passed off, dined at my own table as usual at two, then went into the park and chased the sheep, and having caught one was endeavouring to strangle it or as the attendant believed endeavoured to act indecently towards it. He attacked the attendant, was very violent, raved and shouted, that he wanted women, threw himself down violently, hurting his side, continued to shout and to dress and undress and call for women. When taken to his room, smashed the window, tore down gas and paper, after a time became a little quiet gave himself three enemata and used a large candle as a bougie. Tr. Opii, ℥j, and he slept.

Excitement and raving returned in the morning, opiate repeated, had about two hours sleep, excitement increased on waking, Tr. Opii, ℥j. Tr. Digit. ℥ss, every fourth hour, was calmer for a short time, when he again broke out, was very violent, tore down the shutters in the night, wrenched out the fire-grate with which began to demolish the door, threatened to murder the first person who who came near him, allowed me after a little persuasion to open the door. He was in a highly extatic condition, very libidinous, and elated, says he will be Emperor, he will marry the Queen, that he will marry 50 women. He will have the Virgin Mary, etc. Motor difficulties very marked, articulation mumbling, next day he became rather calmer, in five days after or six from the outbreak, the following note was made.

Jan. 25th, 1868. Has continued to be excited and at times maniacal and raves, at other times talks incoherently, imagines himself in communication with God, addresses the deity in a familiar conversational manner, at times says he is in a ship, takes his food well, sometimes pours his soup or wine or medicine on his head. Has been out in the park, has several grazes on his fingers, does not talk of women or exhibit the same sexual excitement, motor symptoms continue.

28th. While in the garden to day became excited and rolled on the grass and exhausted himself, was again placed in seclusion, no return of erotism but is in high spirits.

Feb. 3rd. Restless and occasionally noisy, talks of women, has had a bath daily, but not dressed since last report.

Feb. 4th. On getting him out of bed, he was found to be more feeble, and to be bleeding from the penis which was swollen, and was found to be tied with a piece of thread, the ligature was removed.

Feb. 5th. The weakness was increased, he talked incoherently as heretofore and about women, he gradually failed in strength, he complained in the evening of a sorethroat and asked to have it examined. He spoke with a firm voice, shortly after his powers quickly failed, he died apparently from exhaustion, that is 11 days after the paroxysm of excitement.

Body examined on 3rd day, post-mortem, (Feb. 8th). No emaciation, slight abrasion on the nose, ½ inch long from a graze during life, a small post-mortem graze on the posterio-lateral region of the chest.

Head externally. Forehead in profile slightly receding, cranium on section round, vertically low, hair natural, of a dark colour, integuments normal, periosteum injected, bone very thin.

Internally. Dura mater adherent to bone and much injected. Arachnoid adherent to dura-mater in places and opaque, especially in upper surface and sides, serum effused beneath it, the pia-mater stripes readily. Its vascularity is increased and serum in its meshes.

Brain substance. General characters. Brain firm, dark and congested, appears small, symmetrical, the convolutions small and intra-gyral spaces appear large.

Special characters. Gray matter very dark, the layers are distinct, sp. gr. 1·044, white substance is dark and firm.

Chest and Abdomen, not examined except that an incision was made over the distal end of the 7th rib of the right side, when there appeared to be some crepitation on manipulation, in examining this part the bone was found denuded of periosteum and separated from its cartilage and some purulent discharge surrounded the abraded ends, the pus was sero-purulent and unhealthy in character, there was no injection of surrounding parts, no bruise or mark externally, the integuments covering the part were pale and normal, no pleuritic adhesions.

CASE XXII. *General Paresis, commencing with depression from shock on disappointment, state on entry at 5th month Died in 33 months.*

M. E. J. admitted June 1860, female, single, 35 years, servant. Had a child when she was 19.

About 3 weeks after Christmas was disappointed in marriage, became altered in behaviour, at first was depressed and would cry for hours together, soon after began to talk nonsense, said she was going to Paris, talked in an elated manner, spoke much of the man to whom she was to have been married, and who had just married another, the mother kept her at home two months, when she became destructive and threatened violence. Was taken to the workhouse.

Was an intelligent girl.

On admission. Mind appeared imbecile, was noisy and violent at times, in fair condition as to nutrition, gait tottering, articulation confused, says she has plenty of money, and can pay for anything that is given her, is industriously inclined and offers to assist nurses.

November, 10th Month. Has gained flesh. Symptoms of general paresis well marked especially as regards articulation, is at times excited, at times cries, when she roars (blubbers) lustily.

March, 14th Month. Motor paresis much increased, appears unable to stand, falls about, wet and dirty.

17th Month. Articulation worse, is scarcely intelligible, wholly confined to bed, she is muttering, you must have a million million cows to suck, thousands of dolls, beautiful cows, but is stronger, pupils equal.

18th Month. Is able to leave the bed, is more restless and would not remain in bed, she takes nourishment well, and appears to gain strength.

19th Month. Up and roaming about the ward, but gait unsteady.

20th Month. Is excited, attempting to strike, articulation very indistinct, has dressed up a footstool and is carrying it about as a doll.

21*st Month.* Mind very imbecile, pulls up clothes, apparently regardless o shame or decency, wants to show me her buttocks.

22*nd Month.* Paretic symptoms continue with restlessness, wanders about the ward and shows a disposition to be violent.

26*th Month.* Is still able to be up, mind demented, gait unsteady, voice tremulous, pupils equal, appears stronger than a month ago.

27*th Month.* Is stouter and is now well nourished, scarcely able to speak, is still up and restless.

30*th Month.* General powers again failing, speech very drawling, laughs in an imbecile manner, says she has a beautiful fortune left her, stuffs her mouth with food in eating, has some difficulty in swallowing.

33*rd Month.* Pupils equal, is unable to stand, lies in bed with knees up, swallows with difficulty, constant grinding of the teeth, mind very demented, legs gradually became more drawn up, died from exhaustion of the general powers without convulsions in the 34th month of the disease.

Examination post-mortem, height 5 feet 4 inches, shoulders 12 inches, hips 10 inches, emaciation advanced, contraction of lower limbs, slight abrasion of hips.

Head. Conformation, vertex low; form round, equal in fore and hinder part, measured 6½ by 5 inches, hair scanty, of dark colour, integuments and periosteum normal, bone of increased thickness, and diploe distinct.

Membranes. Dura mater adherent to bone, arachnoid very opaque, much serous effusion beneath it, raising membranes in the parietal region of left side into bladders. Pia mater is adherent beneath and congested.

Substance. Cerebrum weighs 27oz., one side weighing half ounce more than the other, cerebellum and pons five ounces.

Brain remarkably firm, small size, much bedewed with serum.

White matter, showing numerous blood points on slicing, very firm, floor of fourth ventrical and both lateral ventricals and side of fornix covered with a pile of velvet-like white matter, gray matter of pale colour and layers indistinct and broken down by removal of membranes.

Heart normal, lungs collapsed; obsolete tubercle in both apices.

CASE XXIII.—*General Paresis, duration about two and a half years? History of epilepsy. Early history is imperfect. Death. Varicose condition of arterioles.*

K. W. a kept mistress, æt. 28, fair education, daughter of a small tradesman formerly a lady's maid, admitted into Hanwell August 1862, from a workhouse.

No friends of the patient were known, too imbecile to give any information. After some days' residence in the asylum, she was heard to mention the name of a well known physician, this gave a clue, which resulted in discovery of a brother, the footman of Dr. C. He stated that the patient was his sister, he had not heard of her for seven years. The following history was eventually gathered. She was subject to epilepsy from the age of 9 to 12, her father and uncle were epileptic and died imbecile "on the fits leaving her she became altered in disposition" probably at puberty. She entered the service of a lady as

lady's maid. She was a person of good appearance, of which she still bore evidence, she was always of haughty and ambitious character. She left service and was kept in great luxury by a gentleman for several years, being well supplied with means; some time after she was left for six months, continued to be well supplied with means, and still lived in great style, keeping a brougham, etc. She is supposed to have soon become addicted to drink, she gradually became invalided and for a time was ill, nature of illness uncertain, but she had to part with all her goods by degrees and at last was maintained by her female companions, who had known her in her wealth, she drank more and was at times muddled for a whole week together. At last she had been gradually getting affected in mind, became excited at times, talked to herself, when addressed would not reply, was very restless and constantly on the move, would dress and undress repeatedly during the day, became very slovenly in her person, at last she was taken to the workhouse. On admission to workhouse the medical certificates describe her condition as being "very indecent in behaviour, frequently exposing herself before other persons, talking to imaginary individuals in the ceiling or in the air, excessive restlessness, never keeping her limbs quiet for one moment to another, has stated that she had large property."

On admission to Hanwell. Has not been noisy, walks about in a restless manner, frequently changes her seat, answers questions in a whisper, and talks to herself. Slept well last night, expression of vacancy and confusion, frowns and knits her brows; pupils are equal and act well, does not know how long she has been in the asylum (came yesterday), cannot tell the day of the week, says it is Tuesday (it is Saturday), says she has no headache, is very untidy in dress, tongue is tremulous, uses her hand to assist in showing it, it is clean, bowels not open since admission, no chest symptoms, nothing peculiar in gait, pulse 80, is pale, but in pretty fair bodily condition.

One month after admission. Right pupil larger than left, occasionally violent, walks with a firm step, avoids me, her expression is lowering.

Two Months after admission. Is in good bodily condition, pupils unequa appears unable to understand what is said, right ear swollen, (insane ear).

Six Months after admission. Speaks in a very drawling tone, is violent at times and very noisy, walks well, but frequently falls as though her knees gave under her.

9th Month. This morning appeared to have lost the use of the left side, was put to bed, in the afternoon walked as usual, or with very slight limp of left leg.

15th Month. Has become more paralysed, mind is very imbecile, lies and mutters unintelligibly, is wet and dirty, lies with her knees much drawn up, has gradually failed from day to day, swallows with some difficulty, dejections were passed unconsciously, sordes collected on the teeth.

16th Month Both pupils dilated, unable to stand, but has rallied a little in mind, swallows rather better, conjunctiva much injected, from this time to the 18th month failed slowly, both pupils became contracted. *Death by exhaustion.*

Autopsy, assisted by Dr. Lockhart Clarke. Head externally, forehead receding, form long oval, vertex low, from front to back 6½ inches, across parietal region 5¼, hair dark plentiful, integuments and periosteum normal, bone diploe indistinct. *Dura mater* adherent to arachnoid, bony deposit in its texture *Arachnoid* opaque, much serum effused beneath it. *Pia mater* strips readily,

vascularity much increased, serum in its meshes. *Plexus choroides* turgid and injected, and serum distends its textures.

Brain Substance. General characters, firm, of dark colour, congested, brain small, regular and symmetrical, bedewed with serum, convolutions are open, and appear atrophied or shrunken.

Gray matter. Dark, spotted with minute vessels, which appear congested, the layers are indistinctly defined, and the gray matter seems diminished in thickness.

White matter. Of dark colour, injected and marked with numerous blood points on section, the substance is firm or harder than normal, serum exudes from its anterior surface.

Microscopic examination. The vessels of the cortical substance were found in numerous sections in varicosities similar to fig. 2, Plate III., and portions of brain substance submitted to a stream of water till only vessels were left, the appearance shown at fig. 2, page 306 was seen, and from which the drawing was made.

Dr. Clarke reported to me that he found several of the large cells undergoing degeneration, and having granular contents, specimens from this brain formed the basis of some of my remarks on the state of the vessels in 1866. Some of the arterioles, were situated in expanded sheaths or canals, some had no such canals, as in Dr. Wiglesworth's preparations, Plate II, fig. 1 and 2.

CASE XXIV.—*General Paresis. History of injury. Delire des grandeurs. Well marked remission after motor symptoms were shown.*

K. W. N., admitted Aug. 21st, 1875. 32 years of age, single, superior education, intelligent. Natural disposition, quiet and studious, and industrious, fond of athletic sports, especially of horse exercise, hunting and racing, was good rider and had ridden in more than one steeple-chase, habits temperate, short stature, muscular and powerful, dark.

About a fortnight previous to admission was taken with symptoms which led the friends to consider him insane. He went to the sea and stripped and tried to swim to a vessel six miles at sea, was with difficulty rescued, he behaved in a wild and irrational manner and was brought to Cheltenham, there he broke out into a very wild delirium and was brought to Sandywell.

On admission, was wild and excited in manner, he insisted on driving the fly himself and was shouting and holloaing all the way, was greatly elated in spirits, began at once to converse with the attendants, telling them his whole history and bragging of his wealth and intellectual ability, soon after began to dance vehemently on the lawn till he perspired profusely, when spoken to replies in great good humour, addresses me as "Dr." though he supposes I am Sir F. and this is Sir F's house, he speaks rapidly and distinctly, with no hesitation or stammering, has no difficulty of movement in limbs, talks somewhat loudly at times, says he is going to "marry lots of women."

The pupils contract pretty equally but both are irregular in outline, muscular power appears equal on the two sides.

Bodily health appears good, chest and abdominal organs normal, tongue clean; bowels act regularly, no thirst or heat of skin, pulse quick but regular, has cicatrices on lower lip and broken teeth from injury from fall from horse.

Previous history. Has had more than one serious horse accident, had a concussion of the brain on two occasions, on one of which he was insensible many hours, and on getting better had a tendency in walking to fall over on the side opposite to the injury and had to be supported, considered himself that he had quite recovered from this, he was ordered a draught of opium and digitalis and slept part of the night, continued excited and in good humour all next day.

About one week after admission. Continues in high spirits, is noisy; singing and shouting, has been writing voluminously, but what he writes is illegible, but is in a firm hand, no hesitation in speech, is tolerably amenable to the discipline of the house. (See Plate 4, Fig. 1, Specimen of writing).

2nd Week. Elated, good natured, easily led or persuaded, has amused himself by decorating his room and his dress with branches of trees torn from the garden, occasionally dances, says his health is excellent, pupils unequal, slight mumbling detected in speech.

5th Week. Has become more excited and more dirty in habits, sprinkling his urine about the room, is frequently violent.

Visited by a friend at 8th week, whom he wished to go away with, became very violent on being prevented and remained so for a quarter of an hour. The *delire des grandeurs* well marked, speaks very volubly of his strength, his wealth and his sexual powers, says he is going to cut out his intestines and then he will not require to eat, that he will get a boa-constrictor to put in his inside and that will make him grow twelve feet high, says that he can run ten miles an hour, that he can fly, that he has 400 millions of money.

12th Week or 3rd Month after admission. Is excited in manner and very garrulous, but is less violent in conduct, and is at times quiet for long periods together, talks of his immense wealth, enormous strength and height. He is going to eviscerate himself to make himself lighter and then he shall fly, still talks of the boa-constrictor to make him tall, the tallest man that ever lived (his own statue is 5 feet 5 inches), is lewd in his conversation and occasionally violent, is also dirty in his habits, but can easily be led by a little persuasion. *One week later* says he has brought up everything and that he shall fly off to heaven, he will dig a hole in the trunk of a tree and go down through the world and come out on the other side, writes cheques for millions of millions, says he is going to marry two pretty women, talks of cutting his head off and having a new one, slight thickness in the speech observable.

Nov. 14th, or about 14th week. The same grand ideas continued, only slightly modified, writing cheques for millions, going through the earth, etc., asked to go to church said he intended to build a new church for himself, he could do it in five minutes, is occasionally angry towards the attendants but on the whole quieter and able to dine at my table.

Nov. 28th. The note says he amuses himself in a more imbecile manner, decorating his head with pieces of coloured worsted or anything of tawdry colour, bits of metal, glass, etc., continued to be libidinous. A distinct stammer in articulation, pupils continue uneven, the gait slightly awkward, ataxic, has a little difficulty in turning while walking backward and forward, is getting stouter, eats largely, mixing all manner of things on his plate, meat, vegetables, tart, fruit, is occasionally disposed to be violent.

6th Month after admission. *Monomanie des grandeurs* continued, speech was more involved and articulation thick, complained of cramp in left leg while out walking, is now quiet and orderly in conduct, still writes cheques for different people,

writes constantly filling sheets of paper which are wholly illegible, says he is going to buy up the Agricultural College and teach everything himself, dresses himself out fantastically with feathers, wire off soda water bottles, makes himself rings, is very good natured over it, plays at billiards a good deal and plays well, makes good straight strokes.

7th Month. Less excitement, more imbecility, mumbles in speech, has bought the British Museum, says also he has a thousand then a million horses, that he has bought all the horses, that he can walk to London and back in a day, is angry with me because I express a doubt about it, continues to write, nearly all day, writing quite illegible, has had a cramp in his leg again.

8th Month. The alteration of speech more marked, *monomanie des grandeurs*, libidinous feelings continue, mind more feeble.

From above date varied a little from time to time, but was more amenable to order, more feeble in mind, seemed to doubt his great possessions.

9th Month. Had been depressed once or twice of late, took me aside, and said, "is it not true that I am as rich as I thought," I told him of course those ideas were mere symptoms of disease, he seemed to be saddened at my words, after this I induced him to forego his puerile ornaments which he at once removed. One month later, he continued quieter and orderly, there was still some thickness of speech and feebleness of mind, he returned home to his parents, his father who had watch the case very closely, considered him well.

I received reports from time to time giving excellent account of progress, the parents (the father a very intelligent observer) considered that my prognosis was not verified. I saw the patient at his own home on several occasions, he remained at home from (June 1876 to Nov. 30, 1877). The patient entirely lost all his grand ideas gave a clear account of his health. He went into a lodging with his mother in an open situation at the West End of London, here I also visited him, and watched the case closely, as the remission was of unusually long duration. At no time, however, had I any doubt as to the case, to me there was quite evident some feebleness of mind, the patient found himself unable to read any book calling for close attention, he also from time to time complained of stiffness and heaviness in his legs, the muscles of the face were inactive, the countenance had the peculiarity of the disease, there was an occasional difficulty in the articulation of a labial sound, he called from time to time on my son at the hospital for paralysis, who detected the same symptoms, and in November 1877, he suddenly became worse, more confused in mind and extraordinary in conduct and had to be removed forthwith to Bethlehem, where he died in convulsions.

Section IX.

STATES OF MENTAL WEAKNESS.

Various states of Mental Weakness. Imbecility—its connexion with criminality. Idiocy—Anti-natal and post-natal causes of. Dr. Morel's classification of causes. Dr. Shuttlesworth's—micro-cephalic idiot—Influence of synostosis on idiocy. Cerebral malformation. Dr. Duncan's classification of the characters of idiots—Acquired idiocy. Cachexia in relation to idiocy. Senile decay—Grades of—Capacity for legal functions.

The next subdivision of our subject according to the classification given at p. 104 is the subdivision (*b*) of Class A, in which the mental symptoms are not due to morbid processes but depend upon developmental causes.

It will be seen that this subdivision is capable of being further divided into two states, viz., Idiocy, and Senile Decay, which in great measure may be considered to be allied as they consist of states of mental weakness.

It will be convenient to speak of these states together. In asylums it is often the practice that these patients are classed by themselves; and of late in the county of Middlesex all the patients of this character are treated in a distinct establishment. In my opinion this system is bad, and had medical opinion been consulted and taken, it probably never would have been adopted. It is evident that the commercial spirit prevailed in the councils in the promotion of this idea, and economy ruled the decisions; it was supposed that by collecting all the imbeciles together, and thus concentrating dulness, apathy, and fatuity, there might be a saving of rates.

The question of mental weakness or the actual capacity of an individual may be brought before the medical man for his opinion. It will be as well therefore to enumerate here the different kinds of mental weakness collectively, though some of the cases have already been under our consideration.

Mental weakness may be found chiefly under the following six categories. In all asylums there are to be met with a very large number of patients of weak mind from the following causes, viz :—

1. Imbeciles, the result of previous mental disease, in whom the active morbid processes have ceased, leaving the patient with a permanent defect of intellect, a condition which is not unfrequently still progressive.

2. There are others classed as imbeciles, in whom the morbid processes may be said to be subdued but still smouldering, and though they are tranquil in mind, are subject to occasional recurrence of active symptoms, such as violence or other kind of maniacal exhibition.

3. Those in the last stage of general paresis in whom there is also always a condition of weakness of mind bordering on dementia; the word dementia being a term to signify a profound degree of imbecility.

4. In nearly every asylum there are also cases of imbecility, the result of epilepsy.

5. The subjects of idiocy proper.

6. The subjects of senility.

These patients appear at first sight a very uninteresting group of individuals, but there is scarcely a class for which more may be accomplished by way of amelioration than for these.

The treatment of all kinds of mental weakness is very much alike as regards the nursing and attention, the special requirements of each variety will be found under each kind of case.

In a different page of the present book, each different kind of mental weakness has its proper place excepting those under 5 and 6 which have now to be considered. These form the cases of mental disease from developmental causes in contradistinction to insanity from pathological causes.

Idiocy, or the state of mental weakness from original development is met with in all degrees. 1. We have the simply deficient person or person of feeble intelligence, who may be simply a fool, but well-developed in every other respect. 2. We have one who is decidedly an idiot, but well formed in all his bodily organs; and 3. the idiot with general defective development of body as well as mind, a stunted and dwarfed being, called also a cretin.

1. It will be as well to say a few words respecting the simply feeble-minded, or unintelligent person. It is from this class or

description of individual, that a large proportion of the criminal population is recruited, and the question of responsibility may be a difficult one to decide respecting many of them.

Mr. Bruce Thompson writes, "the criminal as a class exhibits a low state of intellect compared with the industrial class. A large proportion of prisoners, as I shall show by figures are weak-minded congenitally, and give a large proportion of insanity compared with the civil population." *Journal of Mental Science*, Oct., 1866.

"Their physique is coarse and repulsive, the complexion dingy almost atrabilious, their face, figure, mien, disagreeable; the women are painfully ugly." *Ibid.*

"Between crime and mental weakness," says Mr. Nicholson, M.B., (*Journal of Mental Science*, vol. xix., p. 398) "there is but an ill-defined line of demarcation. Many imbeciles have distinctly vicious propensities, all have deficient control, and are what is called impulsive."

Sir W. K. Shuttleworth writes, "It is plain to all intelligent observers that the juvenile criminals at Parkhurst were defective in physical organization from hereditary causes probably, and early neglect and privation."

Such cases as the above border upon a condition of idiocy, and the difference between them and the commonly intelligent on one hand, and the decided idiot on the other, is only one of degree. One can scarcely attribute their state to actual cerebral malformation, but more probably it is due to deficient size of the organ or quality of brain tissue, and absence of all culture. Anyone who has not had much opportunity of gauging the bucolic mind, would be surprized to find, how low the intelligence is among many of them. In cases to be met with in certain agricultural districts the intelligence is about on a par with the Bosjesmans.

There are other cases of defective mind shown early in life, which appear to be due to an irregularity of development of the intellect and which eventually improve. As soon as the child is old enough to evince any will, this seems to be constantly dominated by malicious propensities. Even before it speaks plainly it shows its wilfulness in spite and mischief, and petty cruelties towards anything which it can get at. At a

little more advanced period of life, the disobedience and vicious acts increase. Cases of this kind have been set down as insanity of early life. But as I employ the term Insanity for a distinct morbid process, it would only lead to confusion to apply the term to such cases as these, which are as I conceive, merely irregularities in the process of growth.

I have been consulted concerning several of these cases, and have watched the development of the children for several years afterwards, and have found, that as they grow older they become amenable to discipline and education, and several of them I have reason to believe have turned out more than usually intelligent.

One lad of about ten years old, when I first saw him, had attempted to throw his younger sister out of the window. He had done many acts of wanton cruelty. He was highly excitable, and of quick temper, thin, pale, with twitchings and irregular jerky motions of his limbs, an open shameless masturbator, extremely quick in learning and could already express himself, to a certain degree, in three languages. He was also quick at arithmetic, his mental weakness consisted only in control. He recovered completely as he grew up after removal from the scenes of a town life to quite a country and rural district.

A boy, the only son of an aged couple, who was being educated in classics, at the age of eleven, by his father; a pale, anæmic, thin and delicate child, intelligent to speak to, from time to time would break out into violent misconduct. He once threw a knife at his father, and evinced several acts of cruelty, etc. He was much improved by going to a tutor at the sea-side, away from home, where his general health was much strengthened.

The above cases are examples of irregular development of function, there are others which are due to distinct deformity and are true idiots.

2. *Idiocy proper*, with or without general bodily arrest of development.

There are many degrees and varieties of idiocy. Dr. Shuttleworth classifies them thus:—

1. Congenital idiocy.
2. Acquired idiocy.

Of the former he makes eleven principal types: 1. Micro-

cephalic; 2. Hydro-cephalic; 3. Plagio-cephalic (or distorted heads with features on an oblique plane); 4. Scapho-cephalic; 5. Scrofulous idiocy; 6. Mongolian type; 7. Cretinoid; 8. Syphilitic; 9. Primary neurotic; 10. Sensorial, (two or more senses deficient); 11. Mixed cases.

Of the Non-congenital cases, he enumerates 10 varieties:—1. Traumatic; 2. Post febrile; 3. Hydrocephalic; 4. Hypertrophic; 5. Eclampsic; 6. Epileptic; 7. Paralytic; 8. Deprivative (of two or more senses in infancy); 9. Emotional; 10. Toxic.

These variations were classed by me in my former edition into idiots from:—

1. Ante-natal,
2. Post-natal causes.

Which of course is much the same as congenital, and acquired of Dr. Shuttleworth.

Of the first description, or ante-natal *causes* derived from the parent, M. Morel thus epitomises the chief, dividing them further into two kinds:

1. Marriages of affinity.
2. Cachexia of parents, produced by
   - *(a)* Diseases; as syphilis, scrofula, rickets, goître, epilepsy, insanity, alcoholism.
   - *(b)* Hygienic defects; as marsh miasma, bad soil, climate, unhealthy residence, bad ventilation of workshops, mines, &c.
   - *(c)* Errors of food; as ergotized grain, maize, potato, rice, opium, tobacco.

It will be seen by reference to Dr. Shuttleworth's table, that a rough division of the varieties may be made by dividing them into the diminished head or micro-cephalic idiot, and larger heads or megalo-cephalic.

In the micro-cephalic idiot, the cranium may be and usually is tolerably symmetrical in form. The diminutive head, may be a part of a generally stunted growth, and backwardness of development; this kind of idiot is also a dwarf, and is usually deficient in vital stamina, quickly ages and dies by decrepitude at an early date. To this form of idiot, the name of cretin is applied. A cretin is thus always an idiot, but the idiot is not always a cretin.

In other forms of micro-cephalic idiocy, the fault is cranial only, and it is due according to high authorities to anomalies in the order of the closure of the cranial sutures or to errors of synostosis.

The synostosial causes may be divided into two classes.

There were two sets of idiots exhibited in London about the time when I first began to lecture on the subject, which were typical of these two classes, one called the Aztecs, they had bird-like features, conical head, etc.; and Tom Thumb, with low, broad features, short nose without bridge, breath between the eyes, bloated thick and ungainly trunk.

But though these types are connected with irregularities of synostosis of the cranial bones, there is abundant evidence of malformation of the brain as well, in most of the examples. The subject has been investigated by several authors, and among others by Virchow.*

With respect to the influence of synostosis it can be readily conceived how the shape of the cranium would be modified by one or other suture becoming ossified out of proper order. For example, if there were premature ossification of the whole of the sutures, the cranium would simply remain small, but symmetrical; if the sutures of the apex were ossified prematurely, the head would remain small at the apex, and would increase only at the base; if the sutures at the base were first fixed, the cranium would be contracted at the base, and expand only above. Thus various forms of cranium would result. The chief varieties found among idiots are shown in the plates illustrating M. Morel's work, *(Sur les Degenerescences de l'Espece Humaine)*.

With the malformations of the cranial cavity, alterations not only result in the general contour of the head, but of course in the features also. Thus, if the base of the cranium ossified slowly, the brain would find there an important means of compensation, and an expansion of the base would result; and this would give the features, by displacement, the peculiar type of the Aztec: while the closing of the sutures of the base prematurely would produce the opposite form in the features, or the physiognomy of the Tom Thumb type; the sphenoid bone, at the point of

* Ueber Untersuchungen ueber die Entwickelung des Schadelgrundes, etc.

junction with the basilar, forming a smaller angle than normal, the hollow of the base would be shortened and the sphenoid tilted, as it were, toward the occipital region ; the bridge of the nose would be thus retracted and rendered broader, the orbits separated, the eyes sunken, the cheek bones prominent. Idiots of either kind may be also cretinous.

The cretin proper, most commonly has a round head, and it is somewhat large in relation to the size of his body. His neck is short; in some cases there is goître. The expression and the form of the features are those of a child; the eyes are usually wide apart; the cheek bones high; the nose without bridge, and small or snubbed; the mouth large; the teeth irregular, and the dentition is usually delayed to a late period; the belly is large ; the limbs large at the joints, and ill-formed ; if puberty be developed at all, it is late ; but in the worst cases the cretin is sterile.

When the cretinism is not so far advanced and the puberty is developed it is often accompanied by goître.

Some writers appear to go too far in their estimate of the influence of synostosis as a cause of idiocy, this remark does not include Virchow however.

There is no doubt that the contained organ or viscus has great influence on the containing organ, but as a rule the higher in function, or in order of importance that the part is, the greater is its power of modifying the organs in relation with it, thus aortic aneurism will cause absorption of the vertebra. So that we should for general reasons be disposed to imagine, that atrophy of the brain would be the cause of the smallness of the calvaria, rather than the order of the synostosis; but on the other hand the distinct varieties of the irregular closure of the sutures in different cases rather point to the other conclusion.

There have been a great variety of malformations found in the cerebrum itself. But as far as I can ascertain they occur in no such uniformity or regularity, that they would seem to bear any constant relation to the external form of head.

If malformations and deficiency of parts of the brain were the real cause of the defective development of the bony case, it would be probable that the symmetry of the cranium would be more variously disturbed, though that the cranium is often un-symmetrical, is a well established observation.

As regards the cerebral defects, among those most frequently mentioned by different authorities, are certain anomalies of consistence, as excessive toughness or hardness; partial absence of convoluted arrangement of the hemispheres, or extreme simplicity of the folds; entire absence of cerebellum has been found, absence of corpus callosum in several instances, with varying condition of intellect; absence of pineal gland, absence of a portion of one hemisphere, rudimentary condition of olivary bodies. Atrophy of the peduncles, of corpora mamillaria, thalamus, corpora striata, chiasma, are also given in Griesinger, who mentions that Valentin and Niepce found each a case of a ciliary ventricle, which exists as the normal formation in birds.

Among the anatomical modifications found in the head, Griesinger draws particular attention to alterations in the arteries traversing the skull. M. Niepce found the anterior cerebral and the basilar artery to present a straitness of course very remarkable. Griesinger found the foramina carotidis remarkably straight in course, which was not due to any alteration of bony tissue, and the same condition has been noticed by others.

The condition of the idiot may be looked upon as a retrogression in the scale of animal development—a degeneration of the species, as enunciated by M. Morel in his work, "Sur les Degenerescences de l'Espece Humaine;" and the cranial anomalies are a part of the general retrogression.

I consider that the facts and the authorities lead to the following general conclusion, viz., that among the small headed (or microcephalous) idiots, there are two classes, one in which the primary error appears to be in the brain itself; and the second, in which the seat of the fault is said to be in the bones of the cranium.

In the first category the primary arrest of growth is in the brain tissue, and the cranium or containing organ is modified to the requirements of the contained viscus. The cause of the arrest of growth of the brain probably is some process of inflammation occurring during either intra-uterine existence, at birth, or immediately subsequent to birth, and also during the early periods of infancy. Cases of idiocy from such causes are sporadic, and the arrest of growth is frequently partial or irregular, and the osseous tissue is moulded over an irregular

and unsymmetrical organ. The form of head in these idiots is therefore irregular in outline.

It is difficult entirely to separate all cases from each other by the date of the origin of the cause. In many cases of idiocy from birth, it is not easy to say that the operating causes were just before or during birth, or during the early periods of lactation

Before proceeding to consider the idiocy from the post-natal cause or acquired idiocy, it may be well to briefly speak of some of the chief characteristics of the idiot.

The conduct may be summarized briefly by saying that the idiot's actions have the general simple reflex characters, they are without variation, often repeated in the same way, showing various degrees of intelligence.

It is chiefly with the congenital idiots, whose general health is often fairly good with the sole exception perhaps of epilepsy to which some are liable, that the Idiot's asylum is peopled.

Their mental state varies both intellectually and morally.

Dr. P. M. Duncan gives an analysis of 50 cases in *Journal of Mental Science*, Jan. 1862.

As regards disposition, he found, 26 described as irritable, 24 inert.

Mental.—Profound idiocy in	3
Slight intelligence only, able to stand, walk a little, and capable of slight instructions.	21
Able to walk, run, or use their fingers, to attend, do easy mechanical work, feed themselves, memory and perception variable in power .	11
Simpletons superior to the above, but below normal intelligence	9
Imbeciles from Epilepsy	6
	50

When born there is often nothing to be observed, except on very close scrutiny, different in the congenital idiot from any other infant; but it may very soon be discovered that the child is less animated, takes very little notice like ordinary infants, and perhaps lies without moving its limbs so freely. As it grows

it continues in the infantile condition, it makes no progress in any way, to seize an object or to sit up, or to direct its vision, later it makes no articulate noise, it may remain without showing any bodily disorder. Later, and as the child grows and begins to know his own strength, he may become mischievous and even dangerous, this is particularly the case at the period of puberty, a being of this low order of intellect, scarcely level to the intelligence of a dog, is often given to vicious habits of all kinds and especially is he influenced by his sexual passion. He masturbates to a frightful extent and if he has intelligence enough to be influenced by the opposite sex, he will commit violence or make disgusting exhibition of his passion. This condition of things occurs only when, though the intelligence is low, the body is well developed and when no education or training has been possible, or has not been attempted; for such the idiot asylum is capable of doing much. In idiots of lower type the sexual desire often remains undeveloped.

Besides actually vicious propensities such as is shown often in many children, as the torturing of insects, fighting and general vindictive and turbulent behaviour, there are some peculiar tricks or propensities observed in idiots of this class such as restless movements, rocking themselves backward and forward or from side to side, gazing at the sun, playing with a stick in waving it quickly in front of the eyes. M. Niepce as quoted by Griesinger, (*Comptes Rendus*, 1853) relates a case in which an idiot for years occupied his time in opening and shutting a drawer, in which there where two keys which he rattled together continually and returned to the same occupation every day.

As shown by Dr. Duncan's table about half of the number of idiots show irritability of temper and half are of milder character; the intelligence of many of the micro-cephalic kind is sufficient to allow them not only to speak but to learn to do various mechanical work; they work, however, mostly in a simple mode only, there are others who show a great alacrity in acquiring particular works or to repeat lessons, to calculate, to draw, to play musical instruments, yet in every other respect perfectly unintelligent.

The cretin belongs to this class of idiocy or the micro-cephalic, he is the subject of universal arrest of development. A lad at

Hanwell, the offspring of cousins, twice repeated, was one of a family of three, one other being also an idiot, this idiot who died at the age of 15 of phthisis, had nearly the smallest head that had ever been met with in a viable child; his intelligence was never developed beyond that of an infant 3 months old, he could not direct his hands, nor stand, nor sit up, the calvaria is preserved in the museum of University College, (and was usually exhibited at my lectures).

The description of idiots which we have been considering or the cases of idiocy from anti-natal causes, corresponds of course to the congenital idiot of Dr. Shuttleworth, though with some differences. He distinguishes also several variations in the shape which I have not specialized among large or small headed, such as certain irregularities, as boat shaped, scaphio-cephalic, plagio-cephalic or distorted heads with features in oblique plain. No one's head probably is quite symmetrical any more than his feet or hands are of the same size, and intelligence is compatible with much irregularity of shape of the head, but far less so with want of size. The microcephalic may include all variations of shape.

Among idiots from anti-natal cause there are also megalocephalic idiots corresponding to Dr. Shuttleworth's *acquired idiocy*. In these cases synostosis when in fault errs in the opposite direction, the cranium remains unclosed for very late periods. So universal is this that early and late synostosis might serve as a basis for the classification. The acquired idiocy is due to cachexia produced by a combination of causes.

The idiocy, however, which is acquired and is associated with the open sutures and enlarged heads is mostly due to distinct post-natal influences. It is of course a variation in time of very uncertain kind, between the causes acting in utero, and those immediately afterwards. Those which affect the infant in utero also affect the mother, as syphilis, scrofula, debility, certain diets in impoverished districts, and mountainous countries, bad drinking water and the like. All these influences acting on the child directly through the mother during gestation, continue their baneful influence on the child after birth. They may therefore be considered with the post-natal causes.

The influence of synostosis in these cases is by its late completion.

The date when the bones of the head are united varies naturally within certain limits.*

2. Megalo-cephalic Idiocy. *The idiots with large heads* are those whose idiocy depends on post-natal diseases, and especially rickets. Idiots from this cause evince the origin of their disease, by the *absence* of closing of the sutures, the peculiar breadth and flatness of the head, as well as by evidence of the affection of the bones, or malformation of the spine or sternum, and bending of the tibia, enlargement of the joints, &c. In these idiots, although the cranium is considerably enlarged, the cavity contains usually such a proportion of serum, that the brain is not more voluminous than normal. In some cases the solid contents of the skull have been found to be actually less than normal. But in certain cases, the actual volume of the cerebrum has been greater than it should be according to the age of the subject. Hypertrophy, according to Griesenger, is much more rare than the opposite condition, but it is almost impossible to ascertain the fact during life; for, in both cases, the head is larger, and the ossification of the skull is incomplete, "but what," he adds, on the authority of Virchow "is of interest on many accounts is, that the base of the cranium is but seldom extended by the hydrocephalus, but rather remains contracted, or is developed to the normal average." § 160.

Among the second description or post-natal causes, Dr. Morel enumerates diseases of childhood; as rickets, scrofula. Idiocy is also due in some cases to cerebral diseases occurring in early infancy, blows on the head, etc.

In many cases under either of these categories, the fact of the idiocy is not immediately apparent at the time of birth. It is concealed by the normal condition of mental feebleness, so that the cause cannot be decided by the date of discovery.

* As regards the period of the normal closing of the suture, Professor Welcker says the open frontal suture is by far less common in the negro and in inferior races. In Mongols it is found in 1 in 14, in Malays in 1 in 20, Americans and Negroes 1 in 40 or 50. While in Europeans it is open in 1 in 10. Quoted from Thurnam; On Synostosis, *Nat. Hist. Review*, No. 18, 1865.

The low lying districts of large and unhealthy towns, is the habitat of these cases, and in M. Morel's division of the subject they were placed under idiocy—*des Grande Villes*. They are objects of most painful character to behold. Their bodies are crooked and deformed. They have scrofulous enlargements and diseases of bones; are unable to sit up, but lie in doubled up form, with painful expression of fatuity and suffering. The cases are less common in England than formerly.

Of what there is to be said with respect to the treatment, both sections may be discussed together hereafter.

Imbecility from senile decay.—Cases of this kind are to be met with in every asylum. In some instances they are sent there for proper care and management only; but more frequently on account of some troublesome propensities which are present.

The condition is called senility, sometimes anility, when it occurs in women. Senile insanity and senile mania, are terms which are also used, the latter term to denote the most pronounced cases.

This state of mental weakness, as well known, is usually very gradual in its advent, commencing at ages differing in different individuals, according to the state of the general health, and state of nutrition of the subject. This tendency to decay is evident in everyone soon after 40 years of age, when the hair shows the earliest effect of age, in the commencement of baldness or greyness. The skin, especially of the features, loses its transparency, wrinkles appear. The complexion is more opaque and sallow. The teeth become more yellow. The special sensations perhaps become less keen, glasses are required to assist vision; the hearing is not so acute. There is less aptitude for exercise and muscular exertion probably. In most, such changes are simply indications of the maturity of age; but if such alterations come on at too early a period, they may merely indicate wear and tear, and the mental functions may remain quite unimpaired.

But an exaggeration of such symptoms usually succeeds; when the mental functions also become involved. The individual gradually loses flesh, shrivels as it were. The face becomes more furrowed with wrinkles. The hair from grey becomes

white, not only on the head but on the pubis also. The teeth drop out. The man stoops; his gait is feeble; his step is short, shambling, and inelastic, his sexual capacity is extinguished.

In some, the decadence is in one direction, and in others in a different direction. Impairment of sight and deafness is marked in some; in others, the motor debility is more obvious; as feebleness in walking, in rising from the sitting position, or in tremors of the limbs; in others, there is watering of the eyes, tendency to retention, and to diarrhœa, with all of which there may be no greater mental change, than want of energy.

In others, mental imbecility is a prominent symptom, this comes on gradually, first of all by slight loss of memory, confined at first to newly acquired impressions.

This condition of mind is one concerning which the physician may be consulted by the patient himself, who may imagine he is losing his faculties. Or the opinion may be sought as to the patient's abilities for executing a will or other legal document.

Such a condition as above, of bodily decadence and mere deficiency of memory should not, I think, invalidate a legal act. Each case must of course depend upon its own details; but feebleness of memory of recent events, and difficulty in the memory of names is often allied with considerable powers of judgment and reasoning. It is at a more advanced degree of failure of the powers, when a patient's case can be called one of senile mania. The anatomical ground of the earlier stage is probably due only to a feeble circulation—in itself due in some cases to atheroma or disease of the vessels; the result, in turn, of a rheumatic or gouty state.

The defect in the vessels is a growing one, the malnutrition of the brain is therefore also progressive.

In the later stage of mental decay, the patients may be reduced to an extreme degree of childishness. The memory especially indicates the change. They become restless and unmanageable by their friends, and among the poor may wander from home and get lost.

The following are notes of two cases sent to Hanwell :—

One old lady of sixty-nine years of age was sent to the asylum because she could no longer be managed at home. It was reported that she had been failing in mind for three or four years;

she had latterly shown a propensity to wander away, and she was nearly lost on several occasions. She became an annoyance to her neighbours by going from one to another to borrow something—such as a broom, a saucepan, but most commonly a candle. She was very feeble and tottering. On her admission an attempt was made to keep her in bed, but she constantly wandered from her room and toddled about in her night-dress, always apparently in search of something, enquiring eagerly of every one she met, if they had seen her old man. Her old man had, I understood, been dead very many years. At another time she would be very busy—in a great fuss, and would say she expected her old man home to dinner and she could not find her saucepan. Her state reminded one of what happens to ourselves in dreams, when, as soon as we have adjusted one difficulty, some other immediately presents itself.

This old woman improved in health after a short residence in the asylum, but no improvement in the state of her mind took place. She was still tottering on her limbs, and one day she fell down and fractured her olecranon, but she took no notice of the injury. On being asked to show it, she would often forget which elbow was hurt, and would even use the injured arm to bring the opposite elbow into view. She would give numerous accounts of how the accident happened—sometimes she said the cook did it with a broom, sometimes that the butler pushed her down stairs; clearly recurring to the scenes familiar to her fifty years ago, when she lived in service.

Another old woman, admitted in 1861, was a specimen of failure of intellect and bodily strength, with remarkable elation of spirits. She was never serious—never answered without a quibble or a joke. Her mind was, however, a sad jumble of youthful and senile ideas. She was vain and coquettish. At times she would give her age as eighty. She said her boys were six and eight years old. She suffered much from lumbago, and she would lie and groan and joke in the same breath. She mistook the asylum for her own house, and used to call the nurse her landlady. The following are some of the notes made at her bedside during the last month of her life: "August 12. —Is cheerful and joking; says she is getting worse, and has been getting older ever since she was born. She is

eighty, but she wont die for 'em; kill her who dare; says she has two children, the one six, and the other eight, good boys." These children were drowned fifty years ago at the ages she gave. "August 19.—Asks the hour, and remarks that it is late; that her old man is out, and ought to come home; is groaning and complaining of her back, but still joking; is never serious, quibbles with questions put to her; takes her food. Says 'she lives well and pays her rent;' gets more feeble; is unable to turn in bed; is occasionally wet; pulse and heart-sounds very feeble.

"September 26th.—Continues in the same mood; greets me with a quibble as usual; is more feeble in body.

"October 8th.—Fails gradually, sleeps much.

"22nd.—Sleeps much; is dozing nearly all day, but rouses herself when addressed; and takes her food well; says she is pretty well; intellect more obtuse; is scarcely able to joke."

Another old lady, admitted at the age of 81 years was a good example of what is called senile mania; she was a Scotchwoman; she also became unmanageable at home, or in the workhouse, from her propensity to wander about. Her case, however, was remarkable on account of the degree of mental weakness which it exhibited. On being asked her age, she said eighteen instead of 81. Her face was greatly wrinkled and her hair scanty and white. A looking glass being close at hand I gave it her, she gazed stedfastly at it, and I thought it would have convinced her of her error as to her real age; but after looking at the reflection of her own features for some time she said, "Tak it awa its nae my mither," she did not recognize her own face.

These are examples of extreme cases, they illustrate the degree to which the condition may extend without being incompatible with life, and death when it happens is usually through failure of the other functions.

As regards treatment of these cases little can be achieved by therapeutics unless there are symptoms of bodily disease as diarrhœa, or interference of health from neglect by dirt, etc., or improper food. Usually there are some indications of such, in the pauper class it is common to find that these old people have been fed on course food, cabbage, bacon and such like, not unfrequently they have injuries from falling about, the general

debility of the system is shown by the tendency to large vibices in the limbs, by chilblans, neglected sores from lying unattended to, etc.

There would be no difficutly in the cases quoted, in certifying the unfitness of the individual to execute any legal instrument whatever. Between these extreme cases and the mildest forms, there are innumerable degrees, and where to draw the line between such as may, and those who may not, execute such an instrument is the difficulty, there is no crucial test to fix the line. The loss of all ideas on the value of money has been given as a means of determining the question, and it might assist with other facts to yield a just estimate. But the acuteness of the patient varies from day to day. At one time he may have a correct idea of the consequence of his acts, and immediately afterwards may be totally confused; in such a case the reasonableness of the act itself might be a test of the patient's lucidity.

The opinion of the state of mind must be taken from the facts of each case.

PART III.

Section I.

EPILEPTIC INSANITY.

Epileptic Insanity not a special form. The phenomena of Epilepsy, Explanations of—Dr. Hughlings Jackson on—Epileptic Mania—the symptoms of —Its tendency to Imbecility—Hystero-Epilepsy—the diagnosis from true Epilepsy—the relation of Epilepsy with Recurrent Insanity—to Crime—Treatment.

We have now to enter the examination of those cases, which in the classification at p. 104, I have placed under class B, and in which the mental phenomena are only symptomatic, or accidents during different morbid conditions.

These it was pointed out, were chiefly:—

I. Epileptic Insanity.
II. Alcoholismus.
III. Certain Spinal Diseases.
IV. Organic Disease of the Brain.

These will be here spoken of in the above order.

Epileptic Insanity.—This is not a special form of disease, neither as regards the epilepsy or the insanity, the cases which find their fitting place in the asylum are cases of epilepsy, in which the phenomena, besides the usual motor symptoms, affect the mental faculties.

The mental faculties become implicated in an ordinary epileptic case in two ways, and thus we have two kinds of cases to treat in asylum practice. 1. Cases of imbecility the result of epilepsy. 2. Cases of mental disturbance, maniacal condition, depending on epilepsy.

It is no part of my programme to speak of ordinary epilepsy, a few facts may be however useful in explanation of what is called epileptic mania.

The relation of recurrent insanity to epilepsy, has already been alluded to (p. 174 *et seq.*).

Different explanations have been given of the phenomena of epilepsy. The explanation given by Dr. Hughlings Jackson is that which is pre-eminently more satisfactory than all previous views. In a paper in the *West Riding Reports*, he gives a descriptive definition in these words. "Epilepsy is an occasional, sudden, excessive and rapid discharge of gray matter of some part of the brain."

Dr. H. Jackson would include every variety of discharge. "The term epilepsy is not the name for any one grouping of symptoms, but for any set of symptoms whatever presented paroxysmally, from discharge of some part of the cerebral cortex. Whether conciousness be lost or not, matters nothing for this definition."

It is evident that in order to obtain a clear insight into the cause of any phenomenon, we must study it from its genesis to its perfectly elaborated state.

As already several times pointed out in the previous pages, every neural act consists of afferent, centre and efferent, in other words of impressions and movements. The latter term including every part of the organism to which an efferent is distributed, that is, to skin, muscle, gland or viscera, and it includes the muscular coats of vessels,

Dr. Jackson proceeds to say in the following words:—"States of consciousness, although always parallel with, are utterly different from nervous states, which in the higher (cerebral) centres are, as in the lower, concerned with impressions and movements. It is not said that mind is made up of nervous arrangements for impressions and movements, but that the substrata of mind are thus constituted. Thus we do not say that any kinds of mental state arise from nervous discharges, but that they occur during nervous discharges." (See Consciousness, p. 17 *et seq.*).

Again "according as the seat of the discharging lesion varies, the symptoms of paroxysm vary, but since the cerebral centres, even the highest of them, represent or re-represent all parts of the body, we have all kinds of symptoms in the paroxysms from differently seated discharging lesions."

We have the effect exhibited in every efferent direction, "increased flow of saliva, pallor of the face, sensation of cold

arrest of respiration, sensation of suffocation, coloured vision, noises in the ears, nausea, movements of the eyes, vertigo, sense of aura, convulsion of the limbs." "In other words, every epilepsy is a development, but a brutal development of the functions of some part of the cerebral cortex, the cells of which have become highly unstable."

The above is quoted principally from *West Riding Reports*, Vol. 6.

In considering what is called epileptic mania, the whole series of the phenomena will be easily understood upon the basis of the above explanation.

The history in these cases is usually that the patient coming from a neurotic parent, developes ordinary attacks of epilepsy during childhood. The case is severe perhaps of its kind, and at puberty instead of being ameliorated as sometimes happens, becomes aggravated; and the paroxysms are attended with delirium of more or less severe character. Some of these patients show a tendency to a particular form of violence, and in such cases, though the fits may come on only at distant intervals, they may be of very dangerous character. When they occur; they resemble closely those cases already alluded to as *Epilepsie Larvée* of Morel (see p. 174). In these cases the act of violence is not always attended by unconsciousness. In cases of epileptic mania the violence is more frequently the precursor of the convulsion or motor phenomena, as an aura or other sensation may usher in the convulsive paroxysm in ordinary epilepsy.

As Dr. Hughlings Jackson points out, the highest centres, those which are the arena of the mental functions proper, are most commonly sooner or later the seat of the discharge. In common epileptic seizures, the cortex discharge follows by an appreciable interval some lower discharge. The higher discharge is then ushered in by an aura, or cutaneous impression, a flash of light or optic centre discharge, a noise, etc., and then as the effect arises there is a motor discharge, and loss of consciousness, but as well known, the paroxysm may not reach this condition, no motor, or no violent motor phenomena may ensue, and the seizure is one of *petit mal*.

What appears to take place in epileptic mania is that the pre-

liminary phenomenon is a mental action, as a rule or as far as my experience goes, there is less frequently the warning of an aura, or other peripheral symptom; the patient is rather more generally excited, more talkative, more bragging or elated in mind. He walks about in an excited manner, and in which state is violent and dangerous. He may rush at the throat of any one near, struggle with the greatest, fiercest, and blindest fury, until exhaustion overtakes him, but in some cases the condition will continue for several days, and terminate at last in well marked epileptic convulsion with unconsciousness. Of all patients in asylums these are the most dangerous, and what the world would call the maddest. In other exacerbations of maniacal kind the patient may be reasoned with, soothed by management, and induced to forget his apparent anger, but no impression of this kind can be made on the epileptic.

The seat of the discharging lesion is in these in those parts, which are the substrata of the higher mental faculties.

Whether we call the explanation of a discharging lesion an hypothesis or theory it appears to meet and explain all the well observed results.

The theory of the tendency of the neural discharge to occur in tracts previously traversed, falls in too with what is observed. We know how quickly the motor impulse follows on the impression when it passes in a well established track. How quickly for instance do we read aloud on seeing the symbols representing the sounds, in this and all other so called automatic movements, the track is quickly retravelled, there is evidently a condition of the track itself which prevents as it were the dispersion, or spreading of the impulse to associated impressions in connection with it. We are aware that no new train of thought can pass without comparative difficulty; a new subject to be learned, a new language to be acquired, is by a slow process, and is accompanied by many mental digressions. In the words of Dr. Hughlings Jackson, "Every part of the system is represented in the cerebrum, and even in the lower centres, the units of the cerebral hemisphere (in the region of the corpus striatum at least) represent potentially the whole processes of the body." It is only a frequently repeated action that passes without dispersion or hindrance. In epilepsy the discharging current finds

a too easy path, and the epileptic's mind is one which has few interferences by associated impressions, the character of the imbeciles from epilepsy is that of the most uncomplex kind, in other terms the simplest. It is not easy to impress such a mind with any new fact, nor to turn it from any resolve by argument, the tendency for the current to pass in the primitive track is too strong. This character of the epileptic mind is cat-like. If a cat wants to jump from a chair, no coaxing or inducement of food or indulgence will make it change its resolution, it may be delayed for a time but ultimately the action will take place. It is so with all the mental processes of the confirmed epileptic imbeciles, the particular line of conduct is easy in one direction and that apparently in the most direct reflex route, no fresh impression will outweigh or even modify its course. Is not this due to the frequent down discharge through these direct routes, which occurs in the epileptic seizure.

In a sound mind an impression is received, and its tendency is to terminate in a particular motor impulse, but a previously received impression is evoked by association, the impulse is modified, but in an imbecile from epilepsy the stored impressions are faint, have little power, while the direct route is morbidly patent. Hence the neural discharge readily finds an exit, and the cortex itself is unstable, as it were like a badly insulated Leyden jar, and the result is an impulsive maniacal act.

In some cases which have come under my notice of this kind and which we call epileptic mania, the patients have been manageable at their own homes for a period, having been subject to the usual form of epilepsy from an early age, but of such a severity as to be quite unable to receive anything like a moral training. They have shown impulsiveness in all their doings, being often irascible, and unmanageable even in their earliest years; so that they labour under a deficiency of control, and on the approach of puberty they are wilful and unmanageable. This has not however been universally the fact, for one of my worst cases was in a woman at Hanwell, who up to the age of about thirty had been able to maintain her mother by her industry; yet this woman probably had to be managed. But it would seem that the mind which has been allowed to go quite uncultured is easily affected by the malevolent impulses. The

maniacal outbreak takes place in some outrageous act of violence. Several homicidal cases have thus been inaugurated and more than one epileptic has been hung in consequence, for on the cessation of the seizure, the patient returns to a condition of composure more or less absolute.

These morbid neural discharges from the unstable cortex of the parts underlying the mental faculties, like other discharges do not always or necessarily terminate in unconsciousness.

The tendency of epileptic mania is to imbecility, the maniacal disposition of the seizures as a rule is but a transient phenomenon; most of the patients improve or become less dangerous in their mode of seizure after a period in the asylum. Nevertheless it can scarcely be absolutely said when the tendency to violence has ceased; an epileptic who had been supposed to be perfectly harmless for many years and was employed in outdoor work at Hanwell, or other very light work, such as conveying the washing from the laundry under the charge of an attendant, one morning without showing the least warning, raised the spade which he was using and presenting its edge downwards, brought it down with all his force upon a fellow patient working by his side, and severed the head from the vertex down to the under jaw, and of course killed the man on the spot.

The imbecility of epilepsy which may follow all kinds of cases, whether maniacal or not, is of distinct character, the practised eye can single out the epileptics in every imbecile ward of the asylums, the term "simplicity" indicates the change and the physiological condition at which the epileptics arrive in asylums. The mental change has already commenced, or the patient would not be consigned to such care. Dr. Reynolds computes that some mental disturbance is to be detected in more than 50 per cent. of all cases of epilepsy, counting impairment of the memory as such, and that epileptic mania occurs in as many as one-sixteenth of all cases. The influences which lead to intellectual weakness are, according to Dr. Reynolds, very obscure, "neither the age of the first attack, nor the kind or frequency, nor duration in years seem to have any effect." "Such a high rate of frequency as eleven hundred attacks in the year, may exist for seventeen years without producing intellectual change,

whereas so low a rate as seventy-two in the year, may damage the mental condition most seriously, and that in five years. Besides the mental changes, epileptics show usually some physical effects, as in their gait, voice and expression.

Such are the cases most commonly found in asylums, the condition called hystero-epilepsy by the French writers is much rarer, though hysterical pseudo-convulsion may occur in female lunatics, which has led to the term of hysterical mania, (see p. 191). The kind of convulsive attack of these patients differs from the true convulsion of epilepsy in the fact, that all the exaggerated movements are co-ordinated movements, and not the irregular contortions of true epilepsy. In hystero-epilepsy, as it has been called, it is said that firm pressure on the ovaries gives immediate relief.

Dr. Legrand du Saulle whose work is the latest on this part of our subject, maintains, however, that there is no connection between hysteria and the womb or sexual organs, one proof which he adduces is that hysterical symptoms occur in men.

The collection of cases brought together by Dr. Legrand du Saulle are various, and are as it were, from the point of view of the hysterical symptoms. On review of these cases some are certainly true epilepsy, some I should consider chronic insanity with hysterical symptoms and grave motor disturbances. According to Dr. Hughlings Jackson's views on epilepsy, it is probable that several of the severer forms, called hysteria by some writers, are varieties of epilepsy in which the lesion is in the higher or psychical centres. Such appears to be the nature of those cases of pseudo-paralysis, of contraction of the limbs, aphasia, etc., which are occasionally observed.

There are similar cases in most asylums to those called hysterical epilepsy, as well as of what is called hysterical mania, and which I have discussed in a previous page.

One cannot well draw a hard and fast line between all such cases and others, some of the cases of hysterical epilepsy are severe, and are attended with loss of consciousness, and other nervous disorders, as hemiplegia, or paraplegia. Hence anæsthesia and other anomalies. The patient too is convulsed, and as strongly as in true epilepsy, but the difference between the two states is discernable as the kind of convulsion as described

above. Dr. Legrand du Saulle, in his work, "*Les Hysteriques*," has given a large collection of cases of hysterical disease with mental symptoms in many of whom very grave disturbance of the motor faculties were prominent. (Case 17 and 18, p. 214).

There is nothing, however, in Dr. du Sualle's work, which would lead us to the conviction that such cases are exceptional, and they are simply different stages in acute and chronic insanity, attended with certain perverse symptoms, which in fault of a better name, have been called hysterical. And certainly some of these hysterical symptoms occur as part of the mental disorder in ordinary insanity, in the acute or chronic stage without any purely epileptic symptoms; their true pathology may be as suggested, viz., that they are cases of Jacksonian epilepsy in which the paroxysm is wholly of the psychical kind. But the majority of the cases called hysterical may have their cause in a naturally ill balanced organization, or ill regulated mind. The outbreak often resembles an act of ill temper and ungoverned passion. Many of the cases would more justly perhaps come under the catagory of Idiocy or weakmindedness.

Before dismissing the subject, there is the question of the legal relations of epileptic seizures, to be alluded to; especially with regard to the question, whether the *first* epileptic seizure, on the definition above stated of Dr. Hughlings Jackson, can be an act of homicidal character. I do not think there exists an example of such a circumstance.

The cases already quoted (p. 181) under recurrent insanity, especially that of the lawyer's clerk, who made a note in his diary, "killed a child it was fine and hot," if not an attack of recurrent insanity, could it have been an epileptic seizure? I think that no such an instance of epilepsy beginning in this way; if disease at all, the case would be rather recurrent insanity of that kind called by M. Morel, *Epilepsie Larvée*.

The atrocity of the act of course makes no difference in the pathology, the question is, can a discharging lesion of the cortex be the cause of an act of such perversion of moral nature, and occur as a first phenomena in epilepsy, there is no evidence to render it at all probable.

There have been many instances of murder committed by epileptics, in which the act was simply an epileptic seizure,

but in all that I have heard or read of, the epilepsy was of a well developed character, notwithstanding which not a few of these unfortunates have been hung.

The special treatment of the epileptic mania may claim a few words as regards the acute or active stage. The imbecile from epilepsy may be considered as regards the imbecility, with imbecility from other causes.

The treatment of epileptic insanity may be divided into the management, and the therapeutics.

Epileptics require constant watching, in some cases it is true, they give to one accustomed to them a warning of an approaching outbreak, this should not however be trusted. The watch must be by night as well as day, during the paroxysm a patient may throw himself down quite regardless of all danger, on to the fire, into water, on to any dangerous object, or at night may turn on his face, a common habit, and thus be smothered on the pillow. Pillows have been invented to meet this danger, but the proper prevention is the watching. In public asylums the epileptics are placed in a ward together and as their minds are, in the majority, childish this is no hardship to the patient. With regard to dress, the epileptic should have no part tight, especially around the neck. Some patients in their falls have a propensity to strike their foreheads, and hats have been invented concealing a soft pad, the propensity is only an exceptional one. The epileptic should not be allowed to wear false teeth as in the convulsion they might get impacted.

As regards ordinary hygienic treatment, the patients should be lightly clothed day and night, their food should be good and wholesome, and varying, with admixture of due proportions of animal and vegetable kind, *but always strictly limited in quantity.* It would be well to have each meal weighed out properly proportioned to their age; epileptics are enormous eaters and the fits are induced by too great distension of the stomach. I have met with more than one case, where the first attack was traced to the patient's over eating. They are often alive to the necessity of keeping the bowels regular. In bathing I have known the fit to be induced several times, so that the patient in bathing should be always carefully watched.

As regards the therapeutical treatment, I have lived long

enough to see very many changes, to see the reign of one drug after another, and have used numerous kinds; foremost even now, stand the various bromides, though not so highly thought of as formerly by some. I think the bromide of potassium has been most used, I have myself witnessed a great deal of good from its use, as regards diminishing the number of the fits. One case that of an officer who had drunk hard and was said to have had a sunstroke, while serving in a hot climate, was brought to me having become violently maniacal and dangerous. He was having seven or eight fits in the week. After taking bromide of potassium for a fortnight, the fits were gradually reduced at first to one in a week, then one in a month, and so on, until he had only one in the year, but there was rather a rapid induction of imbecility. On the apparent cessation of the fits, by the wish of his parents, he was allowed to be at liberty remaining as a boarder only; in this way he was enabled gradually to return to his former intemperate habits, but without the fits recurring more frequently than one in three or four months, and then of lighter kind; but his mind continued to get more and more feeble and so continues. But the immunity from such frequent attacks continued for nearly ten years. I consider therefore that the bromide was distinctly beneficial, he discontinued it after about eight years, he took at last as much as forty grains at a dose, which was gradually diminished as he left off taking it.

A young female, epileptic from early childhood, when I first saw her, at the age of fourteen, had as many as thirty fits in one night, when she began the use of bromide, and she is now two or three and twenty, and free, or was free, when I last heard of her seven years subsequently.

In another case, a male, subject to maniacal epilepsy, who had gradually become very dangerous and violent, took bromide of potassium for three months, which reduced the number of fits considerably, but produced so much emaciation that his mother wished the drug to be discontinued; she was epileptic herself.

It has been supposed that the bromide is an anaphrodisiac, and its action in epilepsy has been attributed to such effect; there is little doubt that the sexual æsthesis has induced epileptic

seizures, but the action of bromide has not been satisfactorily proved to have anaphrodisiac properties.

It has been said that the chloride of potassium or sodium has anti-epileptic properties. Mr. Littlejohn of the West London Schools, considered that the bromide induced thirst, and thus induced the epileptic to drink largely, and by this means or as it were by dilution, the benefit was produced; and I hear that he found decided improvement in his epileptics, by persuading them to drink freely of water.

The bromides of ammonium and sodium I have used, but I have not considered them to be so efficacious as the bromide of potassium. I consider from what I gather from my own experience, that in the recent cases of epilepsy some benefit may be effected by their use, but in the old cases in which the patient is imbecile, or demented, no good can be expected.*

Another remedy has been of late tried, the nitrite of amyl; in one case which was complicated with hysterical symptoms, it was beneficial during the attack, the patient however ultimately recovered under the use of bromide, and has remained well now for eight years; in the status epilepticus, the nitrite of amyl seemed to arrest the violence of the convulsions for the time, but seemed to have little effect in diminishing their recurrence.

The numerous remedies as zinc, valerian, counter-irritation, I have tried without observing any benefit result.

* Dr. Hughes Bennett in an analysis of 141 cases, of the effects of the administration of the Bromides in Epilepsy, writes that there is every reason to believe that a prolonged use of Bromides has no bad effects on the physical or mental powers, but that they may, by perseverance in their use, tend to eradicate the disease. His cases were not what is called epileptic mania however. *Lancet*, May 17 and 24, 1884.

See also, "On the Action of the Bromides," by Dr. Duckworth Williams. *Medical Times*, 1864.

Section II.

ALCOHOLISMUS.

The tendency to drink—From want of control—From disease—The toxic effect of alcohol—Acute toxic effects—Chronic effects—Delirium Tremens—The peculiar delirium—The subacute attacks—The chronic effects—Diagnosis from General Paresis—Alcoholic Paralysis.

The next description of case which is occasionally to be found in asylum practice is that of alcoholic poisoning, but the cases are mostly in the chronic stage, which has been called Chronic Alcoholismus. The degree of chronicity however in such cases may vary, and the symptoms therefore are also various, and usually are of the more pronounced character.

Intemperance as regards alcohol is due to different causes; firstly like vice, it may be allied to mental weakness and folly; secondly it may be due to actual disease.

1. The intemperate fool, alias the common drunkard, has his bouts, or periodical attacks; in other words, the balance between his good resolves and his lust for drink oscillates, and sometimes one, and sometimes the other is uppermost; most drunkards have some desire to resist the temptation to drink.

2. The other cause of intemperance is the result of true disease. The act of intemperance, or the resort to the stimulant, is the form in which the recurrence of the attack of insanity shows itself (*vide* p. 167 *et seq.* on *Recurrent Insanity*). There have been very painful examples of this kind of intemperance, occurring in individuals of great intellectual culture, or exemplary character: and who for periods, or during the intermission of the symptoms, lead the most temperate and chastened lives, and who then perhaps suddenly disappear, conceal themselves from their friends, and resort to excessive drinking.

Such persons, however, do not necessarily sink into a state of alcoholismus, their return to intemperance or *the propensity* to drink is a part and a symptom of insanity, and it is not the propensity that we are here concerned with.

Alcoholismus consists in the *effects* of the poison on the

system, these effects are our present subject and especially the chronic effects.

We shall have a clearer view of the phenomena, if we first enumerate the action of alcohol upon the system, we may divide the question into :—

1. The mental and nervous effects.
2. The physical or corporeal effects.

1. The mental or nervous effects of alcohol taken in full dose constitute the phenomena of drunkenness, which may be divided into those on the :—

1. Emotions.
2. Intellect.
3. Motor functions.

The effects on each of these divisions vary somewhat with the dose, and as a rule the effects commence by the milder kind and increase gradually as the poison becomes absorbed, so that we may divide drunkenness into distinct stages.

1. The emotional effects of alcohol, as in insanity are the first to appear, there is first a pleasurable excitement and a rapid flow of spirits or cerebral action, there is a great hilarity, with laughter and every other expression of joyful kind; as the poison becomes absorbed the emotions get beyond control, the man laughs or cries immoderately, till a drowsiness by degrees comes over the mind, and all emotion is annihilated and sleep is induced. The physical condition that corresponds to this, is probably the gradual shutting off of the circulation, by contraction of the arterioles by degrees, until there is that state of anæmia produced on which sleep depends.

2. The intellectual phenomena at first, are a rapid flow of ideas, then the ideas gradually become confused, the man twaddles ; his emotions which are weakened to the same extent, are uncontrolled by the intellect. The drunkard drivels in a witless, fatuous manner. The senses participate in the effects, there is vertigo, and double vision among the most common symptoms, and evidently dulness of the sense of common sensation, as well as of the sense of taste, etc., these all increase until sleep or coma completely intervene.

3. The motor effects take much the same course, and are at first increased and eventually paralysed ; the drunkard at first

raves, shouts, rushes about, dances, fights, then the vertigo commences, the man reels, gradually loses his control over his voluntary movements, his speech is affected, he fumbles with his fingers, the co-ordination and equilibriation are affected more and more, until the inebriate falls unable to move, and in a condition of paralysis and unconsciousness.

The above are the effects of a full dose, which stops short of producing death. When the dose is a fatal one, the physical appearances found after death, are thus given by Dr. Curnow in *Quain's Dictionary of Medicine*, as observed by himself. The effects observable are chiefly in the viscera, as "intense injection of the vessels of the pyloric end of the stomach and of the duodenum, with a peculiar blanching of the mucous membrane between, causing a vivid scarlet arborescent appearance on a white ground." He found also, "about 2oz. of bloody serum in the pericardium, and about 16oz. in the right pleural cavity (the left pleura was adherent), double pneumonia, extreme congestion of the kidneys, and engorgement of the large veins covering the posterior part of the brain." Most observers agree that a general congestion of the brain is not found.

The above phenomena, observed on the administration of a single and poisonous dose of alcohol, will afford a key to the more chronic effects which we have to consider.

These chronic effects will be influenced by various circumstances, as:—

By the state of concentration or dilution of the toxic agent.

By the quantity of the agent itself.

By the condition as to habits or addiction to the use of alcohol by the patient.

We consequently find different morbid states produced by alcohol according to these conditions. The diseases may not all come under the asylum physician, especially those which are due to the more acute effects, nevertheless to obtain a continuous view of the whole phenomena, it may be useful to examine the whole series.

Firstly, the state of delirium tremens.

The description of delirium tremens is to be found in all works on medicine. To review the symptoms, I avail myself here largely of Dr. Bristowe's *Theory and Practice of Medicine;* at

p. 604, he observes, "it was long believed that it occurred only in persons who, after drinking heavily, were suddenly deprived of their accustomed stimulus. More recent enquiries, however, show that it is the immediate consequence of excessive drinking, and that it usually comes on in the course of long continued intemperance, or of those occasional outbreaks of intemperance (lasting it may be for a few weeks at a time), to which some persons are liable. It may no doubt supervene at the time when such persons are commencing to abstain; but not in consequence of their abstinence."

The symptoms creep on gradually, there is perhaps, a general irritability and restlessness, notions or fancies or suspicions, not at first amounting to true delusion, in fact more like the morbid apprehensions of insanity; the patient often imagines that some mischief is threatening him. He absents himself from home, or goes away to a distance. He imagines the police are following him, or as expressed by old Burton, "Semper fere vidisse militem nigrum presentem."

It will be remembered that for this state of things to be produced, it requires some persistence in the use of the toxic agent. A single act of intoxication usually affects and disturbs the digestive organs; a continuance of the dose produces considerable and chronic dyspepsia. The appetite of the drunkard is bad, his tongue is foul, he has acid eructations, perhaps slight vomiting and diarrhœa; when the condition of delirium tremens is produced, natural sleep leaves the patient. He is greatly disturbed by dreams, startings of the limbs, and a peculiar kind of delirium.

This delirium is deserving of a remark. I have been in the habit of calling it the delirium of watchfulness,* the patient

* The delirium of watchfulness. It appears probable that this was the *coma vigil* of the ancients, though it does not answer to the description now given of that state. It seems to be due to the irregular advent of sleep. When sleep occurs there is a gradual, and eventually entire shutting off of the cerebral circulation. In this form of delirium, the closure may be irregular in its order, over the different areas of the circulation; thus the voluntary movements may be sunk in an absolute slumber, while the intellectual or conscious psychical actions as it were lag behind, the person dreams, and the psychical operation goes on for a time: or the opposite may occur the mental functions may sink into obliviousness, the motor remain active, the patient walks, somnambulism.

only dozes by catches and wakes by starts and frights. His mind appears awake, while his motor functions are asleep, he mutters and talks of his ordinary occupation; a waggoner speaks to his horses, another gives orders to his servants, or a tradesman to his customers, at the same time he appears to be fearful of injury or of arrest, he endeavours to hide, perhaps he has ocular illusions. He imagines that his bed is covered with creeping insects, he sees muscæ volitantes, and picks at his bedclothes, while his hand is tremulous, if out of bed he falls about or staggers.

While mentioning this kind of delirium and its cause and signification in these cases, I am tempted to digress to point out how the above explanation may probably apply to such conditions as Braidism, mesmerism and the various conditions of hysterical paralysis, with alternating hemi-anæsthesia, etc.

While such mental symptoms are present, certain bodily symptoms are prominent, the patient is often bathed in perspiration; he passes a quantity of limped urine, his tongue is loaded, his bowels may be disturbed, or costive, his appetite abolished.

There is a natural tendency for the case to pass off, if the alcohol is kept away from the patient; though some cases, especially in second or third attacks, occasionally prove fatal.

The above description applies to the acute case of alcoholic poisoning, the symptoms do not as a rule continue over a week

These states occur from irritants acting in different portions of the organism. The irritant need not be actually morbid. Medical men watching an anxious case for many hours, day and night, experience this kind of mental wandering. Country practitioners driving home after many hours watchfulness, may experience the same. Mentioning the occurrence once to my own brother, of having on returning at night, been disturbed by fancying people were in the road in front of my horse, he told me he was so used to it, that they ceased to disturb him, and he always drove *through* them. Any constant irritant which prevents the all round closure of the circulation appears to leave an area active and conscious. Such a stimulus is the *besion de respirer* in pneumonia, this will give rise to this form of delirium: another common case in which it may be observed is in scarlet fever, when the patient cannot breath without the aid of the voluntary muscles. This delirium should be distinguished from other forms, as it is intrinsically of less moment. Its signification, however, is that there is a necessity for voluntary action. To attempt therefore in chest disease to allay by an opiate, where the action of the muscles of the chest are needed, would be prejudicial and perhaps fatal.

or ten days, so that it is rare that such a case is admitted into an asylum.

The next description of case is that in which the toxic effect is produced more slowly when the patient is an habitual sot. The effects on the system are more persistent, are gradually aggravated until the patient is no longer master of his own actions. This state which may be called chronic alcoholismus, is met with also in several degrees of severity and various degrees of chronicity.

The symptoms are never in these cases entirely wiped out by a period of abstinence; hence they all continue in some form. The intellect is feeble, the patient is dull and listless. He has perhaps several morbid fears haunting him, his spirits are dull. His expression is more or less fatuous, his complexion pallid or waxy, his gait shambling, he complains of various symptoms, of want of appetite, sleeplessness, dreams, etc. His dull expression and inactivity have led some to confound the case with that of general paresis, from which disease however it is easily diagnosed.

The diagnosis was the subject of a thesis by M. Thomeuf, an analysis of which is given in *Annales Medico-Psychologiques*, October, 1859. He says that the form of mental symptoms usually presented is a kind of melancholia with exaggerated fears, frights, delusions of being followed or watched, of being accused of guilt. He arranges the chief phenomena in two columns, to contrast them, thus:—

In Alcoholismus.	In General Paresis.
Headache, with sense of weight.	Headache rare.
Hallucinations connected with the sight.	Hallucinations rare.
Delusion of persecution. Tendency to suicide. A consciousness of shame or feeling of inferiority.	Grand ideas.
Embarrassment of conversation, chiefly due to fear. A trembling of the muscles of the face, and especially of the tongue.	Embarrassment of conversation, chiefly due to feeble conception and to paralysis of the muscles of the face.
Feeble condition of motion, scarcely observable in legs; equal on the two sides.	Feebleness, in the legs chiefly.
Trembling of the hands and arms, more marked in the morning. Cramps and subsultus of upper extremities.	Nothing appreciable in the upper extremities, but occasionally a want of co-ordination of the movements.

Pupils nearly always dilated.	Pupils often unequal, often contracted.
Anæsthesia (loss of sensibility) of the limbs to the elbows, and as far as the knees. (Lancinating pains).	Sensibility normal or obtuse.
Sleep disturbed by dreams; or often absent.	Sleep usually normal. (Not often absent).
Appetite deficient. Acid eructations, with slight morning sickness.	Appetite increased.
Rapid curability.	Incurability.
Occurrence of delirium tremens.	Epileptiform and convulsive attacks.
(Stomach derangements, diarrhœa.)	(Constipation).

The case above described is quite amenable to treatment provided complete control of the nursing can be ensured. This kind of case does not often however come under the asylum treatment. In some cases indeed, there would be a difficulty in satisfying the legal requirements for admission. The inebriate establishments had they been entrusted with sufficient power, might have rescued very many unfortunate individuals from this state of things.

When the case, by delay, gets into a still worse condition, when the patient's mind is completely fatuous, and he can be certificated as *non compos mentis*, then only can he have the discipline of an asylum. I have had in this way the care of several chronic cases of alcoholismus, all of which have done well. There is scarcely a condition in my opinion for which amelioration can be more confidently foretold.

But the case may not be arrested even at this advanced stage, the habit of drink may be carried on surreptitiously, till greater effects are at last produced, and the motor functions become still further involved and the symptoms then put on the form of greater neural disturbance.

In the description of cases spoken of above, we have emotional, intellectual, and motor symptoms, of different degrees of gravity, and the symptoms are about equally affected, when the case has reached the chronic stage.

Occasionally however the toxic influence appears to produce a greater influence on one faculty than another. We have patients who are more disturbed mentally, who have true hallucinations and delusions. We have others whose memories seem to be chiefly affected. One case which came under my care was a curious example of a separation of mental faculty. This

gentleman who had drunk very largely and was reduced to the greatest degree of fatuity, recovered to a great degree, and has now been well for twelve years and remains temperate, but for some time his memory showed a peculiar alteration. He was unable to remember any event, but perfectly remembered persons. I met him accidentally far from home, and came upon him at a watering place unexpectedly in a shop, he addressed me at once by name, but could not tell me where he was lodging, or when he came to the seaside, but answered, "say a week," and appealed to his companion for his address and time of arrival, and he had been residing in the town three months, and his lodging was close by.

In some rare cases the toxic influence is exercised upon the motor faculties.

Dr. Broadhurst read a paper on a case which he called, *alcoholic spinal paralysis*, at the Medico-Chirurgical Society, in Feb. 1884. A gentleman aged 42, who had indulged in drink from early life, was gradually failing in mental power for some months, when there was noticed a gradual failure of power in the arms, with wrist drop, this gradually extended and increased till the legs were involved, it then affected the muscles concerned in respiration and so proved fatal. Dr. Broadbent mentioned other cases of similar character, and observed that the disease resembled acute ascending spinal paralysis. In the discussion which arose, Dr. Wilks remarked, "that it would seem that those organs which were most affected by alcohol directly (toxic), were most likely to be affected chronically." Dr. Buzzard mentioned cases in illustration of the variations in the forms assumed. In one case there was extreme muscular wasting, and in another, he observed contraction, and he particularly dwelt upon the occurrence of lancinating pains which were often present, the symptoms pointed in his cases to spinal affections. But the great distinction between these alcoholic cases and acute ascending spinal paralysis consisted in absence of disease of the cord exhibited after death. But in some cases mentioned, certain trunks of spinal nerves, however, (the posterior tibial and radial), presented the characteristic appearances of degenerative neuritis.

Diagnosis.—It would seem, in fine, that by a continuous action

of alcoholic poisoning nearly all the symptoms of the various forms of spinal disease may be simulated; but there will be certain characters to distinguish the cases. Firstly, the history of excessive indulgence is itself pretty patent, then the alteration in what may be called the trophic functions will be different; the face and features will show the bloated character of the drunkard, the injected conjunctiva, the foulness of breath, the tremors of the hands as pointed out in the table given above, will distinguish the case from purely spinal disease, and from general paresis, in which the digestive functions remain almost normal.

Section III.

SPINAL CASES.

Cases of spinal disease with mental symptoms. Cerebro-spinal sclerosis. Locomotor ataxy—cerebral symptoms in—diagnosis in. Ataxy and general paresis.

Among the patients admitted into our asylums there are very commonly found some whose disease has a sort of resemblance to general paresis but who really are suffering from disease of the spinal cord.

It is well known that in certain forms of spinal disease there may be cerebral symptoms of some kind; the most frequent of which is a degree of imbecility. It is not very long ago that such a condition of mental weakness, coupled with any impairment of the motor functions, would have constituted the diagnosis of general paresis.

Since disease of the cord is less rapidly fatal than general paresis, it is of importance for prognosis to distinguish between these cases. And it is also important to differentiate them during life that there may be no confusion in arriving at the true pathology of either case after death.

In the majority of cases of disease of the spine, the mental functions remain unimpaired for long periods, but there are others in which the mind is considerably disturbed at an early date. M. Topinard found mental disturbance of some kind in one tenth of the cases which he had collected for analysis.

It is now well known and admitted that in many examples of general paresis, the ataxic symptoms are very marked, and in the most typical cases of that disease, some ataxy exists at one or other period of the disease.

The form of spinal disease in which the cerebral symptoms are most common, is probably that affection of the cord called multiple sclerosis, or cerebro-spinal sclerosis.

Dr. Ross in speaking of this affection says, (*Diseases of the Nervous System*, Vol. II, p. 759), psychical disturbances

are always observed in multiple cerebro-spinal sclerosis. They consist of mental irritability, emotional excitability, causing the patient to laugh or shed tears without apparent motive, and impairment of memory and intelligence. At other times the mental disorder assumes the form of distinct unsoundness of mind. In such cases there may be melancholia, monomania, with ideas of persecution or of grandeur, and the patient may fall into a state of complete dementia. Dr. Bramwell writes, "after the condition has become well established, the facial expression becomes vacant, stolid and stupid looking; and a peculiar alteration in the voice is very generally observed, the speech is slow and drawling, every syllable being pronounced separately (*scanning speech*); the tone of voice too, is singularly monotonous; towards the end of the case it may be weak and whispering. The cerebral symptoms become more prominent, the headache and vertigo may continue; the mental faculties are decidedly blunted; in many cases the patient becomes irritable and loses his self control; actual mental derangement is occasionally observed. (*Diseases of the Spinal Cord*, p. 256).

But in cases of locomotor ataxy, or sclerosis of the posterior columns, it does happen occasionally also that the cerebral functions become actively involved at the later period of the disease, in the same way that in cases of general paresis ataxic symptoms become prominent. I met with an instance in a gentleman who had during the previous twelve years gone through all the stages of locomotor ataxy, including lightning pains, ataxic gait, girdle pain, pelvic difficulties, whose mind eventually became implicated; and he was considered insane and to be the subject of general paresis by some of the leading continental physicians.

The cerebral symptoms were, however, totally different from those of general paresis; there was no garrulity, irreticence, or mental excitement; no bragging or reckless behaviour, no grand ideas, kleptomania, sexual excitement, boulimia, etc. The diagnosis was therefore clearly that of spinal disease and that form called locomotor ataxy, and spreading gradually upwards to the cerebrum proper.

The hand writing of this case before any mental symptoms appeared, is given on Plate iv., and it is contrasted with that

of a patient with general paresis, during exaggerated mental disturbance.*

Dr. Gairdner, (Glasgow), exhibited 3 patients at a meeting of the Medico-Psychological Association in March, 1876, as examples of ataxy having certain points of resemblance to general paresis.

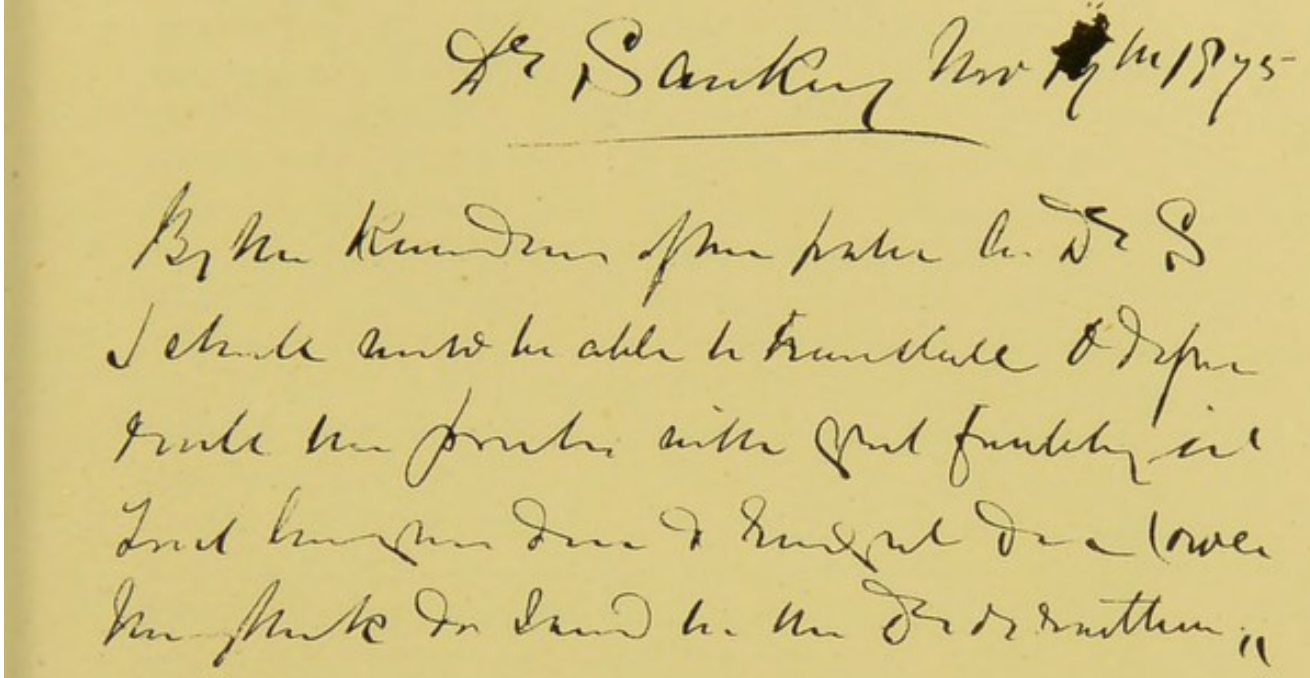
First Case. A watch-maker with defects of articulation and gait 2½ years, followed by imperfection in minute combined movements, (for watch-maker's work). Mental integrity both intellectual and emotional, he had no lightning pains, but startings of the limbs. The defect of articulation was the point in which it resembled general paresis, the difficulty occurred with the linguals rather than labials, he had more difficulty in pronouncing sixpence than perpendicular.

Second Case. Which Dr. Gairdner did not consider as locomotor ataxy, the patient had slight epileptic or quasi-epileptic seizure five years ago and again five months ago, progressive lesion of motility chiefly manifested in gait and articulation, tremulous hand writing, slight tremor of tongue, no abnormal sensibility, sexual excess, habits otherwise temperate, no history of syphilis, the articulation was thick, defective memory.

Third Case. Gradual increasing fatuity, articulation like that of general paresis, the labials first, then linguals, perhaps palate was involved, no affection of voice, no aphasia, slight tremors of tongue fibres, no deviations or loss of power, uvula straight, deafness with great noise which afterwards ceased, occasional vertigo, some thrills in the limbs, no pains, intellect quite sound, no syphilitic taint, failed gradually mind and body, bedsores, then complete paralysis of limbs.

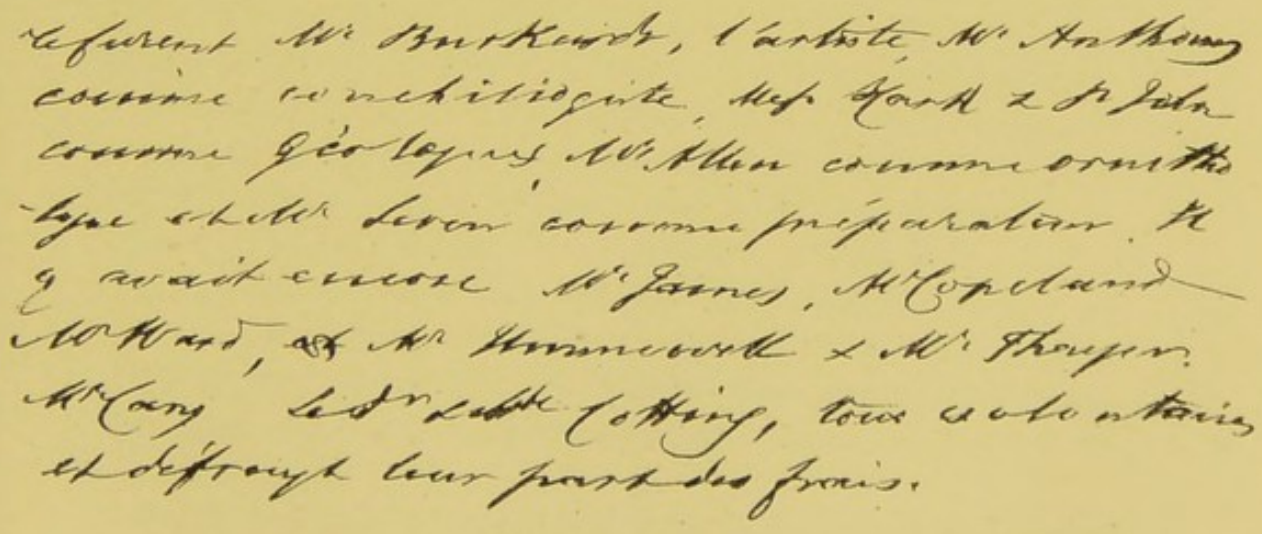
Dr Westphal mentioned three cases which he calls general paresis in which the spinal symptoms preceded the mental, in

* Plate IV. The specimens of handwriting in this plate, are given to show the difference between that of General Paresis and of Locomotor Ataxy with commencing cerebral complication. The upper specimen is the handwriting of the patient in Case xxiv, p. 325, with general paresis, shortly after admission. The lower specimen is from the handwriting of a patient before any very decided mental disturbance occurred, but in whom the ataxic symptoms were of several years duration; the specimen is from the MS. of a long article of 70 pages, entitled *Un Voyage au Brésil*. It shows the irregular pressure and command of the pen in ataxy.



Dr Sankey Nov 4th 1875

By the kindness of our friend Dr S
I shall now be able to send this & depos
with the proofs with great pleasure
I had hoped to send a budget of a lower
but the stock of birds in the Museum



refusent Mr Burkewood, l'artiste, Mr Anthony
comme conservateur, Messrs Hart & St John
comme Géologues, Mr Allen comme ornitho-
logue et Mr Lewis comme préparateur. Il
y avait encore Mr James, Mr Copeland
Mr Ward, & Mr Hammerton & Mr Thayer.
Mr Cary [illegible] tous volontaires
et défrayé leur part des frais.

West, Newman & Co. photo. Lith.

one case two years, in another nine, and in the third fifteen years. *Zeitschrift für Psychiatrie*, Bd. xx, 1863.

Though a considerable differentiation of the spinal affections have of late been made, so that each column of the cord has its particular morbid phenomena, limited to a particular region and to a particular area, yet we meet with many cases in which the symptoms are less definitely marked, in which the lesion, sclerosis or whatever it is, appears to spread to, and involve a neighbouring part of the cord; irrespective of its functions or anatomy. It would appear in fact that the close investigation of the different nervous symptoms has been one means of separating the cord into special areas for particular functions; and though such study adds much interest, especially from the physiological point of view, it is unfortunately true, that the course of all spinal disease is to one bad result. However, to know the extent of the lesion and its particular site adds much to the power of estimating the future progress of the case. So long as the purely spinal functions alone are involved, the system can tolerate the changes. Though the prognosis varies somewhat according to the seat as well as to the extent of the structures involved. Thus a pure case of locomotor ataxy, will last in cases from 10 to 15 years. "In the majority of typical cases the average duration of life appears to be from eight to twelve years," (Ross). The same author describes seven varieties in the course of ataxy depending doubtless on the extension of the disease to the neighbouring portions of the cord. The disease of the posterior, as well as that of the lateral columns has always a progressive tendency, though the progress is slow in locomotor ataxy. The extension of the sclerosis to the cerebral centres is a natural course, and when this occurs and gives rise to cerebral symptoms of active kind, the case may then be confounded with general paresis.

That the implication of the cerebral organs is not more frequent, is probably due to the fact that previously to the morbid changes reaching so far upwards, the centres of respiration become involved, and the case terminates through pneumonia or chest complications, or by bulbar paralysis of other kinds.

I have met with cases which showed the symptoms of lateral sclerosis in old lunatics, and I have seen also patients whose

cases were considered general paresis with well marked symptoms and history of locomotor ataxy.

While speaking of these spinal cases, which are sent occasionally into asylums, it may be remarked that spinal symptoms occasionally show themselves in old chronic lunatics. These spinal affections may be of any of the various forms, they may involve symptoms of ataxy, paresis, partial or general, or be confined to lesion of trophic or vasomotory functions. Such cases ought never to be confounded, however, with general paresis, they are ordinary insanity with the epiphenomenon of spinal affection, yet it is quite possible that they have been so confounded. The difference and especially when the spinal affection is ataxy may be thus contrasted:—

Paresis.	Ataxy.
Runs its course in a few years.	Is much slower usually and may last 10 or even 20 years.
Commences with mental symptoms.	Commences in a distal region as in the legs, with darting or lightning pains.
Motor symptoms are secondary in the order of time.	Motor difficulties are the primary phenomena.
Pain not experienced, but sensibility is duller.	Pains of various kinds, girdle pains, pains of limbs, etc., peculiar and like toothache.
Sexual excitement.	Sexual feeling absent.
Pelvis difficulties very late, and not prominent.	Pelvic symptoms are a prominent feature.
Mental symptoms very marked and peculiar, and especially *delire des grandeurs*, kleptomania.	Mental phenomena, imbecility and impaired memory only.

These differentiæ should be enough to distinguish these cases; but when there is a clear history, the diagnosis is rendered all the easier; and a history of the sharp and enduring pain in the limbs, with a kind of anæsthesia, existing over eight to ten years one would think should settle the question.

A proper diagnosis is essential for several reasons:—

Firstly, as aiding the prognosis. Ataxy and spinal affections have less grave signification when they are alone; unfortunately when symptoms connected with the spinal functions alone, even though they have existed without much disorder of the health,

become complicated with cerebral symptoms, the prognosis is much worse. Such a complication shows that the original disease is extending upwards; and when the symptoms have been gradually extending from the legs to the pelvis, then to the girdle, evidenced by hiccough, etc., and begin to affect the upper extremities, as shown in the handwriting, any mental symptom added becomes of grave import, showing of course a general extension of the sclerosis. It will be in such a case, only a question of a brief time when the bulbar functions will be implicated, and the chest, and functions of deglutition will be involved.

But the diagnosis is important, secondly, in order to keep the life phenomena and death phenomena of the two diseases separate, without a clear diagnosis the history, symptoms, morbid appearances and true pathology can never be studied.

It is doubtless due to the want of diagnosis that one reads of cases of general paresis lasting eight to twelve years; or that in certain instances that general paresis occurs in old lunatics; and that certain patients with symptoms of paresis recover, for it is well known that there are certain spinal affections which eventually get well.

When the life phenomena are allowed such wide scope for variation, how can any exact pathology be settled from the appearances after death; thus a knowledge of both diseases is hindered.

Section IV.

ORGANIC CEREBRAL CASES.

Organic diseases of the brain—Anæmic delirium—Cerebral tumours—Apopletic foci—Otitis and bone disease—Cancer—Syphilis.

The last division under this portion of the subject according to the classification at p. 104, is that of certain organic cerebral diseases, which are met with in patients sent into asylums.

These cases are various, indeed it would be necessary to go through the whole catalogue of cerebral disorders generally to enumerate them. Several kinds of cases are described by different authors due to a distinct origin and which have never fallen to my experience to witness; without including the numerous varieties which the Scotch alienists believe they can recognize (see *Appendix of Classifications*). Most of these so-called varieties appear to me simply cases of ordinary insanity. I perceive nothing exceptional in their character, progress or termination.

There are, however, states of mind which may be attended with mental symptoms and which do not belong to insanity but may be called accidental aberrations of mind. Everyone is aware that delirium may arise from various bodily diseases, which if we were to include under the term insanity, would extend the catalogue of mental diseases indefinitely; for example it is not a very unfrequent thing for a patient recovering from fever, and particularly typhoid fever, to be delirious: a paper on this subject was read by Dr. Hermann Weber, before the Medico-Chirurgical Society, and while I was attached to the Fever Hospital I saw several cases. A patient perhaps awakes as though from a dream with an impression on the mind of unreal kind, but which is to them real and a true delusion. This idea or belief remains for a period more or less lengthened and it gradually fades as convalescence is established. In two cases the delusion seemed to be of more permanent kind, and the patient in one instance was sent to an asylum; such cases are rare. I have known another case in which the insanity is said to have commenced after recovery from scarlatina; in this case there was renal dis-

ease, and the patient was subject to paroxysms of excitement and violence, and became imbecile, these cases are only exceptional, rest on what may be an imperfect history, yet may possibly be true.

A more common cause for a patient to be sent to an asylum for treatment, is the mental disturbance which arises in hemiplegia after the first symptoms have subsided. It often happens that at a subsequent stage there is set up some inflammatory change around the focus of an apoplectic clot, which leads to cerebral symptoms. The phenomena in such cases vary much according to the seat of the clot and the parts involved, and to the degree of irritation produced.

Cases also of cerebral tumours, irritations around bone disease, cases of otitis as well as syphilomata, or cancer, will have symptoms resembling different forms of mental disease.

The symptoms from such accidents are widely different in kind, in the order of appearance and in the progress, from idiopathic mental disease, and may be distinguished readily from insanity.

As an example of this kind may be cited the following.

A gentleman very actively engaged as a barrister, after considerable application to business for a long stress, lost his father, and was called upon in consequence as his executor to abandon his annual holiday and devote himself very closely to work. His health suffered considerably from this cause. Among the first symptoms which were observed in him were fits of drowsiness, he would fall to sleep in his chair, having previously been of very active disposition. He was depressed and his reason was disturbed, followed very quickly by excitement, and it became necessary to place him under certificates. He was discharged after three months, but his friends never considered him the same. He went on to the continent, to Spain, and returned in about three months. He was then observed to have facial paralysis of the left side, he consulted Sir W. Gull, and he was recommended to refrain from work, and galvanism was used for the facial palsy, the palsy was accompanied with ptosis of the eye of the same side, and dilatation of the right pupil, and paralysis of left arch of the palate. Shortly after he became violent, and the late Dr. Forbes Winslow was consulted; after being under his care a

few months, improvement took place and he went to the sea side. While at the sea side he relapsed, was admitted under my care in a state of maniacal excitement. I found the mental disturbance very pronounced, with excitement and violence, there was deafness of left ear, ptosis of left eye, paralysis of left arch of the palate, no discharge from ear. He recovered in six months sufficiently to return home; but there remained distinct cerebral symptoms of a kind, as aversion to his relations, irritability of temper, desire for litigation, etc., but he gradually improved for several months, when mental irritability and insane conduct returned. He behaved outrageously in public, brawled in church and was sent back, through magisterial interference to my care. He again improved under slight control, amused himself in various ways, in drawing, driving, and in writing a narrative of the life of a scripture patriarch. He had from time to time twitching of the paralysed side of the face, and an occasional discharge from the ear of offensive kind. He had two or three slight attacks of *petit mal*. He fell once on getting off his horse, at another time he dropped while walking, on the last occasion he fell slightly convulsed and died, and a free discharge of bloody purulent matter escaped from the ear.

Probably this case was due to internal cerebral disease, evidently seated near the left temporal fossa. It did not follow the usual course of ordinary insanity, though the first appearance of symptoms were said to be depression, but more distinctly drowsiness, and there was never illusion or actual delusion, the progress of the case extended over an unusually long period.

Dr. Ferrier in the *West Riding Reports*, relates a case of cancer of the cerebrum which was sent to the Yorkshire asylum, the mental state was that of dementia.

The cases of organic brain disease to be met with in some asylums, are more likely to be due to syphilis, and the case requires more distinct description as it is said in certain cases to put on the appearance of general paresis. Hence the diagnosis of such cases becomes important.

A reference has already been made to syphilis as a supposed cause of general paresis, and the reasons discussed for the conclusion that general paresis is not a form of syphilitic disease. In this place it will be attempted to show how syphilis may

affect the cerebral organ, and I shall avail myself of the review of M. Fournier's work in the *Journal of Mental Science*, by Dr. Mickle, April, 1880.*

Syphilis affects the brain directly or indirectly; the direct effects of syphilis are produced upon the meninges, the vessels, or the brain substance, but as a rule it affects all three simultaneously, the lesion is a hyperplasia, and ultimately a gumma or sclerosis.

There are besides these essential lesions, secondary lesions as extensions from disease of bone, membranes, etc., having a syphilitic origin which may affect the brain.

The symptoms depend upon the position or combination of the lesions. Dr. Fournier makes no less than six groups of such phenomena, which he would limit to particular cases, but which Dr. Mickle says occur in endless combination and fusion.

Dr. Mickle would prefer a division of the cases according to whether they arise from syphilitic neoplasms, or from syphilitic inflammations, or from toxæmia, or from the syphilitic cachexia.

For practical purposes however, the phenomena may be viewed according to whether they are confined mainly:—

1. To the convexity of the brain and meninges; or
2. To the basal arteries and base.

The syphilitic growth may attack the former and give rise to symptoms more or less resembling general paresis. The mental symptoms are more frequently of depression, or a form of imbecility shown by gradual sinking of the intelligence and hebetude, in some cases with incoherance and loss of memory; occasionally there is distinct delusion, apprehensions, ideas of persecution and suicidal propensity.

The diagnosis of the case is assisted by the history, by the presence of other constitutional syphilitic symptoms, and also by the nature of the symptoms themselves, and their mode of advent. There is usually headache (by no means a common symptom of mental disease,) a cachectic appearance, often there is local and partial paralysis or hemiplegia.

The diagnosis is also corroborated by the absence of the pecu-

* (The review is signed by Dr. Mickle's initials.)

liar symptoms of general paresis, as megolomania, etc., by the order in which any dysphasia occurs, and the general progress.

The action of the usual anti-syphilitic remedies also will confirm the diagnosis of syphilis, for unlike general paresis these cases often prove amenable to treatment.

PART IV.

TREATMENT.

Division of the subject—Therapeutics—Doses of Medicines; special drugs found useful—Aperients—Tonics—Baths; Warm, Shower—Hydropathy—Moral Treatment—Mental Rest—Removal from Home—Private House of a Medical Man—Special Establishment—Suicidal Patients—Attendants of Experience—Removal from Home; the Question of Early Removal—Kinds of Special Establishments—Amusements as means of Treatment—Association, as a Remedy, with suitable sane companions—Effects of External Environments—Attendants, qualities of—Seclusion as a remedy for Excitement—Association at meals—Principles of Non-restraint Treatment—The old system of Restraint—American objections to Non-restraint—Visits and Communication with friends—Exercise and Hygienic Treatment.

The treatment of mental diseases is usually divided into—firstly the Therapeutical, and secondly the Moral, in other words into the physical and the mental.

Though in many ways these must go hand in hand, and cannot be very precisely disjoined, we may speak of them separately.

In referring to the explanation of the mental functions, in the former part of this work, it will be remembered, that the fundamental axiom connected with the mental functions, is that mental acts are the result of an inter-action between the organism and the environments, bearing this in mind we may say that the basis of the treatment should be directed to these two factors.

The therapeutical treatment may be considered to be especially addressed to the organism or to the physical health; and the moral treatment to the regulation of the patient's environment.

Therapeutical Treatment.—Already in the previous pages, the indications of treatment in the different stages of the disease have been alluded to. In the acute stage of insanity proper, and also in certain cases of general paresis, there may be considerable disturbance of the general health, and though a definition of insanity has been given as "*Delirium sine pyrexia*," it happens,

in many cases that considerable febrile disturbance may exist. But the cases vary in this respect; the general principles of medicine will direct the course to be pursued against the bodily symptoms. There is nothing special in mental disease by way of treatment, except that in insanity and especially in the acute cases, the doses of the drugs must be as a rule larger, *e.g.* when opium is employed the dose of the tincture for an adult should be at least one drachm; of the salts of morphia, to produce its full soporific effect, at least one quarter of a grain and so on. This increase of dose is particularly necessary with this class of medicine. The doses of aperient medicine need be little different from what is employed generally.

Among remedies mostly used are the following:—Opium, in its various preparations; chloral hydrate, when 20 grains will usually be found sufficient; hyoscyamine, in the dose of $\frac{1}{30}$ to $\frac{1}{20}$ of a grain; bromides. Among aperients, much depends on the stage of the disease, in the chronic stages chronic medicines are indicated, as the preparations of aloes, one of the most useful forms that I have employed is a pill of equal parts of aloes and mastich. Certain cases require enemata; or if the remedy must be concealed as not unfrequently is necessary, calomel is the most easy of administration. A preparation of aloes called aloine, in quarter grain to half grain doses may be concealed in beer. I have used a preparation called elaterine, when much difficulty existed in getting a patient to take any other kind, $\frac{1}{25}$ of a grain is sufficient, and is easily concealed, it should be given at a meal, or perhaps in its pure state it would be too drastic.

Among tonics, iron in various combinations is often indicated especially in females, I prefer the old fashion preparation called Ferri Potassio-Tartras to any other; when medicines are objected to on account of the taste, and the patient is at all capricious, the taste of iron in this form may be entirely covered by a solution of liquorice; cod-liver oil is frequently indicated.

Among stimulating tonics the chloric ether is useful, combined with either iron or a bitter, as quinine or gentian; morphia in small doses has been much recommended in great depression; I think it is useful occasionally in the melancholic stage of ordinary insanity.

Baths come within the division of therapeutical remedies.

The ordinary warm bath is found useful in certain states of excitement, and it has been recommended to be employed for long periods together, as for 3 to 5 hours, keeping the water at a constant temperature. In the paroxysm of excitement in the early stage of general paresis it is more particularly suited. French physicians combine the warm bath, or the hot bath, with cold application to the head.

Of more frequent employment in England, is the shower bath.

The shower bath has been much extolled, and it is a fact that the patients feel much relief in its use, many have a propensity to apply cold to the head without it being prescribed.

The shower bath has unfortunately been abused, it is a remedy which may become punitive in its employment; and if left to the hands of an ordinary attendant as in such large establishments as our public asylums, it is necessary to take strict precautions lest it be employed as a punishment. In well conducted asylums this is usually prevented by not allowing the shower bath to be used unless specially prescribed, and then only in the presence of a superior officer.

Among baths must be included the wet packing of the hydropathists, this also, unless precautions are taken, might become a distinct instrument of mechanical restraint, but with the proper precautions, it is a very useful remedy in cases of great excitement.

Moral Treatment.—With respect to the moral treatment this forms a more special portion of our subject. In general practice the hygiene and moral management of the case is usually delegated to the patient himself, or to the nurse, and the directions are comparatively simple, and consist perhaps more frequently in rules as to diet than to conduct.

The general principles, however, do not differ. The patient's diet, when restricted to this or that course by the physician, is chiefly to regulate the nutrition processes, and to obtain a rest for an over-worked viscus. What is required in mental cases is *rest for the affected organ*, that is the mind. This law is universal. In a broken leg the first care of the surgeon is to obtain rest for the limb affected.

Mental rest is therefore emphatically the object of all the moral treatment.

This being the indication, we have to consider the means by which it is to be carried out, this may be described in equally concise terms, and the remedy may be thus formulated :—

To change the patient's environments.

It will be necessary in order to carry out this indication that something of the nature of the case should be known and its history.

Especially will it be important to know whether the case presents certain features, as firstly whether the patient is melancholic or violent, suicidal or dangerous, epileptic, etc. These particulars of course would have been obtained before the question of treatment becomes to be determined upon. There may be also certain matters or circumstances, in other words, some of the patient's environments which excite him particularly. A knowledge of the actual cause of attack, if it can be told, will also be of service.

Probably the friends have already made up their minds concerning the cause of the patient's state of mind, but probably also they are wrong in their surmises.

In the first place the cause is seldom single, both physical and moral causes are usually operating, a man may meet with a calamity of any kind, as loss of wife or child, he may be so overwhelmed as to commit suicide in consequence, but the calamity should not produce such a result in a man in health. In most cases physical and mental causes combine, (for the chief causes see p. 216 and 281).

We are at present confining our attention to the moral causes to give examples of such we may refer to the causes enumerated in the reports, (see p. 217 and 289).

The moral causes given by the Commissioners in Lunacy, from returns furnished to them, are the following :—

Domestic troubles, including loss of relatives and friends.

Adverse circumstances and cares of business.

Religious impressions and convictions.

Love affairs, seduction, etc.

Any of these causes may be operating in a patient's mind, but the effect would not constitute disease, unless it was excessive. There is not a cause among them which a physician could remove. The indication of his treatment is not to attempt this,

but to modify its effect, the indication is to render the effect upon the mind more bearable.

The problem thus becomes this, how is the mind to be made able to bear its burden of grief?

But though grief and depressing emotions do not constitute the whole of the causes to which the treatment is called for, they may form a large part of it. But as we have seen, the patient in ordinary insanity may have passed this stage, and what we have to do, is to check the opposite condition excitement and violence, or some mischievous or dangerous propensity.

Widely apart as these manifestations are, they often start from the same point and have the same basis. They are kept up perhaps by the patient's surroundings.

Before entering upon the means for carrying out the moral treatment, it should be well insisted upon, that both kinds of treatment, therapeutical and moral, should be carried on together. The bodily symptoms which have been described must be treated; for on the state of the general health and on the nutrition processes must we depend the restoration of health. The moral means are to prevent further mischief.

What constitute the most frequent acting sources of irritation to the insane, in his own sphere, and for which a change is indicated, are not in many instances what may be called either the remote, or the proximate cause of the attack. Such a cause as the death of a child, the loss of fortune, may have induced the attack, against all such the physician is of course powerless. Even if such a cause was imaginary, when the disease is established, it is doubtful if refutation would prove so effectual as to cure the patient, and more often than otherwise the settled grief is purely imaginary, as the loss of salvation, etc. And what the change of the patient's environments is able rather to do, is to remove him from the local reminders of his supposed grievances; and a removal from the scene of his misery besides depriving him of the many suggestions of his own changed condition, gives him new objects for thought, and puts into his mind fresh ideas. At home or in his accustomed place, every duty, every custom or routine of life, has become probably irksome to him, and that they are so, is a source of misery. To be removed from these is a relief. Even to be the object of observation or compassion, from

his former companions, or even servants, increases his uneasiness of mind. He becomes sensitive to the anxieties which are everywhere shown on his account, and it is a relief to cease to have such, even the sympathy shown to him and which he would resent if not shown, would be a source of grief to him.

The removal from such environments is particularly desirable on the ground that all such displays act upon his emotions, and on the very organs which require rest.

But the earliest indications of insanity but very rarely come under the notice of the specialist, many and perhaps the majority of the cases are treated by the family adviser. And the patient is often advised to take a rest from his business, to travel, to go to the seaside, or take a shooting box in the north, etc., and in many cases this is successful. The double action of a fresh atmosphere and mental rest restores the patient, and saves him from the more serious illness of actual insanity.

These means, however, sometimes fail; many things interfere to mar the effect of the prescription, when it is determined to try it. The business cares cannot be put off, the new position does not agree with the physical health, the discomforts of the lodging arrangements, the fatigue of travelling, and the discomforts of long journeys, prevent the beneficial effects that were anticipated. Instead of relief, the patient's case becomes confirmed. It is in this stage that the specialist is first taken into consultation, and it is my experience that most of the primary cases of ordinary insanity have usually gone through a trial of this kind, yet still remain as depressed as before.

When this early stage has passed, and the means employed have not proved successful, and when therefore the patient is unequivocally insane, the removal to an asylum or special establishment for the treatment of mental disease, becomes in my opinion an absolute duty on the part of those acting for the invalid; and such alone affords the patient a fair chance of recovery; I look upon the removal from home to the private house of a medical man, often resorted to in the prodromatory stage, as simply a change like going to the sea, etc., and it is often useful, and all that is necessary.

The above remarks are chiefly applicable to the earliest stage of insanity when the patient is melancholic.

But the patient may not be depressed, on the contrary as in the onset often of general paresis the patient is excited, elated, perhaps violent and irascible. Such a patient needs to be taken care of on account of his family and for his violence, but on other grounds as well. If such a patient is master of a house, he may make various demands on his servants, or his family; will command them to do this or that impossible or incongruous act, and become highly incensed if not implicitly obeyed. Such a man placed among strangers at once alters his tone, and is rendered calmer. This is particularly so in general paresis, there is a want of spontaneity in these patients, and they are easily led by a little tact.

Again the patient may have suicidal propensity, that is, be dangerous to himself; when this is the case, there are stronger reasons why he should change his environments. In his own house the means of accomplishing his purpose are known to him, and the facilities also for eluding the watch which may be put upon him. He may refuse to be attended and forbid his servants to watch him. In his own house, and in all private houses and such localities, the means for committing suicide are in every corner and at every step.

We are supposing the patient is in circumstances to have servants, if he is not and can be only looked after by his own friends, he is still worse placed whether he is dangerous to others or himself.

In the case of the suicidal patient not only is it necessary that he should be removed from his home to produce a beneficial change in his thoughts, but he needs all the skill and care that only special appointments of an asylum can give him.

My own conviction is, that it is impossible without the proper appliances, such as a special establishment can afford, that suicide can be wholly prevented; unskilled and inexperienced nurses and attendants cannot be trusted. If they are ever so watchful, the opportunities are so numerous in ordinary houses that there can be no security. For a very suicidal patient, one attendant is not sufficient, nor are two safe, there requires a relay of nurses, for the propensity never sleeps; and nurses, even when they are relatives and most interested, must succumb to fatigue.

The following was related to me by the late Mr. Wakley coroner for Middlesex. A suicidal lady was being nursed at home, and every night had two nurses, always with her, one on either side of her bed. On one occasion one of the nurses having a cold was persuaded by the patient's daughter to go to bed, and the daughter volunteered to take her place at her mother's bedside. The daughter and the other nurse kept their post throughout the night, as day light dawned the daughter remarked to the nurse, that the patient had had an excellent night, and had never stirred. On examining more closely they found that she was dead. She had drawn threads out of her sheet one by one, and had passed them tightly around her neck and was dead.

I was consulted some time ago in the case of a gentleman with suicidal propensity. In this case the friends objected most positively to his being removed from his home. It was asked why his own house could not be converted into an asylum. The objection to removal was chiefly that his wife, a great invalid, would be injuriously affected by the patient's removal. The experiment of home treatment was made, the result was death by poison. The patient went out daily in his carriage attended by his own servants, of course quite inexperienced men, but greatly attached to their master. The gentleman called at different chemists' shops and bought a small quantity of laudanum at each, and took the whole at a dose and died.

A gentleman very depressed but of doubtful suicidal propensity, was accompanied by his man servant in his daily walk. The servant allowed his master to walk on the sea wall in a seaport town during very rough weather, the servant walked on the land side and suddenly saw his master throw himself off the path into the sea where he was drowned.

I was called in consultation once, to advise concerning an old lady who was very suicidal, and was under the care of her daughter, the suicidal tendency was very active. I saw the lady in the drawing room on the first floor, and noticed the windows, which were large and opened down to the floor, were wide open, and presented a most obvious opportunity for the patient to throw herself out. On retiring to consult to a room below, having left the daughter with the patient, I was impressing upon my medical colleague the danger from these windows,

when the daughter entered the room having left her mother, as she said, for only a moment, to mention some other symptom. In such a minute of course the suicide could have been committed, but very fortunately it was not. But the circumstance shows how difficult it is to impress ordinary people with the danger of not attending to such small details. In a house specially adopted for the care of patients of course no such window would be left unguarded.

My experience is that it is impossible to foresee all the means by which a patient under the care of one attendant and with the ordinary arrangements of a private house, may seek to accomplish his object.

A patient at Hanwell of melancholic disposition, managed to elude the vigilence of his attendants on many occasions and escape. Each time the attendant was to blame, and was severely reprimanded, or discharged for neglect of duty; nevertheless this very quiet and phlegmatic patient continually outwitted them all. I once asked him how he managed it, his reply explained how the suicidal patient may succeed in his object. He said, "you see I am always thinking of escaping, I never think of anything else; these fellows (meaning the attendants) are thinking of a hundred things, they can't be always thinking of me. So sometimes I stay behind when we are out walking five or six together, and then I sit down, if the fellow is up to his work, he calls to me to come on; and I come on. This happens hundreds of times, but sometimes it has not happened, and they don't miss me and I walk off." This man once got as far as York, he was recognised. The parish officers of the district where he was found were employed to bring him back to Hanwell; the parish officer was evidently not an experienced attendant, for between York and Hanwell the patient escaped three times.

The narration of the above is, however, to show how necessary it is in all cases and especially in suicidal cases to have skilled attendants, as well as special appliances.

This necessity is further shown by the fact that scarcely a day passes, but one may read in the daily papers of a death by suicide. A very large majority of these might have been prevented.

And that they are prevented by proper means is proved by

the relative numbers of suicides that occur in asylums, and out. In the year 1880 there were admitted into all the asylums, 13,201 patients of whom 3,805 were reported to be suicidal, and the total number of suicides which occurred in the asylums was 5; and it must be borne in mind that the 3,805 only represented the number *admitted* in the year, there must have been a very large number remaining, admitted in previous years, and in whom the suicidal tendency was still active.

But it is not alone the superior caution, which experienced attendants take in watching, there are in a properly ordered house no facilities, and no opportunity for obtaining the means of committing the act; there are too in every well managed house numerous attendants, so that no one attendant can be become less vigilant from fatigue.

The experienced attendant too, male or female, learns to be patient under provocation of all kind, and perfectly calm under language intended to irritate, and employed for that purpose. This faculty of patience is acquired by experience and is to be found in every establishment, where several patients are received. The experienced attendant neither irritates the patient, nor feeds his morbid craving for sympathy unduly.

The precautions taken in the arrangement of the house are chiefly against suicide, accidents, violence or escape. Where plenty of attendants are employed, this need not deprive the patient of a proper scope of freedom, so that he need not and does not as a rule find himself deprived of liberty and constrained in any way.

The removal of the patient from the environments with which he was familiar to fresh scenes, becomes in itself a kind of mental treatment.

Isolation.—The question of the removal of the patient into a house, hospital or asylum, (and which is called by the French Isolation), must depend a great deal on the particular circumstances of each case. That early treatment is essential is the opinion of everyone who has any experience in the matter. In a committee of the House of Commons in 1867 this question was enquired into. Mr. Wilkes, Commissioner in Lunacy and formerly Medical Superintendant of a County Asylum, was asked. "Do you not think there are cases of very excitable temperament, in which being sent to those places, might increase

the complaint, and tendency to mania?" He answered, "No Sir; I do not. I think the removal from home associations and from exciting causes of the disease, tends very rapidly to the recovery of the patient." Dr. Bucknill said, "I think the principle should be to make the admission as early as possible in order to provide for early treatment." Sir James Cox pointed out that not only the highest per centage of cases, but the shortest duration of treatment in Scotland is found in the Renfrewshire asylum "into which the patients can be admitted with the least preliminary formalities." He was asked, "You think in all cases it is the great object to get early treatment?" *A.* "Yes; I think that is the greatest point to aim at." *Q.* "If the facility of discharge would induce people to send the patients earlier, the percentage of cures would be greater and and the cures more rapid?" *A.* "Yes, that is exactly what I mean." Dr. Maudsley testified, that if insanity is to be cured the patient must be put under treatment early, because recoveries are entirely in proportion to the early stage at which treatment is adopted. If regulations were made more stringent, the friends instead of sending them from home as is almost essential in the case of insanity, would keep them at home under improper conditions, and so very much injure the chance of recovery.

Dr. Duckworth Williams was asked, "Do you attach importance to the pauper lunatics being sent early to asylums?" *A.* "Very great; they should be sent at once."

Dr. Lockhart Robertson, before the same committee, said, "In an early case, early treatment is, of course, of great importance to the patient."

Dr. Crichton Browne gave similar evidence, that early treatment was of the greatest possible value.

Many of the above questions were distinctly in reference to early admission into asylums, all the answers, however, apply to necessity of early treatment, and it will be observed that several of the answers are so worded, and this is the gist of these questions, and all of them especially insisted upon the patient being sent from home.

Dr. Mann gives the following particulars relative to the advantage of early treatment, calculated upon the admission into

the asylum of 4,129 patients; the percentage of cures in those who had been insane 6 months or less, 46 per cent.; from 6 months to 12 months, 44 per cent; 1 year and over, 12 per cent; average 32½ per cent. (*Manual of Psychological Medicine*, p. 171).

If sent from home, the question where the patients are to be sent, is the next point to be considered and it requires some experience to decide this.

To place an insane person under the care of a medical man, and away from home, legal authority is required. No person can receive a patient into his house for care or medical treatment, who is a lunatic or an alleged lunatic, (*i.e.*, about whose case there can be the least suspicion of its being mental), without going through all the formalities of certificates as described under the legal relations of the insane, in the last chapter of this treatise, and to which the reader is referred.

Here the different kinds of establishment only will be enumerated. The insane are divided by the law into two classes, called private patients and pauper patients. The establishments provided for the latter class need no description, the state provides commodious and admirable accommodation for all paupers.

For the non-pauper class or private patients, there are hospitals and private establishments.

The hospitals are partly supported by charity, and partly by payments from the patients. These payments vary from very moderate charges up to any amount, according to the means available from the patients' own resources, or from that of their friends. The higher charges of the wealthy patients go to help the cost of those who pay less, thus, one man's affliction is made to administer to another man's relief.

This is the case in what are called the hospitals.

The private establishments vary more, probably, in the character of comforts which they afford according to the charge, and to the class of society from which the patients are received: some of the larger hospitals, which receive 200 to 300 patients, are chiefly suited for small tradesmen, and the expense in them is moderate, and varies a little above or below £1 a week.

From this amount up to £1 a day, there are all grades of establishments.

Of course from a medical point of view the mention of the different charges may appear somewhat irrelevant, but the charges affect considerably the association into which a patient would be placed. And association is a powerful agent in the moral treatment. It must be obvious to everyone, that the *exclusive* association of the insane with insane cannot be particularly serviceable. Though it must be allowed that an occasional association is less disadvantageous than anyone without actual experience would suppose. (See Association, further on).

Many considerations necessarily enter the question of the particular house, hospital or asylum to be selected; and such matters as convenience of access, or remoteness from other localities, are perhaps as much consulted as the healthiness, and hygienic and medical advantages, that are to be found in the different institutions.

Speaking, however, as a medical man there can be no impropriety in my saying that I agree with the universal opinion of all the specialty, from Esquirol to those of the present day, that whatever establishment is selected it should be one in which the head is a medical man; for "une Asile des Aliénés est un instrument de guerison." (Esquirol).

In England the public have at least this guarantee that every patient placed in a house for care and treatment must be reported to the Commissioners in Lunacy, who will personally inspect the house, whether it be licensed or not. And that every licensed house would not have been licensed until it was found properly provided with all necessary appliances for the care and treatment. Every medical man who is willing to receive an insane person into his family circle must therefore be prepared to satisfy the official visitors on this head.

The admission into a house, other than patient's own home, is in itself a portion of the moral treatment and the slight restraint of being with strangers often acts immediately and beneficially upon the patient.

In houses devoted to the purposes of treatment, the moral treatment is assisted by various means which may be thus divided.

1. *Amusements.* 2. *Occupations.* 3. *Association.*—The object of all

of which is to direct the patient's mind and to keep it moderately employed on subjects calculated to interest and not to excite.

Amusements.—The most frequent and usual, in all establishments consist briefly in the following;—books, newspapers and light literature of all kinds, music, indoors and out, dancing, drawing, painting, theatrical performances at home or in public, and displays of similar character as conjuring, magic lantern, etc., to which may be added a school; gardens, walks and drives, visits to public entertainments or to scenes in the neighbourhood, excursions, picnics, games of various kinds. In-doors—cards, chess, backgammon, solitaire and such little puzzles. Out-doors—lawn tennis, croquet, archery. The keeping of domestic animals. The above can be enjoyed by either sex.

For males only, cricket, bowls, billiards, fishing, the meet of hounds, beagles, etc.

For females especially; needlework and embroidery, painting, drawing.

Perhaps among amusements should be included, change to a watering place, which will be spoken of under association to which division it may equally belong.

Occupations.—In the public pauper asylums means of exercising every mechanical trade. At Hanwell the following were the chief.

For men.—Agricultural and garden labour, attending to farm work, carpentry, blacksmith, printing, tailoring, bootmaking, upholstery, mat-making, tin-work, brewing.

For women.—Domestic work, in the wards, in the kitchen and laundry.

In the institutions for the upper classes, occupation is equally useful, but is not so easy to provide. For men, photography has been an admirable resource with me on more than one occasion. The rearing of fowls, rabbits, etc., the making of light articles in wood as cages, boxes, and on several occasions, embroidery and needlework have served as occupation for gentlemen.

Association.—This agent I consider the most important of all in the moral treatment of the insane. Under this term I include various moral influences not easily classed under the other divisions.

1. Attendance upon religious duties, the family prayers, and the services of the chaplain.

2. The companionship with the sane of the patient's own station; in other words the association at meals, in the amusements, walks, etc., with the sane; and the general association of the patient with sane people, as far as possible under proper supervision at home or at places of public resort, as at concerts, theatres, fancy fairs, etc.

In the pauper asylums, the nurses and attendants being of quite equal or superior social status to the patient, this is always easily provided.

In institutions or licensed houses for the upper class, companions as proper associates from a higher class should be engaged. Where the number of patients received is very large, this is not very easy.

In smaller houses the family of the physician can assist in this duty which is always highly appreciated by the patients.

There are of course always various kinds of cases to be treated, but speaking in general terms they may be thus classed.

Firstly as regards station in life, or educated and uneducated, between these classes the asylum chosen itself may be sufficient to make the necessary separation; that is, the establishment may be designed particularly for one or other kind. There are a few establishments which only receive the upper class, and from which practically the person of inferior status is excluded. But it is quite true that those asylums which receive the lower class, as the small tradesman, etc., do not pretend to shut the doors to the higher, in which case the only separation they can make is by arrangement of the building, and by supplying separate apartments at higher expense.

I do not think that this is at all advantageous, on the contrary separate apartments are disadvantageous or more than that, in many ways; and principally because they isolate the patient and nullify the power of judicious association.

The general opinion of those with the largest experience, the superintendents of the large county asylums, is wholly in favour of judicious association. The latest additions to every large asylum are for the purpose of increasing association, as new dining halls, new recreation halls, new

chapels, and in these establishments of course there can be no evil from mal-association as the patients are all of one status. Still into these are occasionally sent persons who have occupied a better position,

It is an object in the moral treatment to discourage solitary habits and not to foster exclusive propensities. If the better class patient has his separate apartments, he can have no society but his man servant, and even when a companion of a higher education is engaged, the society for both is monotonous and irksome to the sane at least, and therefore not agreeable to the insane. And this is so with both ladies and gentlemen, but particularly so for the latter; the only change a gentleman can get under such circumstances is an occasional visit from the medical or other officer, and this in a large institution must necessarily be short and perfunctory, there can be no real companionship in it.

Where the companion, nurse or not, is not unsuitable educationally for the patient, if the patient is to be much with, and especially much alone with, the companion, some tact is necessary in making the selection. Without being at all in fault, a companion may be injudicious or unsuitable from various trivial causes. Minute directions may be given, but the mode of carrying such out may not be in the person.

The companion should be chosen to suit the peculiarity of each case, and not only the companion, but the nurse or attendant. One person's manner is more or less agreeable even to the sane, not only as an intimate or friend, but one servant's manners are certainly more acceptable than another's. In a single family the service of a particular servant is perhaps acceptable to one person and inacceptable to another. It is so with the insane, the ways of one servant may be considered quite disagreeable, fulsome to one kind of person, and these very manners will be actually of beneficial influence to another. When there are many servants this can be readily arranged and the matter usually adjusts itself.

In mentioning details such as the above it may be remarked also that every small matter in the surroundings of a patient should be considered. An Italian physician went so far as to study what the prevailing colour of a room should be,

and laid down laws in which he recommended the use of different colours to produce different effects. There is no doubt that a study of this kind enters into every one's daily consideration, especially among women, and the attention to æsthetical matters has of late been carried out to great extent, the same attention to externals is well worthy of imitation in the moral treatment of the insane. It does not require to be, as it were, proclaimed from the house-tops, its influence would be scattered to the winds by any such pretentious display; there is little doubt however that nicely furnished rooms, the attention to the personal toilets of the patients' themselves, and that of their associates, have influence,—the better and neater the patient is dressed the quieter will he or she be. It is pretty well known to most people that considerable attention is now paid to the furnishing and decoration of our public and pauper asylums. In former times the walls were bare and whitewashed, they are now all hung with pictures, dressed out with tables, brackets, flowers, birds, etc., and it is rare to find any injured. With the educated class the same style of decoration would not be appreciated, but all are open to the influence of ornament in good taste.

They are also much influenced by the courtesies of society, and impressed by a manner partaking of studied formality and kindness.

Attendants and Nurses.—The essentials for attendants on the insane, whether nurse or companion, are the following:—

Perfect command over their own conduct and expression. This is to be acquired by practice. A patient from delusion, or irritation, or for no apparent cause at all, may accuse, vilify, invent the most specious tales against the attendant, who must learn to hear such, without showing the slightest resentment; and not only without showing it, but without feeling any: and especially without answering the patient. Or if forced to reply to remember the rule, which should be at the base of all dealings with the insane, that

"A soft answer turneth away wrath."

Patients vary infinitely in their conduct and disposition, but classing them roughly into the melancholic and the violent, the

nurse most suitable for one of the latter may be unsuitable for the other kind. For the melancholic, of course a person with good resources is necessary, for the violent, one of mild and quiet temperament with well governed disposition, and with tact is required. If the violence is in language only, the attendant should listen quietly without replying; unless to turn the subject into some other channel. When accustomed to a patient's usual topics this may easily be done. Under any circumstances the attendant should avoid putting himself into opposition with the patient either by word or gesture. Of course the attendant will have occasionally to interfere, as in case of violence or destructiveness, or for other reasons, as when the violence is by acts, in which the patient may do damage of such kind as to be of serious consequences. But no attendant should attempt to oppose force to force until absolutely obliged. In such a case the attendant should not attempt to use coercion singly but should summon aid, so that the force used may be such as the patient cannot resist. In certain conditions of maniacal fury of sudden character, when the patient cannot be addressed in words of any kind, the patient should be placed in seclusion, that is separated from all possible surrounding excitants.

To place a patient in seclusion, two attendants at least should be employed; if the patient attempt to bite, as may happen, the best thing to do is to throw a blanket over his head whilst the removal is taking place. No injury can be done to the patient by this means and he will be prevented from injuring others.

The term seclusion means being placed in a room entirely secluded from everybody.

In an asylum or licensed house there is usually a room kept for the purpose, with means to insure the patient's safety and quiet. It should have shutters which will lock, but without bars; it also should have no hooks, or projections, etc., with which the patient could injure himself. There should be a bed but it is well to have it fixed to the floor, sometimes such rooms are padded around the walls.

The object to be sought is quiet. When the patient finds himself thus isolated he very soon as a rule becomes calm. When he seems so, an attendant with tact may enter, and speak a few kind words quietly, or take him food, or with

any such excuse attempt to pacify him; and under no circumstance should his violence be alluded to.

In every instance in which any patient is thus 'secluded' the fact must be entered in the case-book, and journals which are laid before the official visitors at the next visit.

In rare instances the noise and violence, in conduct or act, will continue for long periods, it is extremely rare, however, to find it lasting throughout the entire day, and an opportunity should be taken from time to time, to induce the patient to take exercise; if he or she shows a disposition to relapse into excitement, and exercise be required, there should be always a sufficient staff to execute the order. It is not often that such happens, and when this kind of paroxysm does occur and continue for a long period, a sedative especially a dose of Hyoscyamine will be found useful to allay the condition.

Another mode of association is in taking the meals with others, a solitary dinner in a single room is bad, both for its influence mentally and physically. A person sitting down to dinner alone can never take the meal with any pleasure, if possible therefore the patients should dine with others; the dinner table with the superintendent and family as in a private family, at which there are a sufficient number to constitute an agreeable society, is an admirable means of association. The presence of the heads of the family gives an influence for good, and creates a proper feeling between patient and physician.

On such occasions the influence of the opposite sex is always useful, especially in the patients of good social position. The presence of ladies at the dinner table will always induce the male patients to restrain themselves, even though the lady is a patient also; the presence of children, especially with the female patients, is always soothing.

The meeting of both sexes at entertainments also induces the patients to behave well, and strengthens the power of self-control.

A dance or a concert in which the company is composed of both sexes, and especially with due admixture of the sane, is now an acknowledged means of moral treatment.

In most of the asylums of the present day, among the moral means employed to a great extent, is change of scene, or

taking the patients to the sea-side. This agent of course may be considered as a fresh association or as mere amusement, it depends upon whether the change is only temporary or for a period.

It is to the latter case that the following remarks refer. A mere trip to a fresh place is simply like any other kind of amusement, but when a patient is taken to reside in a different locality there are several matters to be considered and which I have learnt from experience. In the first place a change of this kind is only suitable for chronic cases. An acute case or a patient in the early stage does not require rousing, but rest, they can scarcely be kept too quiet. To insure tranquility in chronic cases care is needed. I have found the trip to the sea-side by no means so universally beneficial as I had anticipated. For a time some chronic cases appear to be benefitted, but the majority often relapse, and several among those for whom I have tried this remedy were permanently disturbed.

There was one case particularly in which the effect was detrimental; the patient was a lady, she had been insane several years before she came under my care. She was what would be called a chronic lunatic passing into dementia, with intervals of excitement and violence. She was taken on two occasions to the sea, once to Teignmouth in Devonshire, at another time to Llandudno. At Teignmouth she became violent after having been tranquil for some time, but since she was subject to attacks of the kind it was not clear that the change had induced the paroxysm. On the excitement passing off she seemed clearer in mind and spoke more rationally than she had done for some time. The time for returning home soon followed, and the patient was alternately clearer and more excited for some time afterwards. By the following summer she had become as she had been for several years: but it was thought advisable, and her friends wished her, to try another change. She was taken to Llandudno, and the same occurred again. At first she seemed roused and clearer in mind and spoke more rationally, mentioning things, which she had not appeared to notice previously, and knowing all the names of her companions of which she had previously given no evidence. One day while out walking on the Great Orme's Head, she shrank back from the edge of the water, and became

so excited that it was deemed necessary to bring her home; from that time she remained in a very excited condition, and it was some months before she became quieter, and her mind seemed then more demented. This case was marked, but on closely scrutinizing the others, and living with them as my custom is, I could observe in most of them some change. In some two or three the change was beneficial, but this was in cases already convalescing. I considered it even trying in them.

I am therefore of opinion that considerable care is needed in altering the patient's surroundings so widely and suddenly. Patients in the acute stage are liable to be much disturbed, the chronic cases too, and the old chronic cases especially, are unsettled and upset; they miss their routine life, which the chronic patients always affect, they cannot adjust their mode of life to their altered position, and not a few are disturbed in their health. Every practitioner, who lives at the seaside or at a watering place, knows that every one whether ill or not, who pays a visit to the sea, has to go through a period of trial to season them, as it were, to the change; until they get over this period no benefit to health begins. It is clear that the atmosphere of the seaside is a remedial measure of great value, but it is at the same time an active and powerful remedy. Young people are not very sensitive to such changes; but in one respect even they may experience the difference in the state of health; invariably there is some change in the alvine functions, either an increased or sometimes decreased action of the bowels.

Old people and equally old insane, and the insane without being old, are very sensitive to such changes. It is an established fact that insane do not bear any removal well. In the County of Middlesex, when a second asylum was opened at Colney Hatch, a great many old chronic cases were removed from Hanwell to that asylum; these were the patients belonging to parishes of the eastern part of the county. The patients had in many instances been in Hanwell many years, and the mortality among them was low, in the first year of the residence at Colney Hatch so many died as to call for special mention. The same always happens on receiving chronic patients into asylums, there has scarcely ever been a new asylum opened, but that when the first patients were received into it from other asylums, the mor-

tality among such patients was increased. On the enlargement of the Hanwell asylum in 1861, there was a large number of patients belonging to the west end of London removed from Colney Hatch asylum to Hanwell, thus exactly reversing the former conditions of the change above mentioned, the mortality among these old cases increased to such an extent, that I was called upon to make a special report upon the subject.

It must not however be concluded that the remedy of change of environments is to be wholly condemned; what it is necessary to bear in mind, is that care and caution are needed in resorting to this means of treatment.

No description of the moral treatment would be complete without alluding to the general principles on which it should be conducted. The general indication, that of procuring for the patient entire mental rest, as by the means described in the above pages, would scarcely be satisfactory without allusion to some matters to be avoided. The system of treatment has been divided into that by restraint, and by non-restraint. In England the latter is adopted almost universally, but on the continent restraint is considered necessary. By restraint is now meant, that patients are restrained in their bodily movements by various mechanical instruments, as by a kind of jacket in which a patient cannot move his arms. Formerly restraint chairs were employed in which a patient was locked in a sitting posture, or bed which was a kind of box closing over the patient, etc., also there were various straps to confine the limbs, or a weight or hobble tied around the ankle.

Non-restraint is now the rule throughout England. Moderate restraint, I am told, however lingers here and there in some private establishments. I have no personal knowledge of the fact.

The word non-restraint has been objected to, on the ground that any confinement in an asylum is restraint, and so far the term is not an accurate one; but every one knows that its meaning is the non-employment of mechanical means to confine the patient. But the system of treatment by non-restraint includes a great deal more than that, it means the general abolishment of all coercive measures whatever, such as punishments of all kinds, the use of threats, stern conduct, or anything like

over-awing the patient by language or demeanour. And it means the opposite of all this, or gentleness, patience, and forbearance, and the more these are cultivated in an attendant, the more influence will he possess for good with his patient.

It must not be supposed, however, that the treatment by restraint where it is still employed, is so cruel as formerly, yet the principle remains the same; namely:—of opposing and coercing the invalid, instead of persuading and soothing him.

In this country, the present generation of the attendants on the insane, scarcely are aware what the mode of treatment by restraint, really means. The following is from Dr. Conolly, "Down to 1770, the inmates of Bethlehem were exhibited to the public for money—the price of admission was at first twopence, and afterwards one penny."

The medical treatment in 1800, according to Dr. Haslam, was regulated according to the moon; the lunatics were bound, chained, and flogged, at particular periods of the moon's age, to prevent accessions of violence. Besides absolute stripes, the insane were treated in dungeons worse than the dens in which we now think of placing our animals. This, however, may have been from pure ignorance, or fear, but no refinement of cruelty was added in these cases. In the old system, the ingenuity of clever people was exercised in torturing the lunatic. Some of the means by which intimidation was to be produced in a patient, are given to us in authors. There was a certain chair invented by Dr. Cox. "We read," says Dr. Conolly, "with almost as much amusement as wonder, the respectful acknowledgment of Dr. Hallaran, that Dr. Cox had made known to the profession the safe and effectual remedy of the circulating swing, the invention of which Dr. Cox generously gives the credit of to Dr. Davidson!" This chair was so contrived as to turn on a pivot, and by means of a rack, could be made to revolve, with the patient bound in it, at the rate of one-hundred revolutions per minute: this was a most cruel torture. But Dr. Hallaran thought no well regulated institution should be unprovided with it—so apathetic, so hardened, does custom make the mind to any kind of cruelty. For hopeless cases, Dr. Cox advised that this machine should be used in the dark, and be accompanied with unusual noises and noisome smells. "By degrees," re-

cords the historian, "restraints became more and more severe, and torture more and more ingenious. Among many cruel devices, an unsuspecting patient was sometimes induced to walk across a treacherous floor, it gave way, and the patient fell into a 'bath of surprise,' and was there half drowned or half frightened to death." (Conolly, *On the Treatment of the Insane without Mechanical Restraint*).

It is, however, the principle on which the treatment is based that we should look at, not at its logical outcome. Those who advocate the necessity of restraint claimed to do so on scientific grounds.

The principle of restraint was thus enunciated by Guislain in 1852. M. Guislain, during his lectures, introduces the patient and says :—

"The patient whom you saw address me just now is what is called a sensible madman (*maniaque raisonneur*), who has been in the asylum about five months." *Tome* iii., p. 94 *et seq.*

"You have heard him speak with much sense. He's tired to death, he says, and wants to return home. You perceive that he is gradually getting better, and in the course of a short time I am in hopes he will be considered convalescent."

"This state of improvement is solely the result of the restraint exercised upon him."

M. Guislain then added, "To control mania, privation of liberty is the most efficacious remedy ; no medicinal agent can equal it in power."

"It is entirely a moral means ; it has neither colour, taste, weight, volume, etc."

"Its action arises out of recoil of the patient's mind on itself, in the restraint which he is conscious of. Upon the painful impression which acts upon the captive, and which agitates him profoundly. It reacts upon his will, which it seems to restrain. Under its influence the man looses his activity, his petulance, his expansive feelings ; this action operates on his reason, inducing reflection, and develops his judgment. It is a therapeutical means, which grows in proportion to the time that elapses. It is nourished by the series of painful sensations."

In another place M. Guislain says, "I call certain agents moral hypothenisators. I give this name to distinguish them

from certain medicinal agents, which produce hypothenisation—that is, sedative effects. That which moral hypothenisation presents of special character is its mode of action. It is not a question of medicine administered to the body, or introduced into the system, it is simply a sensation perceived, a perception, *the sentiment of fear, fright, terror*, considered in its *debilitating effects*." *Tome* iii., p. 164.

"There is in this sensation prodigious power." M. Guislain goes on to relate its several effects, and cases in which syncope, various bodily diseases, and death, have been produced by terror. "You see," he says, "one arrests the innervation—the action of the heart, as by the action of hydrocyanic acid; the one is as prompt in action as the other, it can enervate the organism, and can cause death."

"You will understand now why under certain circumstances one can produce in maniacs a relief of their malady—a sudden cure in some cases, by inducing in their minds the feeling of peril more or less strong," (p. 168).

That mechanical restraint is necessary has been abundantly disproved in England in every County Asylum, if the practice lingers in any establishment still, it is a proof I consider of incompetence.

Non-restraint has gradually spread where the physicians are the most enlightened, and for the reason that it has proved the most successful mode of treatment. I consider the most eloquent testimony that has been given of its value, is from many of those who still find fault with it, and who in not adopting it, put forth the reason that the restraint they use, is reduced to its safest minimum, thus apologising in a way for its use, by admitting that it should be so reduced.

I have had about 4000 patients under my treatment. I never used any mechanical restraint. I never possessed such a thing as a strait-jacket.

I think, however, the real question of the merits of either mode has been often lost sight of in the discussions that have taken place on the subject. The real base of the question is not the mechanical but the moral influence, which I consider objectionable in the system of restraint. One of the most curious matters in connexion with the question is the view that

generally prevails in America. "Dr. Walker, President of the Association of Superintendents, gravely told his fellow-members, that he supposed, if anything had been settled to the satisfaction of Members of the Association, it is, that in this country (America) our patients, by original temperament, or by some inherent quality of the universal Yankee, will not submit to the control of any person, they consider their equal or inferior, so readily." As to that of mechanical restraint another member, Dr. Compton, said, "I think an asylum cannot be found in this country, where the first thing a boy learns to read is the Declaration of Independence, and where every youngster learns that he is in 'the land of the free and the home of the brave,' in which restraint will not be necessary." So that the love of freedom in the individual is at the bottom of depriving him of freedom; and because they do not submit easily to control is the reason they are made to undergo it.

In the above quoted passages it is clear, however, that restraint is looked upon, both by those who prescribe it, and by those who have to endure it, as a punishment and that is the very reason why it is objectionable. The non-restraint system does not allow punishments to be used. It considers that punishment is detrimental. The object, as stated above is to procure mental rest, not irritation, or a feeling of disgrace, and not to arouse feelings of vindictiveness or a sense of injustice, etc., which punishment usually begets. That restraint rouses the malevolent feelings is the reason that makes it objectionable. The principle of the non-restraint system is to soothe by every means that can be devised, by kind words, sympathy, by diverting the thoughts from unpleasant subjects, etc., and not to irritate the patient by inflicting punishment. The objection is not against the machine, but the feeling excited by having it imposed.

For this reason it is that true non-restraint avoids the use of mechanical means altogether; the public and open announcement that no feeling of revenge, no exhibition of anger, nothing but kindness and forbearance will be shown, soon produces a good effect, and if not, a few cheery words to assure the patient that he is among those who will treat him considerately will produce a salutary effect. It is not necessary to display

great authority, or to order this or that to produce a feeling of superiority. The general respect of the establishment to the physician will produce sufficient evidence of his power, thus the patient soon learns that he is where he can be cared for, and will be kindly treated at all times, and will have attentive consideration to all his wants.

It is very rare indeed that a patient who has been treated in an English asylum feels any dislike to revisit it; this is the case, at all events, in those establishments where proper care has been taken. Unfortunately there may be from time to time an attendant who under great provocation may resent an insult or injury, or one who cannot forget an accusation, though totally untrue. Such attendants are unsuited for their calling and should be weeded out at once.

Correspondence.—Patients are always allowed to communicate with their friends by letter, and to receive letters, this is regulated by the Act. If a patient is excited on the receipt of any letter the writer may be exhorted to write less frequently, or to avoid particular topics. If a patient write to any public character or to one who is a stranger, the physician may intercept the letter and lay it before the official visitors; for without such precautions a patient might order goods for which he could not pay, or his letter might contain false accusations, etc., which he would not send if he were sane. Letters to parents or wives, to a husband or guardian are sent to the addresses with or without a line of explanation from the physician.

Visits.—In connexion with the subject of treatment by association, as a remedial resource and a part of the moral treatment, is the question of the "Visits of Friends" as the matter is usually called. It means the communication of the patient with his former acquaintances of any kind. I think most physicians of experience agree upon the general question, viz., that such visits are more or less trying, and obviously so for this reason, that in placing a patient in an asylum, the object is to break the connexion of the patient with his former environments. It must at the same time be admitted that all such communication cannot be wholly disallowed either for the patient's sake or for the relatives'. The differences which exist in different physicians' views on the subject are wholly with regard to the mode and fre-

quency of such visits. In the county asylums set days are appropriated for visits, but this cannot so easily be done with private patients. The bad effect of any visit results from the excess of emotional disturbance, that it causes in the patient. Such emotional disturbance is in proportion to one of two circumstances. 1. The great affection or emotional disturbance produced by the sight of particular individuals. 2. The length of period that has elapsed since the two have met. The injurious effect I think can be lessened by judicious conduct on the part of the visitor.

It is chiefly in the early days of treatment, or early separation from home, that the emotional effects cause the greatest disturbance to the patient's mind.

The visitor should be warned that the visit in the first place should be of very short duration, not exceeding ten minutes at first, for any mental effort is very fatiguing to the patient. In the conversation with the patient nothing should be mentioned of an adverse or painful kind, and only a few topics should be introduced. A visit of this kind with a promise to return at an early date will satisfy the patient without causing disturbance; and I think frequent visits of such kind cause less disturbance than a visit paid only after a longer interval; a frequently repeated visit of short duration like this becomes a matter of course, and rouses less emotion in the patient's mind.

Precautions are most needed for the melancholic; the maniacal will often receive a visitor without increasing their excitement. The chronic patient, and the imbecile are not affected injuriously by visits, and in cases I have found benefit to accrue from a visit of a friend for a month at a time. I have seldom been without a visitor of such kind or relative of a patient residing.

My rule is therefore to encourage intercourse of judicious friends, and in the acute stage to favour frequent visits of very short duration; and I find the patients receive such without any mental commotion.

The above circumstances are connected chiefly with the acute stage and the treatment by association, there are some matters which are connected with the management of particular propensities and with the general or hygienic management of the patient's surroundings, which have to be mentioned.

These are briefly the rules as to :—Rising and going to bed ; Exercise ; Baths ; Meals and taking of food.

As to the time of rising and retiring to bed, the former habits of the patient should be followed, say for example 8 a.m. for rising and 10 p.m. for going to bed. The patients in nearly every case require attendance at both times to see that the toilet is properly performed and to give assistance ; the use of the morning bath or tub should be encouraged, the weakly patients who are unable to rise so early will have the breakfast taken to them.

In the forenoon the patients should have walking exercise regularly.

Warm baths at least once a week are needed for those patients who do not have the morning bath. Imbecile patients on such occasions should be not merely dipped but soaped and rubbed down as in the Turkish baths.

As to meals ; 8.30 to 9 a.m. for breakfast, 2 p.m. for dinner, 6 p.m. light tea, 8 p.m. for supper, will be found convenient as it allows the patient to have exercise both before and after dinner ; a meal at 8 does not interfere with an evening entertainment.

Some patients require their mode of eating to be superintended, lest they eat too ravenously or without due mastication. Some cannot feed themselves, when this is the case the meat should be finely divided and given with a spoon.

Some patients refuse food altogether, this occurs usually in the early stage, but in certain cases it extends into the chronic period, in such a case various means may be successful according to the nature of each case. Some patients refuse to eat, when food is taken to them in the ordinary way, but if they can pilfer a morsel will eat it greedily ; a morbid desire for sympathy seems to be the root of this, such a patient can be nourished during the existence of this feeling by placing food in different corners, etc., as it were accidentally ; a little cunning of the sane will beat the cunning of the insane. A patient at Hanwell who had refused for several days to allow anything to pass his lips was treated in this way ; the gardener, an old attendant who had been many years in the service seated himself beside the patient as though quite casually and took some cake out of his basket and began to eat it talking all the time. Seeing the patient eyeing

the cake, he passed a bit to him, still continuing to talk, which the patient ate and continued henceforth to take his meals regularly. A patient sometimes refuses food asserting that it is poisoned. I have overcome this difficulty by giving the patient an egg. Some will not eat from delusion of various kinds, as that it is sinful, that they are depriving others of food, etc., in such cases it may be necessary to use artificial means. One patient will relent when he sees the preparation being made, and especially on the exhibition of a stomach-pump. When all these schemes fail and the patient's health is suffering, food may be given forcibly in various ways, as by inserting a wooden spoon between the teeth and pouring the nutrient into the bowl, the head and arms being held by attendants. In females I have seldom failed by this means. As an ultimate resource the œsophageal tube must be used and the fluid poured through a funnel affixed to it. When a patient has not taken nourishment for several days it is often necessary, and is also nearly always useful to give an aperient with the nourishment. Strong ale, with egg and infusion of senna, or the Mist. sennæ will be found beneficial in most cases, unless the patient is already too much reduced. In acute cases the propensity does not often last, but in some chronic cases it persists. I once knew a patient who was fed by his attendant regularly for months through the tube and took the tube as a matter of course.

In all cases of refusal of food, when once food has been given or taken, it should be offered again or repeated after a given time that is to say at the period when the previous meal has been digested and when the natural feeling of appetite is returning.

In conclusion, it may be allowed here to add a word on the subject of the principle of private asylums, against which much of late has been urged in the medical journals.

Bearing in mind in the first place, that to conduct the moral treatment and to carry out the directions which I have described in the above paragraphs, the constant supervision of the medical man is necessary, or even essential, and no one could so well fulfil all the duties, show the same minute attention to details, or give the same moral support to the patient's mind as the master of the house in which the patient is placed; where every circumstance, and even every article of furniture becomes as it

were a materia medica. The influence of all the patient's surroundings, of his environments, is so constant that such cannot be readily relegated to others.

This would appear to be undeniable, and so far as I know is not denied, but the objections to private asylums, or against the principle of such establishments, is founded upon different ground, viz., that the proprietor's interest is to retain the patient, to retard his recovery, and thus deprive a person of his liberty unjustly.

If such an accusation were made only by the general public, it might be considered as a part of the pleasantry, commonly aimed by humourists against doctors in general.

It is a different matter when we find such accusations brought against members of the profession in the medical journals. It is moreover curious that the logical inference of such an accusation should pass unnoticed. If medical men were capable, or more, were in the habit of retarding recovery for the sake of gain, every medical man in practice, the whole profession, would become implicated in the mercenary charge. It is supposed it is true, that the bribe is greater in one case than the other, but many smaller bribes are equal to one larger bribe; and the smaller are easier to conceal. But is it possible? Can a medical man retard the cure of any case, and would it be to his interest to do so if he could. The very pages of the journals referred to, filled as they are by writers advocating improved methods of cure, the whole medical literature, show that the ambition of every medical man is to cure, and to cure rapidly.

But if after all, a pecuniary inducement lies at the base of all medical ambition, which is not my assumption, and a reputation for rapid cure is of value to the general practitioner, why is it not of the same value to the specialist. Why should the specialist differ in his notions from the rest of the profession.

But there are other precautions and provisions which have yet to be described, which render improper detention of a patient *impossible*. An enquiry into the working of these provisions resulted in the establishment of the fact, that no instance of any improper detention had been proved since they came into operation.

The evil therefore has not been proved to exist, and the remedy

advocated or suggested to prevent the possible occurrence of such an evil, is I think as objectionable and quite as inadequate as the present system.

It is advocated that all asylums should be public, and be administered by paid officers who should have no pecuniary interest in the success of the establishment. That is in fact that while the pauper asylums should remain as they are at present, that other asylums of a superior kind should be provided for patients of a different social position.

In reply to this it may be asked by what law or right are the public to be deprived of the services of a physician of their own choice.

Why, when a friend or relation becomes insane, is the fact to be made public by drafting him into a state asylum?

Why is the disease to be treated only and studied only by medical men elected by lay governors and subscribers to such establishments?

If a medical man has given his attention to the investigation of mental disease, in regard to its pathology and treatment, why may he not put into practice the views that he has arrived at, and without the interference of a lay committee, who often have crude notions of their own?

And it may be asked, why is it to be expected that a medical officer should be more efficient when actuated by a sense of duty alone, than one equally influenced by duty and dependent on his good name for his own success?

There are establishments of the kind alluded to, already established which meet the wants of the public, and if not, there is no reason why they should not be increased, if the demand call for them. These institutions, supported and endowed by charitable people as the Warneford and the Holloway asylums, are a great boon to a class whose income fails them when they become insane; but in such establishments of course the association of patients with patients only, and the absence of association with the sane must be the rule.

PART V.

THE LEGAL RELATIONS OF INSANITY.

Legal Definitions of Insanity—Medical duties various—To decide Existence of Insanity—Modes of procedure—Points to be observed—States of Remission and lucid interval—In Recurrent Insanity—In persons of feeble mind—Competency and Responsibility—Justice Stephen on Criminality—Legal signification of Responsibility—Medical opinion—Will in regard to Responsibility—Knowledge as a test of crime—Imposition of Restraint—Medical duties in regard to Restraint—Modes of Procedure—Process *de lunatico inquirendo*—For placing a patient under care—Precautions against improper restraint—For taking charge of Lunatic—Selection and appointment of Medical man.

This is obviously a medico-legal question, a question, that is, in which the lawyer and the physician should meet on mutual ground. There has been probably as much difference and contention on this border territory as on any border land whatever.

There are however well marked functions for the two professions, and no need of contention if the parties can first settle upon what belong to each. The lawyer imagines that the medical man makes too large a claim, and the medical man considers that the lawyer does the same, and as I am of the latter opinion and profession, I will endeavour to make good my reasons for saying so.

I consider that the functions of the medical man are confined to making a diagnosis, this is surely a purely medical function, and I do not see that any one should take exception to it.

I consider to the law belongs all the rest, that is to make the laws and see that they are duly observed, to protect the lunatic from the public, and the public from the lunatic.

In the remarks that I am about to make, I think I shall be able to show that the chief difficulties which exist, are due to the fault of the law and lawyers. I am quite aware that the

lawyers take exactly the opposite view on this point also. One reason for this difference is that the lawyers affect the ancient doctrines the physicians the new.

The first source of dissension and difference is in the interference in the diagnosis, the lawyer claims the right of settling the boundaries of sanity and insanity. The medical man of course must obey the laws or statutes that are made by the lawyers directly they become law; when these however are contrary to medical science, he can only give a perfunctory assent to them.

The statutes made by the lawyers settle many matters, about which, though in doing so they approach very closely to the functions of the medical man, there is no ground for difference.

According to the legal authorities there are "three classes of lunatics or persons of unsound mind, concerning whom the legislature has made special provision, namely:—Private lunatics, pauper lunatics, and criminal lunatics; or in other words, for those who are maintained out of their own property, those who are provided for by the poor laws, and those being criminal who are under special jurisdiction." (Fry's *Lunacy Acts*).

The relative number of persons known to the authorities at the date of 1882 was as follows. Private 5926, pauper 48,325, criminals 462.

According to the legal definition of the terms used, every person whose mind from his birth by a perpetual infirmity is so deficient as to be incapable of directing him in any matter which requires thought or judgment is in legal phrasiology, *an idiot.*

Every person, *qui gaudet lucidis intervallis*, and who sometimes is of good and sound memory, and sometimes *non compos mentis*, is in legal phrasiology, *a lunatic.*

Every person who by reason of a morbid condition of intellect, is as incapable of managing himself and his affairs as an idiot or a lunatic, not being an idiot or a lunatic, or a person of merely weak mind, is in legal phrasiology, *a person of unsound mind. (The Law concerning Lunatics etc.* By Chas. P. Phillips.)

The above is from Mr. Commissioner Phillips work. He adds, "further that if the mind is unsound on one subject it is not sound on any subject the mind being indivisible." For this he gives the authority of Lord Brougham in Waring v. Waring. 6

Moo. P.C. 350 and Lord Lyndhurst in Drew v. Clarke, 5 Russ. 167. In my opinion this is good psychology and I presume good law. But the legal definition of the lucid interval does not precisely coincide with what the medical meaning of the term is, but since "the rule has been laid down by Lord Thurlow that persons in the habit of watching a lunatic can best prove his lucid intervals," it would seem that the question in a legal proceeding would have to be elicited in the evidence.

The object of the law is twofold viz., to protect the lunatic, and to protect the community from the acts of the lunatic.

For either object the question of the sanity or insanity of the individual must be preliminary, the services of the medical man are resorted to, to pronounce an opinion on the question.

The most frequent occasions which call for this office are the following.

1. To give an opinion on the capacity of a person to execute a legal instrument.

2. To relieve the lunatic from the responsibility of his acts.

3. For what is called the imposition of restraint; the duties of the medical man under this third category are of twofold kind. 1. To commit the lunatic to the care of another. 2. To undertake the care of the lunatic.

The primary question therefore is to determine whether the person is of unsound mind.

1. To decide the question as to the existence of unsoundness of mind is, as I view the matter, simply a medical question, and in other terms it is to make a diagnosis of disease.

The previous pages should assist one in arriving at such a diagnosis, but it will be as well to point out how the question may be decided. I would suggest the following rules.

The question is simply whether there is or is not present *disease*. To determine this a medical man should not only be able to reply in the affirmative or negative, but he should be able to say what was the form of disease if any existed. To determine this, an isolated symptom would not suffice, nor even two or several. The case may be (see p. 104) a disease proper, that is ordinary insanity or general paresis; or secondly the mental symptoms, if present may indicate idiocy or senility; or thirdly if not any of these, then the case will belong to those forms of dis-

ease which I have classed under the symptomatic mental diseases. The symptoms of these diseases are never obscure in the primary attack, and if the phenomena are present they will be followed and will follow in a given succession, it is not enough that we should have symptom A, B or C; but A, B and C must follow in a certain succession. The symptoms of a case of ordinary insanity and of general paresis are set forth in the previous pages; and the truth is, concerning the primary attack of either of these cases there is not much likelihood of any difficulty occurring, unless it be the following; in ordinary insanity the patient in the melancholic stage retains considerable intellectual capacity, and the question is then whether a given amount of depression of spirits can amount to such a disease of the mind, as to excuse or invalidate an act. On the maxim of Lord Brougham and Lord Lyndhurst holding good, viz., that if the mind is unsound on one subject, it is not sound on any subject, it should do so. Undoubtedly such a condition as depression of spirits, leads a person often to commit suicide, and the law sometimes then (perhaps charitably) admits the plea of insanity; but depression is only one symptom, to constitute actual insanity there should be other symptoms as described. The symptoms of general paresis are so marked and are not evanescent; they give less cause for hesitation about the diagnosis, and two acts, which are very symptomatic of this disease, often lead to an investigation as to sanity, namely indecent exposure and kleptomania. These symptoms occur in the early stage of the disease, and are usually associated with other states of mental aberration, which leave very little doubt on the question of insanity.

A more difficult condition to adjudicate upon, is the case during what I have described (p. 267) as the remission of the symptoms, which frequently takes place in this disease. In this state, in certain cases ordinary observers, and we may almost add everyone who has not had special experience, would detect no mental defect in the subject. Indeed, I believe the condition of mind of the patient, is such as to enable him to form a correct judgment on any ordinary matter; such a person may be able to give a sound opinion upon questions with which he has been familiar; if the patient were a medical man, for example, he might be able to treat a patient; if he executed a will, it might be a judi-

cious one; or on the contrary, it might not. The difficulty of saying, therefore, when the patient was competent or responsible is very great. There are certain signs already described which would enable a medical man to say, that disease of the mind existed; but the question of responsibility, under the circumstances, must be left to the law, and probably the nature of the act done would assist the law to decide. An example of this kind occurred to me: a gentleman was able to write out a will and to get witnesses to it; it was of such kind, that some dispute might have arisen on its general tendency, but besides such a source of doubt as its injustice, he willed that his property should be divided into twelve equal portions, and be divided among thirteen legatees.

The greatest difficulties in regard to the establishing the plea of insanity, especially in criminal cases, is in connection with cases of recurrent insanity (*vide* p. 163) and epileptic insanity.

With the former case there will be distinct evidence of a previous attack. As this has been dwelt upon at some length at p. 179, *et seq.*, the reader is referred to what is there said. This equally applies to the cases of obscure epileptic seizure, which will be found also discussed at p. 180.

This leads naturally to the consideration of the state of weakness of mind, from any cause. It is on such a condition that the greatest difficulty between the two professions exists, both with regard to questions of competency and criminality.

Perhaps the medical man is inclined to a too lenient view of the crime committed in such a state, to which his studies render him prone; the lawyer at all events is not under such influence, but from the constant intercourse with deeds of crime, may be more inclined to severity. Sir James Stephen for example writes, "It should not be forgotten in connexion with the subject, that little or no loss is inflicted either on the madman himself or on the community by his execution. It is indeed more difficult to say, why a dangerous and incurable madman should not be painlessly put to death, as a measure of humanity; than to show why a man who, being both mad and wicked, commits a cruel murder, should be executed as a murderer," p. 178. This might be used in my view, as an argument against all capital punishment rather, or that none should be hung lest the innocent should suffer.

The difficulty at present, while the law is as it is, is to adjudge the responsibility or excusability in cases of the feeble mind. The transition between the totally irresponsible idiot and the responsible person of feeble mind, is one of very gradual kind. It is not possible, to draw a hard and fast line between these cases, and it is equally difficult to fix upon any test which will decide the question. Moreover the question is influenced by a variety of external circumstances. One feeble or weak minded person may be competent to perform one kind of act and not another; another may be trusted with one kind of duty and is obviously incapable of some other.

We may, therefore, consider the question in regard to the duties or circumstances, under which the medical opinion is sought, and this we may divide into :—

1. Competency.
2. Responsibility.

1. *Competency.*—As regards a person's competency, most of the cases of any difficulty are connected with comparative competency under which an act was committed. This might be left to the jury to settle, and under the present views of the legal profession it is as well that it should be so; provided that the facts can be well placed before them.

If a medical man is called upon to give an opinion, there is no reason why he should not do so, for at least his evidence would be as good as any other person's.

There are some medical matters too, which can be much better adjudged by the aid of medical knowledge.

The following case occurred to me, which will illustrate this. A barrister who became insane and who recovered sufficiently to be discharged from the asylum in which he was placed, desired to make a fresh will. He applied to a solicitor and stated the facts coherently and clearly; he especially directed the solicitor to the fact that he had been insane, and that he was now completely recovered.

The will was made. He relapsed after this and was again placed under certificates, and after a time he died.

His will was produced, in which he had left his widow totally unprovided for and had divided his property among his own family, a sister and her children. The will was disputed and my

opinion was asked; the solicitor who made the will testified to the perfect sanity of the testator, as did a friend whom he had invited to breakfast with him on the day when it was made. I believe it is admitted, that an act done in a "lucid interval" would hold good. My opinion, however, was entirely adverse to the validity of the document, and on these grounds. "When at his worst period or during the acute symptoms of his malady, he had an intense aversion to his wife, and accused her of acts and conduct which were pure delusions. This altered affection or delusion extended through his whole case and never completely left him; he had three acute attacks and two lucid intervals, and it was in the last that the will was made. He was under my care. He wrote to me at the time he made the will, to get me to give him a certificate of his recovery. This I declined, and on his discharge, I reported the discharge as discharged improved only.

I considered him fit to return home, and did not think there was any occasion for him to be under care, but he was altered in various ways, and though he returned to live with his wife and behaved always courteously and kindly, he recurred frequently to the accusation that she had placed him under my care, which was not the case. He moreover did not object in the least to me, and came on a visit to me voluntarily, after his discharge, and invited me to his house.

My opinion, therefore, that he was not sane, rested upon the fact, that this morbid feeling had never left him; and that it was morbid, was shown by the existence of amaurosis and evidence of diseased temporal bone with facial palsy, thus proving unequivocally the presence of organic disease, of which he ultimately died. (The case is related at p. 371).

Such physical facts are what the peculiar knowledge of a medical man can justly estimate and which a non-medical man could not, and especially would medical experience be available in relation to any physical deformity of the head in persons of feeble mind.

I do not think either that a common jury, in the majority of instances, could so well weigh the influences of an organic kind on the character of the individual; a little consideration will make it evident, that passions of different kind are developed in

different degree in different individuals; what is a temptation to one man is none to another, and when the inducement to a particular act is equally strong in two individuals, one may possess more control than another from his natural organisation. But the law makes little allowance for such, and I do not know how it can.

Yet such might afford considerations for a merciful punishment, if they did not affect the question of criminality; and according to the views of legal authority they do not affect the question of responsibility, because they are not of such degree as to deprive the person of his judgment.

2. *Responsibility.*—As regards the question of responsibility the medical man's office is really the same as that when he is called upon to pronounce an opinion as to competency, and that only; he is merely to state whether there is present disease or such a condition of body by an original deformity or natural decay as to incapacitate the individual.

It is essential, however, that he should, when questioned on the subject of a person's responsibility, be certain that he rightly understands the meaning of the word or perhaps he will be disposed to encroach on the functions of the law.

This forms one of the points of difference and difficulty between the two professions.

The word 'responsible,' Sir James Stephen says, is understood differently by the two professions, at least he says that the medical men have misunderstood the meaning of this term. That the legal signification of the term, "is simply, is the person liable to legal punishment," again "I understand by responsibility nothing more than actual liability to legal punishment." (*History of the Criminal Law of England.* Vol. II, p. 96.) "All that a judge directing a jury ever does or can understand by responsibility or irresponsibility is that the person referred to is or is not liable, according to the existing law of England to be punished" (p. 127). In this sense the question is not medical at all, beyond the duty of replying to the question put to him, of saying whether the person was or was not in a condition of disease. The question is not to a medical man whether a lunatic should be hung or not, that is the legal part of the subject, and really all that falls within the scope of a

medical witness then is to pronounce upon the presence of mental disease. Having given the opinion that the accused is insane the medical man may leave the question of punishment to the law.

This would be a simple duty had not another question been generally complicated with it. The question usually put to medical witnesses is, did the accused at the time he committed the offence know that he was doing wrong, or in the legal terms, "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 labouring under such a defect of reason from disease of the mind as not to know the nature and quality of the act, or if he did know it that he did not know that he was doing what was wrong."

This is to say the least, a very difficult psychological problem; and one which a medical man, such as Baron Huddleston describes him to be, merely one in the possession of a diploma, might well hesitate about answering. There is no doubt that the question has proved a difficulty, it involves many points of extreme nicety. It is easy to say a man is insane, for example, but to say how far his disease has effected the nice adjustments of reason is almost impossible. The question may be taken in its most obvious meaning, we need not for example cavil with the terms of right and wrong and cite the different estimates of different people or different dispositions, or say according to some people it is right to revenge ourselves, or to return evil for evil. The most obvious objection to this test of insanity is, that it is based on what may be called a mere abstract quality of mind, viz., on Judgment.

We may analyse mind, but we cannot isolate the elements to deal with them as separate and independent properties, Judgment, Volition, Emotion, etc., or other faculties, which are mere phases of one conglomerate mental process.

Knowledge of right and wrong is a judgment, and judgment is never isolated by disease. A medical man might decide, it is true, from the symptoms present, that the man was insane; and as insane assume in certain cases that he could not wholly, fully or in a healthy manner, know the quality of a given act; but such assumption, I fear would only amount to a legal or medical

fiction or to rest upon a peculiar interpretation of terms. If we are only to reply to the question whether a person had a knowledge of the quality of an act, there would be very few whom we could absolve from responsibility, or in other words plead that they were insane.

Connected with every judgment in the common actions of life there are both emotion and volition intimately blended but in different degrees ; the volition may be arrested before it results in movement, the emotion equally checked by a counter impression, till a judgment, such as occurs in the solution of a mathematical problem, may be almost disjoined from the other faculties; but a judgment of this particular kind seldom is found except in the solution of very abstruse problems ; and such judgment has very little to do with insanity. A man seldom goes mad over a problem of Euclid, for example ; and the act, concerning which an ordinary opinion is sought, is never so free from emotion.

To form a just estimate of how far a man's knowledge is biased by his disease, and to be able to say how far morbid feeling took the place of a healthy feeling in affecting a man's judgment under particular circumstances, it is as well we should know what according to law constitutes a criminal act.

According to Sir James Stephen the following conditions must be fulfilled to prove criminality, that is responsibility.

1. The act must be done by a person of competent age. 2. The act must be voluntary, and the person who does it must also be free from certain forms of compulsion. 3. The act must be intentional. 4. Knowledge in various degrees according to the nature of different offences, must accompany it. 5. In many cases either malice, fraud or negligence enters into the definition of offences. 6. Each of these general conditions (except the condition as to age) may be affected by the *insanity of the offender*.

It is with the second category, therefore, that insanity has to be first considered, the act to be voluntary opens up the question of will, and in connection with this, No. 3 also is concerned, "the act must be also intentional."

So that an act to be criminal, besides the knowledge dependent upon the understanding, there must be shown to have been the exercise of will.

Sir J. Stephen explains the meaning he attaches to the word 'will' which does not differ from the signification as described at page 22. He points out however this, that in using the word in relation to legal questions he considers that it should not be confined to the single or a concrete act of volition, but be also taken in a more general signification. "When I speak of Will," he writes, "I mean by the word, (1) either the particular act of volition which I have already described and which is a stage in a voluntary action, or (2) a permanent judgment of the reason, that some particular course of conduct is desirable, coupled with an intention to pursue it, and which issues from time to time in a greater or less number of particular volitions. For instance, a man's will is to write a book or to take a journey. That is, he judges upon the whole that it will be well for him to write a book or take the journey, and he means to do it; but in order to execute his will in this sense of the word innumerable particular volitions are necessary."

Such an explanation of the term as I have signalized by the figure 2, applies to a general view, while that marked 1 to a concrete action,* and the general view is derived from the observation of many acts as explained, and being general is less precise. It would seem in fact to correspond to the term propensity or intention, in the more common way of speaking.

So that besides knowledge, there must be the exercise of will, and will in both senses conjointly, if we take the same view of will as Sir James Stephen. For the concrete act of will, as a blow struck on a sudden impulse, is under some circumstances not considered to amount to crime; the continuous act or the abstract will, (in other words the state of mind distinctly preceding the act), is that which gives the evidence of crime, shows a malice prepense. This condition of mind is more allied to emotion, the act at all events appears to be instigated by an emotion of some kind, as hate, cupidity, revenge, etc.

Why, it may be asked, is not a defect of the faculty of emotion evidence of insanity as well as of will or judgment. A man's hatred and malice may be due to a morbid process and are probably more frequently so than his judgment.

* Compare remarks on the Ego, p. 10.

But though we as medical men may demur to the dicta we find imposed on us and point out the difficulties that beset us from what has been named "judge made law," our duty in practice is clearly to take the law from the lawyers.

The authority for the Rules laid down for determining the question of insanity is comparatively of recent date.

The authority on which this question rests, is the answers of the judges to certain questions, put to them by the House of Lords, subsequent to the acquittal of McNaghten on the ground of insanity for the murder of Mr. Drummond in 1843.

These views have been always much objected to by medical men of experience in insanity, and Sir James Stephen says, "I cannot help feeling, and I know that some of the most distinguished judges on the bench have been of the same opinion, that the authority of the answers is questionable; they leave untouched the most difficult questions, and lay down propositions liable to be misunderstood."

I think no medical man could venture upon an opinion, upon the integrity of one faculty as that of the knowledge of right and wrong, without taking into consideration the mental faculties in their solidarity, and then there is the question whether medical knowledge enables him to throw special light upon the question of responsibility.

Does a medical man's special knowledge give him a greater facility in making a proper estimate of the quality of an act? I think it does. As an example, which I take from Sir James Stephen's work, "the fact that a man stammers and that the pupils of his eyes are of different sizes, are in themselves no excuse for crime, but they may be the symptoms of general paralysis of the insane, which is one of the most fatal forms of the disease." I take the following argument, also from the same work: Sir James Stephen in commenting upon the answers to the Lords, says—"the answers if taken literally, certainly imply that the effect of insanity, if any, upon the emotions and will, is not to be taken into account in deciding whether an act done by an insane man, did or did not amount to an offence." If this is meant, that the effect of disease upon the emotions and will can never, under any circumstances, affect the criminality of the acts of persons so afflicted, it would be so surprising and would

have such monstrous consequences, that something more than an implied assertion of it seems necessary; and he puts the following case. Supposing a man's mind is so occupied with certain insane thoughts, as to make it impossible for him to reason calmly on matters connected with them. He might on account of them be prevented, say, from following one of Euclid's propositions. Might he not also, by a succession of similar thoughts, be unable to justly weigh the nature of some other act, say the wrongfulness of committing some particular criminal act?

In such a case, (and though it is imaginary it is quite commonly to be met with in various lunatics,) or in lunatics so occupied with their delusions, that they can give no attention to any other subject, as to their own health, well being, &c., I think a medical man with experience among the insane, could give a better estimate of the quality of any act, than one who was not conversant with insanity; and such an experienced person could form a juster opinion of the effects of the disease on the mind generally.

Nevertheless, I think that the mode of forming an opinion, on such a question, is that simply of making a diagnosis of disease, for which purpose one must follow the ordinary rules of medical practice and cannot abide solely by the test as laid down by the House of Lords. In a criminal trial, if the medical man is of opinion that insanity exists and says so, his duty terminates or should do so.

3. The next question on which medical opinion is required, is the imposition of restraint.

This duty involves the consideration of many technicalities which are difficult to describe; their object, however, is clear and beneficent, viz., to protect the lunatic—as it may be said—from himself or his own acts, and his friends and public from the lunatic.

The medical man's connexion with this duty, is as I have said, two-fold:—1. To commit the lunatic to care and custody; and, 2. To exercise the care and custody of the lunatic. These are opposite functions, and the law has taken care that they should be exercised only by distinctly different persons.

1. *The first duty is therefore to commit the lunatic to care and custody.*

There are two processes by which this is accomplished and which are perfectly distinct, and the fact of these two different processes unfortunately complicates the question in every possible way. There are two jurisdictions; two sets of officials with their powers and modes of procedure; two sets of functions and duties, &c.

1. The one process, the more ancient, takes a separate means; First, Of establishing the insanity. Second, It commits the lunatic to the custody of a special guardian. Third, It takes charge of his property, and appoints a person to administer his estate under special supervision.

To establish the first question, an inquiry, in fact a trial, is instituted, and the person adjudged to be insane is said to be a person *non compos mentis*, found so by inquisition; the process is usually spoken of as *de lunatico inquirendo*.

For the understanding of the case, the following brief description of the process, will render the medical man's part more easy.

The reason why this process, which is inordinately expensive, costing upon an average £100, is resorted to at all, is because, firstly, it is that usually advised by the patient's legal adviser—as it alone enables any pecuniary matters to be settled; and another reason seems to me to operate, viz., that few understand or are cognizant of the other, or less expensive process, and no one as it appears to me, knows its exact legal import. It authorizes the placing an insane person under care, but gives no authority, except under certain circumstances, (16 and 17 Vic. cap. 97, §. 94), for any one to manage his pecuniary matters.

I extract the following as to the mode of procedure, to obtain an order of inquiry *de lunatico*.

The inquiry is obtained by petition to the Lord Chancellor, even a stranger may be the petitioner, and therefore a relative, a creditor, tenant, a remainder man, &c. "The petition should state that the person, on whose behalf the exercise of custody is invoked, is *non compos mentis*, and that the petitioner and he are related or connected in a manner stated in the petition; and the petition should pray an inquiry into the truth of the statement, concerning such person's state of mind."

This duty usually devolves on the legal adviser; the petition, however, has to be supported by affidavits, and to make such affidavit it is, that the office of the medical man is invoked.

The affidavit of the medical man should set forth his opinion and support such opinion or diagnosis by facts. In practice, these facts, given in draft to the legal adviser of the petitioner, are put into proper form to be presented, and of course they have to be sworn to.

The medical duties are therefore purely professional and uncomplicated by many formalities.

The notice of the presentation of the petition for inquiry has to be given to the alleged lunatic, and to be by service upon him of a copy of such petition, and in which he is informed that the inquiry will be before a master in lunacy, and that if he desires it he may demand the assistance of a jury.

When the alleged lunatic demands a jury, the Lord Chancellor may order that the inquiry should be conducted by a Lord Justice or before a master in lunacy. At the inquiry the medical man making the affidavit is examined.

Further details, not necessary here to mention, as not coming under the purely medical functions, will be found in Phillip's *Law of Lunatics* or Forbes Winslow's *Manual of Lunacy*, which for the medical practitioner will be found the best.

The patient being found lunatic or of unsound mind, the master in lunacy appoints two committees to manage the lunatic's affairs. One, the committee of the person, and the other, the committee of the estate; the effect of which is that responsible persons can exercise for the lunatic all the duties that a sane person can perform for himself; but they are responsible to the Lord Chancellor, for the proper performance of their duties. The Lord Chancellor has his proper officers, viz., the masters in lunacy and the visitors in lunacy, to superintend this.

The lunatic is by this process thoroughly protected, the only drawbacks to the process are the following:—

It is costly.

The process is not suited to cases in the active stage of the disease, it would be actually injurious to the large majority of patients to have such an inquiry impending over their heads.

The process is too tedious. In a case in which an inquiry took place on a patient of mine, though I do not think any unusual delay occurred, the patient was cured before the decision was promulgated, and the commission was superseded as soon as made. The patient had been insane five years before the inquiry was sought, at which time it became necessary because some railway shares had to be transferred; the particular railways insisted on the authority to deal with them.

The committee of the person can give authority for the admission of a patient into any asylum, or place the lunatic under any one's care, subject to the approval of the Lord Chancellor's visitors.

2. The other mode for placing a lunatic in an asylum or under care, requires the functions of the medical practitioners to sign certificates of unsound mind.

I cannot help remarking that the numerous difficulties, misapprehensions and popular prejudices connected with the care of the insane, are connected with this mode of giving authority for the custody of the lunatic. The general legal practitioner or solicitor does not seem to be acquainted with the statutes by which this mode of dealing with the patient is authorized, and no one seems to understand the status of the patient detained under certificate.

The duty of the medical man is to certify the existence of the disease, and perhaps here his duties should end; but no medical man ends them here. In most cases he is the adviser, the counsellor of the family, and in their distress on the occurrence of the calamity which has befallen them, he cannot desert the family, nor is he likely so to do. I therefore add some particulars to guide him in his self-imposed responsibilities.

In the first place he must follow the course prescribed by law. This course is aimed wholly to prevent collusion, and dishonest actions in incarcerating a person under a false charge. Its aim therefore is one which no medical man of the present day can do otherwise than sympathize with entirely.

The law provides that to place a person under control as a lunatic and who is not a pauper, that the lunacy or unsoundness of mind shall be unequivocally proved by two independent medical witnesses.

The following are the precautions to accomplish this :—

1. The medical man must not be related to the patient, or in any way with the medical man who is to have the care of the patient.

2. He must be registered, therefore duly qualified.

3. He must state the date of his examination of the patient which must be within seven clear days of the patient's admission under care.

4. He must state where he saw the patient, the parish, name of house, street and number, and the county in which the house is situated.

5. He must give the names of the patient in full or the name which will identify the patient (in the case of wandering lunatics, the actual name may not be known).

6. He must state if he can the occupation of the patient.

All the above facts, are for the purpose of identifying the patient, and giving the present condition of the patient. Having stated these facts, he must give the facts indicating insanity, this therefore is the main spring of the whole proceeding, and requires the most care and attention. There are no directions for the best mode of satisfying the requirements of this part of the act. The certificate must satisfy the Commissioners in Lunacy to whom it is submitted. I am not aware that they have published distinct instructions of what they require. I have however submitted some hundreds of certificates to their supervision, written by medical men of all grades of experience, and therefore consider I may indicate what my experience has taught me.

The certificate is divided into 'facts indicating insanity observed by myself' (*i.e.*, the certifier) and 'facts (if any) indicating insanity communicated by others.'

With regard to the first part it will be observed that what is wanted are facts not opinions, and own observations not communications. The hint given at p. 123 will assist the medical certifier in this duty; the patient may exhibit change in the various ways indicated by the mnemonic; such as in manner; but in the certificate it would not suffice to say only that the patient is altered in manner, but the fact must be described; as, the patient is morose or greatly depressed in spirits, sullen, taciturn,

etc. Or again it would be less satisfactory to say the patient has delusions than to say in what the delusion consisted; as, he says he is dead, that his head is made of wood, etc.: and with regard to the emotions it is better to say that the patient is constantly moaning, and is constantly saying he is lost, that he is going to hell, and that he has an anxious expression, than simply to say that the patient is depressed.

With regard to the facts which are communicated "(if any)." It would seem that though these are desirable they are not essential; whatever they may be, it is essential that the authority for them should be given *by name*, as his uncle, John Smith, informs me; this evidence too should consist of facts not opinions, such as he endeavoured to cut his throat, and he has made several attempts to hang himself, that his habits have become slovenly, he has neglected his work or duty, has sat for hours in a listless attitude, etc.

The certificates are usually made upon printed forms which are kept by the law stationers, or by the authorities, or proprietors of the establishment to which the patient is to be taken; and the directions printed on the margin, render all the details easily understood.

Two medical certificates are required for the admission of a private patient into a private house or asylum, the two medical men must not be partners, nor must they have any relationship with the person to whom the patient is to be sent.

These duties are full of precautions, but they apply more to the person receiving the patient. It would appear strange how any medical man can be liable to penalty of any kind for signing them, provided the facts he states are true and he obeys the precautions mentioned, yet medical men have suffered severely in a pecuniary sense in vindicating their innocence and *bona fides*.

To sign the certificate and to place the date of the examination and signature completes his medical duties; the certificate it must be remarked is no committal, is not an order for admission, it is only a warranty jointly with another given to the person who signs the actual order, which occupies a different page of the forms supplied.

If the certificate is informal it is no certificate at all. If it is

not acted upon within seven days it ceases to be valid; there are provisions made however in the act for minor verbal corrections, which are allowed.

The provisions for the admission of a pauper are slightly different, instead of two medical certificates one is sufficient; the order for admission is usually signed by a Justice of the Peace, or it may be signed by a clergyman, together with the relieving officer or an overseer of the parish from which such pauper shall be sent.

The medical man's duties terminate with the completion of the certificate. If he assist in the removal of the patient he does it as a friendly act only, one need not therefore say more with respect to the formalities of the admission of the patient as these must be mentioned in the next part of the subject, where the function of the medical man as a custodian are to be mentioned; this resolves itself into a consideration of the precautions taken by the legislature against improper detention in asylum or other house.

2. *The medical duties in relation to receiving a patient.*

In the first place as regards private lunatics, Mr. Fry says, the law does not require that every lunatic should be brought necessarily under control; in fact it takes no cognisance of private lunatics until application is made on their behalf, unless they are dangerous to others, or not under proper care. (*The Lunacy Acts*, By D. P. Fry). The act (16 and 17, Vic. cap. 97, §. 68), applies to all lunatics private or pauper, and it mentions four categories under which the law should be set in action. 1. For a dangerous lunatic. 2. One not under proper care and control. 3. One is wandering at large. 4. Is cruelly treated.

The medical man receiving the patient has no duty imposed upon him to judge under what circumstances a patient is placed under care, provided it is recommended, and he has the means of properly accommodating the patient, and the legal requirements are complied with.

It is a common error to suppose that only *dangerous* lunatics must be sent to an asylum, there is a case reported in the *Journal of Mental Science*, for April, 1869, of Gin v. Glennie and Ray, and the Lord Chief Justice is reported to have charged the jury in the following words. "If they were of opinion that the plaintiff

was not in a fit state to be at large, then however they might sympathize with him, their verdict should be for the defendant. If, however, under all the circumstances of the case, they came to the conclusion that the plaintiff was not of unsound mind, *or being so was not so dangerous to himself or others*, they should find for him.....The question for them to consider was whether the plaintiff was at the time he was placed in an asylum, *a dangerous lunatic*." In a second trial Mr. Justice Smith is reported to have said; "It was plain that there could be no justification for confining the plaintiff in a lunatic asylum unless he was, at the time and when the order for his reception into the asylum was signed, a person of unsound mind, and in such a state of diseased mind, as to be deprived of the use of his reason, *and to be dangerous* to himself or those with whom he might come in contact." Twenty years previously a similar dictum was given by Lord Chief Baron Pollock which called for a reply from Dr. Conolly, and subsequently from the Commissioners in Lunacy to the Lord Chancellor,* and notwithstanding these, it seemed that the same notion was entertained by legal authorities 20 years afterwards, and now after 15 years more, it seems that the same opinion still haunts the legal mind.

The following is a condensed quotation of the Act 16 and 17, Vic. cap. 97, §. 68. "Every officer of a parish who shall have knowledge that any person is *wandering at large*, whether a a pauper or not, but is deemed to be a lunatic shall apprehend and take such person before a justice, or if not wandering at large, but *not under proper care and control*, or is *cruelly treated* or *neglected* by any relative or person having care of such person, he shall give information on oath before a justice, and such justice shall either himself visit, or examine such person, and it shall be lawful for the said justice by an order under his hand to direct such person to be received into an asylum."

And by §. 70. neglect of this duty would render the parish officer liable to a fine of £10.

The subject was mentioned in the House of Lords by Lord Monteagle, when Lord Brougham, as reported in the *Times*, July, 24, 1849, said :—"It was clear to him that if the learned judge

* See also Fry's *Lunacy Acts*, p. 319.

had really stated upon the trial, (alluding to Mr. Justice Smith) what he was represented to have stated, there must be a motion for a new trial." He recommended speculating attorneys to bring no action upon the dictum for if they did, they certainly would have their costs to pay.

The reasons why it would not be expedient to confine the powers of having a lunatic placed under protection except there were dangerous symptoms, were thus set forth by Dr. Conolly in the letter alluded to.

He pointed out, "that there were many other forms of unsound mind, which although for a length of time unattended with any actual danger to the lunatic or others, lead to consequences so intolerable, that an asylum must be resorted to for relief from them. Delusions as to rank and consequence, as to property, as to money withheld, as to attachments on the part of persons of high station, or as to suggestions made by voices in the air, or words written in the sky, often prompting actions so absurd, so inconvenient, and entailing such persecution on particular families, that interference is positively required before the individual becomes dangerous; the danger must not be waited for, or incurred, it must be prevented.

There can be no doubt therefore that a medical man is quite justified in giving a certificate for any purpose, whether it be for the care and treatment, that is for the good of the patient, or for the good of the public and the friends and family of the patient, and not only is he justified, but in cases it becomes his duty so to do; however dangerous or hazardous to himself such duty may be. That it is a risky duty is obvious to anyone who is aware of the legal tortures to which medical men have been subject in consequence. And if a man is justified in sending a patient into an asylum, or committing him to the care of any individual, it is obvious one is equally justified in receiving the patient.

But no one, medical man or not, may receive a lunatic or alleged lunatic into his house for profit, without proper authority; but anyone may board a lunatic, or alleged lunatic, as a friend or relative, if he receives no profit and takes charge of one only. But in the latter case if the lunatic is neglected or allowed to wander at large, he is liable to be dealt with by the clause of the act already quoted.

Directly any payment or any equivalent is made for the board or care of the lunatic or alleged lunatic, the proper orders, etc., are necessary; even though but one patient be received, and this applies equally to lunatics so found by inquisition; only in the latter case the order for reception is made by the committee of the person only, without the necessity of fresh medical examination. It has been considered doubtful whether a person receiving only one patient, and that patient one found by inquisition, is bound to report the same to the Commissioners in Lunacy. The practice of late has certainly been not to report it. There are therefore numerous cases boarded as single patients, not known by the Commissioners, but which are known to the Visitors of Chancery Lunatics who constitute a separate board. This is an anomaly without any advantage and might be amended.

If a person only receive one patient of any kind no license is required.

The formalities to be observed on receiving a single patient are the same as when more than one is received, they will therefore be alluded to when we speak of the rules for the reception of more than one.

Considerable doubt as regards its legality has existed in the minds of medical men and others who are willing tc receive a patient into their family, in those cases in which the nature of the disease is doubtful. It is quite true that there is a margin even in actual insanity, when the patient would be considered by all but a specialist to be quite sane. A specialist is supposed to view all cases through a distorted vision; but he at least should perceive the early symptoms with more readiness than the inexperienced. At Sandywell my assistant Mr. Yorke Wood lived in a detached house of mine about a mile from the park. He was requested by an acquaintance of his own to receive a lady to board with him, to which I offered no objection. When I saw the patient I at once perceived that the case was one in the early stage of ordinary insanity. Mr. Wood, who had had some experience, was surprised and indeed alarmed; he considered my diagnosis incorrect. But as the house was mine, I desired at all events that we should not be doing an unlawful act, and I advised Mr. Wood, as I

would advise everyone who finds himself in similar circumstances to do, viz., to call in two independent medical men, and ask them to see the patient with the view to certify to the insanity, if they were of opinion the patient was insane. Both the practitioners called in had experience in insanity, and one of them had a great experience, but they declined to certify, there was therefore no hesitation in retaining the patient. One could not do more, nevertheless the patient really was insane, and is now a chronic lunatic. This happened 20 years ago, and she went through all the stages described in the previous pages. So that the confines between sanity and insanity are not always well marked, there is no doubt that there are hundreds of patients at the present time boarded in separate houses, of similar kind to the above, but quite unknown to the authorities.

When a person receives more than one insane patient for profit, the house becomes, what is called popularly, and to all intents and purposes is, a private asylum.

The precautions instituted by the law in this case, become more stringent, and are of such searching nature that it would seem impossible for one to believe, when once they are aware of them, that any such cases of unjust incarceration as related could occur. Or that any one either from crass ignorance or something worse, could attempt to foist upon a credulous public sensational accounts of this character. But judges are among the credulous.

The precautions are as follows :—No one can receive two or more insane patients without a licence ; in London and 10 miles around the licence is obtained from the Commissioners in Lunacy.

As the Commissioners have had to be mentioned several times it may be explained that they are the Board established to carry out the laws, which were made upon the reform that followed upon a noted speech by Lord Ashley in the House of Commons in 1838. An act was passed with the regulations for the protection of the lunatic and a board appointed to carry it out, and Lord Ashley was appointed its first chairman, the date of this act was 1845, and it is called 8 and 9 Vic., cap. 100, this act was made in consequence of abuse found to exist by a commission appointed in 1844 of which Lord Ashley was the chairman. Most of the provisions of that reform still exist and the commission continues to superintend its working, and

until quite lately under the same chairman, now the Earl of Shaftesbury, whose name and life ought to be a guarantee to all that no abuses are allowed to pass unchecked.

We may now proceed to enumerate these checks and precautions, they relate to the proper selection of a responsible person, and to the fitness of the premises for the proper care and treatment of the patient.

For the pauper asylums these matters are under the authority of County Magistrates, who elect the Medical Superintendent and provide the building; which is inspected from time to time by the Commissioners in Lunacy. As the Commissioners visit every asylum, they are often able to give profitable suggestions.

In the matter of the asylums under the management of Charitable Committees, similar to the general hospitals supported by voluntary subscriptions, the general body of subscribers elect the Medical Superintendent.

But with regard to private houses, or as they are commonly called, private asylums, the permission to receive patients may be said to be in the metropolitan district wholly in the hands of the Commissioners in Lunacy; but in the provinces generally, under the County Magistrates and the Commissioners.

To admit more than one lunatic into one's own house a license is necessary. This license has to be procured either from the Commissioners in Lunacy if the house is situated in Middlesex or in an area of about seven miles of London, or from the quarter sessions of the county in which it is situated. This licence is by no means given as a matter of course. In their thirteenth report the Commissioners say, "The legislature has given us a discretion on the subject; and the question to be considered by us, on receiving fresh applications for a new licence appears to be, whether or not an additional house is required for the accommodation of insane persons, and also whether the qualification of the persons applying are such (under other circumstances) as would induce us to grant a new licence."

"Should it seem advisable to grant a new licence. It is our custom to propose the following questions."

These questions are eight in number. 1 and 2 relate to the social position of the applicant, whether married or single, if intending to reside, if any children and their ages. 3. If a medical

man, and if so, where he received his medical education, what examinations he has passed, what degree he has received, how long in practice. 4. What special experience in lunacy. 5. Produce testimonials as to skill and as to pecuniary means for maintaining an "establishment in a comfortable state." 6. What interest he possesses in the house and premises, have any other persons interest jointly with the applicant. 7. What class of patients is it proposed to receive, paying what weekly or other rate of board. Should these be answered satisfactorily, an inspection of the premises is undertaken.

It may be mentioned that the examination of the qualification required by the 3rd and 4th question is not a mere perfunctory affair. Having had to undergo this system of investigation twice in my career, I speak on the subject from actual experience.

With regard to the question relating to the fitness of the premises for the reception of patients, it is ordered by the statute (8 and 9, Vic., cap. 100, §. 24). "That the application for a licence, shall be accompanied by a plan of such house, to be drawn upon a scale of not less than one-eighth of an inch to a foot, with a description of the situation thereof, and the length, breadth and height of every room, a statement of the quantity of land annexed appropriated to the exclusive use and recreation of the patients."

These plans are afterwards to be hung in a conspicuous place in the house.

Such being the precautions for the proper care of the patient, it is ordered that no patient can be received therein without the order already alluded to. These papers which are commonly spoken of as the certificates, consist of three distinct parts, viz., the order for reception, the statement, and the medical certificate; the statement merely gives certain particulars of the patient, which are of interest but only secondary importance, as the age, sex, religious persuasions of the patient, the duration of attack, if the first attack, if dangerous, suicidal or epileptic, and it has to be signed by some relation or friend, to whom notice of death may be sent and who can vouch for these particulars. It has no authoritative importance and the facts may or may not be accurate and if not correct would not invalidate the order.

The order for reception in private cases must be signed by a

responsible person, not necessarily a relative but preferably so, as implied by the words in the schedule, "degree of relationship if any, or other circumstances of connection with the patient."

I consider these words important, they allow a certain latitude of choice provided the connection with the patient is explained; it happens on occasions that a friend must intervene.

Sometimes and not unfrequently perhaps a lunatic may resent the act, so that a husband or wife, son or daughter has good reason for avoiding the duty. This part of the statute which appears to me to be wise, was violently condemned by Baron Huddleston; in a recent trial he is stated to have called it a monstrous power. It is very clear if he did so, that he did not understand the matter. He is reported to have said it was monstrous that any pauper with two medical men, "whose only qualification was the possession of a diploma, could deprive a man of his liberty," the whole case in fact of Weldon *v.* Winslow seemed to be a muddle; it is to be hoped the reporters were in fault only.

There was no deprivation of liberty in this case at all, there were no certificates which were put into force, as explained by the Earl of Shaftesbury in his speech on the Earl of Morley's motion on the lunacy laws subsequently.

But firstly as regards the signature of a pauper, would Baron Huddleston maintain that a pauper should never sign a certificate, say for his own daughter. I quote this case as it is one that has recently occurred. However the law is explicit and if the law allows a pauper to sign an order, the medical man has nothing to do but to accept it. The present remarks however are intended to show that there is nothing in the usual mode of procedure prescribed by the law, which the medical man need feel any scruple in obeying. The person signing the order is called upon to state his own occupation, thus probably showing his status, and we shall see that the act provides for any culpability that might arise from this source, there are checks at every stage.

This order *(a)* must only be given after the signee has seen the patient, and it holds good for the admission of the patient for one month. The order may be signed before or after, one or both

(a) 16 and 17 Vic., cap. 96, § 4.

medical certificates, the medical certificates do not therefore necessarily give the warrant to the person who signs the order.

On receiving a patient it is the duty, as regards the order, for the person accepting the care to see that it is in proper form, that it gives the name of the patient and states *where (b)* the signee saw the patient, *when* he saw him, and that his signature is attached with the date, his place of abode and his occupation.

An order would not be valid unless these particulars were given and the patient should not be received, nor unless the date of the order was within one month of the admission *(c)*.

It is important also that the statement *(d)* of particulars, relative to the patient so far as known should also be appended.

In the next place, to render the whole order available, it must be accompanied by the certificates, of two medical men. Baron Huddleston is reported to have said that it is monstrous that mere qualification should give a medical man this power, but if qualification is not sufficient, what is? And where are medical men to be had who are more than qualified; "merely possessing a diploma," were the words he is reported to have used. All that a medical man can do to prove his qualification is by passing an examination, and the proof of which is a diploma.

To receive a patient the two certificates must accompany the order, the two certificates the law prescribes must be totally independent of each other, and the examinations must be separate.

The medical men who sign the certificates must be entirely unconnected with one another, and with the person who is to have charge of the patient; nor can a certificate be signed by any one who is a Commissioner, or by a person interested in any licensed house, or is medical attendant on any patient therein, *(f)* or by any one receiving any percentage, or in any way interested in the payments, *(g)* or by any medical man who shall in any capacity attend any licensed house, or any asylum, hospital, or *other place* where any lunatic shall be confined.

(*b*) 25 and 26 Vic., cap. 111, § 23.
(*c*) 16 and 17 Vic., cap. 96, Schedule A No. 1.
(*d*) 16 and 17 Vic., cap. 96, § 4.
(*f*) 8 and 9 Vic., cap. 100, § 23.
(*g*) 25 and 26 Vic., cap. 111, § 24.

This last prohibition appears to exclude every man who has the least practical acquaintance with the subject and can scarcely be intended. If it is the law, it is constantly broken, for many thousand lunatics are at present in asylums, certified by medical men who are the parish officers, and treat the lunatics in the different workhouses.

The provisions of the law however show how jealously the wrongful admission into an asylum is guarded against.

On the admission into any house, the proprietor for his own sake or the person taking charge of the patient, must see whether these regulations are complied with; that is that the person signing, is firstly a registered practitioner, secondly that he had seen and examined the patient within one week of the admission, thirdly that the certificate is properly signed and properly dated, and for the certificate to be correct it should not omit to say at what place the examination took place.

Finding all these matters, that is the order, and the two certificates correct, the patient may be admitted; then comes another series of duties for the security of the patient.

In the case of a private patient a copy of the order and the certificates must be sent to the Commissioners, and if the asylum into which the patient is admitted is in the provinces, another copy must be sent to the committee appointed by quarter sessions to overlook the local licensed houses.

The medical man or other person taking charge of the patient, will be careful to further satisfy himself that the other documents are in proper order, for example:—

As regards the substance of the certificates, as "the facts indicating insanity," the person receiving the patient must exercise his own judgment as to their sufficiency. A certificate which is defective may be amended; but if both certificates were wholly inadequate to show that the patient was insane, I should imagine the patient should not be admitted; unless the symptoms were very obvious, and especially unless the patient were dangerous or bodily ill; the law of humanity would then authorize the reception conditionally. I have received more than 1000 certificates; I can only recall to mind one founded upon a wrong diagnosis, and that was scarcely an error as the case was acute alcoholismus, and which had nearly passed off

during the patient's preliminary residence in the workhouse. The certificates gave the following facts as indicating insanity; "Says as she was travelling to London from Gloucester, the devil flew in at the window which made her start and her bag which she held in her hand was jerked out of the window, and it contained a hundred pounds," this satisfied the magistrate who signed the order for the patient's admission; the main fact, however, was real and I was enabled to recover the money for her. After another day's abstinence in the asylum she was discharged. I have also received a patient recovering from a drunken bout who was much confused in mind, he was also an epileptic. This patient appeared to me, not to require an asylum and I discharged him at the end of a week, in neither of the cases was the admission into an asylum unjustifiable.

The patient having been duly admitted, the next duties entailed on the Superintendent is to set in action those checks to improper admission, which are prescribed by law, and which belong to the functions of the Commissioners in Lunacy to see that they are complied with. As the checks are principally directed to the admission of the private patients, the regulations for such class will be here chiefly described.

Within the next twenty-four hours after admission a copy of the certificates, order, and statement must be sent to the office of the Commissioners of Lunacy, and in the case of a provincial house, also to Visiting Justices appointed at quarter-sessions; the Commissioners institute a very searching examination into all the technicalities connected with the form of certificate, and if there is found any omission or error, they return the certificate for correction, *i.e.*, if the error is not one of fundamental importance; such as the omission of some essential part, as omission of order, etc. Fourteen days are allowed for corrections; if the Commissioners consider the certificates or order absolutely defective they order the patient to be discharged. This does not often happen, as the medical officer of the asylum has first examined the papers, but cases of the kind are given in the annual report of the Commissioners.

In such examination the Commissioners would at once detect any attempt at an improper admission, as for example, if the order was signed by a "mere pauper" or a person not a relative, and

not shown to have a satisfactory reason for undertaking the duty, and they would at once make enquiry into the cause. Suppose, for example, a footman signed for his master, or even an attorney for one not connected by ties of family relationship, such kind of connection would be patent on the order. I once admitted a patient of the same name as one of the medical men who signed the certificate, and I was asked for explanation as regards relationship. If, again, a patient was examined at a house of different kind or position to that of the usual residence of the patient, the matter would attract the attention of the examiner; and every one connected with lunacy knows how keen this officer is with regard to any imperfections.

If the medical certificates do not give sufficient indication of insanity, the certificates would be returned for further evidence, and this happens tolerably often, owing to the want of sufficient explicitness in the document.

After having sent the document to the Commissioners, the patient's case, consisting of his personal appearance, history, etc., has to be entered in a prescribed form in the case-book, and into the register of the establishment, the forms of which are ordered by the statute.

The Commissioners on the supposition that the circumstances appear correct, next require, within seven days, a medical report of the condition of the patient. Should this report not prove insanity, a second or third is demanded, as in the cases, iii and iv, pp. 170 and 172.

So that in the case of a private asylum, to incarcerate, as the term goes, an individual, there must be a collusion between three medical men; two who signed the certificate, and the licensee of the asylum; and they must combine with a fourth party who signed the order. This is what the sensational writers would have their readers believe is of common occurrence!

The safeguards, however, do not end here, for the owner of the asylum would be placing himself at the mercy of three persons, two medical men and one other whose social position and residence has to be given, and the discovery of a single act of the kind would immediately deprive him of his license to receive another patient.

For the sake of the narrative, if we can imagine that these

impediments have been overcome, and suppose that no actual proof of improper admission has entered into the mind of the officer who examines certificates for the Commissioners, (an officer too of the greatest experience in this particular duty) the next hazard these people would have to incur would be a visit from the Commissioners themselves. The Commissioners visit each metropolitan licensed house four times a year, but the provincial houses are visited six times a year; that is, twice by the Commissioners, and four times by the Visiting Magistrate of the locality. And most houses are also visited twice by the Lord Chancellor's visitors. The Commissioners at their visit have their own list of patients, they have also the plan of every house, and no alteration in the internal arrangement of the house can be made without their sanction; they see and speak to every patient in the house; they visit and inspect every room; so that the opportunity of concealing any inmate is impossible. The Commissioners also examine all the Case-books and the Registers which are ordered to be kept by the statutes, they have the original certificates laid before them, and the license of the proprietor, all of which they countersign.

The chances, therefore, of unjust incarceration would appear to most people amply provided against; unless the monstrous idea should be entertained that all the people engaged were in collusion. This should, I think, convince any one that their fears were unfounded on this matter.

This being the practice of the official visitors, and the mode in which they carry out the letter and the spirit of the act, it is the duty of the medical man having care of one patient, or several, to be prepared to afford them every facility for conducting their examination, and to be prepared with all the documents, books, and general information they require. He must produce every patient and allow each to speak to the Commissioners apart from interruption.

At the visit of the Commissioners there are seven books which have to be produced.

The visitor's books, in which to enter the result of their visit—these are of two kinds:—One which mentions any matter on which they wish to comment; which book is open to inspection of any one who may wish to see it. So that the state of the house,

the condition of the patients generally, or any complaint that they may make may be duly recorded, but in this book the name of no patient is mentioned. The second book is a key to the first, and gives the names of any patient on which they have commented in the first report book. These books remain and can be inspected by the magistrates when they also inspect the institution. But this second book cannot be shown to any one else.

Copies of the entries in these report books have to be sent to the Commissioners in London, and in provincial asylums to the Visiting Justices.

These reports refer, by direction of the statutes, especially to the following particulars:—(1) It is incumbent on the visitors to inspect the whole of the premises; 2. To see every patient; 3. To ascertain whether any patient has been under restraint, and if so, why; 4. To inspect the orders of admission and medical certificates, and in certain cases the licence, as well as the books required to be kept, and other documents; they have also to inquire as to the performance of divine service; the occupation and amusements of the patients; the system of treatment, and the money paid by each patient (*a* and *b*).

Besides which, among other matters, there are laid before the visitors, any letters written by patients, and which from their nature, it has been deemed expedient not to send to their addresses.

All letters addressed to the commissioners or visitors, are expressly ordered by the statute 25 and 26 Vic., cap. 3, § 40, to be forwarded. "Every letter written by a private patient in any asylum, hospital, or licensed house; or by any single patient; and addressed to the commissioners in lunacy or committee, or in the case of houses within the jurisdiction of visitors, to the visitors or any of them, shall, unless special regulations to the contrary have been given by such commissioners or visitors, be forwarded unopened."

The other books and documents which are to be laid before the visitors, are the following (8 and 9 Vic. cap. 100). A Queen's printer's copy of the act bound up with the visitors' report book; the 2nd or patients' book referred to, the medical visitation

(*a*) 8 and 9 Vic., cap. 100, § 64. (*b*) 25 and 26 Vic., cap. 111, § 35.

book, the register of admissions, register of death or discharge, and the case book.

The visits are ordered to be without notice and to be kept privy from the proprietor of the asylum. All the visitors' clerks or assistant clerks, are obliged to take on oath of fidelity and secrecy.

The visitors or commissioners practically have the power of revoking the licence of any one contravening these regulations.

It will be seen, that there are numerous matters to be considered by any medical man undertaking the care of an insane patient. Though complicated, they are not difficult to bear in mind when the principle is considered, for which they were enacted, viz., the protection of the lunatic from deprivation of his liberty and unjust isolation.

The uses of isolation have already been described in the section on treatment (p. 384). The lunatic, cannot in all cases have perfect freedom to go here or there, to mix in this or other public amusement. He needs protection, but there is no need of incarceration ; on the contrary, bodily exercise and varied scenes, short of causing excitement, are usually prescribed and in most establishments freely encouraged ; all that is required is to ensure mental rest.

Most institutions, private as well as public, are freely open to inspection of those who are not solely attracted by curiosity. My own experience is that most patients are very ready to return to their old quarters, after they have been discharged.

There are two provisions in the statutes, which ought to remove the apprehensions which sensational writers have formed and fostered ; by special clauses in the various acts, any patient who has been in any asylum at any period within five years, may voluntarily return for treatment without the preliminary forms described, this privilege is occasionally claimed. The other is that by special permission of the commissioners, a friend or relation, as a wife or sister, may take up their residence in the private asylum with the patient ; this privilege is more frequently resorted to. In my own case, I have never been without such an inmate, for twenty years past.

APPENDIX.

The following are the chief systems of classification of mental diseases, which have been proposed. I may refer the reader to my remarks generally on classification, p. 102.

It would be impossible and quite useless, to give many of the very numerous systems of these classifications. I shall confine my remarks to those which have received the greatest attention.

The various systems have been based on different foundations, as Psychology, Anatomy, Symptomatology, and Etiology.

According to the account given in Bucknill and Tuke, one of the earliest, which received much attention, was by Arnold, (1782), into Ideal, Notional, and Pathetic; the first included four, the second eight, and the third sixteen varieties.

Pinel suggested the system which perhaps has been mostly used in all countries; into, 1. Mania. 2. Melancholia. 3. Dementia and Idiocy.

Esquirol, whose writings were highly prized, divided Insanity, into, 1. Lypemania. 2. Monomania. 3. Mania. 4. Dementia. 5. Idiocy.

Dr. Conolly adopted Pinel's system into, Mania, Melancholia, and Dementia.

Dr. Noble's system has also been well received. 1. Emotional. 2. Notional. 3. Intelligential.

All these systems are classifications of the mental states in insanity, not a classification of disease or of morbid species.

Dr. Griesinger, whose work is a standard authority in every language, divides the subject thus:—1. States of Mental Depression. 2. States of Mental Exaltation. 3. States of Mental Weakness. This I think is more a classification of symptoms than diseases.

Dr. Skae proposed an elaborate list founded upon the assumed causes.

1. Hysterical Mania.
2. Amenorrhœal Mania.
3. Post-connubial Mania.
4. Puerperal Mania.
5. Mania of Pregnancy.
6. Mania of Lactation.
7. Climacteric Mania.
8. Ovario-Mania (Utero-Mania).
9. Senile Mania.
10. Phthisical Mania.
11. Metastatic Mania.
12. Traumatic Mania.
13. Syphilitic Mania.
14. Delirium Tremens.
15. Dipsomania.
16. Mania of Alcoholism.
17. Post-febrile Mania.
18. Mania of Oxaluria.
19. General Paralysis.
20. Epidemic Mania.
21. Idiopathic Sthenic.
22. Idiopathic Asthenic.

This is more a list than a classification, but it has been thrown into classes by Dr. Batty Tuke, thus :—I. Idio-Encephalic, which he subdivides into, (*a*) Traumatic; (*b*) Adventitious; (*c*) Over-Excitation; (*d*) Defective Organization. II. Evolutional, as: (*a*) Pubescence; (*b*) Pregnancy; (*c*) the Puerperal state; (*d*) the Climacteric state; (*e*) the Senile state. III. Morbid conditions of the Body implicating the Brain; (*a*) Diathetic; (*b*) Toxic; (*c*) Metastatic.

Dr. Daniel Hack Tuke's classification is :—

Class I.—*The Intellect or the Ideas.*

Order 1.	Development Incomplete	{ Idiocy. { Imbecility.
Order 2.	Invasion of Disease after Development.	{ Dementia. { Delusional Insanity. { Monomania. { Mania.

Class II.—*The Feelings and Moral Sentiments.*

Order 1. Development Incomplete . . Moral Imbecility.

Order 2. Invasion of Disease after Development. { Moral Insanity. Melancholia. Exaltation.

Class III.—*The Propensities, Instincts, or Desires.*

Order 1. General . . . . . Mania.

Order 2. Partial . . . . . { Homicidal Mania. Suicidal Mania. Erotomania. Dipsomania, etc.

Dr. Bucknill has also elaborated a classification, but my space does not allow me to give it in full. It is to be found in his book, *Psychological Medicine*, p. 804. It consists of 63 varieties. It contains three classes, twelve sub-classes, and seven orders, with species of Pathological conditions, Neurotic, Hæmic, and Trophic, differentiating the Genera.

There are classifications, which are mere arrangements for particular treatises, as Dr. Maudsley's—

Intellectual or Ideational.
Emotional or Affective.

Dr. Morel. *Traité des Maladies Mentales.*

1. Hereditary Insanity.
2. Toxic.
3. Insanity from transformation of other disease.
4. Idiopathic.
5. Sympathetic.
6. Dementia.

Dr. Guislain, the Belgian physician.

1. Melancholie.
2. Extase.
3. Manie.
4. Folie.
5. Delire.
6. Demence.

I have already said that I do not agree with any of these proposals. At least they seem to me to assist us but very slightly in grasping the various kinds of cases that we meet with in practice. The following, however, seems to me to be more com-

prehensive and satisfactory, it was drawn up at the International Congress of Alienists held in Paris in 1867.

I. *Simple Insanity*, embracing the different varieties of mania melancholia, and monomania; circular insanity, and mixed insanity, delusion of persecution, moral insanity, and the dementia following these different forms of insanity.

(All these are included under the head Ordinary Insanity, in the previous pages).

II. *Epileptic Insanity.* (Symptomatic in my arrangement).

III. *Paralytic Insanity.* (General Paresis).

IV. *Senile Dementia.*

V. *Organic Dementia.*

VI. *Idiocy.*

VII. *Cretinism.*

It will be seen that all these correspond to my own arrangement, with this exception, that *Alcoholismus* is not included nor *Spinal* Diseases.

Hæmatoma or Insane Ear.—This affection, which is met in the different forms of mental disease, is not exclusively confined to insanity, though it is much more common among the insane than among the sane.

It consists in a peculiar deformity of the external ear, by which all the folds of tragus, and helix are obliterated. At first the disease is shown by a purplish swelling of the ear, which gradually increases until the whole organ is puffed out into an irregular and somewhat globular swelling. If punctured at this stage, a small quantity of venous blood oozes from the punctures. The swelling gradually subsides, and the processes of the ear are variously drawn out of form, so that when the whole of the tumefaction has subsided, the ear appears like a contracted or shrivelled mass of very irregular shape.

The affection is much more common on the left side than on the right, and is more frequent in males than females.

It has been variously accounted for, but I here give the results of my own conclusions on the question.

There is no doubt that the swelling is due to an extravasation of blood, and of venous blood. This at first distends the tissues generally, separating the membranous from the cartilaginous structures of the ear; then coagulation takes place and adhesive inflammation, this is followed by gradual contraction of the coagulum and a general deformity is the result. When this has terminated the ear returns to its natural colour, and it is often marked with white lines of new cicatrices.

The cause of the extravasation has been variously suggested. It has been asserted that the state is the direct result of violence, and the ground for this view has rested chiefly on the fact that the affection occurs more frequently on the left side, and in men; it is maintained that a blow being struck, as for instance a box on the ear, would be inflicted by the right hand, and so would inflict the injury on the left side; but when inflicting a blow on a lunatic, it is not likely that the aggressor would use so innocent a means as a box on the ear. I have had numerous cases of insane ear, but I never could trace the commencement to such a cause; though doubtless a blow on the ear might be in some cases the exciting cause. But if a blow on the ear was the real cause of the affection, why should the case be more common among the insane?

I believe the pathology of the affection in the insane to be as follows. In certain cases of ordinary insanity and in general paresis, there is found after death a condition of the bones of the skull in which the whole of the diploë are obliterated, and the bone is dense and ivory-like throughout its entire thickness. (See page, 226).

The external ear is supplied with blood by the auricular branch of the posterior auricular artery, and the posterior auricular vein is the means by which the blood is returned to the circulation, this vein accompanies the artery, but besides, there are numerous smaller veins from the posterior surface of the ear, which are in direct communication with the vein on the anterior surface, by vessels which pierce the cartilage; and in certain cases it appears to me, that the chief of the venous circulation may take place through these vessels. These are in free connection with the veins outside the skull, which join the venous system within the skull, "by means of small branches that pass

through the sagittal suture, and through the parietal and mastoid foramina." (Ellis). And when that condition of the bones of the skull alluded to occurs, there must evidently be a constriction or an actual obliteration of these venous trunks, and thus a stagnation of the circulation of the veins of the ear is produced.

The condition is not a thrombosis nor an embolus, but probably a gradual obliteration of the vessel by the deposition of bony tissue in the interior of the canal.

The appearance is thus always connected with a stage of the disease in which the bony tissues become involved, and as this is almost universally at a late period of the morbid changes, the hæmatome is a sign of a chronic condition of the patient, and denotes structural changes of advanced kind, and it gives, therefore, an unfavourable prognosis.

INDEX.

ABSTRACT Ideas, 5
—— —— Fallacy of, 7
—— —— Examples of, 7
Acts Mental, acquired, 38
—— (*See* Statutes)
Action, Anomalies of, 154
Acute Insanity, 109
—— —— Case XV of, 212
Ætiology. (*See* Etiology)
Affections, Alterations of, 115
Affidavits in Commissions *de lunatico*, 421
Aidomania, 190
Aitkin on Frequency of Tubercle, 238
Age, Influence of, in Ordinary Insanity, 221
—— —— in General Paresis, 281
Allbutt, Dr., on Optic Disc, 263
Alcoholismus, 355
—— compared with General Paresis, 360
Alcoholic Paralysis, 362
Aldridge on Optic Disc, 263
Aloes in Treatment, 205
Alternation of Mania and Melancholia, 132
Amentia. (*See* Dementia)
Amænomania, 190
American opinion on Restraint, 400
Amusements, 387
Anatomy, Morbid, of Ordinary Insanity, 224
—— —— of General Paresis, 293
—— of Spinal Cord, 68
Appetite in Ordinary Insanity, 123, 137
—— in General Paresis, 274
Apprehension, Morbid, 111
Arachnoid, State of, 294
Arnold's Classification, 440
Association as a means of Treatment, 388
Asylum, 429
Ataxy and General Paresis, 367
Attitude in General Paresis, 266
Attendants and Nurses, 391
Auditory Illusions and Delusions, 148
Austin on Moral Causation of General Paresis, 289
Automatism, Trousseau on, 20
Automatic Movements, 79
—— —— Marshall Hall on, 80

BAILLARGER, Dr., on Folie Circulaire, 164
—— —— on General Paresis, 251, 276
Basis of Certitude, 27
Bastian, Dr., on Consciousness, 17
—— —— on Specific Gravity, 298
Baths, various, in Treatment, 142, 376
Belief as a Mental Product, 27
Blandford, Dr., on Moral Insanity, 185
Blodsinn, 188
Bloodvessels in Ordinary Insanity, 236
—— in General Paresis, 304
Boarders, 439
Bodily Symptoms, 1st stage, Ordinary Insanity, 123
—— —— 2nd stage, Ordinary Insanity, 134, 137
—— —— in General Paresis, 273
Bones Fractured, 259
Bordier, Case of, 181
Boulimia, 274
Brain, Histology of, in Ordinary Insanity, 234
—— —— in General Paresis, 299
—— —— in Idiocy, 333

Bramwell, Dr., on Spinal Cord, 68
—— on Cerebro-Spinal Disease, 365
Brierre de Boismont on General Paresis, 251
Bristowe, Dr., on Delirium Tremens, 136, 357
Broadbent, Dr., on Syphilis and Brain Disease, 286
—— on Alcoholic Paralysis, 362
Broadhurst, Dr., on Alcoholic Paralysis, 362
Bromides in Epilepsy, 353
Browne, Dr. Crichton, on General Paresis, 296
Bucknill, Dr., on Classification, 440
Burman, Dr., on General Paresis, 240, 290

CALMEIL on General Paresis, 240, 251
Cancer, Simulating Insanity, 372
Case I Recurrent Insanity, 168
" II Ditto, 169
" III Dr. Lockhart Robertson's, 170
" IV of Dr. Pownall, by Dr. Davy, 172
" V of E. T., Recurrent Insanity, 176
" VI of E., Recurrent Insanity, 176
" VII Melancholia, 199
" VIII Chronic Insanity, 201
" IX Acute Insanity and Phthisis, 202
" X Acute Insanity, 204
" XI Ditto, 205
" XII Chronic Insanity, 206
" XIII Acute Insanity, 208
" XIV Melancholy with Stupor, 210
" XV Acute Insanity, 212
" XVI Melancholia Metamorphosis, 213
" XVII Hysterical Mania, 214
" XVIII 214
" XIX to XXIV General Paresis, 315 *et seq.*
Catalepsy, 208
Catamenia, 134
Cells, Nerve, 64
—— —— in General Paresis, 300
Cerebral Disease in Asylums, 370
Cerebellum in General Paresis, 308
Cerebro-spinal Connexions, 71
—— shown Pathologically, 75
—— —— by Embryology, 73
—— —— Anatomically, 71
—— Differentiation of, 73
Certificates, 423
—— who may not sign, 423
Certitude, Kant's view, 27
Chancery Lunatics, 420
Change of Air and Scene, 393
Character, 56
—— Influence of, 284
—— Change of, 159
Charcot on Cerebral Disease, 73, 304
Chloral, 141
Chronic Insanity, 146
—— —— Modes of Termination of, 185
—— —— Symptoms in, 147
Chronic Lunatics, Proportion of, 162
Circular Insanity. (*See* Folie Circulaire)
Civilization, Influence of, 219
Correspondence of Patients, 401

DÆMONOMANIA, 191
Death in 1st Stage, 127
Definition of General Paresis, Dr. Mickle's, 254
—— —— —— Author's, 254
—— of so-called Varieties, 190
Delire des Grandeurs, 261
Delirium Tremens, 357
—— of Watchfulness, 359
Delusion, Ocular, 150
—— Auditory, 148
—— in 3rd Stage, 148
Dementia, 327
Depression of Spirits, 109
—— in Chronic Stage, 147
Development of Mind, 32
Diagnosis of General Paresis, 247
—— of General Paresis and Spinal Disease, 36

Digitalis, Dr. Dumesnil on, 278
Dipsomania, 355
Dirty Habits, 161
Disease, Definition of, 100
Disposition, Change in, 156
—— in Idiots, 335
Dr. Pownall's case, 172
Drunkenness and General Paresis, 360
Dumesnil, Dr., on Digitalis and Opium, 278
Duncan, Dr., on Idiocy, 337
Durham, Mr., on Sleep, 77
Du Saulle on Hysteria, 191
Duties of Commissioners in Lunacy, 439
—— on receiving a patient, 434
Dynamics of Mind, 59

EAR, the Insane Hœmatoma, 444
Early Treatment, on, by Dr. Bucknill, Dr. C. Browne, Dr. Mann, Dr. Maudsley, 385
Ego, as an abstract term, 9
—— as a concrete term, 10
Emotions as a mental product, 21, 41
—— Lewes on, 21
—— Spencer on, 21
—— Bain on, 22
—— in General Paresis, 260
—— in Ordinary Insanity, 109
Enquiry *de lunatico*, 420
Epilepsy and General Paresis, 288
Epileptic Insanity, 344
—— —— Treatment, 352
Epilepsie Larvée of Dr. Morel, 175, 346
Equilibrium, 98
Erotomania, 191
Esquirol's Classification, 441
Etiology of Ordinary Insanity, 216
—— of General Paresis, 280
Exciting Causes of Ordinary Insanity, 216
—— —— of General Paresis, 289
Excito-motory Function, 33
Examples of Ordinary Insanity, 199

FALRET, Dr., on General Paresis, 251, 258
—— on Folie Circulaire, 164
Feelings, Change of, 155
Ferrier, Dr., on Equilibriation, 98
—— on functions of cerebrum, 82
Folie à double Forme, 163, 191
—— Circulaire, 163, 191
Forcible Feeding, 403
Forms necessary for the Reception of a Patient, 428
Fournier on Syphilitic Brain Disease, 373
—— on Syphilis and General Paresis, 286
Foville on Syphilis and General Paresis, 286

GAIRDNER on Spinal Disease, simulating General Paresis, 366
Gait in General Paresis, 266
Ganglion, 64
Gangrene of the Lung, 239
Gaskell on Homicidal Insanity, 183
General Paresis, 250
Genesis of Mind, 59
Goitre in Idiocy, 333
Gregory on Causes, 216
Griesinger's Classification, 441
—— Division of Cases, 187
—— on Idiocy, 336
—— on Pathology of Insanity, 227
—— on Recurrent Attacks, 167
—— on Tubercle in Insanity, 237
Guislain on Moral Treatment, 398
—— on Varieties of Mania, 105
—— on Classification, 443

HABITS, Change of, 156
Hæmatoma Auris, 444
Hair, 124
Hall, Dr. Marshall, 80
Hallucination, 119
Hamlet. A Melancholic, 110
Handwriting, 366
Hearing, Illusion connected with, 119
Heart in Ordinary Insanity, 240, 246
—— in General Paresis, 240
Heredity as a cause, 222
History of Philosophy, 2

Histology of Ordinary Insanity, 235
—— of General Paresis, 299
Hood, Sir Charles, Statistics, 219
—— —— on Heart Disease, 240
Homicidal Mania, 192
Hospitals for the Insane, 386
Howden, Dr., on Kidney Disease, 241
Huxley, Mr., on Automatism, 20
Hygienic Treatment, 402
Hyperplasia, Rokitansky on, 302
—— Dr. Wiglesworth on, 303
Hyoscyamine, 143
Hypochondriacal Insanity, 193
Hystero-Epilepsy. Le Grande du Saulle on, 351
Hysterical Insanity, 127
—— —— Dr. Du Saulle on, 214
—— —— Mania, 191

IDEAS, 5
—— Kinds of, 5
—— Anomalies of, 152
Idiocy, Acquired, 337
—— Causes of, 330
—— Congenital, 329
—— and Synostosis, 338
—— Micro-Cephalic, 33
—— Classification of, 328
—— Dr. Shuttleworth on, 329
—— Dr. Duncan on, 335
Illusions various, 118
—— and Delusions, 118
—— Sexual, 114
Imagination as a Mental Product, 28
Imbecility, 187
Incoherence, 152
Indecent Exposure, 259
Insanity, Ordinary, 1st stage, 107
—— —— 2nd stage, 130
—— —— 3rd stage, 146
—— in Puerperal Women, 127—130
Instincts, Moral, in 1st stage, 113
Intellect, Change in, 137
—— in General Paresis, 261
Intoxication and General Paresis, 312
Intemperance, 285, 353
—— as a Cause, 285
International Classification, 444
Iron in Ordinary Insanity, 141, 376
Isolation, Treatment by, 384

JACKSON, Dr. Hughlings, on Morphology, 73
—— —— on Epilepsy, 345
Johnson, Dr. George, Effects of Impure Blood, 244
Joy as a Cause of Insanity, 291
Judgment as a Mental Process, 45
—— as a Mental Product, 30
—— Kant's division of, 48
—— à priori and à posteriori, 49
Jury, a patient may demand, 421

KANT'S View of Sensualism, 47
—— on Judgments, 48
—— Doctrine of Space, 51
Kidney Disease in Ordinary Insanity, 241
—— —— in General Paresis, 299
—— Changes in, 244
—— Dr. Johnson on, 244
Kleptomania, 261
Knowledge of Right and Wrong, as a legal test, 415
Krafft-Ebing on Disease Simulating General Paresis, 277

LACTATION, 130
Lanceraux on Syphilitic Disease, 287
Legal Relations of Insanity, 407
—— Classification of Lunatics, 408
—— Precautions against Improper Incarceration, 429
Le Grande du Saulle on Hysterie, 214
Lewis, Mr. Bevan, Examination of Brain, 303
Lewes on Comte, 2
—— History of Philosophy, 2
—— Criticisms of Kant, 50
—— on Whewell, 50
Life, Definition of, by Lewes, 9
Littlejohn on Treatment of Epilepsy, 354
Lunacy, Commissioners of, 429
Lunatics, Dangerous, 434
Lunacy Laws, 331
Lungs in Ordinary Insanity, 237
—— in General Paresis, 354
Lycanthropy, 193
Lypemania, 193

MACINTOSH, Dr., on Morbid Instincts, 116
Mania Acute, 130
—— —— recovery, 134
—— —— death, 135
—— 'à potû,' 194
—— Phthisical, 196
—— Syphilitic, 196
Mann, Dr., on Early Treatment, 385
Manner, Change of, 155
Marcé, 136
Masturbation, 223
Maudsley on Early Treatment, 385
—— Definition of Mind, 8
—— Classification of Insanity, 442
Major, Dr., on Histology of Brain in General Paresis, 301
Meason, Dr., on Urine in General Paresis, 275
Mechanism of Mind, 59
Medical Certificates, 431
—— Duties on Imposition of Restraint, 419
—— —— in Certifying, 422
—— —— on Receiving a Patient, 425
—— —— in Regard to Legal, 409
—— Opinion, why Sought, 412
—— —— on Responsibility, 414
—— —— on Competency, 412
Melancholia, Acute, 108 *et seq.*
—— Agitans, 193
—— Attonita or *cum Stupore*, case, 210, 161, 194, 235
—— Erotica, 122
—— Errabunda, 122, 193
—— Metamorphosis, 213, 193
—— Religiosa, 194
Membranes, 226, 296
Memory as Mental Product, 16
—— Absence of, 158
—— in Old Age, 340
—— in Insanity, 157
Meningitis, 127
Menstruation, 134
Mental Philosophy, 1
—— Processes, 32, 57
—— Products, 4 *et seq.*
Mickle, Dr Julius, on General Paresis, 251, 254
Mickle, Dr Julius, on Syphilitic Brain Disease, 373
—— —— on the Reflexes in General Paresis, 273
—— —— on Intemperance in General Paresis, 285
Microcephalic Idiocy, 332
Microscopic appearances in Ordinary Insanity, 234
—— —— in General Paresis, 300
Mind, Definition by Lewes, 8
—— —— by Dr. Maudsley, 8
—— Development of, 8
Mnemonic of Symptoms; 123
Misconception concerning Dangerous Lunatics, 425
Monomania, 194
Moral Causes of Insanity, 217
—— —— of General Paresis, 289
—— Treatment, 377
—— Insanity, Dr. Blandford on, 185
—— —— Dr. Pritchard on, 185
Morbid Anatomy of Ordinary Insanity, 242
—— —— of General Paresis, 293
Morel, Dr., Classification, 443
—— on Causes of Idiocy, 330
—— on Idiocy and Cretinism, 338
—— Epilepsie Larveè, 175
—— on Heredity, 222
Moreau de Tours on Exophthalmic, 265
Mortality, 127
Motor Faculty, 109
Motility in 1st stage, Ordinary Insanity, 120
—— in 2nd stage, Ordinary Insanity, 133
—— in 3rd stage, Ordinary Insanity, 159
—— Excess of, 120
—— Diminished, 121
—— Abnormal, 161
—— Torpid, 160

NERVE Cells, Normal, 64
—— —— in General Paralysis, 301
—— —— in Ordinary Insanity, 234
—— —— Dr. Major on, 301

Nerves, Development of, 66
—— Current, 67
Neümann, *Heilung mit Defect* 186
Neural Force, 61
—— —— Principles of, 63
—— Current, 67
—— Functions, 59
Neuroglia, 234
—— in General Paresis, 301
Niepce on Brain in Idiocy, 334
Nicholson on Criminals, 329
Noble, Dr., Classification, 441
Non-compos Mentis, 408
Noyes Ophthalmic Examination, 264
Number of the Insane, 408
Nymphomania, 194

OCULAR Delusions, 150
Occupation in Treatment, 388
—— Liable to Insanity, 218
Odour of the Insane, 142
Oinomania, 155, 194
Onanism, 223
Opium, its use and dose, 376
Optic Disc in General Paresis, 263
Ordinary Insanity, 1st stage, 109
—— —— 2nd stage, 130
—— —— 3rd stage, 146
Order for reception of a Patient, 424
Organic Brain Diseases, 370

PANPHOBIA 198
Paralysis, Alcoholic, Dr. Buzzard, Dr. Broadbent, and Dr. Broadhurst on, 362
Parchappe, Dr., on Pathology, 227
—— on General Paresis, 251
Paresis, General, 250
—— —— Origin of Term, 250
—— —— French writers on, 251
Pathology of Ordinary Insanity, 243
—— of General Paresis, 308
Pauperism and Liability to Insanity, 219
Peacock on Weight of Brain, 229
Persistence of Sensations, 41
Persecution, Delusion of, 112
Philosophy, 1
—— Schools of, 1
—— History of, 2
Phthisis as a cause, 196
Phthisical Insanity, 127, 196
Phobia of various kinds, 198
Physical Causes, 221
Pinel's Classification, 441
Pneumonia in Insanity, 239
Pownall, Dr., Case of, 172
Postmortem Appearances, 225
—— Table of Ordinary Insanity, 226
—— —— of General Paresis, 293
Precautions, Legal against Incarceration, 423
—— —— against Improper Certificates, 432
Predisposing Causes, 217, 281
Pregnancy, 130, 195
Pritchard, Dr., on Moral Insanity, 185
Private Asylums, 386, 404
—— —— how Licensed, 430
Private Patients, 430
Processes, Mental, 32
Products, Mental, 4 *et seq.*
Prognosis in Ordinary Insanity, 143
Psychology, 1—4
Puerperal Condition, 129
—— Insanity, 127
—— Varieties, 195
—— Dr. Tuke on, 196
Pulse in General Paresis, Dr. Mickle on, 273
Pupils in General Paresis, 264
Pyromania, 196

RACE in Relation to General Paresis, 288
Reasons for Certificating a Person, 425
Reason, Development of, 39
Reasoning Insanity (Folie Raisonante), 193
Recurrent Insanity, 165
—— —— Proportion of Cases, 165
—— —— Cases of, 167
—— —— and Epilepsy, 175, 177
—— —— and Crime, 181

Recovery in 1st stage of Ordinary Insanity, 124
—— 2nd ditto, 134
—— in General Paresis, 269
Reflex Action, Simple, 33
—— —— Complex, 37
—— —— in General Paresis, 267, 273
Refusal of Food, Treatment of, 404
Religious Melancholy, 113
Remissions in General Paresis, 267
Report on Admission of Patient, 434
Responsibility, 55
—— Martineau, and Dr. Carpenter on, 55
—— Sir J. Stephen on, 416
Respiratory Organs in Ordinary Insanity, 237
Restraint and Non-Restraint, 397
—— American Views on, 400
Reynolds, Dr. Russell, on Epilepsy, 349
Ribs, Fractures of, 259
Robertson, Dr. Lockhart, case of Recurrent Insanity, 170
Rokitansky on Brain, 302
—— on Hyperplasia, 302
Ross on Cerebro-Spinal Disease, 364
Rousselin, Dr., on General Paresis, 253

SAFEGUARDS against Illegal Confinement, 436
Salomon on general paresis, 304
—— on Cerebral Vessels, 304
Sankey, Dr. Herbert, Histology of Brain, 300
—— —— Preparations of Plate, 1
Satyriarisis, 196
Savage, Dr., on Recovery from General Paresis, 270
Schools of Philosophy, 1
Seclusion, 392
Second Attacks, 165
Self-love, Abnormal, 116
Senility, 339
Sensation, as Process, 46
—— as Product, 11, 33
Sensations, Vivid and Faint, 13
—— Nature of, 14
—— Persistence of, 14
—— Positivist's view, 14
Sensations, Metaphysical view, 15
Sensualists, 47
Sex, liability to General Paresis, 281
Sexual Propensity and General Paresis, 284
Shaftesbury, Lord, 432
Shock Mental, as Cause in General Paresis, 290
Shower-baths, 376
Shuttleworth, Dr., on Idiocy, 337
—— Sir Jas., on Criminals, 329
Single Patients, 430
Skae, on Weight of Brain, 298
—— on Specific Gravity, 231
—— on Relation of Weight of Brain, 229
—— on Classification, 442
Skin, 142
Smell, illusions of sense of, 120
Space, Kant on, 52
—— Spencer on, 52
—— Cousin on, 54
Speech, discursive, 152
—— Incoherent, 152
—— in General Paresis, 264
Specific Gravity, 231
—— —— Dr. Bucknill on, 231, 298
—— —— Dr. Skae on, 231, 298
—— —— in General Paresis, 298
Spinal Cord, Dr. Bramwell on, 68
—— —— Dr. Gowers on, 71
—— —— Anatomy of, 68
—— —— Motor Tracts, 69
—— —— Disease of, 365
Spontaniety in General Paresis, 261
Stages in Ordinary Insanity, 108
—— Comte's in Mental Science, 3
Statics of mind, 32
Statistics, Sir Chas. Hood on, 240
Stupor, 196
Stephen, Sir Jas. F., on Medical Duties in Legal Enquiries, 414
Suicidal propensity, 116
—— Statistics of, 116
—— Mania, 194
—— Treatment of, 380
Summary of Mental Process, 57
Sunstroke as Physical Cause, 287
Symptoms, classification of, 109
—— of General Paresis, 255
—— Bodily, in Ordinary Insanity, 134

Synostosis, Thurnam, Dr., on, 338
—— Welker, Dr., on, 338
—— Virchow on, 333
—— Errors of, 332
Syphilitic affections, 197
—— Mania, 196
—— Quain's Dictionary on, 196
—— Mania, Dr. Hughlings Jackson on, 196
—— Disease of Brain, and General Paresis, 373
—— —— —— Dr. Mickle on, 373

TABLES of Morbid Appearances, Ordinary Insanity, 224.
—— —— —— General Paresis, 293
Taste, illusions of the sense of, 121
Tebaldi, Dr., on Optic Disc, 264
Temper, change of, 155
Temperament, most liable, 220
—— in General Paresis, 284
Terms, not much used, list of, 198
Therapeutics, 375
Thompson, Dr. J. Bruce, on Crime, 329
Thomeuf on Alcoholism, 360
Times, Cases of Suicide reported in the, 182
Tone, 99
Tonics, in treatment, 376
Torpor, 160
Treatment, by Rest, 397
—— Moral, 389
—— in General Paresis, 279
—— in Acute Stage, Ordinary Insanity, 140
Thurnam, Dr., on Synostosis, 338
Trousseau on Automatism, 20
Tubercle in relation to Insanity, 237
Tuke, Dr. Hack, Classification, 442
—— Dr. Batty, Classification, 442

URINE in General Paresis, 275

VARIOUS Forms of Insanity, 190
Variation in General Paresis, 276
Vaso-Motor Nerves, 305
Virchow on Synostosis, 333
Vessels of Cortex in General Paresis, 303
,, ,, Chronic Insanity, 245
Vision, Illusions of, 119
Visits of Friends, 401
—— of Commissioners, 437
—— of Visitors, duties of, 437

WANDERING Lunatics, 425
Weakness, Mental, 327
—— —— Causes of, 327
—— —— Varieties of, 328
Wedl on Disease of the Vessels, 304
Weight, Relative, of Brain in General Paresis, 298
Welcker on Synostosis, 338
Wet Packing, 142, 377
Westphal, Dr., Cases of, 366
Wiglesworth on Mental Dynamics, 97
—— on Hyperplasia in General Paresis, 303
—— on Pathology of General Paresis, 302
—— on Melancholia Attonita, 235
—— Microscopical Preparation of Cerebral Cortex, in General Paresis, Plate, 2
Will as a Product, 22
—— as a Process, 45
—— Carpenter, Dr., on, 25
—— Cardinal Manning on, 25
—— Martineau on, 25
—— in Relation to Responsibility, 418
—— Spencer on, 24
Williams, Dr. Duckworth, on Bromides, 354
—— —— on Early Treatment, 385
Willis, Early Recognition of General Paresis, 251
Wood, Dr. W., probability of life in Lunatics, 136