Surgical pathology. A thesis / Translated from the French by J.W. Garlick and W.C. Copperthwaite.

BRIGHTON AND SUSSEX

Medico-Chirurgical Society.

EXTRACT

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5. All books shall be returned half-yearly, on January 1 and July 1, that they may be inspected by the Commitee.

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SURGICAL PATHOLOGY.

A

THESIS.

BY JULES CLOQUET,

CHEVALIER OF THE LEGION OF HONOUR, SURGEON TO THE MAISON ROYALE DE SANTE, PROFESSOR OF THE FACULTY OF MEDICINE, MEMBER OF THE ROYAL ACADEMY OF MEDICINE, ETC., ETC.

TRANSLATED FROM THE FRENCH BY

J. W. GARLICK, M. R. C. S.

AND

W. C. COPPERTHWAITE, M. R. C. S.

With Plates.

SAMUEL HIGHLEY, LONDON.

M.DCCC.XXXII.

WHITLEY AND BOOTH, PRINTERS, HALIFAX.

(BY PERMISSION.)

TO

SIR ASTLEY COOPER, BART.

This Translation

IS DEDICATED,

IN ADMIRATION

OF HIS

TALENTS AND VIRTUES.

J. W. GARLICK,
W. C. COPPERTHWAITE.

DIRECTIONS TO THE BINDER.

TRANSLATORS' PREFACE.

In presenting the following short work to the Medical Profession, the Translators are anxious to protect themselves from the arrows of critical acumen, by placing before them the broad shield which they possess in the reputation and talents of the Author. Being fully aware how difficult it is to infuse into any Translation the spirit of the original, they would await the decision of the Profession with the greatest diffidence. If elegance of diction were the sole ground upon which public favour could be claimed, they are satisfied that they might despair of its patronage: but they will rest perfectly content if the praise of accuracy is awarded to their labour; rather choosing to rely upon the matter than the manner of the book.

The meed of the most philosophical arrangement, cannot be withheld from those celebrated men who at present rank in the brilliant list of French Surgeons and Pathologists. Standing upon the eminence which individual talent and an admirable general education have erected, they are enabled, in the spirit of true philosophy, to generalize the deductions from facts,

and rapidly to proceed in the establishment of laws. By availing themselves of the facilities which surround them in making post mortem examinations, and performing dissections without any fear of popular indignation, and by their own unwearied assiduity, as with the wand of a magician they throw apparent disorder into regularity, and construct the temple of science with all the beautiful proportions of most accomplished architects.

What work, of modern days, can be put in competition with that of Andral, on Pathological Anatomy? and yet he has not been the only labourer in this vineyard: others are rapidly rising to endure the toil and share the reward, by participating in the lustre of his name, and entwining around them some of the laurel-wreaths with which humanity has adorned his brow.

The Author of the following Thesis, deeply imbued with the philosophic spirit of his compeers and predecessors, has arranged, in a very small compass, the results of an indefatigable and patient observation; and has given, under the various heads of Nomenclature, Etiology, &c., such a fund of information as is rarely exhibited in so small a circle: with the hand of a master, by a single stroke of his pencil, he has thrown, as it were, his portraiture into life. He has delineated to the mental eye, with distinctness and beauty, an outline of the subject on which he treats; and, in the remarks upon the various divisions of his Thesis, affords those points of support, that, if the Student once become thoroughly impressed with their importance, he can scarcely be guilty, in the aftercourse of his practice, of any gross mistake, or liable to the charge of ignorance. It would be absurd to suppose that they give every information upon the respective divisions; but they teach him what to acquire, and what demands his particular attention. They form so many landmarks, from each of which he may view the extent of his progress, and the distance he has still to

travel. They pour into his mind first grand principles; and thus enable him, under whatever circumstances he may be placed—in situations perhaps of great perplexity and difficulty, when he is probably unable positively to determine what is right—at least, to do no wrong.

It is a matter of regret that Students should so frequently rest satisfied with the possession of particular views, and limit their acquisitions of information to the obtaining of a certain degree of knowledge upon each distinct affection and its cure; and, consequently, measure the estimation of an author by the assistance which he affords them in this respect. But they ought never to forget, that it is the establishment of first principles alone which can be truly serviceable to them in practice, and preserve them from the blunders and disgrace which inevitably await partial and contracted knowledge.

Although the second part of the Thesis particularly considers the most efficacious plan of *teaching* Pathology, it will be unnecessary to remark to the diligent Student, that the same must also be the means which are best calculated for learning the Science. If, therefore, he keep in view the principles which must direct the Professor in teaching, he cannot fail to make them available in acquiring the Science.

The Plates which accompany the work are faithful transcripts of the originals: and it is believed, that, for an equal number, none have yet been presented to the public, in a single collection, so rich in fact, correct in expression, and, at the same time, reasonable in expense: and it is hoped that the "analytical summary," which explains their various objects and parts, will at once stamp them with that value, in the public mind, which, to the Translators, they appear most richly to deserve.

As before stated, any merits in the execution of the work consist rather in brief fidelity than in the possession of any positive elegance: correctness was essential: elegance would

have been a valuable accompaniment, but it is possible to dispense with it.

It will be observed that a few words have been introduced which are strictly original: this has been done under the idea, that they expressed, in themselves, more clearly and accurately their meaning, than any single or even general expression which our own language affords. As every science advances, and the ideas connected with and suggested by it become more numerous, defined, and distinct, language must be made to correspond, to express these additions and shades of difference; and thus embodying, as it were, the notion by a single expression, cause it to stand prominently before the mind. It did not, therefore, appear prudent to adopt any other plan than that of transplanting, at once, the expression from one to the other language, leaving it to public opinion, to determine whether or not it is justifiable to adopt such a procedure.

The perusal of the work, and especially of the "general considerations," naturally suggest some very important reflections respecting the state of Medical Science and Education, as at present existing in this country. After a perusal of the concise but incontrovertible arguments which Cloquet advances in these introductory remarks, the deductions which every man is compelled to make for himself are irresistible, that the Science of Medicine is indivisible, and that any separation of its branches, as Surgery, &c.—except as it is adopted for the more easy acquisition of knowledge, by offering to the mind, in successive detachments, a great whole—is not only useless, but positively injurious; and that there must be something "rotten in the state" of that elementary education which can permit any such division as will sanction an *exclusive attention* either to the one or other branch of the Science.

Such is the intimate relation between all the divisions, so strong are the affinities amongst its elements, and so thoroughly artificial and absurd are the distinctions which "the religious

fanaticism of the twelfth century" introduced, that it is impossible, after having once possessed any accurate notions upon the beauty and extent of the Science, for one moment to conceive how, for centuries, any mode of education can have been tolerated which has been founded upon a basis so instable, and upon views so partial. Medicine, especially as built upon the modern acquirements of Pathological Anatomy, is as truly a Science of philosophic induction as any of those which engage human thought and observation: and, if the Student is to be confined to a partial survey; if, in his education, the prospects of its extent are to be confined and enclosed within certain prescribed limits, he must necessarily be contracted in mind, uncertain in principle, and imbecile in practice.

Whilst England boasts her intellect and benevolence, and has expended immense sums of money upon pursuits which, to speak very tenderly respecting them, are only of doubtful value, what, as a nation, has she effected for Medicine? What has she done for the most valuable of all Sciences, that upon which all others depend, which is the source of all commercial prosperity and wealth, of all domestic enjoyment, and of all individual and general happiness? How far has she advanced this? Medicine, (and this is understood to include Surgery,) has, undoubtedly, made great and important progresses in this country of late years; but to whom is the nation indebted for them? To the individual and incessant exertions of a Cooper, a Cline, an Abernethy, a Bell, an Armstrong, a Hunter, and to numerous others; and not to any body of men whose talent and genius have been fostered by the protecting hand of its governors.

Where is the grand National Establishment, that would at once concentrate the talent of the empire; and, by its principles of education, constantly secure, for every generation, a regularity in the supply? The London University, and King's College, are the only institutions which have, until of very

late years, aimed at giving a complete course of instruction on the Medical Sciences: and even these will be defective (on the supposition that they will obtain the privilege of conferring Medical and Surgical degrees,) if the Students have not been required to take those previous degrees in Arts which every Practitioner ought to possess; for the superstructure of Medicine ought to be erected upon the foundation of a general education: it is a Science which cannot stand isolated and alone; but can only be truly studied by a full perception of its infinite relations.

If such, then, be the principles upon which the Student ought to be educated, where can be the propriety of those orders in Medicine, by which the Practitioners of this country are designated, as indicative of any *variety in the mode of education?* If Medicine be indivisible, how is it possible for one man to receive an education purely Surgical, whilst that of another is purely Medical? Would it not appear more correct, that all should be placed under precisely the same requirements in the acquisition of knowledge, and for the procuring of a degree; and that the branch which each individual may afterwards practice be left entirely to his own selection, as determined either by taste or circumstances of the Practitioner? The intellect of all would then be brought to the same standard, and tried by the same criterion; and the pre-eminence which one man would obtain beyond another, from the public, would be such as was due to his talent alone; and would not the public derive the advantage?

It has long been admitted that the "Lettres" are a republic: and that, consequently, distinctions are unknown, except as they are acquired by superior talent and extraordinary diligence. How then is it possible to erect an aristocracy in Medicine, which is but a division of the whole? The end of literary pursuits is seldom connected, at least directly, with the life of mankind; and yet no man takes his station in this com-

monwealth except as his labours and information have earned the honour. But in Medicine, where the only object is the preservation of health, and the salvation of life, grades in education are admitted. This is an absurdity which the common sense of the community ought to banish from the land. Do not the diseases of the rich and poor possess equal importance in the eye of the Practitioner? He has no consideration, or should have none, but the recovery of his patient: and is not health to the poor man as estimable, nay, is it not of greater value than to his more wealthy neighbour? Surely it is hard to add to pecuniary distress, the poignancy of suffering.

Where is the reason, where the justice, that a distinct order of Practitioners, *as produced by an inferior education*, should be especially devoted to the service of the poor? But is it not the case, that these Practitioners themselves are called upon to administer unto the rich? Why then do they not see their own interest, as a matter of national concern, and bestir the public authorities?

These observations have been made under the supposition, that the various grades in education do in reality exist; which must, indeed, be considered to be the fact so long as the granting of degrees and diplomas acknowledge no other principle. But, very fortunately for the public, the scientific Practitioners of the present day, by individual diligence, and in spite of the prejudices of the people, the opposition of men in power, and the existence of *absurd*, disgracing, and contradictory laws in the statute book, are determined to educate themselves; and, not admitting any grades in intellect, except those which nature herself has constituted, to set at defiance the dogmata of ancient schools and colleges, which would say, "so far shalt thou go, and no farther," and place themselves on a level with the expansive mental progress of the day.

But, notwithstanding, the general fact continues the same, that the nation possesses no standard by which the acquisitions

in *the entire Science of Medicine* can be measured. Three distinct corporate bodies examine, for the purpose of conferring their respective honours; but each exercises its jurisdiction distinctly, and, occasionally, even contradictorily to the other; and the consequence is, that the public hold no guarantee whatever, from the degree alone, that the owner of the one at all possesses that talent which would qualify him for obtaining the other; though, at the same time, he tacitly admits, and every Practitioner feels, that unless he is accurately acquainted with the principles of the entire Science he is utterly incapable of practising any one of its branches.

Is it not expecting too much—is it not, rather, imposing too much upon the voluntary associations of individuals—associations which reflect so much splendour upon the Medical era of the day—to expect them constantly to be offering sacrifice at the shrine of national indolence. Witness the exertions which have adorned, in late years, and made pre-eminent the Museums of many of the Anatomical Schools in London—as those of Guy's, St. Thomas's, Bartholomew's, &c. Some of these have especially distinguished themselves, keeping pace with the progress of Science, and appointing such additional Professors as its increasing domain has required. But ought the possession of these advantages to have been jeopardised by relying upon the exertions, expense, and labour of private individuals? What can explain the principle on which it has been accomplished? Self-interest, perhaps, has influenced some; but, how much greater is the number of those who are nobly characterised by their ardent love of Science!

The conclusions which will naturally be drawn are these: since the health of the people is national wealth and happiness, the means which are best calculated for its preservation ought, likewise, to be national: and since, also, the principles of all disease are alike in every individual; and those of Medicine and Surgery, which are their means of cure, also correspond;

the education of those who undertake the office of healing should also correspond and be alike: and the pursuit of any particular branch should be left to the option or circumstances of the individual, an equal degree of proficiency in Medical knowledge having been ascertained in every candidate for Medical honours.

The public would soon learn to discriminate and reward the superior talents of him who devoted himself to any particular division, if he possessed them; and give him that natural distinction which is due alone to merit; but which, at present, is too often unjustly procured by the mere possession of a degree or diploma.

"What we want in Medical Legislation," says Armstrong, "are, first, *common rights to the Members of the Profession;* and secondly, *security to the public,* by a practical system of tuition, and by a practical mode of examination, divested of the mockery of a dead language, as the medium of that examination. It is notorious that education, at Oxford and Cambridge, is little more than mere form in most essentials: and yet the Graduate of those places has privileges in the London College of Physicians which are denied to the Graduate of Edinburgh, where the Medical Education is so incomparably superior: and thus an unwarrantable and invidious distinction has been introduced into a Profession which, above all others, should be united in the bonds of brotherhood. Many disputes have taken place between individual members and corporations; but these have mostly been of a personal nature, and therefore have not interested the public much; but, the question is of such vital importance, in all its bearings, that the time is surely at hand when a rigorous inquiry will be instituted into the present state of our Medical Legislation, and when human health and human life will no longer be recklessly intrusted to collegiate formalities, but to an education strictly practical in all material points."

These observations are equally correct whether applied to certain classes or the whole of the Profession; and, if that part to which the writer belongs, themselves viewed this subject in the important aspect which it deserves, would it be difficult to procure such an alteration of existing institutions as would destroy the anomalies of which they now justly complain.

Can the spirit of the age, and the humanity to which it largely lays claim, be better employed than in the establishment of institutions whose advantages would distil, into every family and house in the empire, and the benefits of which would be equally experienced in the humble cottage of the poor, and the "cloud-capped towers" of the noble.

Halifax, April 6th, 1832.

AUTHOR'S PREFACE.

In conformity with the Programme of the Concours, this Dissertation has been divided into two parts.

In the first, I have endeavoured to determine the rank which Pathology ought to hold among the other branches of Medicine. I then point out the divisions which the Science has received: viz. —*General Pathology*, and *Special Pathology*:— this latter being subdivided into *Internal*, or *Medical*; and *External*, or *Surgical Pathology*.

As I can see no possible reason why the latter divisions should be separated from each other, (except that instruction and practice are thereby facilitated,) I have arrived at this conclusion, *that the Students of Medicine and Surgery ought to pursue precisely the same plan of education.*

Because the study of General should precede that of Special Pathology, it appeared to be most

correct to give a summary view of the divisions of the former Science: but, at the same time, dwelling particularly upon those points which relate to Surgery.

In the second part of the Thesis I have shewn the arrangement of a course of lectures—the plan which the Professor should adopt in teaching the Science, and the means which are best calculated to ensure a successful result for his labours.

PART FIRST.

SURGICAL PATHOLOGY.

GENERAL REMARKS.

"In prosecuting the Study of any Science or Art, the first thing required is accurately to determine its object and extent."

RICHERAND.

THE principles which form the subject of Surgical Pathology, cannot be reduced to the order of a methodical treatise, if the position which this science ought to occupy amongst the other branches of Medicine, be not first determined.

Since the preservation of health, and the alleviation or cure of the various diseases with which mankind are afflicted, are the ultimate objects of Medicine, it is of the first importance, that, before the practitioner commences the exercises of his profession, he should be thoroughly acquainted with the organization and functions of the human body—that he should have investigated the circumstances under the influence of which health is preserved or impaired—the diseases by which it is destroyed, as well as the remedies, which art has placed in his hand, for their prevention or cure.

1. ANATOMY and PHYSIOLOGY constitute the science

of man in his healthy state. The former, appropriately designated the Science of Organization, teaches the external qualities, relations, and intimate structure of the organs, which, being combined, constitute the human body. The latter animates and impels these organs into action, revealing the phenomena of life in the functions which they perform: as the science of the organism, it completes the moral and physical study of man in health, since it ought to explain both the laws which preside over the intellectual operations, as well as those which direct and control the other corporeal functions.

2. HYGIENE, or the art of preserving health by a judicious use of externals, and exercise of our peculiar powers, forms the second division of Medical Science. The circumstances by which man is surrounded, the material substances and physical agents which are directly applied to him—food by which he is supported, motions which he performs, the integrity or disorder of his different secretions, rest, fatigue, watchings or sleep, and the various passions which agreeably or painfully agitate his breast by the intensity of their emotions—these exert their influence over him; and it is the consideration of the extent of this influence upon which the principles of the Science of Hygiene depend.

3. PATHOLOGY is the science of man in disease; and consists in the knowledge of this disease, in whatever tissue, system, apparatus, or organ, it is developed; or whether the lesion be physical, organic, or vital.

To Pathology belongs also the consideration of the changes which are produced by disease in the structure, composition, figure, relations, connexions, existence, and functions of organs,—a study which, under the title of PATHOLOGICAL ANATOMY, has thrown so great a lustre upon the labours of modern physicians.

4. THERAPEUTICS, or the art of treating diseases, employs every remedy which enables us to grapple with, cure, or moderate them, and contribute either to the re-establishment of perfect health, or the amelioration of the morbid state; and the treatment is named HYGIENIC or DIETETIC, PHARMACEUTICAL, or SURGICAL,

as the rules of Hygiene, which are principally regimenal, are enforced, or medicinal substances used, or the aid of Surgery required. It is, however, very frequently the case, that these three means of cure are combined in the treatment of the same affection.

5. Lastly, the AUXILIARY SCIENCES of Medicine, which are of great importance to, and are intimately connected with, the preceding divisions, are those of PHYSICS, CHEMISTRY, NATURAL HISTORY, and MATERIA MEDICA.

It will be seen, from this brief survey, that Medicine, like the other branches of Physical Science, (of which indeed it is only a division,) has two distinct parts: the one technical, theoretical, and demonstrative, i. e. PATHOLOGY; and the other practical; being the application, to man, of the principles derived from the preceding: this constitutes the CLINICAL DEPARTMENT—and thus the former serves as an introduction to the latter.

The question may be now asked, are there two Pathologies—one *internal or medical*, another *external or surgical?* Is the difference in the peculiar situation of diseases, as internal or external, sufficient to justify their separation into a corresponding internal and external Pathology?

Upon these important questions I concur entirely in the opinions expressed by Professor Richerand, who examined this subject in 1807, at the time when he was appointed Professor of External Pathology to the Faculty of Medicine. In accordance with his opinion I do not think that any rational distinction can be drawn between these diseases.

It was formerly an opinion, that Surgery was merely that part or division of Medicine which in the treatment of disease employs manual or instrumental agents, or topical applications. This distinction, however, only gives a notion of the *means* which are most frequently used in Practical Surgery, and cannot consequently represent its real state as a science.

Some authors contend that the treatment of internal disease falls under the province of Medicine; whilst

that of external disease ought to be allotted to the department of Surgery; but this distinction is by no means more exact than that by which it is separated into internal and external: for, the treatment of those patients who labour under calculus in the bladder, empyema, or effusion within the cranium, in consequence of external violence, acknowledgedly devolves upon the surgeon, although these are not external affections.

Another distinction between Medicine and Surgery has been attempted, by considering the former a science, and the latter an art; and thus estimating Surgery merely as a mechanical profession: but this is still more incorrect than the former opinion. "The internal and external parts of the body," says Pearson, "are governed by the same general laws during a state of health: and if an internal part be attacked with inflammation, the appearances and effects will bear a great similarity to the same disease situated externally: nor are the indications of cure, in general, materially different. If by science, therefore, be meant, 'a knowledge of the laws of nature,' he who knows what is known of the order and method of nature in the production, progress, and termination of surgical diseases, merits as justly the title of a scientific practitioner, as the well-educated physician. The practical parts of Physic and Surgery are very frequently disunited, but their theory and principles are indivisible, since they truly constitute one and the same science." The only distinction, then, between the practitioner of Medicine and Surgery is this, that the surgeon, in addition to the knowledge which he is obliged to possess in common with the physician, ought to be endowed with additional capabilities: for the enjoyment of some of these, as they are the entire result of organization, he must be indebted to nature: whilst others, such as the perfected use of certain organs, can only be acquired by exercise, habits, and particular attention. It will hence be manifest, that the Science of Surgery, is in reality, but one branch of Therapeutics or the general treatment of disease.

The most superficial examination of human disease

incontrovertibly proves, that the separation of Medicine from Surgery is unfounded. During a long period experience has shewn, that regimen and the internal administration of medicine are indispensably requisite in the treatment of the greater number of surgical cases; whilst there are few internal affections for the relief of which the physician is not obliged to use some manual or topical application, for which he must be indebted to Surgery. "The treatment of febrile and internal inflammatory diseases," says Thomson, "belongs exclusively to the province of the physician wherever the distinction between physician and surgeon has been introduced, and is rigidly observed: yet, in some species of fevers, and in all internal inflammatory diseases, blood-letting is often the principal if not the only remedy that is required. Retention of urine not unfrequently takes place in symptomatic febrile diseases; and this is an affection which does not always yield to the use of internal remedies. When internal remedies, therefore, fail in relieving the patient, the urine must be speedily drawn off by means of a surgical operation, otherwise inflammation, mortification, and rupture of the bladder must necessarily ensue."

The extent and multiplicity of the subjects upon which information is required in prosecuting the art of healing, render it necessary that modern practice be divided amongst three classes of individuals—physicians, (properly so called,) surgeons, and the true apothecary, i. e. the mere compounder of medicine. Amongst the ancients, the same individual pursued the three branches of the science; for the writings of Hippocrates, Galen, Celsus, Paulus Ægineta, Albucasis, prove that the Greeks, Romans, and Arabians, did not separate diseases into surgical and medical, nor consider Surgery as a peculiar branch of Practical Medicine; since all these writers, at the same time, treat upon fever and fractures, wounds and nervous affections.

Medicine and Surgery, in the first instance, united for ages under the fathers of the art, afterwards separated, towards the middle of the 12th century, by the

religious fanaticism of the age,* and transmitted to modern times in this state of division, by interested individuals or corporations, have, at length, embraced each other again in the philosophic spirit of the 19th century.

The *Science* of Medicine is indivisible (est une): it is the *means only*, which are employed for the preservation of life or restoration of health, whether sanatively or therapeutically, which are capable of separation: and the departments, Medicine and Surgery, ought to receive equal attention: advancing in the same line,

Haud gressu inæquali sed pari passu.

In fact, of the numerous diseases which affect the human race, some heal spontaneously, under the sole power of the vis conservatrix naturæ; others require for their cure, the internal administration of medicines, which may modify or destroy the diseased condition of the vital powers of the solids or fluids; and others, again, particularly demand, in their treatment, topical applications, or the employment of surgical operations.

Moreover, do not the greater number of diseases require, at one and the same time, the use of the three therapeutical agents, which Dietetics, Pharmacy, and Surgery appropriate to themselves? "*Quæ medicamenta non sanant,*" says Hippocrates, "*ferrum sanat; quæ ferrum non sanat, ignis sanat: quæ ignis non sanat, insanabilia.*"

Let us suppose an individual to be affected by inflammation of the chest: rest, diet, the most perfect silence,

* In 1163, the council of Tours forbad the clergy every operation producing blood, under the pretext that the church abhorred the effusion of blood: the cultivation of Surgery was then abandoned in the Universities. This was the period when Surgery was separated from Medicine, and thrown into the hands of the laity, who, in these ages of barbarism, were an ignorant race of men. Roger, Roland, Bruno, Lanfranc, Guillaume de Salicet, and Gordon, the most celebrated surgeons of their day, but now deservedly lost in oblivion, were satisfied to compile and comment upon the Arabians.

will be the remedies selected from Dietetics. Diluting and soothing ptisans copiously taken, anodynes, &c. will be procured from the resources of Pharmacy; whilst general or topical bleedings for the purpose of moderating or arresting the violence of inflammation, and the application of blisters as counter-irritants, are the remedies which are claimed by Surgery.

Suppose again that a patient labours under cataract: there can be no doubt, that an operation for the depression or extraction of the opaque crystalline lens, which occasions the difficulty of vision, will form an essential part of the treatment; but to secure success for the operation, is not the surgeon compelled to place the patient under suitable regimen, and to continue the use of the same care after its performance? Ought he not to make use of the pharmaceutic remedies of ptisans and purgatives, which are so frequently necessary in the treatment of this affection? There would be no difficulty in multiplying examples tending to establish the inseparable union which exists between *medical and surgical disease.*

But whilst medical or internal affections sometimes require the use of surgical remedies, such as abstractions of blood, blisters, and cauteries, does it not clearly appear that surgical complaints cannot be treated correctly by operation only; and that regimen and medicine, under most circumstances, place in our hands powerful and necessary agents for completing the cure? It is the disproportion between the extent of science, and the powers of the human mind, which has produced these divisions: man being incapable of enlarging his capacity, science has been separated into numerous ramifications, and thus accommodated to the extent of his mental capabilities: hence have arisen the numerous artificial distinctions in Pathology—of which, since most others are secondary, the principal are internal or medical, and external or surgical, Pathology.

It would be unjust to maintain, that Surgery is the only department in the Practice of Medicine, which can lay claim to certainty in its results—*quod in medicina*

certum. Although the action of instruments in surgical operations may be calculated with mathematical precision, yet the palm of excellence in this branch ought not to be awarded to the mere manual operator, nor to an operation simply because it has been quickly performed. Surgeons are frequently as much embarrassed in their diagnosis of cases of Surgical Pathology, as physicians can be in detecting the diseases, which they exclusively appropriate to themselves: and does it not often occur, that the physician, in cases of intermittent fever, administers bark with a greater certainty in the result, than the surgeon performs an operation?

It would, then, be incorrect to include, in a definition of the Science of Surgery, any expression respecting the certainty of its results, for the purpose of giving to the surgeon precedence before the physician: but as Surgery is only an essential branch of Therapeutics, which uses the hand either alone or armed with instruments, for effecting a cure of disease, it would be more correct to define it, "The Mechanics of Therapeutics."—*Quod in Therapeia Mechanicum.*

The same studies and knowledge are, then, indispensable, as well for the physician as the surgeon: and the latter is no longer compelled to operate under the direction of the former, as in time past. The establishment of the Royal Academy of Surgery has emancipated the surgeon, and overthrown *the insurmountable barriers* which were supposed to be erected between Medicine and Surgery; and the whole may be now summed in this: that, as the surgeon is accustomed to the performance of operations, he possesses so many additional means of cure, from the use of which the physician is excluded.

Those who are anxious to acquire information upon the origin of Surgery, and trace its progress until constituted into a body of science, will be obliged to study it in connexion with the other branches of the Healing Art: in remarking the connexion which exists between the history of Anatomy and Surgery, they will perceive that the epochs of both exactly correspond; the advance of the former always appearing to precede that of the

latter. As similar details would lead us too far astray, since they belong more to the history of the art than observations on Pathology, the reader must be referred to the various works which have been published on this branch, and to that of Sprengel in particular.

ON THE GENERAL PRINCIPLES OF PATHOLOGY.

DEFINITIONS AND DIVISIONS.

"Pathology has been divided into *General* and *Special:* unitedly, including all diseases. The abstract consideration of diseases, and the principles which they possess in common with each other, form the basis of General Pathology: thus embracing all in one general view, we are enabled to observe those points in which they correspond, and the connecting links by which they are united. Special Pathology equally includes the consideration of all diseases: but it presents them in a series of isolated views, in which each is delineated with the appearances that characterise the affection, and distinguish it from all others."* General Pathology ought, then, to be studied independently of all relation; nor should it be distracted by any attempt to form such artificial divisions as are implied in those of Medicine and Surgery: these two classes having been adopted, agreeably with the explanation already given, merely for the purpose of facilitating instruction and securing greater advantage in the treatment of their respective maladies. Nevertheless, in the rapid outline of this science, which it is now proposed to sketch, those diseases which require the assistance of the surgeon will be particularly regarded.

* Chomel.

If health be defined, *the free, easy, and regular exercise of the various functions;* disease, on the contrary, will consist *in an appreciable alteration, either in the position or structure of parts, or performance of one or more of their functions.*

Pathology includes several departments, which will be successively passed under review, and upon some of which, although only different branches of the science, particular treatises have been written.—These are

1. NOMENCLATURE—This takes into consideration the synonymous and etymological terms which have been applied to disease.
2. ETIOLOGY—or the Doctrine of Causes.
3. SYMPTOMATOLOGY—The Study of Symptoms.
4. SEMEIOLOGY—The Knowledge of Diagnosis and Prognosis.
5. THE PROGRESS and TERMINATION.
6. PATHOLOGICAL ANATOMY—This dwells upon the alterations effected by Disease on the Tissues.

For the purpose of completing this catalogue, I shall briefly add the general principles of *Therapeutics:* for, it is necessary, in a series of observations upon Surgical Pathology, to give the treatment as well as the history of disease; and thus comprehend, in the same view, both the disease and its remedy.

I shall now proceed to consider,

1. The Nomenclature of diseases—their Synonymes and Etymology.

The improvement in Nomenclature which characterises the progress of other sciences, has not been extended to that of Pathology: for there are few, perhaps, which are equally as deficient in this respect; a circumstance the more to be regretted, since it undoubtedly operates materially in retarding the acquisition of a knowledge of disease. Nothing can be more inappropriate or absurd than the "tout ensemble" of the appellations which have been given to the different affections. They are sometimes designated according to their supposed or ascertained situation, as instanced

in *pleurisy* or *hysteria*; and sometimes from their exciting causes, as *borborygmi, flatulencies,* and *colic.*

Some have been named so as to imply whence they took their origin—as, *American typhus, Oriental plague,* and the *disease of Barbadoes,**—or by whom they have been mainly transmitted: it is hence that the *French* or *Neapolitan disease* signifies lues venerea.

Some have been designated, in consequence of a coarse resemblance which they bear to certain products of human industry, natural history, or other substances, *tympanites, fistula, cancers, polypi, cysts, moles, melicerous, steatomatory and atheromatous tumors, &c.;* whilst the name of the practitioner who has most correctly explained their nature, has particularized other affections—of this, *Potts disease,* is an instance: and others, again, are best known by the name of the lesion which constitutes them: these are *fractures, luxations, ruptures, and contusions.*

Particular names have also been derived from the figure, colour, principal symptoms, type, and characters of the disease. Though it is consequently easy to perceive the errors, impropriety, and imperfection of such a Nomenclature; yet, we are compelled to adopt these terms, irregular as they are and often suggesting false notions, rather than to introduce a new Nomenclature, however improved: for the admission of new terms, which would necessarily result from this very improvement, would perhaps occasion much greater inconvenience than the Nomenclature itself, however erroneous and imperfect it might be. Morgagni has well observed, "*Si nunc essent imponenda nomina, non dubito quin plura excogitari possint meliora et cum vero magis congruentia: sed, præstat opinor, verum postea animadversum docere, vetera autem, et usitata nomina retinere.*"

The same disease has frequently been variously named by medical writers: whilst, on the contrary, the

* Synonymous Anglicisms with these are, Devonshire Colic, Derbyshire Neck, &c.

same appellation has been given to diseases which essentially differ. Thus *hernias* have been called *strains, ruptures, &c.;* and *amaurosis* has been indiscriminately known by the terms, *gutta serena, gutta obscura, suffusi nigra.*

Tumors which differ essentially in their nature, progress, and termination, as fatty, fibrous, vascular, cancerous, and encysted tumors, have received the generic name of *lupus.*

For the purpose of avoiding confusion, and obtaining accurate notions, it is, then, necessary that the study of each particular disease should be followed by a familiar acquaintance with the numerous appellations which have been used synonymously, and with the import which they convey.

The Latin and Greek languages almost entirely supply the Etymology of the names of diseases: but, whilst they not only frequently fail in giving a correct idea, they too often suggest a notion of the complaint which is altogether false. "For example," *says the author of the Elements of General Pathology,* "the words *phlegmon, phlegmasia,* from φλεγω, to burn, occasion only the idea of heat, which is only one of the symptoms of disease; and the word *peripneumony,* from περι, around, and πνευμων, the lung, indicates only an affection which is seated around the lungs: although peripneumony is, in reality, an inflammation of the substance of the organ, and not of its envelopements: so that, in the first instance, the Etymology gives rise to an imperfect notion; and, in the second, its suggestions are altogether erroneous.

OF ETIOLOGY.*

The knowledge of Morbific Causes, or whatever produces or tends to produce disease, forms the Science of Etiology.

* Huffland has named this division of Science Pathogeny, from παθος, disease, and γενεσις, generation.

The causes of disease are very numerous; they surround and exist within us. The fact that, for a long period, physicians employed themselves in speculating upon the intimate nature, though at the same time they were ignorant of the real state of disease, gave rise to the following just observation of a modern author: "In the time of Hippocrates, physicians defined little, but described much; while their successors have defined much, and described nothing."

During the dark ages, absurd systems, the results of fantastic conceits, excluded from the schools the correct mode of acquiring knowledge, which is founded upon a rigorous observation of facts; and physicians floundered amongst interminable discussions upon the primary causes and the real essence of disease.

The Humoralists maintained, that the fluids exercised the greatest influence upon the animal economy; and that they were always primarily, and often the only parts affected. They sought for the cause of disease in the changed conditions of the blood, lymph, bile, and the pituitary secretion; and even supposed, that particular fluids were formed to answer this effect. Humoral fluxions, metastasis, or translation of morbific humors from one organ to another, and humoral crises, belong, especially, to this theory. In the excess or deficiency, the alkalescence or acidity, the crudity, fermentation, putridity, or decomposition of the humors, were supposed to exist the causes of all the maladies of the body.

The Solidists, who were by no means less exclusive than the antagonists of their theory, and equally companions in their errors, maintained, that the solids were of the greatest importance in the animal economy; and could see nothing in disease, but tension or relaxation of fibre, sthenia, or asthenia, irritation or debility, prostration, &c. The systems of Therapeutics, adopted by these parties, were as erroneous as the supposed pathological principles upon which they were founded: for, whilst the former pretended to correct the disordered condition of the fluids, to neutralize their acidity, or alkalescence, to counteract fermentation, to destroy

their putridity, to purify them, or evacuate *the peccant matter*; the latter endeavoured to increase or diminish the rigidity of the fibres, to sooth, to allay irritation, or to change its seat by counter stimulants, &c.

Some conceived, that the causes of all diseases were to be met with in unusual and irregular actions, and in the derangements of the animal spirits; a principle which themselves created for the purpose of explaining, not only the phenomena of life, but more especially those of innervation.

It is to similar systems, purely hypothetical, that the speculations of those modern authors must be referred, who, taking advantage of the discoveries of chemistry and experimental physiology, have maintained, that all morbific causes are to be found in the excess, or deficiency of oxygen, hydrogen, carbon, and azote.

Clinical observation, relying upon a knowledge of the laws of organization and life, and examination of the phenomena of disease, has, fortunately, done justice to all the false systems and absurd theories, which, for ages, have most deplorably biassed the spirit of the schools, in the principles which have been promulgated, respecting the nature and treatment of disease.

Admitting the expression, "organism," in its most extensive signification, it must not be forgotten, that all its parts are intimately united and bound together. It is the office of the fluids, when endowed with the vital principle, to form the solids which inclose and give them circulation, to maintain their nutrition, and perpetually supply their molecules. The solids, in turn, are resolved into their original fluid state, by the decomposing agency, which is essential to the nutritive process, again to enter the course of the circulation: it thus occurs, that their duration, either as fluids or solids, can by no means be permanent; because each is constantly passing and repassing into the other. No change in the one can, therefore, be produced, unless accompanied by a corresponding alteration in the other: for, like nutrition, of which these alternations form the principal phenomena, the change in consis-

tency, and the metamorphosis from the fluid to the solid state, which they undergo, is incessant during life; the consequence is, that, in the greater number of diseases, originating either in the fluids or solids, each of these, in turn, becomes equally affected.

Numerous affections, as those which are usually denominated nervous, elude all investigations of research; their nature and causes being generally enveloped in as much obscurity as the beautiful phenomena of the system in which they originate. It is injudicious, therefore, to speculate on the first principles of the numerous changes which occur, or attempt to define occult causes, and to leave no difficulty unexplained. "It is better," says Gaubius, "to stand still, than march in the midst of darkness and obscurity." Advance, under these circumstances, would inevitably terminate in the old mode of philosophising, and again entangle us in the net-work of scholastic polemics and sophistry. Let it, therefore, be our business to observe facts, and record them with accuracy, that they may be arranged and grouped, in accordance with their differences or analogies.

Inflammation, which is best defined in the consideration of its principal symptoms, is, undoubtedly, one of the most common phenomena of disease, even in those cases where it is not the essential constituent. But ought we to conclude, as some systematic writers would persuade us, that all diseases are essentially inflammatory; and that all morbid phenomena are merely their direct or sympathetic effects? Unflinchingly to maintain these propositions, would be, in effect, to enter again the trammels of antiquated systems, and to be confined entirely to preconceived opinions. That these dangers may be avoided, let the words of an elegant writer never be forgotten, when he says, "that no spirit is more sophistical than the spirit of party: under its control evil becomes good, and falsehood assumes the appearance of truth."

Inflammation itself is, invariably, an effect produced by the agency of a primary morbific cause, disregarding

altogether the nature of this cause. In numerous instances, it appears to act primarily upon the nervous system, occasioning a peculiar irritation, and producing an afflux of blood; which terminates either in active hæmorrhage, or, more frequently, in the developement of the ulterior phenomena of inflammation. During this process the capillary vessels of the blood are brought into action under the influence of the nerves—*ubi stimulus, ibi fluxus.* Pain is produced; fever arises; and all the subsequent changes, which supervene in the economy, prove the fact, that there is a general disturbance in the functions of the nervous system, and of the other organs which are under its control.

Upon this system all the functions depend; and by it they are principally regulated. It appears to be continually watchful over them for the maintenance of their free and perfect exercise, and the preservation of the integrity of the organs by which they are performed: the seat of intelligence, passion, and moral feelings, it regulates at the same moment, the functions of the organs of sense, and those of motion; and performs one of the most important offices in the phenomena of digestion, respiration, circulation, calorification, &c.

It is well known that the nervous systems of organic and animal life are intimately connected by numerous anastomoses, which envelope the organs in an immense net-work; and that these are pierced by expansions of each, in such manner as to give the appearance of complete identification with their primary tissue. If the anatomist has succeeded in tracing the filaments of the grand sympathetic nerve only upon the principal divisions of arteries, he ought not to conclude that it terminates there; but, rather, that his research cannot proceed further: for, every fact leads him to believe, that this nerve accompanies the cellular tunic of the vessels in their capillary divisions, as well as the parenchymatous structure of the organs.

Nervous power, in its physiological or healthy state, is capable of producing particular phenomena in the circulation of certain parts: it can either distend or empty

the capillary vessels of their blood. All have observed the sudden changes of countenance which accompany every powerful emotion of the mind: the rapid suffusion of the cheek in the blush of shame; and the deadly paleness which is induced by anger and other passions. The phenomena of erection, under nervous excitement, are not less worthy of remark.

In the pathological state, when this system is irritated, either directly or indirectly, through the medium of the sympathies which connect together all the organs, it equally reacts upon the circulation. Sometimes it occasions the general disturbance and fever which precede inflammation, and are observable in most eruptive diseases—as, variola, rubeola, and erysipelas when produced by internal derangement; and, sometimes, its effects are local, exciting phlogosis in the irritated part; and, consecutively, fever, together with other concomitant symptoms: extensive wounds, whitlow, &c., instance these facts.*

It must be admitted, I think, that, generally, the primary cause of inflammation is a peculiar impression made upon the nervous system; which produces, by its agency upon the capillary system, the various phenomena which characterize this pathological condition; and which have been so admirably exhibited in the excellent microscopic experiments of Hastings, Wilson Philip, Thomson, and Leuret.

If the phenomena of inflammation have not been sufficiently violent to occasion a certain degree of disorganization in the part affected, they disappear, together with the nervous agency which produced them; *mors spasmos solvit;* it may also be added, *et phlogosim.*

Can any have failed to observe, that the parts which

* Thus, in the organized beings in whom innervation is materially complicated—in certain animals of the inferior classes; and in those whose structure have no nervous system whatever, as vegetables—the phenomena of disease vary considerably from those which are observed in man.

have been tumified and distended, during inflammation, become pale and cold at the death of the patient? Who can be ignorant of the fact, that, when the nervous sensibility is impaired or overpowered by narcotics—as, wine, spirits, opium, or tobacco—its susceptibility to the morbific influence of external agents is diminished; and that, consequently, almost all who are exposed, from the nature of their vocation, to atmospheric vicissitudes, protect themselves against any injurious tendency by a moderate use of these narcotics? Who has neglected to observe the influences which the moral powers can exercise upon the progress and termination of a sick man's complaint?

It is not in the superabundance of blood, the state which has been distinguished as sanguineous plethora, that inflammation consists. Individuals possessing a sanguineous and plethoric temperament are, undoubtedly, more exposed than others to the occurrence of active hæmorrhages, effusions of blood, cerebral and pulmonic apoplexies, ecchymoses, or spontaneous extravasations: but the inflammatory diathesis is by no means so much developed in these persons as their constitution, upon superficial examination, would appear to indicate. They, on the contrary, who are pale and thin, having a feeble and rapid pulse, and a habit diametrically opposed to that which has just been described, and in whom the nervous temperament predominates, are very prone to inflammatory attacks; they are very sensitive to the influence of morbific agents, and suffer under a constitution which is naturally inflammatory; and, in such individuals, catarrhs, pleurisy, and dysentery, are induced by very trifling causes.

General and local abstractions of blood usually prove very beneficial in the treatment of inflammation: for, they reduce, or moderate, nervous influence, and even suspend its action entirely, for a short time, if carried so far as to produce syncope; and, if the inflamed organ be external, a sudden pallidity, or diminution of colour, distinctly point out this favourable result.

Of numerous attacks of inflammation, sanguineous depletions are by no means capable of effecting a cure; and there are peculiar affections even in which they are decidedly injurious: striking examples of this are found in those gangrenous inflammations arising from the influence of some poisonous principle, and in the attacks of scorbutic persons, in whom the blood appears to possess a modified vitality. If these patients lose blood until they are drained, and even die exsanguineous, their inflammatory symptoms are not mitigated, and abate nothing of their intensity even at the point of death. It is, then, against the cause of inflammation—the *stimulus* which has given rise to, and perpetuated it—that the resources of Therapeutics must be directed; and it is the search in discovery of this cause which demands every exertion—*sublatâ causâ, tollitur effectus.* Inflammation may result in consequence of the irritation which is excited by the presence of a foreign substance in those parts where it has been accidentally placed: when it is possible to extract the body, this must be first done. If a fold of intestine be strangulated, in hernia, a division of the ring or neck of the sac is the most prompt and efficacious means of reducing the inflammation, and preventing gangrene. If a patient suffer under periodic ophthalmia, which regularly returns every twenty-four hours, the most powerful antiphlogistic remedy which can be used in this species of inflammation, is the proper administration of cinchona; and experience has shewn, that mercurial preparations are those which can be most advantageously prescribed for syphilitic affections.

It would be easy to multiply examples of this nature; but are not those that have been given sufficient to prove that an exclusive System of Medicine cannot be maintained? As all possess some truths, deducible from the observation of certain data—but with which many attempt to reconcile all other facts, by attempting to draw from them general and common deductions—the good judgment of an accomplished practitioner will extract from each, that which is acknowledged to be

valuable, incontrovertible, and capable of proof by clinical observation; and it is these means alone that will enable him to establish a valuable eclectic Practice of Medicine.

There is little difficulty, in general, in ascertaining what are the causes of most surgical diseases: thus, the connexion between effect and cause is easily perceived in all physical injuries; but this facility does not always exist, as the affections which fall under the province of Internal Pathology prove; the occasions of many of which are utterly unknown, and those of others are cognizable with great difficulty.

Those writers who have examined into the causes of disease, have divided them into numerous classes—as, external and internal, principal and secondary, proximate and ultimate, predisposing and occasional, positive, negative, physical, chemical, and physiological; and they have even admitted hidden or occult causes amongst the list: but the whole may be referred to two general classes—predisposing, and occasional or proximate causes.

PREDISPOSING CAUSES.

Of these, some affect a great number of individuals: the whole of the inhabitants of an extensive city, province or empire; an entire army, navy, or the inmates of a hospital; and predispose all those, who are under their influence, to similar and analogous complaints; whilst others only operate upon individuals.

Professor Chomel has named the first, GENERAL, and the last, INDIVIDUAL PREDISPOSING CAUSES; a division which will now be adopted as most regular, and the best adapted for study.

1.—OF GENERAL PREDISPOSING CAUSES.

These are usually diffused through the atmosphere, or depend upon the place of habitation. If the at-

mosphere maintain, for any length of time, the same conditions, a predisposition to disease results from the modifications produced by this cause upon the body. "A cold and dry atmosphere," says Chomel, "predisposes to acute phlegmasiæ, and active hæmorrhages, and gives to most of the complaints, which it occasions, an inflammatory character: if the air be dry and warm, superficial phlegmasiæ, erysipelas, and exanthematous diseases, are most frequent; and the generality of acute cases assume a biliary tendency. If the atmosphere be moist and warm, mucous and adynamic affections prevail; whilst catarrhs, scurvy, and rheumatism, are most prevalent if it continue, for any period, moist and cold."

A want of circulation in the air of close situations—pits and caverns, deep mountain glens—and the absence of light, predispose to scurvy, scrofula, goitre, &c.

An electric condition of the atmosphere, the changes of its temperature, and other properties at the change of season, are often powerfully predisposing causes of disease; the consideration of which ought not to be neglected before the performance of important surgical operations. For some years past it has been observed, at l'Hopital St. Louis, that, after heavy thunder storms, gangrene has very frequently attacked those patients who have lately undergone an operation.

Place of abode also exercises great influence upon the constitution, and the production and nature of disease: thus, yellow fever, tetanus, ring-worm, elephantiasis, and many other diseases, which are almost unknown to more temperate climates, characterise the tropics; whilst inflammation, disorders of certain internal organs, gravel, stone, and rheumatism, are the diseases which prevail in cooler regions.

Acute phlegmasiæ are very frequent in those living in dry and lofty situations; and, on the contrary, disorders assume the chronic form where the situation is low and damp: residence in cities, or the country; in hospitals, ships, or barracks; change of habitation, the nature of clothing, food, and state of the moral affec-

tions, &c. are general predisposing causes of a great number of diseases.

2.—INDIVIDUAL PREDISPOSING CAUSES.

In this class are to be placed the various conditions which are peculiar to each individual—as, hereditary descent, age, sex, temperament, constitution, habits, profession, pecuniary situation, state of health, convalescence or disease; together with the different circumstances of hygiene.

HEREDITARY DESCENT OR PARENTAGE. If a man be born of parents who are subject to any disease, he is especially liable to a similar affection: but these hereditary complaints occasionally lie dormant in the first, and develope themselves in the second generation: the most usual are, pulmonary phthisis, rickets, gout, gravel, deafness, syphilis, blindness, scrofula, rheumatism, hernia, &c.; but with these, most congenital diseases, which are generally defects in the formative process, must not be confounded.

AGE. Diseases may be developed at all periods of life, from that when the infant is still enclosed within the womb, to that of extreme old age; and every period claims its peculiar complaints. Thus, hydrocephalus, hydrorachitis, congenital herniæ, and defects in formation, belong to intra uterine existence; and asphyxia, jaundice, and induration of the cellular tissue, are most frequent in new born infants. From the first to the seventh year, the child is particularly liable to eruptive fevers, dentition, tinea, croup, rickets, scrofula, calculus, prolapsus of the rectum, incontinence of urine, and worms. In youth of both sexes, the predisposition to pectoral affections, hæmoptysis, pulmonary phthisis, is very great; and the female, at the same period, is prone to the numerous complaints which are occasioned by the establishment of the menstrual discharge. Hypochondriacism, hæmorrhoids, cancers, and most organic diseases, appear in middle age; and chronic catarrh, cerebral ramollisement and hæmorrhage, fatuity, deaf-

ness, paralysis, cataract, dry gangrene, and diseases of the urinary organs, are the prevailing complaints of old age.

Sex. Both sexes are equally exposed to the attack of most forms of disease; but in consequence of the difference in organization, mode of life, and employment, the male is more exposed to wounds, fractures, calculus, retentions of urine, gouty and rheumatic attacks; and the female especially suffers under cancerous and nervous affections, syncopes, and convulsions. Inguinal herniæ, are most frequent in men; and crural or umbilical ruptures, in women. Diseases of the generative organs are also peculiar to each sex: whilst sarcocele, hydrocele, and varicocele, can occur in the male only; cancer and prolapsus of the uterus, and ovarian dropsy, belong, exclusively, to the female.

Natural temperament, also, is a predisposing cause towards several complaints; and stamps them, when developed, with a peculiar character. A tendency to sanguineous congestions, hæmorrhages, and inflammations, marks the sanguine temperament; and a predisposition to gastric fevers, jaundice, exanthemata, hæmorrhoids, cancer, and other organic diseases, indicate a biliary tendency. Where the lymphatic system characterises the individual, he is very liable to scrofula, chronic discharges, dropsy, catarrhs, scurvy, white swellings, caries, &c.; and the nervous temperament essentially predisposes to hypochondriacism, convulsions, disordered sensations and intellectual functions, and to muscular contractions.

Men of very hardy constitution are predisposed to inflammation, and mechanical injuries of various kinds: from the circumstance of knowing that their powers are great, they rely too much upon them; and hence, they suffer more frequently than those who do not possess equal vigour; and, on the contrary, they who are naturally feeble, are more subject to habitual indisposition, chronic affections, and organic disease.

The structure, situation, and uses of each part of the body, appear also to conduce to the formation of special

complaints: for instance, the lower are more liable to varicose enlargements, ulceration and fractures, than the upper extremities; the weakness of the aponeurotic apertures, in the walls of the abdomen, contribute to the formation of herniæ; the structure of the bones of infants facilitates the production of irregular curvatures, and displacement of their epiphyses; cancerous diseases are more frequent in the glands, skin, and mucous membranes, than most other organs; short and spongy bones are often carious, whilst long bones, and especially their centre, are seldom affected in this manner; persons having large and projecting eyes are more liable to amaurosis and myopia, than those in whom they are small and depressed, &c.

Habits, which arise from a frequent repetition of the same act for any length of time, must be reckoned amongst individual predisposing causes; inasmuch as their discontinuance often occasions perceptible deteriorations of health: the difficulty experienced in changing an active mode of life for sedentary pursuits, or in abstaining from any long continued indulgence, as that of taking tobacco, or spirits, is familiar to all.

Modes of Life, or the occupation of men, dispose them to disease, according to the nature of the circumstances by which they are surrounded. Thus, literary men become nervous, hypochondriacal, apoplectic, and hemorrhoidal; public criers, singers, and barristers, are subject to anginæ, and laryngeal phthisis; the cavalry, to herniæ, varicocele, sarcocele; masons, tilers, carpenters, plumbers, drivers of carriages, to fractures, dislocations, and lacerations; reapers, watchmakers, jewellers, and engravers, to disease of the eyes, ophthalmiæ, and especially to cataract; soldiers, to wounds inflicted by the sword, bayonet, or fire-arms; washerwomen, wharfingers, &c. to varices and atonic ulcers; women of the town, to venereal affections; English chimney sweepers, to a particular kind of cancer, which attacks the scrotum, &c.

Pecuniary Circumstances, and consequently all the habits of life, as they depend upon these, materially influence the generation of disease. Thus, nervous

affections are most frequent in the higher classes of society; and ulcers, wounds, scrofula, scurvy, itch, tinea, and some other exanthemata, are common in the lowest grade. Gout only attacks those who enjoy every comfort of life; amongst the poor it is unknown, and rheumatism prevails in its stead.

THE STATE OF HEALTH, CONVALESCENCE, AND DISEASE, facilitates, or not, the developement of any complaint; and the circumstance of disease or convalescence ought to be regarded, always, as a powerful predisposing of the body to the reception of any other disorder. Diemerbroeck relates, that, during the plague of Nimegua, all those who had suffered under any affection, almost directly afterwards became victims to the contagion; and the same fact has been remarked in many epidemics, though in some the contrary of this has been observed.

PREGNANCY is also a predisposing cause of disease; and females, during this period, and after confinement, are more exposed to hæmorrhoids, varices, and accidents of prolapsi, than at other times.

ARTICLES OF CLOTHING, if too tightly applied round the body—as, corsets, cravats, garters, &c. by compressing the parts which they surround—prevent the venous, arterial, and lymphatic circulation, and thus excite a tendency to numerous diseases, such as sanguineous and lymphatic congestions, pulmonary phthisis, apoplexy, varices, and atrophies of various kinds, &c. If the pad of a truss be too thick, it will often occasion inflammation, excoriation of the integuments, varicocele, &c.; long continued pressure by the body, upon a hard bed, frequently induces inflammation and gangrene in the compressed parts. Shoes which are too tight occasion, after a while, deformed toes, or indurations of the epidermis, called *corns*.

Pressure is frequently occasioned by tumors situated within the body, and producing effects similar to those of pregnancy, when the distended uterus compresses the abdominal vessels, and thus predisposes to hæmorrhoids, varices, and enlargement of the inferior extremities.

Tumours which are situated in the cranium, vertebral canal, chest, or when deep seated in the extremities, are of a similar nature.

FOOD AND DRINK may also become predisposing agents, if they are of an injurious nature, adulterated, or improperly used.

Though the EVACUATIONS may vary considerably, the irregularity may not be decidedly injurious to health, if, by the increase of one and diminution of another, the general balance is maintained. But, when the disproportion between the ingesta and egesta is considerable, the constitution becomes so far affected as to be predisposed to numerous complaints: thus, excessive perspirations, a copious flow of saliva, an excessive discharge of any accustomed secretion—as of milk, a too frequent seminal emission, &c.—powerfully reduce the system, and render it susceptible to disease. But, if the secretions are suppressed or diminished, an opposite condition supervenes; i. e. a plethoric or decidedly inflammatory state. The retention of accustomed evacuations, the omission of blood-letting, and the use of habitual purgatives, have a similar effect; but these more usually operate as occasional than predisposing causes.

IMMODERATE CORPOREAL EXERCISE impairs the health, and either occasions disease, or renders those more important which are induced by other causes. Want of exercise, and rest which is too long continued, produces also serious inconveniences. *The long continued inactivity* consequent upon a sedentary life, in the first place, enfeebles the locomotive organs, and afterwards the chylopoietic viscera; and, whilst the body increases in size, it diminishes in power: polysarcia, mucous fluxions, scrofula, œdema, gravel, anchylosis, and occasional atrophy, mark the progress of disease when the cause has been of permanent duration. Ataxic fevers, and nervous complaints, often succeed prolonged watchings; and inordinate indulgence in sleep as frequently produces general obesity, and the patient becomes plethoric, and suffers under cerebral congestions.

Excitement produced by mental emotion, the pas-

sions, and intellectual exertion, if carried to an extreme, are also prolific sources of disease.

PROXIMATE CAUSES.

These have been called *efficient, proximate, conjunctive, material, formal,* and *specific,* and act in a distinct manner, and constantly produce the same effect; they may be divided into *common,* and *specific* proximate causes; the latter of which generate contagious distempers, and are altogether different from the former.

1.—COMMON PROXIMATE CAUSES

May be dispersed through the atmosphere, or directly applied to the body, or introduced within the organs; and may be seated internally, or occasioned by a disordered state of the secretions, motions, or sensations. The same order of examination, which was adopted when treating upon the principles of Hygiene and the doctrine of predisposing causes, shall be again followed.

1. CIRCUMFUSA. If the atmosphere be impregnated with any of the deleterious gases, carbonic oxide, carbonic acid, carburetted hydrogen, or sulphurous acid gas, it becomes the proximate cause of asphyxia, and death if respired, and of peculiar ophthalmies, &c.; and when it is charged with animalized vapours, or arises from patients who are too numerously congregated in a confined spot, it is productive of typhus, and other fevers of a dangerous nature, and hospital gangrene. The gases, also, and miasmata, which are disengaged during the putrefaction of animal and vegetable matter, frequently affect the economy injuriously, and occasion various epidemic affections.

Proximate causes of many diseases are to be found again in the odour of vegetables—in the floating of metallic vapours in the atmosphere, as those of mercury and lead—in a temperature which is excessively hot or cold—and in the too great brilliancy or total absence of light.

2. Applicata. Numerous proximate causes of diseases, especially of those called surgical, are to be found in this class of agents: such are the wounds which are inflicted by cutting, penetrating, or bruising instruments; gunshot wounds, which are either simple or complicated; the various derangements which may be occasioned in the position, relations, or structure of organs by blows, or prolapsies; and the inflammations and gangrene which are produced by the great compression of bandages too tightly applied, which impede the circulation and nervous power in the affected parts: life is, in these cases, destroyed, as flame expires when it is no longer supplied with food for its support.

Causes of disease may also affect the tissues physically or chemically: cold, for instance, at first produces stagnation, then an inflammatory reaction takes place; and, if it be excessive, gangrene follows: heated bodies, incandescent metals, boiling water or oil, affect the organs which come in contact with them, in varying degrees; and not unfrequently destroy them, by occasioning sphacelus. Concentrated acids and alkalis, and certain metallic salts, combine with the tissues to which they are applied, and convert them into gangrenous eschars; and some chemical substances, as the oxides of arsenic, and nitrate of mercury, not only act as escharotics, but become poisonous, being absorbed, and circulated with the fluids: under this class of causes, then, must be admitted topical stimulants, rubefacients, and vesicatories.

Venomous poisons, the products of a peculiar secretion in certain animals, and which are deposited in the wounds they inflict, fall under the same class: the effects which they produce in the economy are always similar; and they are distinguishable from those occasioned by a virus in this respect, that their formation is never accidental, nor the result of any morbid change, and that they cannot be reproduced by the diseases to which they have given origin.

3. Ingesta. Substances taken internally often become proximate cause of disease: under this head must be placed almost the whole of the poisons, whatever be

their principle of action; whether they are *corrosives, astringents, stimulants, narcotics, or septics.* Foreign bodies, also, of various kinds, which, by their physical powers, are capable of disturbing the functions of the organs—as, when they are introduced under the eyelids, into the auditory passage, nasal fossæ, pharynx, larynx, trachea, æsophagus, stomach, rectum, urethra, bladder, and vagina, &c.—must be placed under this division.

4. Excreta, Gesta, Percepta. Proximate causes of disease are frequently observed in these divisions of Hygiene: thus, retention of urine in the bladder may occasion paralysis, inflammation, and rupture of this viscus; the accumulation of accustomed secretions in the cavity of the uterus may excite a painful distension of this organ, and which is frequently accompanied by other severe complaints; the retention of fecal matter in the rectum or other parts of the intestinal canal, may give rise to the painful distension of the organs, with inflammation and vomitings, &c.; and jaundice, with other affections—as, abscess, internal or external biliary fistulæ, result from an accumulation of bile in the excretory ducts and gall-bladder, &c.

Muscles, and their tendons, may be ruptured by the violence of their own contractions; and even the bones into which they are inserted have been broken: this has been observed in fractures of the patella, os calcis, olacrenon, and many other parts of the osseous system. Powerful efforts or strains displace the organs, and occasion dislocations, abdominal and thoracic herniæ, and prolapsus of the uterus and rectum, together with rupture of the arteries and veins, inducing internal hæmorrhages and apoplexies; and various kinds of emphysema are produced by the violent ruptures of the air cells of the lungs: upon accidents of this nature I have made numerous observations, in a small work, entitled, "Mémoire sur l'influence des efforts sur les organes renfermés dans la cavité thoracique."

It frequently occurs that one disease proves a proximate cause of another: hence, the developement of

certain tumors in the neck, by compressing the trachea, has occasionally produced suffocation and asphyxia; ruptures or wounds of the stomach and intestines, bladder, uterus, and gall-bladder—in allowing the escape of the substances contained in these organs into the peritoneal cavity—have been so many exciting causes of inflammation in this serous membrane; a fracture, dislocation, and gunshot wound, may excite tetanus and the formation of large abscesses in the adjoining cellular tissue, or be followed by anchylosis, necrosis, caries, &c.

To these may be added, as proximate causes, the presence of foreign inanimate bodies, as the concretions which are separated within the organs, from the fluids which they contain—as, urinary, biliary, stercoraceous, salivary, and pancreatic calculi, concretions from the blood, &c.; also, the presence in the human body of certain parasitic animals, such as tænia, ascarides, and hydatids.

2.—SPECIFIC PROXIMATE CAUSES.

That mode of communicating disease has been called *contagion*, by which certain diseases are transmitted from the patient to the healthy individuals who may hold intercourse with him; and those complaints which are thus capable of being extended are said to be contagious. It is generally admitted, that the agent of contagion is material in its nature; and that its existence is undoubted, although it is not cognizable to the senses: it has been named, *the contagious principle, or virus*.

Some contagious diseases usually attack the same individual but once during life—as, variola, scarlatina, and rubeola; others may reappear after the lapse of a few years—as, typhus and yellow fever; whilst a third kind, as syphilis, appears to increase the susceptibility of the patients towards a repeated affection.

Contagion may be propagated immediately or mediately. It is considered to be *immediately* produced when the contagious principle is directly transmitted

from a sick to a healthy man; and may take place in numerous ways—

1. By the remaining in a patient's chamber when the atmosphere is impregnated with contagious principles; as appears to be the case in typhus, and, perhaps, in variola.

2. By direct contact with the patient's body—as, in itch, and many other complaints.

3. By the application of the virus to mucous membranes, wounds, and excoriations—as, in syphilis, hydrophobia, and vaccination.

4. Lastly: the transmission may be effected by the coming into contact with the skin of animals which have died of a contagious complaint: thus, malignant pustule is frequently produced in those who work in the skins, hair, and wool, of animals which have died under epizootic gangrene.

Contagion is *mediately* propagated by means of substances which have touched the body of the patient—as, his clothing, &c.; and it has been remarked, that the contagious principle is the most easily received and transmitted by fleeces of wool, silk, cotton, and flax.

SYMPTOMATOLOGY.

Symptomatology is that branch of Pathological Science which treats upon the Symptoms of diseases.

Symptoms may be defined to be every change which is cognizable by the senses, and manifested in any organ or function, being at the same time the consequence of disease. The last character is essential; because, if any change take place in the healthy or diseased body, which is not the effect of disease, this is only a *phenomenon*, and *not a symptom*: and it is for this reason that Galen said, that "as a shadow follows its body, symptoms indicate disease."

Whatever tends to elucidate the obscurity of the past, present, or future state of a disease, becomes a

sign or diagnostic mark; and with which it is of importance that the symptom should not be confounded.

If it were possible that every symptom could be a sign, it does not follow that, on the contrary, every sign can be admitted as a symptom; for various circumstances, viz. cause, progress, and effect of treatment in disease, may afford valuable signs. "A symptom," says Chomel, "is merely a sensation; and only becomes a sign by an especial act of the observer's mind. This, therefore, is an act of the judgment; but the other belongs to sensation;" consequently, it is necessary to study symptoms, or the changes which disease occasions in the organs or functions, and which are very numerous, in their relative and analogical order. The most accurate method which has been proposed, for answering this purpose, is that which assumes Physiology for its basis, and is formed by a successive examination of symptoms as they occur in the functions of the organs of relation, nutrition, and generation. The advantages to be derived from this mode of procedure may be thus enumerated: it secures a due appreciation of the relative importance of the various symptoms; a more accurate knowledge of the lesions upon which these symptoms depend; a more correct information of the relations which they bear to each other; and, especially, it familiarizes the mind with that order in observation which is highly advantageous in facilitating the recollection of them.

Such is the order of arrangement which M. Chomel has adopted in his work on General Pathology: but, as the full detail of this most extensive division of the science belongs to the particular treatises of General Pathology, they will now only be summarily given.

A.—SYMPTOMS EXHIBITED BY THE FUNCTIONS OF RELATION.

It is necessary, in an examination of the symptoms afforded by the functions of relation, successively to study the changes which occur in the *appearance of*

the exterior of the body, and its various parts; in the power of locomotion; in the voice, speech, sensations, passions, intellectual functions, sleep, and watchfulness.

1.—IN THE GENERAL EXTERNAL APPEARANCE.

The practitioner ought to observe—1. The usual attitude of the body; whether it is recumbent, on the right or left side, upon the back or belly; and the degree of extension or flexion of the limbs, &c.—2. Whether the bulk of the body be increased or diminished—3. If the flesh be firm or flaccid—4. If the skin be of a pale, faded, yellow, livid, red, sallow, purple, green, or even black colour—5. Whether there be eruptive diseases of any nature, as varioloid pustules, nettle-rash, ring-worm—6. If the folds of skin are deep, permanent, livid or blue, &c.—7. Or whether there be any tumors, phlyctenæ, fissures, wounds, ulcers, fistulæ, or cicatrices.

He must not forget to investigate, also, the external changes, which may have taken place in the different parts of the body—as, the size and position of the head; the expression of countenance or physiognomy; colour and motions of the face; expression of eye; state of the nostrils, mouth, lips, and even of the hair, &c. He ought, then, to proceed to examine, in succession, the exterior of the neck, chest, abdomen, the hands, feet, nails, and organs of generation, &c.

2.—THE LOCOMOTIVE ORGANS.

The bones, which are passive agents in locomotion, exhibit marked symptoms when they have undergone alteration, and point out, by the deformity which is occasioned, the existence of dislocations, fractures, and exostoses; by the incapability of motion, incomplete or complete anchyloses; by an unnatural mobility, change in direction, length, and crepitus, fractures of the limbs; and by exfoliation, the presence of a sequestrum in necroses, &c.

Muscles, as the active organs in locomotion, present more frequent changes or symptoms in disease than bones: for, their action may be increased or diminished, destroyed or perverted, in various ways.

In certain nervous diseases, and especially in maniacal affections, the muscular power is increased; or, it may be diminished: it is then accompanied by the sensation of fatigue and lassitude, and motion is rendered weak, uncertain, and tottering. In other cases, muscular contraction is momentarily or permanently lost; and may result from syncope, asphyxiæ, and paralyses, or after a division or severe pressure of the nerves, &c. Lastly: the derangement of muscular contractility presents many varieties; such as tremors, rigidity, spasms, twitchings, contractions, carpologia, and convulsions, which may be either clonic, tonic, or tetanic: whilst catalepsy and chorea are again instances of other modes of muscular action.

The muscular fibres of the heart, stomach, intestines, and bladder, give many of the symptoms which are observable in the muscles of relative life: i. e. contractions, convulsions, paralyses, &c.

3.—VOICE AND SPEECH

Are much and frequently altered by disease. The voice may be rendered more powerful or feeble than natural; or altogether lost. This state is named aphonia, and is observed in extensive wounds of the trachea, in consequence of the entire volume of air, which is expired by the lungs, passing through the accidental aperture: it is a symptom, also, of an injury received by the laryngeal nerves. The voice may, also, be clear, shrill, hissing, harsh, rough, or hoarse, as when the patient is labouring under angina, or the presence of foreign bodies in the larynx; perforations in the palatine arch, and the loss or division of the velum palati, produce the nasal tone; the mode of utterance or speech often becomes slow or quick, short or tremulous; and the patient is affected by stammering, dumbness,

or incapability of articulation, in many diseases of the tongue, ranula, dislocations of the jaw, &c.

4.—SENSIBILITY AND SENSATIONS.

Though sensibility, in a natural state, is observed in most organs, yet, it is only under disease that it is developed in all other parts—in ligaments and bones, for instance; but the epidermis and hair are exceptions to this.

Its character is frequently changed, by disease, into that of pain; and then becomes extremely varied: thus, it may be tense, dull, pulsating, lancinating, burning, pungent, tearing, itching, &c. according to the sensation produced. It varies, also much, with respect to its intensity, seat, and type, &c.; and restlessness, general malaise, are but varied modes of pain.

Paralysis, which results from cerebral or spinal compression, by exostoses or splinters of bone, destroys sensibility altogether: and the same effect follows a section or ligature of the nerves, &c.

The alterations in external sensations are neither less numerous nor remarkable than those in general sensibility: for, the sense of sight, hearing, smell, taste, and touch, are equally liable to be disordered as the other functions of the nervous system; and when the respective organs are affected their action may be increased or diminished, destroyed or perverted.

5.—THE PASSIONS OR EMOTIONS.

The moral emotions, which, during health, vary so much in different individuals, become very remarkably changed under disease; impatience, ennui, and depression of spirits, frequently accompany the sick man; one becomes irritable, and another sympathizing, whilst a third is thoroughly indifferent both to his own situation and the feelings of those whom otherwise he regards; and sometimes moral sensibility is altogether

lost, &c.: there are, indeed, few serious affections which do not, in some degree, change the ordinary character of the patient.

6.—INTELLECTUAL FUNCTIONS.

A depression rather than an excitement of these powers usually attends disease; but, notwithstanding, there are some cases in which they are evidently excited, as where wounds of the head have been received; and in certain hypochondriacal affections; and their derangement may also be only partial.

In some circumstances, the attention and memory continue perfect, but the judgment and imagination are perverted; in others, the memory alone is enfeebled or entirely destroyed—the frequent consequence of wounds upon the head, and effusions in the brain. The entire intellectual powers sink under perfect idiotcy and those diseases which suspend the functions of relation—as, apoplexy, violent fever, cerebral concussions, deep wounds of the encephalon, syncope, &c.

Delirium consists in the aberration of one or more of the intellectual powers, and varies considerably, and may be complete or partial, permanent or transient, quiet, tranquil, or furious, &c.

7.—SLEEP.

In disease it may be either excessive or deficient, or it may be broken and disturbed in various ways; and when this irregularity takes place, it is of little service in restoring the powers. The loss of sleep may be entire, and has been named insomnia or agrypnia; it may be disturbed by night-mare or dreaming, or cease suddenly, the patient appearing to awake alarmed; somnolency and coma and carus, which are often produced by severe concussions of the brain, or injuries of the head, may be referred also to altered conditions of sleep.

Lipothymia, syncope, and vertigo, belong also to the symptoms which the functions of relation exhibit.

B.—SYMPTOMS WHICH ARE SHEWN BY THE INTERIOR OR ASSIMILATIVE FUNCTIONS.

It is now proposed succinctly to enumerate the principal symptoms which are exhibited by the functions of digestion, respiration, circulation, calorification, of secretion and exhalation, especially as elucidatory of surgical disease.

1.—DIGESTION.

In disease, all the digestive powers and organs are more or less seriously affected.

It is seldom that the appetite increases under disease, except in some maniacal and helmintic affections; it is usually either diminished or entirely destroyed. The first condition is named dysorexia, and the second anorexia; but in other cases it is depraved, as when there are loathing, pica, and malacia, the mouth may give the sensation of bitterness, clamminess, or dryness. Thirst is more usually increased than diminished in diseases, and particularly in acute affections, or those which are accompanied by excessive evacuations; and it sometimes becomes very active, during or after the performance of capital operations, in traumatic fever, or diabetes, &c.

Very important symptoms may be noticed in an examination of the different parts of the mouth. Thus, the teeth may be loosened, separated from the alveoli, decayed or covered with deposits of various kinds; their motion upon each other may be gliding or grating, producing the sounds which have been called grinding and chattering of the teeth.

The gums may be of a pale or red colour, swollen, or livid, &c.

The tongue of a patient undergoes remarkable changes in its motions, size, dryness or moisture, and colour, and in the sordes and different eruptions which are to be seen upon it: thus, it may be tremulous, turned to the left or right side, and motionless; it may continue

moist, or become smooth, dry, and be studded with elongated papillæ, &c.; and, more or less, deeply furrowed. The colour may be pale or livid, a deep red brown, or black; and the sordes, which the tongue varies in its thickness, may be adhesive or easily separated; apthæ, pustules, &c., are to be found also upon the tongue.

The posterior parts of the mouth, the velum palati, uvulæ, ammygdalæ, afford, also, symptoms of a different nature, and which it is important to observe in disease; and more especially if these organs are affected, as in the enlargement and ulceration of the tonsils, chancres, and abscesses of the pharynx, and velum palati.

Mastication is painful, laborious, and often incapable of being performed, under many complaints—as, trismus, abscess of the parietes of the mouth, or fractures and dislocations of the jaw.

Deglutition is, apparently, too rapid in some complaints; whilst, in others, it is slow, imperfect, difficult, and even impossible—as in abscess and polypi of the pharynx, or where foreign bodies have been introduced into the œsophagus, or this canal is compressed by the developement of any tumor. Occasionally, solids are retained, whilst liquids are rejected; or the contrary of this may take place; and, in wounds of the œsophagus, both kinds of food may escape, externally, into the adjoining parts.

It is seldom that the digestive power of the stomach is increased by disease: debility and derangement are, on the contrary, its usual consequences. These functional disorders of the stomach occasion *nausea*, or the simple desire to vomit; *retchings*, or ineffectual attempts to expel the contents; *eructations*, which consist in violent convulsive actions of this organ, which will neither receive additional food, nor expel that which it already contains; they also produce *regurgitations*, by which some solids, liquids, or gases, are propelled by gulps from the stomach or œsophagus into the mouth, but unaccompanied by any attempts to vomit; *vomiting*, or the act of forcibly rejecting by the mouth the contents of the stomach; *pains in the epigastrium*, or

spasms of the stomach; and, lastly, the rumbling of gas contained in this viscus.

Most of these symptoms arise from intestinal strangulation, obstructions in the digestive canal, wounds of the stomach or intestines, and calculous affections of the kidnies.

The intestinal canal, also, exhibits numerous symptoms under disease. Borborygmi, and rumblings are occasioned by the rolling of their contained gases: and, in cases of herniæ, these sounds may be rendered distinct by pressure. The passage of fecal matter may be too rapid, constituting the complaint which is called diarrhœa; or it may be retarded, producing constipation; or altogether interrupted, as occurs in strangulated hernia, volvulus, stercoraceous concretions, &c.

ALVINE EVACUATIONS may be too frequent, or the contrary: and these disordered conditions may succeed each other in certain complaints. Their excretion may, also, be painful, impossible, and involuntary—as in hæmorrhoids, anal abscesses and cancers, paralyses of the sphincter of the rectum, and when foreign bodies have been introduced or formed in the bowel; and tenesmus, with violent strainings, are produced by the quick and repeated but fruitless attempts, (accompanied by heat and smarting) which are made to throw off the substances.

The fœces occasionally pass away unnaturally, as by the vagina, bladder, or through the parietes of the abdomen, producing the recto-vesical or vaginal fistulæ, and the artificial anus. And, under disease, the evacuations undergo numerous changes, as well in their nature, consistency, quantity, colour, odour, as the foreign substances which they contain, &c. It is, then, important to notice them carefully, because they may afford distinct indications respecting the nature and seat of the affection.

2.—RESPIRATION.

Respiration furnishes numerous symptoms under disease, in the changes which it undergoes in its move-

ments, quantity of respired air, and in the accompanying sounds: thus, it may be rapid or slow, frequent or seldom, deep or short: if it be performed laboriously, it is named *dyspnœa:* according to the nature of the irregularity, the respiratory motions become *laborious, suffocating, heaving, or deep.* If their action is suspended, apnœa is produced; and they are reckoned *unequal, irregular, intermittent, interrupted, broken,* in consonance with their rhythm, &c. The accompanying sounds are capable, also, of singular modifications, and the respiration may be *hissing, sighing, mournful, stertorous,* or *rattling.* Wounds in the trachea or larynx, allow respiration to be performed through the apertures.

The expired air may be unnaturally hot or cold, and smell sweet, sour, fetid, nauseous, cadaverous, &c.; its chemical composition may probably be changed in many, and particularly in pectoral diseases.

PERCUSSION and AUSCULTATION detect numerous and very important symptoms: thus, pneumothorax is indicated by a clear, sonorous, and hollow sound; and empyema, and effusions of blood and serum into the pleuritic cavities, and various diseases of the lungs, by a heavy and full sound.

Auscultation may be made either by the direct application of the ear to the walls of the thorax, or by the intervention of the stethoscope. In the first instance, it is said to have been effected *immediately;* and, in the second, *mediately.* It ascertains the sounds which are produced in the chest by the voice: these are named, *pectoriloquy* and *egophony;* and distinguishes, also, the varieties in the respiratory murmur, which may diminish or increase in intensity, be altogether lost, or replaced by other very different sounds, such as the *crepitous, mucous, dry, sonorous or snoring, and sibilous "râles" or the metallic tinkling, &c.*

For the purpose of establishing a diagnosis between the numerous pectoral effusions and pulmonic adhesions, these are most valuable means; and they render important assistance in pointing out such conditions of

the lungs as require the performance of certain operations.

It is, again, to the symptoms which the chest afford, that laughter, yawning, sneezing, hiccup, coughing, spitting, and the expectoration, which take place in many surgical diseases, are to be referred.

3.—THE CIRCULATION.

It will be necessary to consider the principal symptoms, which are exhibited by the circulation, in the successive order of each of its organs: thus, the heart, arteries, capillary system, and veins, circulating blood; and the lymphatic vessels and glands, the lymph.

A.—CIRCULATION OF THE BLOOD. The *heart*, when diseased, presents very remarkable irregularities in its pulsations: they may be very strong or feeble, and vary in regularity; the extent to which they may be heard through the walls of the thorax, and even the abdominal parietes, differs considerably; the sounds which they give to the ear may be powerful or weak, or even different to those of the healthy state: these are, "*le fremissement cataire,*" like the purring of a cat;—"*le bruit de râpe,*" the sound of a file.

Arteries pulsate in consequence of the afflux of the blood which is thrown into them by each contraction of the heart: this beating of the artery, which is succeeded by an interval of repose, is named *the pulse,* and furnishes numerous symptoms which relate to its rapidity, force, fulness, hardness, and softness, &c. Its varieties may consist either in the frequency or rareness, regularity or irregularity, evenness or unevenness, indistinctness or imperceptibility of its pulsations: and these are the principal varieties which characterise disease, whether it be surgical or medical. But the arteries afford, also, other symptoms, which are particularly connected with surgical diseases, in their dilatation or rupture in aneurisms, obliteration, and ossification, as well as in the pulsations which are found in these

dilated vessels, or in the tumors which adjoin or enclose them.

Hæmorrhages, consequent upon wounds and rupture of arteries, possess, also, peculiar characters.

The Capillary Sanguineous System. To the alterations which occur in this system are to be referred most of the local symptoms of inflammations; also, the red, purple, blue, and black colour which the skin assumes in certain diseases—blotches, sanguineous or livid spots, and ecchymoses; pallidity, spontaneous and some traumatic hæmorrhages, &c.

Veins, which circulate the black blood, offer many symptoms: they may be dilated; or, on the contrary, disappear altogether. The former state accompanies plethora, and the latter indicates an attack of acute disease or intermittent fever. Under inflammation they become red, tense, and painful, and may be traced through the skin. When the circulation of the blood is performed with difficulty, or impeded in any trunk by a continued pressure, they are permanently dilated and varicose: they pulsate, also, when there is a reflux of blood from the right auricle into their cavity, as is exhibited by the jugular veins in certain affections of the heart, and by varicose aneurism. These venous pulsations are, also, occasioned by the passage of the blood from a wounded artery into the cavity of an adjoining vein. Venous hæmorrhages have peculiar characters, by which they are distinguishable from those which are arterial.

The blood, also, varies in its appearance, consistency, and the proportions between the *serum* and *coagulum*, which are separated from the rest; and the different properties of arterial or venous blood afford most important symptoms in the study of many diseases.

B.—Circulation of Lymph. It is, frequently, difficult to ascertain the morbid phenomena which take place in the lymphatic vessels and ganglia. The lymphatic vessels are inflamed in some diseases—as, in anthrax or boils, and wounds causing great irritation—if they are superficial they are traceable under the skin by raised, reddened, and painful lines; and, occasion-

ally, they are like tense cords. When the lymphatic circulation is impeded by compression or any other cause, they dilate, become varicose, and even form considerable tumors—an instance of which is given at the close of the work. Should they be wounded, serous fistulæ may result. Like arteries, they are sometimes ossified, and enclose concretions in their cavity. The lymphatic ganglia may inflame, suppurate, and terminate in gangrene; and, occasionally, serous fistulæ form in their substance—a fact which may be observed in scrofulous ulcerations of these parts, and buboes.—Alterations in the composition of the lymph are little understood.

4.—CALORIFICATION.

The *heat* of the body may be increased, diminished, altogether lost, or "perverted," by disease. Sometimes it may be pungent, dry, accompanied by moisture, burning, and smarting—its extent may be general or partial—at others, it is diminished, and the patient suffers under chills, cold, tremors, and shiverings. It may, also, be "perverted:" under these circumstances, the patient thinks that a part is cold, when in reality it is hot; or the contrary. It is observed to vary in the different inflammations, phlegmon, anthrax, erysipelas, febrile affections, gangrene, &c.

5.—EXHALATIONS.

According to Chomel, the symptoms which are exhibited by the exhalants, may be separated into three divisions: the first includes the various alterations which supervene in the *natural exhalations;* the second, those phenomena which are peculiar to them, when *morbidly affected;* whilst the third treats of such as are *altogether unnatural.*

To the first belong the *cutaneous, mucous, serous, synorial, fatty, and menstrual exhalations; and certain profluvia of blood which claim an analogy with them;*

to the second, the formation of pus, and of several other fluids; whilst, under the third division are ranked the exhalations from the wounds produced by vesicatories and cauteries.

A.—Natural Exhalations. The *cutaneous exhalation* or perspiration, may be increased so as to occasion, in the lowest degree, a *slight moisture;* and, in the extreme, *sweat.* This may be *general* or *partial, hot* or *cold, thickened, viscous, glutinous* or *tenacious:* if very abundantly poured out, it constitutes that state of disease which is named *colliquative sweats;* the colour may be *yellow, greenish,* and *red;* and its smell, *sweet, faint, keen, sour, fetid, urinous, alliaceous, &c.*

The *mucous exhalation* presents, under disease, numerous varieties. The quantity may be greater or less than is natural; its secretion may be entirely *suspended* or *diseased;* its consistency may vary, and its colour also become *greenish, yellow, red, black,* or *white;* its smell may be *fetid* and *nauseating.*

The *serous exhalation* may also be unnaturally increased, diminished, altered, or suspended under disease; and when an accumulation of serosity takes place between its secreting membranes, those symptoms are produced which distinguish the various kinds of dropsy.

The *synovial, fatty, sanguineous,* and *gaseous exhalations,* in disease, undergo also many changes, and thus give rise to numerous important symptoms.

B.—Morbid Exhalations. These originate in the production and exhalation of fluids which are altogether new, and bear no analogy with any that are to be found in the healthy individual—of this nature are pus and sanies. The doctrine of the formation of *pus,* or *Puogeny,* is one which is highly interesting to physicians, but it is more especially important to surgeons. There are, again, other diseased fluids which exhale from particular eruptive complaints, as itch and tinea, &c. The quantity, consistency, colour, and smell, of pus, vary as much as the structures by which it is formed; and its copious external discharge, or entire retention, is influenced by the same cause.

C.—Unnatural Exhalations. Particular attention ought to be paid to the quantity and quality of the pus which arises from cauteries, blisters, moxas, and setons, and the state of the surfaces by which they are exhaled.

6.—TRUE SECRETIONS.

In disease, the secretions may not only be generally disordered, but they may, also, be individually affected. The *tears*, *saliva*, *bile*, and *urine*, are frequently altered in quantity, quality, consistency, colour, smell, taste, and chemical composition ; they may flow involuntarily, as is observed in incontinence of urine, and salivation: at other times, they may be retained in their vessels or reservoirs, giving rise to serious complaints, or if escaping by accidental passages, occasion various kinds of fistulæ ; and, again, calculi of different kinds may originate from the concretion of the principles which they contain.

7.—ABSORPTIONS.

Great difficulty frequently exists in distinguishing between diseases of the absorbent and exhalant vessels: for, dropsy may be produced either by a diminution in absorption, or an increase of exhalation, the equilibrium which ought to be maintained between the two functions being thus destroyed. To reconcile these anomalies, some pathologists have asserted that the cause of acute dropsies, or those which depend upon a general or local excitement, is an increased action of the exhalants, whilst that of passive dropsical affections, or those accompanied by languor and debility, consists in a diminished power of the absorbents. But this opinion is by no means supported by any accurate observations.

There are many cases in which it is impossible to deny that absorption produces the phenomena which are observable in the disease: of these are the sponta-

neous disappearance—1, of the blood, after extensive effusions of this fluid, and in ecchymoses—2, of the fluid of the serous membranes, and of the lamellated tissue, in dropsies and œdemas—and 3, of the pus which is poured out in empyema, abscess, phlegmon, and buboes. That these morbid absorptions really take place, is proved by the presence of pus in the lymphatics and veins which pass from the suppurating parts, and by the metastasis of pus upon the internal organs —as, the lungs, liver, spleen, brain, kidnies, and serous membranes—a fact no longer of doubtful occurrence: for, after death, purulent accumulations have been found in the organs which were the seat of the metastasis; few or no symptoms of existing inflammation having indicated it during life.

Whilst in this place it would be natural to discuss the question of *purulent "resorptions,"* if the limits of the work would permit, it would appear, from the observations and facts of pathological anatomy, 1. That consecutive abscesses, occurring in distant organs, are not *specially* produced by accidental wounds, and those consequent upon the performance of operations; for they are also observed in cases of congestion, abscess, ulcers and certain cutaneous affections, caries, fistulæ and empyemas of the serous membranes.—2. That the difference of opinion between ancient and modern writers, with regard to their existence and mode of formation, arises in this manner: that since metastatic abscesses are not invariably formed in the same manner and by the same causes as each party has supposed, it consequently happens that many of these materially differ from each other; and it is important that they should not be confounded together, particularly if the error should influence the therapeutic treatment.

Are not, also, the phenomena of ulceration, the formation of the line between the healthy and diseased parts in a necrosed bone, together with the separation and expulsion of the sequestrum, the resolution and disappearance of tumefactions and of tumors of various kinds, to be attributed to the action of the absorbents?

8.—NUTRITION.

Nutrition, in disease, may be either increased, diminished or "perverted," generally or locally, and even altogether destroyed, as where gangrene has taken place; when augmented, the increase of nutritive power occasions obesity, and forms a part of several diseases, as hypertrophies; when diminished, thinness, emaciation or atrophy distinguish the patient; when perverted, numerous "degenerescences," as rickets and mollities of the bones, take place.

C.—SYMPTOMS EXHIBITED BY THE GENERATIVE FUNCTIONS.

In *men*, the spermatic secretion appears to be usually diminished in most of those affections which indicate a degree of flaccidity of the genital organs, and the absence of venereal desire; but it is generally supposed to be increased in erotomania, and satyriasis. The seminal discharge is liable to be diminished, restrained, and suppressed by many causes—as, obstructions of the prostate; contractions, obstructions, and fistulæ of the urethra; and from *want of virile power*, which may also be occasioned by a change in the nature of the secreted fluid.

In *women*, the *menses, lochia*, and *secretion of milk*, afford numerous symptoms in disease. Symptoms of great importance in forensic medicine are to be observed in the female organs of generation: because, these parts present similar appearances after defloration, accouchement, extraction of polypi, and the expulsion of molæ. In both sexes the venereal appetite, or desire of coition, may be increased or diminished, "perverted," or entirely wanting.

Such are the principal symptoms which are to be observed by the examination of the different functions, made according to their physiological arrangement.

These symptoms are as various as the vital actions. Some continue throughout the disease, whilst others occur

only during certain stages of its progress; and it is very necessary to give the strictest attention to the examination of the three periods which usually attend disease—viz. 1. The first stage, which has been designated the *accession* or *attack*, includes the time which elapses from the commencement of the first symptoms of the affection to the period when they reach their greatest intensity.—2. The second, which is also named the *acme* or *crisis*, is characterised by the symptoms maintaining their intensity, and often by the addition of new phenomena of greater or less importance.—3. The third, known as the *remission* or *termination*: this will be described after having considered the subject of prognosis.

The peculiar phenomena which precede the invasion of a disease must again claim attention: these have been named *precursory* symptoms.

Symptoms have been distinguished, by systematic writers, into *essential* or *peculiar*, because they always accompany the same affection; and those which are *common*, belonging to many affections of different kinds. *Accidental* symptoms have also been admitted, not being invariably found, and only appearing during the progress of a disease: *primary* and *secondary* symptoms are also observed, especially in venereal complaints, &c.

SEMEIOLOGY.

"Every phenomemon or symptom," according to M. Landré Beauvais, "which gives the results obtained through the medium of the senses, constitutes a *sign*; and the division of Pathology which treats upon signs, has been designated Semeiology."

The physician obtains signs from symptoms; but to confirm them he must carefully deliberate upon the circumstances which have preceded or accompanied the attack of the disease—the effects of therapeutic

agents. By the examination of these facts he is enabled to ascertain the nature of the complaint with exactness, and thus draw his *diagnosis;* and to foretel its duration and termination, or form the *prognosis*. They have been distinguished into *common signs,* when they are general to several diseases—thus, pain, and a difficulty or inability of motion, are as constantly to be observed in cases of contusion, dislocation, and rheumatism, as in fractures; *peculiar* or *essential* signs, which are invariably present in the affection, as crepitus and unnatural motions in fractured limbs; and *pathognomonic* or *diagnostic signs,* which distinctively mark the nature of the disease—as the peculiar jar of the sound when striking upon a calculus, or foreign bodies in the bladder. They have been, again, distinguished into *rational signs,* which are only perceptible by the patient, as pain; and *sensible signs,* or those apparent to the senses of the physician.

Those which relate to the period preceding the examination of the patient, have been named *historical* or "anamnestic;" those derived from symptoms, and other actually existing circumstances, have received the name of *diagnostic signs;* and those which point out the probable termination of the disease, are *prognostic signs.*

The former, resulting from indications which are obtained from what has preceded the disease, the state of health of the parents, the previous diseases, &c., or what may have been observed in the patient, as old cicatrices, belong to diagnostic signs; since they inform the judgment of the physician respecting the nature of the complaint which demands his treatment.

1.—DIAGNOSIS.

Diagnosis is that division of Pathology whose province it is to ascertain a disease, by distinguishing it from all others with which it may be analogous; and the science can only be attained by an attentive study of all the circumstances pertaining to the disease, its causes, va-

rious symptoms, and the comparison of these with such as may, to a degree, correspond with them.

"Diagnosis," says Louis, "holds the first rank among the divisions of Medical Science, and is the most useful in its application, though difficult in acquirement. The discrimination of the peculiar character of each kind of disease, and its different species, is the source of every curative indication; for, unless the diagnosis be exact and precise, theory is invariably baffled, and practice frequently uncertain."

Diagnosis is, in truth, one of the most important parts of Surgical Pathology; because it detects the character of diseases, prognosticates their termination, and points out the treatment which ought to be adopted. An error, in this respect, often entails most lamentable consequences upon the health and life of the patient; the honour and conscience of the physician, who may have to deplore his careless examination of the disease, his inaccurate observation of the circumstances which preceded or accompanied its developement, his refusal of the valuable assistance of his brethren; and that he was guilty of errors of which he was unconscious, until it was unfortunately too late to redress them.

It is seldom that one error does not occasion another. To be mistaken as to the cause of a disease, and to be deceived in its diagnosis, almost invariably influence its prognosis and treatment.

The active use of the senses, the most powerful concentration of the mental powers in the consideration of the symptoms of the disease, and their most deliberate examination, are insufficient of themselves to establish the diagnosis of some perplexing cases in surgery: the possession of a faculty which is not very common, and may be designated *surgical tact*, must be added to all these advantages.

How strict an attention is required in the examination of tumors situated in the groin, axilla, the popliteal space, and in those of the neck, abdomen, and scrotum; of the affections of the bones and articulations; or of the neck and body of the uterus, rectum, mouth, and

eyes; or in injuries of the head, chest, or belly. How important is the distinction between the simple, mild, and malignant carbuncle and pustule, and other gangrenous inflammations! What numerous errors have been committed in the diagnosis of pregnancy and uterine diseases! Has it not occurred, that limbs have been amputated which ought to have been preserved; and that testicles have been extirpated, a hydrocele having been mistaken for sarcocele? Have not herniæ been confounded with buboes, dislocations with fractures, and simple contusions of the hip with fractures of the neck of the femur, and thus given rise to the opinion that the bones had united without being shortened? Have not the mammæ been sometimes extirpated for cancerous affections, when none such existed; or the penis amputated as carcinomatous, when an appropriate treatment, or a partial excision would have cured the disease? Instances are even given by authors, of patients having undergone the operation of lithotomy, when no stone could be found in the bladder *

* "In five years," says S Cooper, "I have been informed of seven similar cases: and I have seen two in which the patients had been exposed to the suffering and perils of the operation, when, in reality, the bladder contained no calculus whatsoever."

An opportunity is here afforded of advancing some instances of the errors which have been committed in the formation of diagnosis.

Beclard mentions, in his Lectures, the case of a man who consulted him upon a fistulous opening, which was situated in the left cheek, and consequent upon a wound which he had received. The surgeon, after having dressed it for three months, introduced into the wound tents of charpie, which, to his astonishment, always became of a green colour. Beclard, in probing the fistula, perceived a foreign body, which, when extracted, proved the brass ferule of a cane, covered with verdigrease, into the cavity of which the lint had been passed. After its extraction, the wound quickly healed.

A countryman, from the neighbourhood of Paris, consulted me, in October last, respecting a leucoma of the left eye, which had been under treatment two months Upon examining the eye, an ulcer of the cornea was seen, in the middle of which was

Diagnosis not only ascertains the existence of a disease, but its non-existence, also, may be presumed by the absence of those signs which characterise the complaint by which the individuals are supposed to be affected: hence this science assumes great importance in forensic medicine, whenever the physician is required positively to determine upon the presence or absence of any malady.

fixed a large splinter of iron. The cornea was penetrated by this foreign body, which was extracted, and the vitreous humour was discharged by the fistulous opening. The accident happened suddenly whilst the man was breaking stones with a mallet.

The wife of a surgeon was afflicted with acute pains about the region of the uterus, which, for some time, were supposed to be occasioned by an organic affection of this organ. She was at length relieved from all her sufferings by the expulsion of a sponge encrusted with sebaceous matter, which had been lodged in the vagina for many years.

M. D. employed in the custom-house, consulted me respecting some urinary fistulæ, which opened in the perineum. The testicles were hard, tumid, and painful: the patient was of a pale and leaden colour, and had suffered for two years under a perpetual diarrhœa. Several surgeons, in succession, supposing that the testicles were cancerous, and not perceiving any abdominal tumefaction, proposed castration. When the urinary fistulæ were healed the general symptoms disappeared, and the testicles returned to their natural state. My pupil and friend Dr. Godart, surgeon to l'Hopital de Pontoise, watched this case, and has seen one precisely similar in the Institution where he practises.

Numerous cases of aneurism have been mistaken for abscesses, and opened with the knife.

In two patients I have seen castration performed for simple hydrocele, the tumor being tense, and hard, and neither distinctly transparent nor fluctuating.

In one case the fibula, which was fractured at the inferior extremity, was treated as a sprain. The patient was allowed to walk before the parts were firmly united: the foot became twisted, and turned inwards; serious symptoms supervened, and he was on the point of undergoing amputation of the leg. Fortunately, a regulated treatment of eight months, preserved the diseased limb: but for four years after the accident, the ancle continued very stiff, and he limped slightly when walking.

2.—PROGNOSIS.

In accordance with the explanation which has been given, Prognosis is the opinion which a physician forms respecting the alterations which may be expected to occur during the continuance of any disease; the beneficial results of any adopted treatment; and the manner in which the affection may be expected to terminate.

Surgical Prognosis is, necessarily, derived from an intimate knowledge of the causes, nature, violence, and seat of the disease; of the age, sex, and occupation of the patient; the general state of his powers; and of the circumstances by which he is surrounded. The surgeon ought to be acquainted with the precise state of the complaint, whether it be complicated or simple, general or local; with the means which he possesses for its effectual or partial treatment; with the importance of the operations which the patient may be compelled to undergo; and the period when they can be performed with the greatest probability of success, &c.

The prognosis respecting the termination of a disease ought, usually, to be very reservedly given. A prudent surgeon, who, by experience, is aware how many accidents may happen to derange the natural progress of any complaint, will always be cautious in his statement, whatever confidence he may feel; fearing, that some circumstance may unexpectedly occur, from which his patient may suppose that he has been deceived: knowing that he can only prognosticate the termination of the disease from probabilities which are of variable value, in the spirit of true philosophy he will often feel himself compelled to dubitate. Public esteem and consideration always attend the surgeon when his reputation is built upon his capability of forming an accurate prognosis; and common minds ascribe to him the capability of looking into futurity. Few are ignorant of the reputation which Galen acquired by his prediction of the speedy termination of a disease from the occurrence of a nasal hæmorrhage. But how frequently are errors of this nature committed! Who has not witnessed the

restoration of patients to health under such circumstances that death seemed to be inevitable?* Who has not seen a disease terminate fatally, though, apparently, of very trifling importance, or consequent upon some operation of little real difficulty.†

* To use a common expression, some patients *have a hard life:* escaping the consequences of accidents of the severest character; and, on a first examination, appearing to be altogether irremediable. This is often witnessed in wounds of the head, chest, and abdomen. I saw, in the Clinique of M. Dubois, a juggler, who inadvertently swallowed the blade of a sabre, from sixteen to twenty inches long, which remained in the abdomen about two years. At this period an abscess formed in the right groin, by which it escaped, and the patient perfectly recovered.

A soldier was wounded, at the battle of Talavera, by a bayonet, which fractured the pubis, tore open the bladder and rectum, and again passed out through the sacral region. When he had recovered from these injuries, he sometime after suffered under symptoms of calculus, for which he underwent the operation of lithotomy. The nucleus was formed by small portions of the os pubis which had fallen into the bladder. He recovered.

A bomb, exploding between the legs of a bombardier, drove a large splinter through the perineum of the man, which passed through the belly. The patient recovered.—The splinter is kept in the Museum at Leyden.

A female, having a cancer in the left breast, accompanied by an enlargement of the lymphatic ganglia of the same side, was operated upon. When the cicatrization of the wound was nearly completed, the ganglia enlarged prodigiously, fever arose, and a most unfavourable termination was threatened. The inflammation, however, assumed a phlegmonous character; the abscess opened; cicatrices formed; the ganglia disappeared; and the patient left l'Hopital St.-Louis as perfectly cured as was possible after an operation of this kind.

† It happens, on the contrary, that affections which have, apparently, the most trivial nature, and operations of the most simple kind, are, occasionally, followed by very serious and even fatal consequences: this, in some, is attributable to an inflammatory, and, in others, to a hæmorrhagic or nervous diathesis. I have witnessed two cases in which death followed

3.—TERMINATION OF DISEASES.

Diseases may terminate in various ways:—1. By a *perfect cure*, or an entire restoration to health—2. By an *imperfect* or *incomplete cure*, the organs being only partially restored to their natural state, as is seen in those fractures where the union by callus is irregular, and the limb is shortened; and after the operation for cataract, by which the vision is only imperfectly restored—3. When the *cure* cannot be effected without the loss of certain parts, as in amputations of the extremities; extirpation of the eye, testicles, and mammæ —4. By passing from an *acute* to a *chronic state*, or by

the extraction of a nail buried in the flesh of the great toe. In one, senile gangrene supervened; from the other, (a lady,) a portion only of the nail was removed. She was, in all respects, rapidly recovering, until eight days after the operation; when, upon imprudently exposing the legs to a current of cold air, phlebitis, with active œdema of the cellular tissue, were produced in the leg which had been operated upon; general symptoms took place, and death followed.

A man, who was operated upon for phymosis, fell into a syncope, and died. The same fatality attended another similar case; but the syncope was accompanied by violent convulsions. A patient died tetanic, from a seton having been passed through the parietes of the chest. The upholsterer of l'Hopital St.-Louis died in consequence of an enormous gangrene affecting the whole of the back part of the neck, which arose after the insertion of the seton to relieve a serious ophthalmic affection.

Mr. Blagden relates a case in which the extraction of a tooth was followed by a fatal hæmorrhage. The patient was about twenty-seven years of age. When an infant, a tooth having been extracted, hæmorrhage took place, and continued twenty-one days before it could, by any means, be arrested. A slight wound in the head was, also, succeeded by a continued loss of blood, which it was difficult to control. Upon the extraction of a carious tooth, at a subsequent period, a copious hæmorrhage again took place, which neither compression, styptics, nor cauterization, could restrain; and, although Mr. Brodie tied the carotid artery, the bleeding continued until death ensued.

the supervention of some other disease terminating in fistulous openings: retention of urine may thus occasion urinary abscesses; a strangulated hernia, after becoming gangrenous, may also produce an artificial anus—5. Many diseases are *incurable*, as most organic "degenerescences;" and, ultimately, when all the resources of art and the powers fail in maintaining life longer, disease closes in death.

The examination of the dead body, and dissection of the diseased organs, lead us to the study of *Pathological Anatomy*.

4.—PATHOLOGICAL ANATOMY.

Pathological Anatomy teaches the various alterations which are produced by disease in the position, figure, colour, weight, or intimate structure of the parts of the body; and the changes which are produced by the exciting causes in the physical properties and chemical composition of the fluids and solids.

This division of Medical Science is so intimately connected with the study and observation of symptoms, that, if it be isolated from these, its importance is so much diminished that it can only serve to gratify a frivolous curiosity; but, if it be combined with a knowledge of the signs which are exhibited by functional lesions, it endows the expert practitioner, who knows how to compare the morbid phenomena which are observed during disease with the organic alterations producing them, with extensive powers, by the application which he is enabled to make of its principles to the sciences of prognosis and diagnosis. It ought not, then, to be considered a distinct pursuit, but studied in connexion with, and as an essential division of Pathology.

What advantage would result from the description of a disease, if the accompanying alterations of the affected organ were omitted? and of what value would be the knowledge of a symptom, if the lesion, by which it is caused, were unknown? Is it not to the information afforded by Pathological Anatomy, that Corvisart and

the acute physicians of the present day are indebted for the certainty of their diagnosis ; and that the celebrated surgeons of the age are enabled, promptly, to decide upon the performance of the most serious and difficult operations with the assurance of success ; or are induced to exercise that salutary caution which hesitates respecting others that apparently are easily executed, and little to be dreaded?

A knowledge of the pathological condition of the disease, of the disorders which it occasions, as well in the parts immediately adjoining as in the general economy, together with the discovery of the resources which nature spontaneously brings into action, or of the artificial assistance which she demands for its cure, is acquired from Pathological Anatomy. It explains many of the phenomena which are symptomatic of disease ; it exhibits the plan which nature adopts in uniting fractures, in healing wounds, and curing aneurisms. It points out the manner in which the organs contained in the splanchnic cavities become changed in position, and undergo displacement, when herniæ occur through the parietes of their containing cavities ; it ascertains the consequences of contusions, wounds, and ruptures ; the nature and origin of various effusions ; the mode by which those foreign bodies which are introduced from without, or grow within the organs, are separated and expelled ; it shews in what manner adhesions and concretions are formed ; in what manner they may be dissolved, destroyed, or succeeded by a spontaneous cure. It contributes its assistance to Physiological Anatomy, whilst it directs the hand of the surgeon during the performance of numerous operations, as those for herniæ, aneurisms, and extirpation of various tumors, &c.

"The brilliant progress which characterises modern surgery," says Scarpa, "is, correctly speaking, merely the consequence of observations which have been made in Pathological Anatomy ; or, of an accurate comparison of the state of the organs in health, with that which they assume in disease, and which may be occasioned either by an alteration in structure, derangement of

functions, solution of continuity, or change in situation. From these important facts, those most rational curative methods have been deduced, by which modern science has been enriched and its operations perfected. It cannot be denied, that many only require a knowledge purely anatomical, to secure both quickness and success; but the number is by no means small of which the termination will be most unfavourable, if the surgeon do not unite to his qualities of a good anatomist, that, also, of a perfect familiarity (only to be obtained by especial study) with the numerous changes of position and alterations of structure, to which the parts, that he may be called to operate upon, are exposed: if he is not perfectly acquainted with these facts, his judgment may be misled by false appearances; and he may precipitate himself into very serious and, occasionally, irreparable errors.

"If a most convincing proof of these truths be required, let the surgeon only observe the different species of hernia, and the numerous circumstances with which they are complicated. Few anatomists would admit that the cæcum which, in its natural position, is attached to the right iliac region, and the bladder which occupies the base of the pelvis, could be so far displaced as to protrude through the inguinal ring, and descend into the scrotum, without rupture. They would still less believe, that the same intestine could ascend to the umbilicus, pass through this aperture, and form an umbilical hernia; or, that the right colon could pass through the inguinal canal of the left side, and the colon of the left be found in the same canal of the right side; that the liver, spleen, and ovaries, are, sometimes, contained in umbilical, inguinal, and femoral herniæ; that the cæcum may be invaginated in the colon, and expelled by the anus; that it was possible for the stomach to be pushed through the diaphragm, so as to form a hernia in the chest; that the omentum or intestine, or both these parts, could pass out of the abdomen by the foramen ovale, or the sacro ischiatic fissure; that a fold of the small intestine, although entangled in the

inguinal ring, or under the femoral arch, has been seriously strangulated, without intercepting the progress of the fœces through the intestinal canal; and, lastly, that, in some cases, the intestine and omentum have been found in direct contact with the testicle within the interior of the tunica vaginalis, without producing any rupture of this tunic. These, and many other similar facts, are so surprising, that they would be regarded as altogether incredible, if they were not substantiated by frequent observations upon individuals who were affected with hernia: the possibility of their occurrence was never anticipated, either by the anatomist or physiologist. Hence, the science of Pathological Anatomy possesses the highest importance, not only from its intimate connexion with Pathology, but the relations which it possesses with regard to others. Thus, a study of the morbid changes of tissue leads to the most accurate knowledge of their healthy organization. Again, forensic medicine could not exist without Pathological Anatomy. The Germans, therefore, have not exalted its utility too highly, in creating, to a certain degree, that division which they have named *Forensic Anatomy.*"

The method which ought to be pursued in acquiring a knowledge of this science, is by no means a matter of indifference. Three requisites are necessary for instruction in every branch of medical knowledge: the progressive advance from what is simple to that which is complex; the adoption of such an arrangement as will afford the greatest facilities to the understanding, and assistance to the memory. That the advance of Pathological Anatomy has been tardy, notwithstanding the important labours of Vesalius, Eustachius Donatus, Schenck, Plater, Bonnet, Bartholinus, Morgagni, and all the other writers of the eighteenth and nineteenth centuries, is, doubtless, attributable to this circumstance—that these authors paid very little attention to classification in their arrangements of the valuable materials which they collected.

Most of the methods which have been adopted, to the

present time, deserve the credit of being as perfect as the degree of knowledge would permit at the period when they were proposed; but a thorough classification can only be produced when the science is either perfected, or so much advanced, that it is possible to foresee the nature of the additional improvements which futurity will give. That classification, then, will be of value, which, being founded upon the principles of Physiological Anatomy, is enabled to bring together those circumstances which correspond, for the purpose of comparing their analogies; and which traces such an outline, as will permit future discoveries to be arranged in that situation which they are afterwards to occupy.

Andral's arrangement is that best calculated to fulfil all the conditions which are requisite in a regular classification. The study of Pathological Anatomy ought to be divided into two general classifications; one, uniting all which is common to the lesions of the body, and receiving the name of *General Pathological Anatomy;* and the other, devoted to the special consideration of the changes which affect the different systems in particular, and named *Special Morbid Anatomy.*

General Pathological Anatomy essentially appertains to General Pathology, and ought to be treated upon at the same time, by considering alternately, and in their general points of view, the various lesions of circulation, nutrition, secretion, blood, and innervation.

Special Pathological Anatomy, is necessarily relative to the study of Special Pathology, whether it be internal or external; and ought to be studied conjunctively with the history of each of the diseases of the organs, as they belong to lesions of the circulation, nutrition, secretion, blood, and innervation.*

* The performance of experiments upon living animals is of great import to Pathological Anatomy, in elucidating the principles of surgery. They point out the processes of nature in effecting the cure of certain lesions; they verify the consequences of wounds, and the application of ligatures; or the tearing of arteries; the phenomena of inflammation in the capillary vessels, or the formation of vascular granulations,

5.—NOSOLOGY.

Nosology is that branch of Pathology which treats upon the division of diseases. If this division is made from the consideration of analogies of varying power and importance, the resulting arrangement may be purely systematic; but, should it have been established upon the existence of natural relations, it constitutes the basis of a perfect classification. Diseases have been distinguished by a great number of different circumstances, which shall be briefly noticed.

A.—1. HEREDITARY DISEASES are those which are transmitted to children by parents, who are affected by them—as, gout, syphilis, certain cutaneous affections, and calculus.

2. CONGENITAL DISEASES exist at the birth of the infant, from which the parents may be exempt—of these are errors in the formative process, a deficiency or excess of certain parts, imperforations of the vagina, anus, and urethra.

3. ACQUIRED or ACCIDENTAL DISEASES are developed or contracted during life. Most affections are of this nature—as, itch, syphilis, fractures, dislocations, cataract, fevers, &c.

B.—Diseases may, also, affect individuals singly or collectively. In the former case they are named SPORADIC, and only attack a single individual at once, or several at the same time, but who have no intercourse with each other: the appellation is only applicable to those affections which are, in particular, excited by the influence

and the cicatrization of the various tissues; the possibility of animal engraftures; the results of the application of ligatures and sutures upon the intestines, stomach, and bladder; the phenomena of the union of fractures, and formation of necrosis; the action of various foreign bodies which are received into the digestive or respiratory passages, or into the substance of the tissues; the changes which are produced in the organs by chemical agents or poisons; the effects of pressure, or taking away of certain parts of the encephalon; of compression, and ligature or section of the nerves, &c.

of predisposing causes, and is incorrectly applied to such as are produced by a special cause—as wounds, herniæ, and fractures. When persons are attacked collectively, *en masse*, the affections are then said to be PANDEMIC—these may be distinguished into—1. *endemic complaints*, where they are peculiar to the population of the countries in which they rage: thus, pica is endemic to Poland and some Russian provinces; goitre or bronchocele, and cretinism, to the people living in the narrow vallies, and the deep and humid mountains of Switzerland and Valois; scrofula and elephantiasis are, again, frequently endemic diseases—and 2. into *epidemic diseases*, when they attack a great number of persons at the same time, have only a limited duration, and appear at intervals altogether irregular—certain kinds of ophthalmiæ, dysentery, small pox, scarlatina, &c. possess this character.

C.—Diseases have been distinguished, according to their manner of transmission, into *contagious* and *non-contagious*.

D.—By the duration of an affection, or the length of the periods which its different stages occupy, it is arranged as *acute* or *chronic*: thus, variola, scarlatina, furunculus, and phlegmon, are acute diseases, and pass through their stages with rapidity: scrofulous engorgements, &c., are usually chronic complaints. Notwithstanding, this distinction is not strictly correct: for, it may be observed—1. That the same morbid phenomena vary much in their progress, according to the structure of the affected organ: thus, the cicatrix of a wound is perfected in one-sixth of the time which is required to establish a firm union in a fractured bone; and yet, the consolidation of the fracture is not, on this account, a chronic disease.—2. That all complaints may have an acute and chronic state: proofs of this appear in ophthalmia, rheumatism, and syphilis.

E.—Numerous divisions have, also, arisen from the variety of parts of the body which may be affected by disease: thus, *local affections* are confined to one part alone, to a single region of the body—as hernia, ophthalmia, whitlow, and wounds; whilst *general affections*

disorder the whole economy, and appear to include all the organs at the same time—of this class are fevers, scurvy, constitutional syphilis, &c. The distinction which has been drawn between *external and internal diseases*, and the notions of the humoralists and solidists respecting their situation, (the one placing it in the solids and the other in the fluids of the body,) have been examined upon a previous occasion.

F.—Diseases have been divided into *idiopathic* and *sympathetic* or *symptomatic*, in accordance with their mode of origin. The former are occasioned by any cause which acts directly upon the organ or part which is diseased: thus, wounds, or burns, are idiopathic affections. Sympathetic diseases may be developed in any organ which is distant from the one primitively affected; and are, in a certain degree, secondary, forming one of the symptoms of the primary complaint: instances of these may be seen in those gastric ophthalmiæ, which are produced as the consequence of disordered primæ viæ; in the vomitings accompanying nephritis; and in some secondary abscesses, such as those formed at the margin of the anus in pulmonary phthisis.

G.—If, as usually occurs, the diseases are confined to one part, and pass through their various stages in the same organs in which they arose—as cataract, lipoma, and a dislocation—they are said to be *fixed;* but, should their seat be changed, and other parts become affected, the first remaining healthy, they are then said to be *erratic*—erysipelas, gout, and rheumatism, are instances of this.

H.—The type of most diseases continues the same, throughout: in other words, they proceed uninterruptedly from the attack to the termination: under these circumstances the affections are said to be *continued*—such are variola, phlegmon, fractures, &c. On the contrary, because some disappear entirely for a certain period, and again make their attack by an *accession*, which is successively repeated, these have been designated *intermittent*. To this genus belong quotidian, tertian, and quartan fevers, some neuralgic complaints,

and ophthalmiæ: and according as the accession returns at stated or irregular intervals, they are named periodic diseases; *regular or irregular intermittents.*

It sometimes happens that the symptoms of the affection are not entirely lost, and again re-appear, as in these last mentioned: and when the symptoms are only mitigated, or become gradually less violent, and again increase by the slower progress of exacerbation, (a kind of accession, which has been designated a *paroxysm,*) then they are known as *remittent* diseases—hectic fever is of this nature.

I.—According to the character of diseases they have been designated *benignant* and *malignant* or *insidious.* The first, such as phlegmon, and simple ophthalmia, usually proceed with regularity and terminate favourably; but the second are distinguished by a malignant disposition, and have a fatal termination, if their progress is not promptly arrested, and their nature changed. This is observed in numerous cancers, which are frequently inveterate, and re-produced after excision: in malignant pustule, carbuncle, and other gangrenous inflammations, and in nervous and insidious intermittent fevers, &c. the same characters appear.

J.—In proportion to their intensity, they are *mild* or *severe;* for, the same complaint varies much in degree, and, consequently, severity, in different persons.

K.—The mere expression, disease, suggests to the mind an abstract idea of a something which is injurious; of a state which is opposed to that of health: certain affections are, nevertheless, really beneficial, as they appear to be occasioned by a salutary effort of nature, to palliate or cure some other malady, of greater importance. It is on this principle, that the appearance of critical affections is almost daily observed either to be accompanied by an ameliorated state of health of the patient, or followed by convalescence: critical buboes, and mumps, the consequences of fevers of a bad type, ought to be regarded as favourable occurrences towards the restoration of the life of the patient: the appearance of an abscess at the margin of the anus frequently re-

tards and arrests the fatal progress of tubercular phthisis. How often are patients relieved by the appearance of exanthemata, or ulcers on the legs, which act as real derivatives, established by the conservative powers of nature! Let a man suffer for a long period, under symptoms of congestion, or chronic inflammation of the abdominal or pectoral viscera—his case is serious: the appearance of a cutaneous eruption will sometimes cure the disease which threatened him with loss of life. These diseases, then, which may be either sympathetic, or the results of a metastasis or translation of the morbific principle to an organ of less importance than those which were primarily affected, are to be considered as favourable: ought they not, therefore, to be treated with the utmost care and consideration?

L.—Diseases are *simple, compound,* and *complicated:* when one only of the double organs of the economy are affected, the disease is *simple*—as in a cataract, or an ophthalmia of one eye, a single hernia, or a fracture of only one bone of the leg; when both organs are affected at the same time, the disease is *compound;* and, lastly, it is *complicated,* if any other affection combines with the principal malady by which its severity is increased; and it is immaterial whether it preceded, accompanied, or followed the most important disease: thus, hernia may be complicated with hydrocele and strangulation; cataract with amaurosis; fracture with scurvy; and gunshot wounds with the presence of the projectile which has produced them. A wound may be followed by tetanus, convulsion, and severe hæmorrhages; each of these adding to the degree of complication. *Complication* may, also, be produced by the particular form of the disease itself, as the adhesion of the membrane of the crystalline lens to the iris, in cataract; adhesions of the omentum to the intestine or sac, in hernia; the communication with the rectum, in an anal fistula; and the severity of the malady is proportionately increased with the number and extent of these superadded conditions.

M.—The period of time which elapses from the origin of diseases determines them as *recent, old,* and *inveterate.*

Recent diseases are usually less severe (all other circumstances being equal,) than those which have become inveterate, and have not received good or perfect treatment. In cases of the last description the affection is often general or constitutional, and occasionally sets at defiance every resource which Medicine possesses: this is verified in certain syphilitic complaints, cancer, and scurvy, &c.

N.—Those diseases are said to be *curable* which are followed by a return of perfect health, no change in the organization or functions having supervened. The greater number are such. Those, on the contrary, are reckoned *incurable* which obstinately resist the use of hygienic, pharmaceutic, and surgical remedies, or are produced by a serious change or destruction of the diseased organ—as in gangrene of any part, numerous paralyses, cancers, and other organic affections. Lastly, they are considered *mortal* when death is their necessary consequence—as in extensive wounds of the heart and aorta, or rupture of the spinal chord, in the dislocations or fractures of the cervical vertebræ.

O.—They are also to be distinguished into—1. vernal, estival, autumnal, and hibernal, as they may appear in spring, summer, autumn, or winter—2. according to the sex, into diseases of men, and those of women—3. age, into diseases of infants, adults, and old men—4. and temperament, profession, and country, &c.

Classification of Diseases. The precise object of Nosology is the arrangement of diseases into a certain number of groups, which are named *classes;* and the subdivision of these into *orders* or *families:* to the latter belong all the genera and known species.

The advantages of a good classification are incontrovertible, as well in relieving the memory as assisting the intellect, and abridging the period of study; for, general laws are more correctly applied when an accurate arrangement places the points of relation, which exist between diseases, in one general view before the mind of the student: and thus, by the closer approximation of analogy, and the vivid contrast of difference,

he seizes, at once, the peculiarities of their characters.

It is necessary to state, that, of the numerous classifications which have been proposed and received, none have been advanced which are not liable to a multitude of objections. Many are *essentially* defective, because they separate some diseases which are strongly analagous, and combine others which have nothing in common.

At present all considerations of the Nosological Systems, relating to internal disease, shall be omitted: referring to the works of Felix Plater, Sydenham, Baglivi, Boerhaave, Sauvages, Linnæus, Vogel, Sagar, Selle, Cullen, Darwin, Gaubius, Hildenbrand, Tourdes, Beaumes, Sprengel, Pinel, &c.

The most appropriate method to be adopted in the arrangement of the diseases, which demand the assistance of the surgeon, shall engage the subsequent remarks.

It has been shown that no real distinction exists between Medicine and Surgery; and, that no evidence of any division of the science can be found in the writings of the old authors, Hippocrates, Celsus, Aretæus of Cappadocia, Cælius Aurelianus, Avicenna, Albucasis; and it was proved, also, that no separation whatever took place until the twelfth century, after the council of Tours had been assembled.

Hippocrates has left six books on Surgery, under the titles of, "de Officinâ Medici," "de Fracturis," "de Capitis Vulneribus," "de Articulis vel Luxatis," "de Ulceribus," "de Fistulis." Notwithstanding the imperfection of anatomical knowledge at this epoch, the surgical works of Hippocrates contain a great number of judicious observations, which may be very advantageously consulted.

Celsus lived in Rome during the reigns of Augustus Tiberius, and Caligula: though it does not appear that he practised Medicine, he has, notwithstanding, written on this subject with great perspicuity, precision, and elegance; and his work is very valuable in shewing the progress of Surgery from Hippocrates to his own time. The four last books of his treatise, entitled "DE MEDI-

CINA," and especially the seventh and eighth, are, exclusively, dedicated to the consideration of Surgery; which does not appear to differ from that of the Greeks. In fact, all the Roman practitioners of Medicine either came from Greece, or received their instruction in the schools of this natal land of art and science.

Celsus first treated upon the diseases which affect the body generally, and then passed on to those which are peculiar to the individual parts.*

After the separation of Medicine from Surgery, the latter ceased to be cultivated by the generality of scientific men. The pursuit fell into contempt; and the works which were published on this department of knowledge are, for the most part, buried in the most profound oblivion.

Guy de Chauliac, however, ought to be distinguished from his contemporaries: a doctor in Medicine, of Montpellier; a priest, the chamberlain, chaplain, and physician to Pope Urban V. he exalted himself much above the spirit of the age by the devotion of his talents to the study and practice of the operations in Surgery. Being an ecclesiastic he omits, in his work written at Avignon, in 1363, all mention of the diseases of females. In this work are found the first outlines of the division of disease according to the *Surgical Pentateuch.*

In 1535 Jean de Vigo treated, in five different books, 1. of *tumors* or *apostemata*—2. of *wounds*—3. of *ulcers*—4. of *fractures*—5. of *dislocations.* He formed a sixth class for the diseases which he designated by the term *varia mala.* Fabricius ab Aquapendente named this division *Pentateuque Chirurgical,* in imitation of the five books of Moses.

Other surgeons, following the example of the Arabians, examined the diseases in the topographical order of the different regions of the body. They described,

* "Quæ deinceps exsequi aggrediar: dilatisque in aliud volumen ossibus in hoc cætera explicabo: præpositisque iis, quæ in qualibet parte corporis fiunt, ad ea, quæ proprias sedes habent transibo."—C. Celsus, De Med. lib. vii.

in succession, diseases of the head, neck, chest, abdomen, and extremities. It would be quite as advantageous to study these affections in the alphabetical order of a dictionary as to adopt the very defective mode which is suggested by merely passing *a capite ad calcem*. The most natural, and consequently the most philosophical, classification which has been proposed in the present day is, undoubtedly, that of M. Richerand: this shall be the one adopted.

M. Richerand arranges all the diseases of the body in three classes, under the appellations of *physical, organic, and vital lesions*.

A.—Physical Lesions. These injure the external configuration of the organs, and interfere with the performance of their functions: they are the mechanical result of a mechanical cause. Wounds, fractures, sprains, accidental luxations, and herniæ, are produced by physical agents. Although they are most generally produced by the agency of external bodies, yet this is not an invariable case: for, the bones and tendons may be broken by muscular contraction alone; and the muscles themselves may even be ruptured by the same power. Again: whether a foreign body be introduced from without, or, under the influence of a physical or chemical law, be formed internally, its presence is equally a mechanical obstacle to the functions of the organ, and thus confers upon it the essential character of a physical lesion.

Lesions of this nature may not only be imitated on the dead body, but life is by no means necessary for the purpose of exhibiting the greater number. The manner in which their proximate cause produces the effect is accurately known; and their real nature is as well understood; and the mechanism of their formation and developement is capable of explanation. The relations which the effect bears to the cause can be reckoned: every thing is mechanical. The remedies to be employed in their cure are to be determined by the knowledge of the lesion, and suitably adapted to its cause. In consequence of the precise knowledge which

is possessed upon physical lesions, they are capable of being defined; whilst it is nearly always necessary that organic or vital lesions should be strictly confined to their description only. The treatment of physical lesions is *rational,* because the relation between the malady and the curative means is evident and perceptible to the mind: for, mechanical remedies usually form the essential if not the only principle of their treatment.

Physical lesions form a class of diseases which is very distinct in the extensive domain of Pathology; and, as Surgery affords the principal resourses for their cure, it will be evident that the certainty and efficiency of this branch of Therapeutics are great.

M. Richerand divides this class of diseases into five orders: *solutions of continuity, diseased unions, displacements, retentions,* and *foreign bodies.* Each of these is, again, divided into numerous genera.

1. Solutions of continuity include three genera—*wounds, fractures,* and *fistulæ,* which are caused or continued by the perforation of a reservoir or excretory duct. This class does not include the ulcers which are generally symptomatic of some other affection—as those of syphilis, scurvy, scrofula, &c.; and which are, also, clearly organic or vital lesions.

2. The second order, or diseased unions in parts which ought to be free, for the due performance of their functions, includes two genera—*simple unions of parts which, in their natural state, are divided; and imperforations.*

3. The third order, or displacements, comprehends two genera—*dislocation* and *herniæ.* The various procidentiæ, and prolapsi of organs, correspond with herniæ—as sprains, the diastases and the different changes in the directions of bones, with dislocations.

4. The fourth order, or retentions, has two genera, according as the *retained fluids are blood or secretions.* In the first are placed aneurisms, sanguineous effusions, and varices; in the second, retentions of urine, bile, and dropsies, &c.

5. The fifth or last order, which terminates the class of physical lesions, embraces, under four genera, *foreign bodies which are introduced from without, calculi, poisons,* and *worms,* or the *larvæ* of insects.* The last genus forms a natural transition between physical and organic lesions.

B.—Organic Lesions. The general characters of the organic lesions, which form the second class of M. Richerand's arrangement, are as numerous and important as those which distinguish physical lesions. By an organic lesion this author understands so complete and decided an alteration in organic structure, that the primitive nature of the diseased tissue cannot be recognised; or, the formation of such new substances or tissues as possess no analogy with any others to be found in the economy. A mere alteration in colour, size, density, and arrangement of the constituent parts of an organ, are insufficient to characterise an organic lesion.

* The following is an instance of the serious mischief which is produced when these insects are developed in the organs:—A man, about fifty years of age, who performed the double office of a public crier, and rag-gatherer, slept in a field, in the open air, when drunk. Some flies (*musca carnaria*) deposited their ova at the margins of the different natural openings of the body, between the eyelids, in the nostrils, ears, and under the prepuce. The larvæ of these insects which were contained in the ova penetrated the nostrils, ears, and orbits, and destroyed the eyes, &c. They formed large bags under the cranial teguments: these were penetrated by ulcerated openings, from which, when compressed, they escaped by thousands. The whole had been extracted on the second day after the admission of the patient into l'Hopital St.-Louis. The eyes were entirely destroyed: and when the larvæ were drawn through the perforated cornea, the crystalline lens escaped. The integuments of the superior part of the cranium became gangrenous; and the patient did not die until a month after his admission, being completely fatuous, and always believing that he was pursued by assassins. The bones of the cranial arch were partially necrosed; and the dura mater and arachnoid were inflamed in the same part.

Every organic lesion supposes a complete aberration of the laws which govern the nutrition of the parts, and change in their sensibility, and nutritive or organic contractility, without any reference to the state of their vital powers, whether they are excessive or deficient, sthenic or asthenic. The proximate cause of these lesions is entirely lost in their nature. Whilst other diseases frequently terminate life *immediately*, organic affections usually occasion death *mediately*—(Bayle)—they commence and proceed to a certain extent, and do not give rise to any sensible phenomenon: but, in proportion as they advance the functions become deranged, and the vitality of the parts more or less seriously altered. "Organic diseases are generally incurable when their internal situation (being deeply seated) prevents the performance of a surgical operation. And if the surgeon is even able to reach the seat of the affection with the knife, the cure which may be effected by this means scarcely deserves the name, because it can only be accomplished by its entire removal; whilst the mutilated patient continues to be still liable to serious relapses of the disease. This often happens after the extirpation of cancers, polypi," &c.*

If organic lesions have been once established they never retrograde. If a tubercle or fibrous substance undergo the ossific process, or a calcareous transformation, they may be stationary for a long period; but, in general tubercles, true schirri, cancers, polypi, &c., never terminate by resolution; but advance until they are destroyed either by softening, suppuration, or take on an indefinite increase.

M. Richerand entertained the opinion, that these lesions might be reduced to five principal orders, "being firmly convinced, that, ultimately, Pathological Anatomy, being cultivated with additional ardour, will not fail to rectify any error or defect, by the presence of which this classification may now be disfigured."

* M. Marlin d' Aubagne. Mem. de la Société Med. d' Emul. tom. vii.

These orders are named, *tubercles, cancers, polypi, cysts,* and *ossifications.*

He further subdivides, into two genera, each order of organic lesions—accordingly as the organic affection is primitively developed, in the middle of healthy parts, which only secondarily undergo "degenerescence;" or, as the disease primarily commences in an alteration of the tissue of the parts themselves—as *spontaneous tubercles,* and *tubercular "degenerescence;" spontaneous* or *primary cancers,* and *cancerous "degenerescence;" polypous excrescences,* and *fibrous substances; spontaneous cysts,* and *cysts formed by the organ,* as instanced in ovarian dropsy; *ossification of the soft parts,* as of arteries and membranes; and *calcareous concretions,* which are formed in the brain, and in the neighbourhood of the joints, &c.: the species of each genus is determined by the seat of the disease; and this may be either simple or complicated.*

* Professor Chomel, in his work on General Pathology, reduces the principal lesions, which the organs exhibit after death, to four heads:—1. *lesions of structure*—2. of *configuration*—3. of *relations*—4. of *alterations of the lesions*—5. he adds a fifth class, quite distinct from the others, under which he ranks all the *foreign bodies,* animate or inanimate, which are to be found in the body.

1. In the structural lesions are placed, inflammations, ulcers, fistulæ, gangrene, tubercle, cancer, melanosis, organic softening, induration, and transformations.

2. Alterations in the configuration of parts include the changes in figure, size, and colour.

3. Lesions of relation are, dislocations, internal and external herniæ, intussusception of the intestines, inversion of the uterus or rectum, the adhesions of the free surfaces of serous membranes, or articular extremities of the bones—anchyloses.

4. Lesions in the fluids are very numerous, if those even are omitted which are not accurately ascertained. M. Chomel examines, in succession, the changes in the mucus, in the serosity, in its enclosing membranes, and in the cellular tissue; in the synovia, secretions, blood, accidental fluids, pus, and in gases.

5. The foreign bodies which have been found in post mortem examinations are of various kinds. Some are inanimate,

C.—Vital Lesions. Vital lesions consist essentially in a change of the properties or powers, by which organized and living bodies are distinguished from inert matter; they affect sensibility and contractility, properties which have been confounded by most physiologists under the common term, vitality.

The primary, or formal cause of all organic affections consists in an aberration of the sensibility of nutrition, in consequence of which a structural change takes place: hence, this is the peculiar characteristic, or most remarkable phenomenon of the disease. Many vital lesions—for example, inflammations—change the structure of the affected part: its redness and volume are increased; the proportion between the solids and fluids is altered; the arrangement of its fibres, vessels, and constituent parts, are slightly modified, but not to such a degree as to render the tissue of the diseased organ incapable of being recognised, as occurs in real organic lesions. But, should the inflammatory attacks be frequently repeated, or long continued, the nutritive sensibility may be so much changed in consequence, that a real aberration of this process may result, and the membranous tissue undergo such an alteration as may give rise to polypi, or terminate in cancerous "degenerescence."

Vital, as well as organic, lesions, may occasion symptoms, or physical effects, without producing any neces-

whilst others have possessed, or still enjoy, life. Some of the inanimate substances have been formed in the body—as biliary and urinary calculi, and such as are found in the joints, salivary ducts, lungs, and uterus. When the formation has been external they have been introduced by wounds, especially by gunshot wounds: others, by the natural canals —as the mouth, nostrils, anus, urethra, and vagina.

The foreign animate bodies which are met with in man are, the vermes ascaris lumbricoides, ascaris vulgaris, and tricocephalus trichuris, with numerous varieties of tæniæ. Hydatids of various kinds are, also, met with in the interior of the viscera, or splanchnic cavities; and larvæ of insects have been seen in the nasal fossæ, &c.

sary change in the nature of the diseased organ: thus, its size may be increased, and an union formed with the adjoining parts. Some vital lesions produce no physical consequences, nor any organic changes; at least, they occasion none which are appreciable. This is noticeable in many nervous affections. It thus happens, that vital lesions are, sometimes, eminently and simply aberrations of vitality; whilst, at others, they form the commencement of structural changes in the affected part. This connects them with organic lesions, from which, nevertheless, they essentially differ.

Vital lesions are the affections to which mankind are most frequently subject; and they have, therefore, principally claimed the attention of nosologists.

M. Richerand refers the whole to four general classes. All consist in an exaltation, diminution, loss, or aberration of vital power; and each may be found in a sthenic or asthenic, a paralytic or ataxic state. Vitality may be increased, enfeebled, extinct, or perverted. Sensibility and contractility may be, also, more or less acute, deficient, or irregular; and these four modes may be combined in such manner as to produce compound affections. This classification of the vital lesions may be separated again into the four following subdivisions —stheniæ, astheniæ, asphyxiæ, and ataxiæ.

The stheniæ comprehend fevers, inflammations, together with active hæmorrhages and dropsies; the whole of which are accompanied by a continued or intermittent, a regular or irregular state of excitement. An acceleration of the organic motions proves vitality to be increased.

Astheniæ, also, include four orders of disease—scrofulous and scorbutic affections, hæmorrhages, and passive dropsies, which are characterised by an enfeebled or diminished vitality.

Asphyxiæ, agreeably with the etymological signification of the word, consist in the loss of pulse, and motion, produced by a momentary suspension or positive extinction of vitality. In this order paralysis and gangrene, (of which necrosis is merely a variety,) are

naturally placed, and the local and general asphyxiæ which are occasioned by a sudden concussion, by the bruising of a nerve, by the application of a ligature to a principal vessel, or the inhalation of a deleterious gas.

Ataxiæ include, nearly, all the diseases which authors have designated *nervous*. These, comprehending every possible aberration in the sensibility and contractility of the organs, every irregularity and anomaly of which they are susceptible, embrace the neuralgiæ, in which sensibility is painfully increased. Tetanus, asthma, hooping cough, chorea, catalepsy, and epilepsy, form different genera under the order, convulsions; and hypochondriacism, melancholia, hysteria, satyriasis, mania, and dementia, fall under that of vesaniæ.

As the mode in which the proximate causes occasion vital lesions is but little understood, the only means of giving information respecting these diseases, is that of briefly stating their phenomena; and a short exposé of their characteristic symptoms must occupy the place of correct definitions: their treatment principally consists in the use of hygienic and pharmaceutic remedies; for, if any surgical means were used, they should be such as would affect their vital state, by the altered condition of which these diseases are mainly produced.

Such is the epitome which Richerand has given of diseases when regarded generally; and he has neither masked the difficulties which he had to overcome in treating upon a subject so extensive, nor the corrections which may be made, or the degree of perfection which which may be given to his Nosological Classification.

"Far be it from me to indulge," he says, "the absurd presumption of having completed the edifice which I have endeavoured to raise. Although the basis and fundamental principles upon which my classification of disease are founded cannot be attacked, it is liable, in detail, to many objections, and critical remarks: but, whilst I am aware that the numerous defects are capable of remedy, I have no apprehension that these partial corrections can injure the stability of the whole"

Richerand, then, applies this fundamental division of

diseases into physical, organic, and vital lesions, to the various organic apparatus. "Every tissue, organ, and system of organs," continues this author, "is liable to these three kinds of lesion; and nothing can be easier than the application of the general principles of Pathology, which I have advanced, to the diseases, when they are classed in the order of the organs which they affect. This method, which is truly anatomical, affords us the opportunity of making the real state of the science agree with the practice which, at the present day, is adopted in the mode of teaching it." The use of this mixed or combined plan, in which the principles of the Nosological Arrangement are applied to the diseases to which the various organic apparatus are subject, is imperatively demanded by the order which is absolutely required in giving instruction. In each organ and apparatus of organs—first the physical, then the organic, and, lastly, the vital lesions (the particular knowledge of which custom has, most absurdly, placed under the jurisdiction of *Internal Pathology,*) ought to be studied in succession.

Richerand has applied the same doctrine to the affections of the various organic apparatus; and successively treated upon the physical, organic, and vital lesions of the sensitive apparatus, which is composed of the organs of sense, the nerves, and brain; of the locomotive apparatus, resulting from the combination of the muscles and bones; of the digestive viscera, including the diseases also of the urinary passages which are usually consequent upon them; and, of the circulating, respiratory, cellular, and reproductive apparatus.

In each of these the physical lesions, which fall under the especial treatment of Surgery, ought to be first and thoroughly described: because, if it be desirable to follow the analytic plan, and rise from the simple to the complicated, these affections being the most evident, a knowledge of them ought to form the first study of Pathology—this class of affections naturally leading to the consideration of other and more complicated changes, and thus rendering their acquisition more easily obtained.

In adopting this plan, the author of "*Surgical Nosography*" has treated upon wounds and ulcers in a general manner; and, after giving the history of inflammation and its various terminations, in which gangrene is included, he comprises, under eight classes, every disease which belongs to External Pathology.

1. The first class, under the orders of *wounds* and *ulcers*, comprehends the diseases which affect all the organic system. The first order is composed of six genera—*simple*, *suppurating*, *punctured*, *gunshot* and *poisoned wounds*, and *contusions*. The genera of the second are, *atonic*, *scorbutic*, *scrofulous*, *venereal*, *herpetic*, *carcinomatous*, *tineal*, and *psoric ulcers*.

2. The second class comprehends, under three orders, the diseases of the *apparatus of sensation*, which is formed by the organs of sense, the nerves, and brain.

3. The third class presents the affections of the *locomotive apparatus*. It contains two orders: the first is formed by the diseases of the muscular, and the second by those of the osseous system. Each of these orders, again, is divided into two genera: the first genus of the diseases of the first order comprehends affections of the muscles; and the second, those of tendons and aponeuroses; and the genus of the second order, embraces diseases of the bones and their articulations.

4. In the fourth class are ranged, under four orders, the numerous affections of the *digestive apparatus*: these are seated in the organs of mastication, deglutition, abdominal digestion, and the urinary canals.

5. The fifth class embraces, under three orders, the diseases of the circulatory apparatus, i. e. lesions of the heart, arteries, and veins.

6. The sixth class contains, under the designation of diseases of the *respiratory apparatus*, all the mechanical lesions of the organs of respiration, every impediment to the entrance of the air which exists in the aeriferous passages, in the parieties of the chest, or the lungs themselves.

7. In the seventh class are comprised diseases of the cellular tissue—as acute and chronic abscesses, those

occasioned by congestion; lupi contained in cysts, or otherwise; and various kinds of infiltrations.

8. The eighth and last class is composed of diseases of the *reproductive apparatus:* the first order is devoted to affections of the male, and the second to those of the female organs.

This Nosological Classification of Richerand has been thus analysed, in detail, because it is the most simple and methodical; and has been always successfully adopted in the lectures which I have given on Surgical Pathology.

THERAPEUTICS.

As Therapeutics form no part of the Science of Pathology, in the strict meaning of the term, its consideration must now be only briefly entered upon. It is impossible to teach the Science of Surgical Pathology, without making known, or at least pointing out, the means which are employed in the treatment of the affections which fall under this division.

The object of Therapeutics is the cure of disease, and a restoration to health, of whatever parts are morbidly affected. The treatment itself is a branch of art; but the power of cure is a process of nature. It, therefore, consists in the abstraction of all that is likely to aggravate, and in the use of those means which are capable of affecting the progress and termination of the malady.

Its principles depend upon a knowledge of the laws which govern the body when labouring under disease, and of the means by which they are capable of being modified. When, by observation, experience, experiment, and reasoning, the physician has made himself acquainted with them, he undertakes, with certainty and confidence, the treatment of disease.

The Science of Therapeutics is composed of two distinct parts:—first, the *indications;* and, secondly, the *means* by which they are fulfilled. An indication consists in an assemblage of circumstances, which determine the opinion of the physician respecting the plan which

ought to be pursued, and which they seem partially to point out.

Indications are *empirical* or *rational:* for, though the action of medicines upon the body, in the cure of disease, is unknown; and the power by which mercury counteracts the symptoms of syphilis, or cinchona prevents the accession of intermittents and the return of other periodical affections, is equally a matter of ignorance; yet, notwithstanding, these therapeutic agents are employed with the greatest probable certainty of success. The connexion between the complaint and its remedies is not perceived; and their action is only to be ascertained by the effects which follow their administration. It is, hence only, after deep reflection, observation, and experience, that the physician selects any particular medicine, and prescribes it in such form and dose as is considered to be most suitable for the case. This distinguishes the empiricism of the enlightened physician, from that of the blind charlatan. The *indications,* which are the deductions of reason, and therefore called *rational,* are, again, much more positive; and, though very numerous in many internal affections, yet, they are much more frequently ascertained in surgical disease.

They ought to be regarded with the deepest attention by the physician, in consequence of the suggestions they give of the necessary treatment. They will teach him when to decide with promptitude, and when it is dangerous to procrastinate: *consilium in arenâ sumere.* They will, also, shew that the greatest advantage may, occasionally, be derived by a temporary delay, and an adoption of the expectant mode of treatment, "la médecine expectante."

The principal circumstances which form indications under disease, are, the tendency which it exhibits towards any particular termination; the influence which it exerts upon the general health of the patient; the causes, nature, character, type, different stages, seat, intensity, degree of complication, state of the powers, and the effects of such treatment as may have been em-

ployed, &c. Such are the chief circumstances which influence the therapeutic indications.

Each disease does not demand its particular remedy: the same agent may be required in the treatment of diseases of very different kinds; and, in some cases, even the same affection may call for remedies of opposite characters.

When several indications are combined, which require the same method of treatment, they receive the appellation of *co-indications*. A *contra-indication* is one which is at variance with the rest, and calls for a different therapeutic course.

Indications are *prophylactic* or *preservative*, when their object is to preserve from disease; and *curative*, when they point out the mode to be adopted for its cure or recovery. Particular indications are, also, afforded by the consecutive phenomena of diseases. Whatever is employed medicinally, in the re-establishment of a patient, becomes a *therapeutic means*. Some of these are *hygienic;* some medicinal, and obtained from Pharmacy; others are *external* or *surgical*.

Almost all the indications of Surgical Therapeia consist in the application of mechanical agents to the body for the remedy of its diseases: but, the surgeon ought, at the same time, by no means to omit, in the generality of cases, the adoption of such precautions as hygiene affords, and the assistance which is derivable from the internal administration of medicines. He constantly finds occasion to use not only his manual dexterity, but the knowledge of Anatomy, Physiology, Pathology, Physics, Mechanics, Chemistry, and Materia Medica, which previous study has supplied.

The treatment of surgical diseases, like that of the internal affections, depends upon an accurate knowledge of the malady, and the means which are successfully employed in similar cases. But, on several occasions, it becomes necessary to invent and suggest new modes of procedure, or to modify those which have been already used. This affords an opportunity for that complete developement of surgical genius which endeavours to

meet new maladies by new means of cure, and knows how to treat those complaints which have been previously considered incurable. The surgeon summons to his assistance all the information which is possessed upon Medical Science; and he calculates to what extent he can depend upon his remedial agents; and how much ought to be expected from the powers of nature in their assistance of his cure.

The offspring of an ardent imagination, but under the control of reason, this inventive genius has always shone in those men of superior talent to whom French Surgery is indebted for the honourable situation which it holds in the estimation of civilized nations. The surgeon ought to be able, as was said of J. L. Petit, to create Surgery "de novo," were it possible that the science had never existed before his own time.

Experience, and that self-confidence which can alone be acquired by personal examination, are indispensable requisites in the treatment of disease: for the want of these no other qualifications can be substituted. However extensive and valuable may be the theoretical knowledge which the practitioner possesses, it is often found to be insufficient and incapable of application at the bedside of the patient: and there are few young physicians or surgeons, who at the commencement of their practical career, have not felt the truth of this assertion.

Speculations, made in the closet by theorizing men, are not the labours which usually render valuable assistance in practice. How much abuse has, occasionally, been heaped upon them for advantages which they believed to result from fresh contrivances and novel modes of treatment! Have not thousands of these inventions fallen into utter oblivion, after having lived but for an instant, and enjoyed an ephemeral reputation?

Surgery ought not to be more exclusive than Medicine. The skilful surgeon ought to be capable of selecting the best method, and the most advantageous mode of procedure which can be employed in the cure of dis-

ease, not being unduly attached to any preconceived theory.

He ought, also, to be very prudent in his practice; and capable of calculating, in extraordinary cases, how far artificial means may be used with benefit and safety, the life of the patient not being endangered. He will be induced to employ means of dubious result only in desperate cases: and, though he may propose the performance of such important operations as excision of the uterus, ligature of the abdominal aorta, or arteria innominata, without entertaining much probability of ultimate success; yet, he resorts to them rather than remain an inactive spectator of a disease which is making sure progress, without using any effort to counteract a certain and fatal termination.

Surgical remedies are very numerous, and should be considered in a regular order—as, topical applications, manual operations of every character and importance, instruments, bandages, and the means of correcting deformities by means of "Prothesis."

The true object of all operations is either the *division* or *union* of certain parts, the *reduction* of others, the *evacuation* of effused fluids, or the *extraction* of foreign bodies.

These different operative processes are often variously combined in the same operation: thus, in Lithotomy, the parts are divided for the purpose of laying hold of the foreign substance; extraction is then made, and the divided lips of the wound are again placed in apposition: but more extended details upon this subject belong to Operative Medicine.

If the surgeon wish to excel in his profession, he must be an excellent practical anatomist, and intimately acquainted with Surgical Anatomy, the main object of which is, accurately to teach the relative position which the organs bear towards each other How can he be able to perform the most delicate operations if the exact relation of the parts upon which he operates be not perpetually present to his mind? Will he not, at every instant, be in danger of placing the life of his unsus-

pecting patient in jeopardy, who, unhappily, has trusted himself to his care in the hopes of obtaining renovated health? Agreeably with what has been said, an intimate knowledge of Pathological Anatomy is, also, requisite, to conduct the surgeon through numerous delicate operations with precision and correctness: the performance of experiments, also, upon living animals, and especially the practice of operations upon the dead body, can, alone, give him that manual dexterity which every man feels to be necessary for the successful exercise of his profession. In addition to the result of his personal labours nature must, herself, bestow upon him capabilities of no ordinary character—gifts which are lavished only upon few, which may be developed and strengthened by exercise and experience, if innately possessed; but which, if originally deficient, cannot, under any circumstances, be acquired.

"The surgeon," says Celsus, "ought to be young, or, at least, little advanced in years. His hand should be firm, correct, and never tremulous; and he should be capable of using both with equal dexterity. His vision should be distinct and penetrating; his mind intrepid and immoveable; in his operations he should be cool and collected, taking away neither too much nor too little, and performing them as if utterly regardless of the groans of his patient."

PART SECOND.

PLAN AND ORDER

OF

TEACHING THE SCIENCE

OF

SURGICAL PATHOLOGY.

"Segniùs irritant animos demissa per aurem,
Quàm quæ sunt oculis subjecta fidelibus, et quæ
Ipse sibi tradit spectator."

HORAT.—ARS POETICA.

PRIOR to the student's commencing an attendance upon lectures on Surgical Pathology, he ought, as a preliminary step, to have studied general descriptive Anatomy, and Physiology; and, among the auxiliary sciences, Physics and Chemistry. The acquisition of a general knowledge of Pathological Anatomy will be his next advance: for, it holds a relation to Pathology similar to that which Anatomy bears to Physiology: i. e. each is the introduction to the other. For the purpose of acquiring this science, the first requisite is an acquaintance with the changes which have been produced

in the parts by disease; the next, the consideration of the causes by which they have been occasioned; and, lastly, an examination of the symptoms to which they have given rise: i. e. of the disease itself. In the adoption of this method the student passes from the simple to the compound, from the known to the unknown, and ascends from effect to cause.

A good arrangement in the mode of explaining the principles of Surgical Pathology ought to be particularly studied by the professor, to enable the student to arrange the subjects in his mind, and perceive, with facility, the relations which its parts bear among themselves, or to the other branches of science.

I consider it absolutely necessary that the instruction should be commenced by giving a complete outline of the general subject; but directing, at the same time, the principal attention to surgical disease; and, as one of the first advances, the student ought to be familiarized with the divisions which have been made in the science, and the exact signification and value of the pathological terms which are now so frequently employed.

After explaining the plan which ought to be followed in the study of diseases, they should be treated upon in the succession in which they affect the organs of the functions of relation, organization, and generation.

Before describing the particulars of each disease it will be necessary to consider inflammation and its various modes of terminations—wounds and ulcers; because these maladies affect, and may be said to be common to all the organs.

In the delineation of each disease the following order ought to be adopted:—1. General considerations upon the nature, structure, and functions of the affected organ, should be given—2. The disease should be defined, and its history traced—3. The changes which are produced by the diseased organs, described—4. The predisposing and proximate causes, the symptoms, signs, diagnosis and prognosis of the disease explained—and 5. Its general and local treatment should be laid down.

It is always necessary briefly to recapitulate, to the student, the most prominent facts respecting the nature, structure, and functions of the organs whose disease he studies, to enable the mind to follow such remarks as may be advanced upon each in particular.

A short, clear, and exact definition of each affection should be given. This is, usually, more easy in surgical than medical diseases: for example, in physical lesions.

The historical account of a disease should be traced with great conciseness: and those epochs in which it has most particularly prevailed, and authors by whom it has been most clearly described, first discovered, or the treatment improved, should be referred to.

A fuller statement, to say the least, would be useless, and encroach upon the branch which is devoted to the history of medicine: it would operate disadvantageously upon the student by overloading the memory with useless detail, though the professor would exhibit an appearance of possessing erudite knowledge, which he can easily obtain from the works of Haller, Sprengel, Ploucquet, and the other scientific annals.

When treating upon causes, those which act mechanically, chemically, or specifically, should be particularly explained; but not to the omission of those which are predisposing or general.

In surgical cases the local symptoms, which are dependant upon changes in configuration, size, position, colour, temperature, and kind of pain of the diseased organ, ought, usually, to be first examined; and, afterwards, those which are general, or that are excited in the other functions of the economy by sympathy with the affected organ: and they should be depicted in a distinct and prominent manner, and their progress and chief varieties pointed out.

In the examination of each disease it is particularly necessary to insist upon the diagnosis; because, it teaches the student to recognise and distinguish one from another It being to this that the practitioner is, generally, indebted for his superiority, it is important

that the student should be early acquainted with its value.

The diagnosis of such diseases as are to be found in all parts of the body, may, in the first place, be established generally; and the modifications which situation or position may produce, may afterwards be particularized.

The professor ought not to omit pointing out any errors which may have been committed in the diagnosis and treatment of a disease. Nothing will excite greater interest in the student, or more impressively teach him what scrupulous attention is requisite in making accurate distinctions between diseases, than to be himself employed in forming the diagnosis, and treating them remedially.

A frank acknowledgment of the errors which have been committed in practice should never be refused: however painful it may appear, it is the evidence of a superior understanding, and of a real thirst for knowledge and love of mankind. The lessons which these unfortunate occurrences thus, experimentally, teach us, are by no means less instructive to the student than the relation of those striking cases of Surgery which are followed by the most brilliant success. But whilst the professor is called upon to avow his own errors, he will feel the greatest delicacy in speaking of the mistakes of others: and he will, invariably, manifest that good feeling and indulgence towards his brethren, which he has a right to demand for himself.

After having established the diagnosis, the prognosis and treatment of the disease must be then considered: but he will value his time more than to occupy it by insisting upon all the details which belong to the description of methods, instruments, and manual operations; and which, consequently, form part of an operative course.

There can be no reason, except the extent of the subject, why diseases of the bones have been separated from Surgical Pathology, and given to the course of Operative Medicine.

But how ought the professor of Surgical Pathology to treat upon the diseases which equally appertain to Medicine and Surgery, as syphilis, &c.? He should arrange, with the professor of Internal Pathology, and especially claim their local symptoms; because they principally require surgical treatment.

Even in a descriptive course he possesses considerable advantage, after having given the results of his own observation and experience, in having the power of making remarks upon, and placing in proper estimation, the opinions of authors.

Throughout his lectures the actual state of the science ought to be taught, and its progress followed; and, if he can make additions to the art, his instructions will be more valued and beneficial: but, all that can be required is, that an accurate notion of the real state of knowledge, respecting the subject of which he treats, shall be given.

His object should be the developement of the student's perceptions, and of his intellectual power, by active exercise; and to teach him, thoroughly, whatever belongs to surgical disease. By the course of External Pathology he will be prepared to commence the clinical department;* and, after attending this, he ought then to devote himself to the practice of the hospitals.

The diseases which most frequently occur should be principally treated upon, that the best information may be afforded to the student upon the cases which are most likely afterwards to require his attention.

The mode of expression, by which the professor may make himself most intelligible and best understood by his audience, &c., belongs to the art of teaching in general; and is not, therefore, peculiar to a course upon External Pathology.

It will be readily perceived that External Pathology

* The professor of Surgical Pathology, in fact, groups, arranges, and examines those diseases, in regular order, which the clinical professor elucidates to the student as they accidentally fall under his treatment.

is merely a *descriptive* and *demonstrative* science. But what are the means which ought to be employed? The best, undoubtedly are, to lay the disease or preparations of Pathological Anatomy before the student—of which a natural description must be given. In consequence of the difficulty which often occurs in following this plan, preparations of wax, coloured drawings, and collections of engravings, are obliged to be used: but these means are, nevertheless, deficient. The objects being small and placed at some distance, the students do not see them; and the time which is spent in explaining them to one part is lost upon the remainder: it is, hence, generally preferable to give an exact idea of the diseases to be described by a linear design, traced upon a board, and so placed as to be seen by the entire audience.

If the diagrams, which are used in the study of the natural sciences, are generally admitted to be indispensable in a course of lectures on Physics, Anatomy, Physiology, Botany, and Natural History;* why should they

* If an anatomical professor gave his course without any demonstration upon the dead body, or the assistance of artificial preparations, or drawings; his lectures would be intolerable; and, in all probability, his audience would be small. Most are acquainted with the éclat which Baron Cuvier's admirable lectures, on Comparative Anatomy, have obtained, from the correct drawings which he made upon a tablet. M. de Blainville derived equal benefit from the same plan, in the course given before la Faculté des Sciences. M. A. Richard always employed it in his botanical lectures. Professor Alibert derives great advantage from drawings and plates in his clinical lectures upon diseases of the skin, at l'Hopital St.-Louis:—that he may impress upon the minds of his audience the relations and connexions which the various cutaneous affections possess with each other, he gives the outline of a tree—the trunk giving out as many branches, and these as many twigs, as the malady possesses *genera*, *species*, and *varieties*. These cases, faithfully coloured by the painter, are thus exposed to the observation of his audience. Professor Orfila, whose lectures, before the Faculté, are so regularly and attentively listened to by a great number of students, materially increases their interest by presenting, on the tablet, the arrange-

not be applied to Surgical Pathology? Have not the authors of the most valuable works employed them for the demonstration of disease, and the illustration of pathological changes, operations, instruments, apparatus, and bandages?*

ment of the preparations, and making the analysis so as to shew the decompositions and compositions which were passed through, If he wish to shew the composition of hydro-sulphuric acid, he thus expresses it—

Sulfure de fer	=	sou	fre	-|-	fe	r.
Eau	=	Hydro	gene	-|-	ox	ygene.
		Acide Hydro Sulfurique.			Sulfate de Proxotid de fer.†	

* I shall always remember the difficulty which I experienced in understanding some subjects, and remembering others, when, as a student, I attended lectures and read works on Surgical Pathology, which were merely descriptive. How frequently, in the perusal of surgical authors, have I lamented that they were not accompanied by engravings. I acquired the habit, when assisting at the cliniques and hospital consultations, of rapidly tracing, on one side of the notes, a rough sketch of the cases which were under examination. This method has facilitated my studies considerably; and since that time I have continued to collect materials of Pathological Anatomy in the hospitals and dissecting rooms in the same manner. These are difficulties which students should surmount when they commence the study of Surgical Pathology.

I have wished most of the students to acquire the art of

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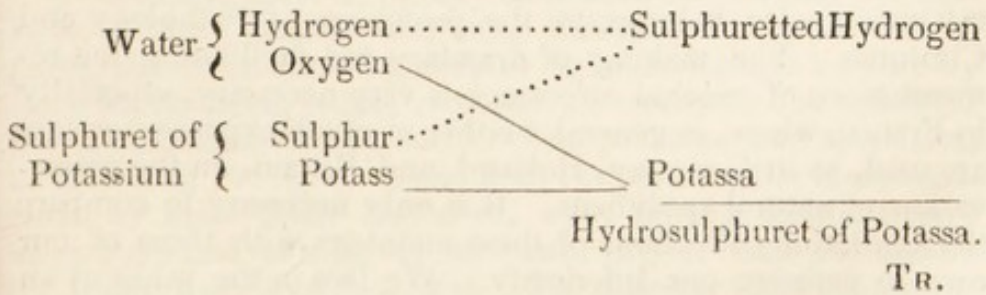
† The following is selected from Reid's Practical Chemistry, as a similar mode of descriptive exposition.



Tr.

How, in fact, in a public lecture, is it possible, by words alone, and without the assistance of a drawing, easily and distinctly to make the student understand; in Anatomy, for example, certain and minute details of organization—the reflections of the peritoneum, and other serous and synovial membranes; or many of the parts engaged in Embryotomy; in Physiology, the phenomena of vision, hearing, animal mechanics, and of the circulation; in Surgical Pathology, the effects of reflected balls in gunshot wounds, the changes which supervene in the walls and viscera of the splanchnic cavities in cases of hernia, the displacement of bones, or their fragments in dislocations and fractures, the changes which take place in the circulation from certain cases of aneurisms, and the obliteration of vessels, &c.?*

drawing, being deeply convinced of the advantages to be derived from it; and many have been satisfied of the correctness of this idea. The inconveniences which often attend the employment of professional artists, in not having them always at hand, have compelled me still further to see how necessary it is that drawings should be made by the anatomists or surgeons themselves. It frequently happens, in fact, that artists neglect what is essential in a preparation for the purpose of bestowing greater care on the secondary parts, which are often sufficiently well shewn by a few strokes merely to direct the spectator's mind. The engraver is often unsuccessful in giving to his plates all the expression of the original drawing. M. Sandifort obligingly shewed me, at Leyden, the manuscripts and original drawings of the celebrated Camper: and I have found these very superior to the fine engravings which we possess.

* The demonstration to the students of Pathological Anatomy principally belongs to the professors of Pathology and Cliniques. The making of drawings for facilitating the remembrance of morbid structures is very necessary, especially in France, where, in general, neither so much expense nor care are used, as in Germany, Holland, and Britain, in the preservation of natural specimens. It is only necessary to compare the admirable collections of these countries with those of our own to perceive our inferiority. We live in the midst of an

The art of painting arrests the fugitive object, and retains it in the memory for ever : it is the language which addresses the sense ; for, however clear and precise a description may be, it cannot strike the mind so forcibly as a drawing, by means of the eye:* and, by a few strokes of the pencil, the professor may trace, and instantly make intelligible, objects, the description of which would require considerable time. I have always taken advantage of this in my lectures upon Anatomy and Surgical Pathology,† as well as in that part of the Physiological lectures which have fallen to my lot to deliver before the Faculté during the illness of M. Duméril.

In the elucidation of many diseases, then, the greatest advantage will be obtained, by the student, in tracing, upon the board,‡ in dimensions sufficiently

harvest of scientific riches ; but yet, permit it, too often, to stand unreaped ; a *sketch*, however, preserves them from destruction, and distributes their benefits through all countries.

* In the common mode of instruction linear drawing usually forms one of the first principles of education. Children are taught to draw at the same time that they learn to read and write. Let us hope that, ere long, every one will know not only *how to interpret, a figure*, i. e. refer the representation to the natural body from which it is copied ; but, also, that he will be able to trace or communicate his idea by *means of a figure*.

† In my anatomical work I have copied many of these drawings ; and particularly those of the pleura, peritoneum and its different duplicatures. My students have derived great advantages from them ; and it is with infinite satisfaction that I find many of them amongst the number of my honourable competitors.

‡ Chalk is most frequently employed for making sketches upon a black board : but some difficulty is experienced in giving relief, or throwing deep or light shades into a figure by lines which, being white, represent in reality to the spectator the prominences of the body. The professor and spectators, in sketching the figure of the body, experience the inconveniences of aqua fortis engravers, who, tracing their drawings upon the black varnish of the plate, expose with the needle the bright surface of the metal. The observer must reverse the

large to be seen by all, the subjects which the drawing represents.*

For the purpose of shewing what is meant, I have appended, to this dissertation, several plates, which represent cases of Pathological Anatomy. Some of the specimens are common; others, less frequently seen; whilst some, I believe, are altogether new: they are chosen, as examples, from a collection of more than three thousand drawings; and are sufficient to demonstrate what has been advanced respecting the advantages which may be derived from the use of linear sketches, (a species of geometric diagram,) in teaching the Science of Surgical Pathology.†

appearance, and suppose the part to be shaded where the white lines appear; and *vice versâ*.

To obviate an inconvenience so generally met with, the drawings ought to be made with black crayons upon white boards, which should be painted with white lead; not varnished, but polished with pumice stone. The sketches are as easily effaced, with a moist sponge, as those which have been drawn with chalk. Their effect is much more natural, and easily recognized.

* Of the linear drawings, which will be presented to the pupil, some will have been made upon the board before the lecture, and others traced upon the spot by the speaker, who will explain them at the time; and which will be useful to those who are anxious to exercise themselves in this kind of demonstration.

† Many of these outlines are accompanied by an analytical summary of the preparations which they represent, or the observations by which they are explained. The proportions of most of them are reduced; but, in such a manner, that the alteration does not destroy the correctness, or deteriorate from the information which they are calculated to afford.

EXPLANATION OF THE PLATES.

EXPLANATION OF THE PLATES.

PLATE I.

FIGURE 1.

REPRESENTS *the form which a transverse wound in an artery assumes; only including a fourth of its circumference.* (This figure, one-third above its natural size, as well as the figures 2, 3, 4, 5, 6, and 9, are drawn from the femoral arteries of large dogs, upon which were repeated the experiments of Jones and Beclard, with nearly similar results.)

No. 1. Superior extremity—and
2. Inferior extremity of the artery.
3. Size and direction of the incision.
4. The oval form of the incision from the retraction of its sides.

FIGURE 2.

Represents *the form which a transverse wound in an artery assumes; extending three-fourths of its circumference.*

No. 1. Superior extremity—and
2. Inferior extremity of the artery.
3. The size of the incision.

4. Inferior lip—and
5. Superior lip of the incision, considerably separated from each other, and permitting a free flow of blood from both ends of the artery.
6. The undivided portion of the artery, opposing the retraction of its extremities within their cellular sheaths.

FIGURE 3.

Represents a side view of the preceding artery, and the numbers indicate the same parts.

FIGURE 4.

Represents *the form which an oblique wound, made in the sides of an artery, assumes.*

No. 1. Superior extremity—and
2. Inferior extremity of the artery.
3. Size and direction of the incision.
4. The oblong form the wound assumes.

FIGURE 5.

Represents *a longitudinal wound of an artery;* about three lines in length. It will be observed, that the lips of the incision are scarcely separate; and are even, sometimes, in apposition.

No. 1. Superior extremity—and
2. Inferior extremity of the artery.
3. The length of the incision.
4. The edges of the wound scarcely separated.

FIGURE 6.

Represents the preceding artery, opened longitudinally through the side opposite the wound, and seen from its internal surface. This figure was drawn from the femoral artery of a large dog, killed four days after the experiment. It will be seen that the lips of the wound are slightly separated, and

already almost solidly united by an effusion of coagulated lymph.

No. 1. Superior extremity—and
2. Inferior extremity of the artery.
3. The separated edges of the section of the artery.
4. Longitudinal wound, seen from the internal surface of the artery, and exhibiting, in the situation of the cicatrix, a more perfect transparency than the sides of this vessel.

FIGURE 7.

Represents a portion of the humeral artery, the extremities of which have been drawn in opposite directions with sufficient force to rupture the internal and middle coats, and to elongate into a conical tube the cellular coat. (The artery was obtained from the body of a man about forty-five years of age.)

The effects of tearing arteries, by drawing their ends in different directions, vary according to the calibre of these vessels. In the very large arteries, as the carotid and the crural, the cellular coat extends and tears irregularly into thin shreds of greater or less length. The two internal coats are torn without presenting, to any extent at least, the circular retraction which produces the complete or incomplete obstruction of the canal.

In the arteries of middle calibre, as the brachial, radial, cubital, or tibial, two kinds of phenomena are observed: one, depending upon the modifications which the *external* or cellular tunic undergoes; and, the other, upon the alterations of the *internal* coats. The external coat, thus, by degrees, drawn and elongated, presents a hollow cone, the base of which corresponds with a point a little above where the internal coats are ruptured, and the summit prolongs itself into a long slender filament; the shape is happily enough compared with the slender cone made by drawing out a *glass tube* whilst heated in the flame of a lamp. By the inflation of an artery thus treated the cellular prolongation is

distended into a small, conical, semi-transparent bladder, impervious to the air, unless the inflation has been forcibly made. The *internal and middle* coats are torn circularly, but not in a clean manner, having often the appearance of small incomplete rings, which are entangled and carried along with the distended cellular tissue. Moreover, these two coats exhibit, near the point where they have been torn, parallel ridges, forming folds in the axis of the artery, having their base towards the ruptured edges of the vessel, thus contributing to diminish its calibre.

It is remarkable that the cone of the cellular coat does not form abruptly at the point where the internal coats are ruptured, but extends, in a funnel-like manner, gradually diminishing the calibre of the vessel. These experiments were made with M. Bompard, jun., and such are the results.

No. 1. Superior extremity—and
2. Inferior extremity of the artery.
3. The point where the middle and internal coats are divided.
4, 4. Conical tubes formed by the elongation of the cellular coat.
5. Point of union of the summits of the two cones, the cellular tissue not being completely torn through.

FIGURE 8.

Represents the superior part of the preceding artery, opened its whole length, after the complete tearing of the vessel, and seen from its internal surface.

No. 1. Superior extremity of the artery.
2. The point where the internal and middle coats are ruptured.
3. The place where the calibre becomes sensibly diminished by the compression which the elongated cellular tissue produces upon the internal coats.
4. Projecting folds, forming, in the cavity of the artery, the preceding puckered coats.

5. Hollow conical tube, formed by the elongation of the cellular coat.

6. Thread-like extremity of the preceding tube.

FIGURE 9.

Represents the results produced by *the complete section of an artery, when its extremities are retracted within their cellular sheaths, and the hæmorrhage has ceased spontaneously.* (The preparation made from the femoral artery of a dog, killed six days after the experiment.)

The results of many similar experiments, made upon vessels of different calibre, almost entirely correspond with those which Dr. Jones first announced, I believe, in his excellent treatise on hæmorrhagies.

No. 1. Superior extremity of the artery.

2. Cavity of the artery shewn by a longitudinal section; the lips of the division are separated from each other, and extended by hooks.

3. Small muscular artery.

4. The inferior extremity of the artery, having retracted within its cellular sheath, after the complete transverse division of its parietes.

5, 5. The cellular sheath opened longitudinally, and held outwards by two hooks in order to shew the *exterior coagulum* which it contains: it is infiltrated with blood, and strongly adheres to the coagulum.

6. The exterior coagulum, or that of the cellular sheath.

7. Portion of the preceding coagulum, having insinuated itself between the cellular sheath, and the sides of the artery.

8. The *interior coagulum*, or that of the artery; having a conical form; its rounded base firmly adherent by coagulated lymph, in one part, to the exterior coagulum; and, in the other, to the lips of the transverse wound of the artery.

FIGURE 10.

Represents the *femoral artery of a male adult, who died six days after amputation of the thigh.* The artery is opened longitudinally, at its anterior

part, to the truncated end upon which the ligature was applied, in order to shew its cavity, and the coagulum of blood which it contains.

No. 1. Superior extremity of the artery.
2. Truncated extremity of the vessel where the ligature was applied.
3, 3. Small muscular branches.
4, 4. Lips of the longitudinal incision separated by two hooks.
5. Conical coagulum, the base filling the cul-de-sac of the truncated extremity, and adhering to the wound caused by the division by ligature of the internal and middle tunics of the artery: the summit of the coagulum floating freely in the centre of the artery.

FIGURE 11.

The brachial artery of a young man, who died nine days after amputation of the arm: performed for a scrofulous caries of the elbow joint.

The artery is laid open to the ligature, for the purpose of shewing the conical coagulum which it contains. This coagulum adhered, the whole of its length, to the side of the artery opposite the orifice, of rather a large collateral branch, which is given off six lines from the place where the ligature was applied. The surface of the coagulum, corresponding with the collateral branch, was free: the base of the coagulum closely adhered to the divided internal coats of the artery, and contained, in its centre, a yellow fibrinous mass. The ligature was nearly detached by the almost entire section of the cellular tunic, which it alone included.

No. 1. Superior extremity of the opened artery.
2. The truncated extremity of the same vessel.
3. Small muscular branch.
4. Considerable sized collateral branch.
5. Orifice of the preceding branch, within the cavity of the artery.
6. The base of the coagulum.
7. Point of adhesion of the coagulum to the side of the artery.

FIGURE 12.

Wound of an artery for which a single ligature had been applied above the wound, the hæmorrhage, however, continued; the blood being still supplied to the wound by the inferior extremity of the artery, through the medium of the collateral branches. The arrows indicate the course of the blood through the collaterals into the inferior extremity of the artery.

No. 1. Superior extremity—and
2. Inferior extremity of the artery.
3. Collateral branch, arising from the artery above the ligature.
4. Principal branch of the preceding collateral going to open into
5. Another collateral, proceeding from the artery below the wound, and by which the blood reflows into the inferior extremity of this vessel.
6. The blood spouting out of the wound, notwithstanding
7. The ligature which is placed immediately above.
8. The dotted line indicates the place where, in a similar case, there ought to be placed a second ligature below the wound.

FIGURE 13.

Varicose aneurism of the humeral artery, occasioned by the wound of a lancet, in a male adult.

A single ligature had been applied above the orifice of communication, between the brachial artery and the vein: notwithstanding this ligature, the pulsations re-appeared in the tumour, the limb shrunk, the fingers became of a blue livid colour, the nails fell off, and without delay amputation was obliged to be performed above the elbow. (The drawing was made twenty-four hours after the operation.) The artery and the vein are laid open their whole length, in order to shew the communication by which the arterial blood flowed freely into the cavity of the vein, which was considerably dilated,

and its parietes four or five times thicker than natural; and of a white, resisting, fibrous texture. The tumour was oblong, and its elongated inferior extremity terminated above the two valves of the vein, which appeared to have opposed the reflux of the arterial blood. The whole of the veins of the superior part of the limb above the tumour were extremely dilated, but in an uniform manner, without presenting the irregular swellings and tortuosities which are seen in varices. The inferior extremity of the artery below the anastomosing branches, by which the blood had reflowed into the tumour, was very narrow, not larger than the radial artery at its middle.

In the Plate, the situation where the ligature was applied, is omitted, and the parts are restored, as they were before the operation, in order to shew more strikingly their relative position in varicose aneurism. The arrows indicate the course of the blood.

No. 1. Superior extremity—and
2. Inferior extremity of the humeral artery.
3. The cavity of the artery, and its communication with the vein.
4, 4. Dilated collateral arteries by which the blood reflowed into the part of the artery below the ligature, and afterwards passed through the orifice of communication into the vein.
5. Cavity of the vein, its greatest dilatation corresponding with the orifice of communication.
6. Superior extremity—and
7. Inferior extremity of the vein.
8. Valves of the vein.
9. Veinous branch greatly dilated, opening into the cavity of the tumour.

Fig. 1 Fig. 2 Fig. 3 Fig. 4 Fig. 5 Fig. 6

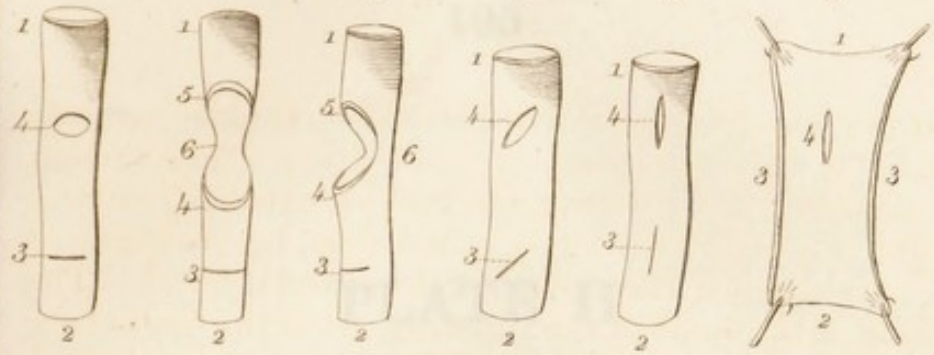


Fig. 7

Fig. 8 Fig. 9 Fig. 10 Fig. 11

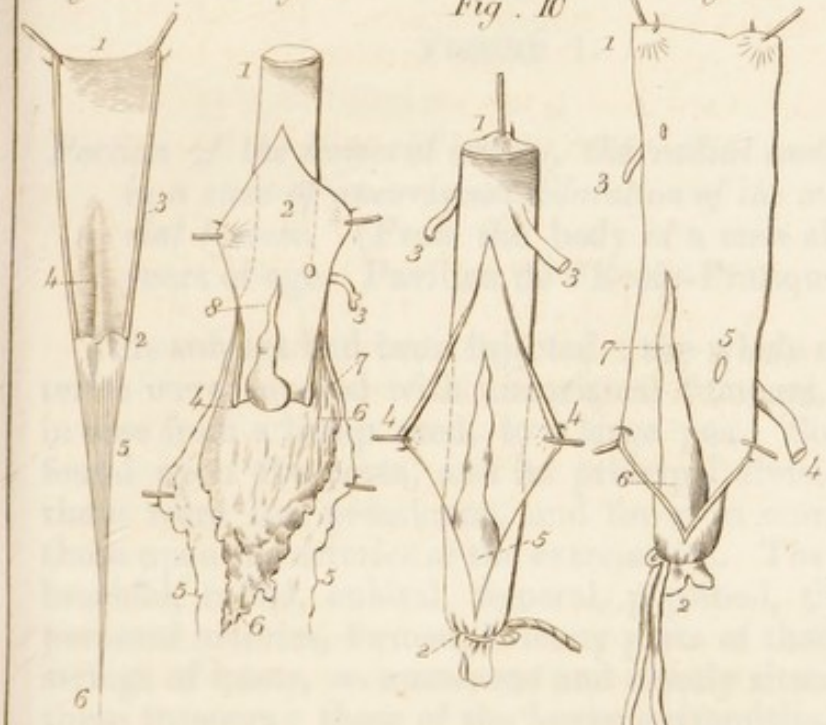


Fig. 12

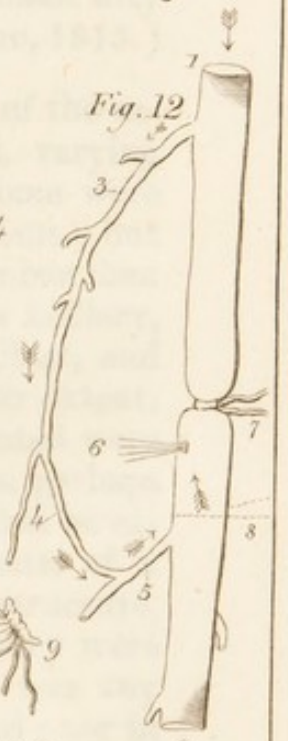
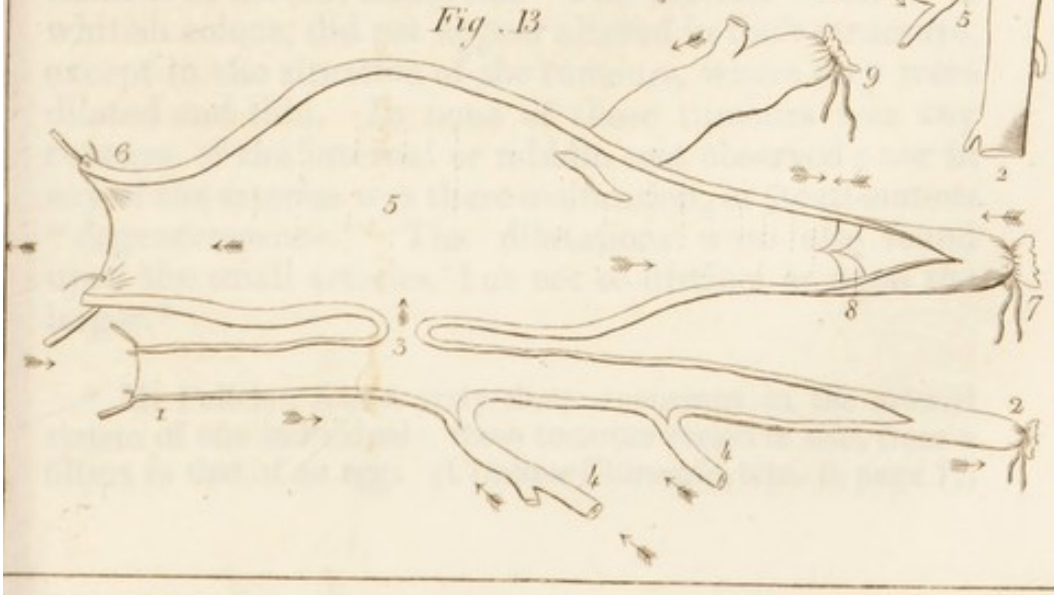


Fig. 13



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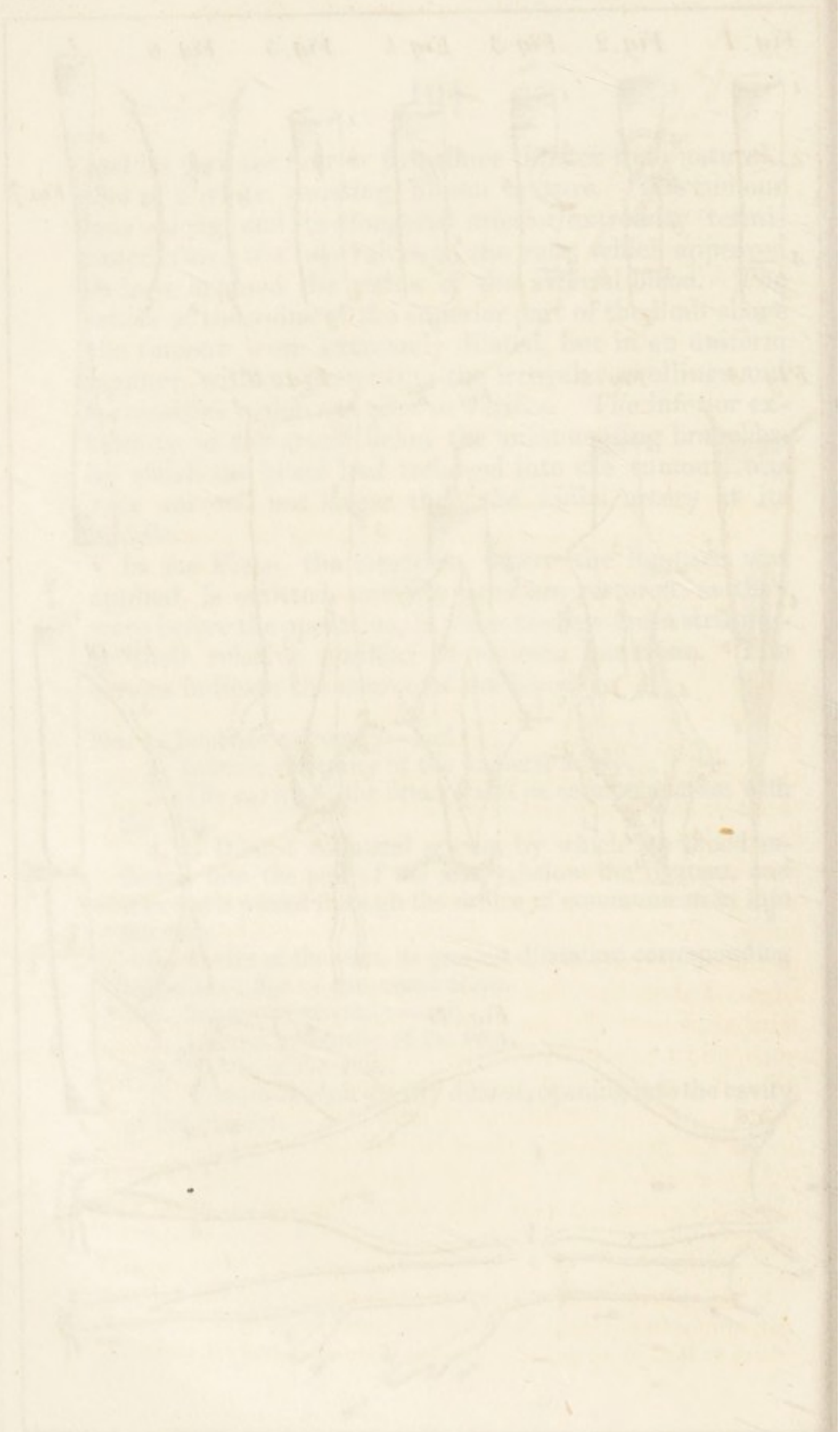


PLATE II.

FIGURE 1.

Portion of the humeral artery, the radial and cubital; in a case of aneurismal dilatation of the whole arterial system. (From the body of a man about fifty years of age. Pavillon de l'École-Pratique, 1815.)

This subject had been injected: the whole of the arteries were covered with aneurismal tumours, varying in size from a hemp seed, to a large pea. Some were found upon the aorta, and its principal divisions; but these were less prominent, and fewer in number than those upon the arteries of the extremities. The axillary, brachial, radial, cubital, femoral, popliteal, tibial, and peroneal arteries, formed, in many parts of their extent, strings of knots, so numerous and closely situated were these tumours: those of the lower extremities, perhaps the least numerous, might without exaggeration be estimated at several hundreds. The arterial coats, of a whitish colour, did not appear altered in their structure, except in the situation of the tumours, where they were dilated and thin. In none of these tumours was any rupture of the internal or middle coat observed; nor in any of the arteries was there ossification, or steatomatous "degenerescence." The dilatations were also found upon the small arteries, but not so distinct as upon the larger.*

* M. Pelletan found sixty-three aneurisms in the arterial system of one individual: these tumours varied in size, from a filbert to that of an egg. (Clinique Chirurgic, tom. ii. page 1.)

No. 1. The brachial artery opened longitudinally, and seen from its internal surface.

2. The cubital artery.

3. The radial artery.

4. Small aneurismal tumours projecting from the exterior of the arteries.

5, 5. Cavities seen from the internal surface of the artery in the situations of the dilatations.

FIGURE 2.

Double collateral circulation, consecutive to the cure of an aneurism of the popliteal artery, by ligature on the femoral, about its inferior third. (From the body of a man about sixty years old. Pavillon de l'Ecole-Pratique, 1817.)

This body presented, upon the internal part of the inferior third of the right thigh, a longitudinal cicatrix, whitish and about three inches in length. The femoral artery, below the cicatrix, had become conical, and having passed the aponeurotic sheath of the great adductor, changed into a solid fibrous cord of the size of a small bougie, and about two inches in length. Below the aponeurotic arch, at the superior part of the popliteal cavity, the artery seemed tumefied, or at least, had in no degree lost its primitive calibre, but formed a small fusiform tumour, very elongated and from nine to ten lines in length; here, it was hollow and permeable to blood, which it received from a considerable collateral branch arising from the femoral; and transmitted it, by two other collaterals, of middle size, proceeding from its cavity, to the inferior part of the popliteal artery. The inferior part of this small tumour, which represents a sort of arterial reservoir, was continued by a round fibrous cord, with an aneurismal sac, which was oblong, narrowed at its extremities, and of the size of an almond-nut. This sac was completely obliterated by dense, fibrous coagula, of a yellow colour; and was continued by another fibrous cord, with the most inferior part of the popliteal artery, where that artery received the col-

lateral branches considerably dilated. Thus, there were three fibrous cords in the course of this artery: one, between the femoral artery and the isolated reservoir of the popliteal artery; the second, between it and the aneurismal sac; and lastly, the third, between this sac and the inferior part of the popliteal artery, near the origin of the anterior tibial artery. The arrows indicate the course of the blood, in this double collateral circulation.

No. 1. The femoral artery.
2. Fibrous cord connecting the preceding with
3. The *isolated cavity* of the popliteal artery, opened so as to shew the three collateral branches which enter into its interior.
4. Fibrous cord connecting the preceding cavity with
5. The aneurismal sac, also opened in a part of its length, to shew the layers of fibrine which obliterate it.
6. The fibrous cord which unites this aneurismal sac with
7. The inferior part of the popliteal artery.
8. Origin of the anterior tibial artery.
9. Superior collateral, arising from the femoral artery.
10. The preceding collateral opening into the isolated cavity.
11, 12. Inferior collaterals arising from the preceding cavity.
13. The collateral 12 opening into the inferior part of the popliteal artery.

FIGURE 3.

Ossification and obliteration of the femoral artery and its principal branches, which caused a senile gangrene. (From the body of a man above sixty years of age. Pavillon de l'Ecole-Pratique, 1814.)

The first three toes, and the internal part of the right foot, were affected with senile gangrene.

Nearly the whole of the arteries of this subject, presented numerous ossifications. The right femoral artery, the coats of which were covered with calcareous incrustations, so that in many parts of its extent it represented a solid tube, was filled to its middle with a compact fibrous coagulum, intimately adhering to its

internal coat, and extending as far as the popliteal artery and its divisions into tibial and peroneal, which were also covered with osseous plates. In attentively examining the structure of this coagulum, it was found to be obliquely traversed, in the situation of the popliteal artery, by an osseous plate, about three lines in length, unattached to the coats of the artery, except by its inferior extremity: the yellow fibres of the coagulum seemed to be moulded and shaped by the osseous plate, which almost completely obstructed the cavity of the vessel, and had, probably, even determined the formation of the coagulum, the obliteration of the artery, and consequently the impediment to the circulation of the inferior part of the limb, and the gangrene of the foot. The collateral arteries were filled with coagula, nearly to their origin: the circulation appeared to have been continued, though feebly, by the small muscular anastomoses, and some of the collateral branches, not entirely obliterated.

No. 1. The superior extremity—and

2. The inferior extremity of the popliteal artery, opened in order to shew its internal surface.

3, 3. Section of the coats of the artery covered with calcareous incrustations.

4, 4. Irregular incrustations visible upon the internal surface of the artery.

5. Osseous plate united with the sides of the artery, by its inferior extremity; whilst its superior extremity pierced into the coagulum, and was closely adherent to it.

6, 6. The coagulum filling the cavity of the artery.

7. Inferior extremity of the coagulum broken off in order to shew incrustations 4, 4.

8, 8. Obliterated collateral arteries.

FIGURE 4.

Varices of the femoral vein, and the commencement of obliteration of the same artery, produced by the pressure of an omental crural hernia. (From the body of a female about sixty years of age. Pavillon de l'Ecole-Pratique 1814.)

This subject presented two crural herniæ:—That on the right side, formed by a long appendix of the omentum, which was indurated and loaded with fat, was contained in a thin globular sac, fifteen lines in length, and slightly contracted at its neck. This sac descended, outside of Gimbernat's ligament, within the sheath of the femoral artery and vein, insinuating itself partly between these vessels, which it pressed forwards and outwards, as well as the pectineal muscle, upon which it rested. The femoral artery suffered a contraction of its cavity from a cartilaginous transformation at its internal and posterior aspect, precisely in the place where it was compressed and displaced by the hernia: this transformation consisted of a white, cartilaginous, solid, elastic plate; a sort of thickening of the middle coat of the artery. The internal membrane, and, in fact, the external or cellular coat, were unaltered; but the fibres of the middle coat had disappeared, and seemed to be converted into cartilage. This concretion included, in the transverse direction, nearly the half of the circumference of the artery, and was from nine to ten lines in length; thin towards its edges; much thicker at its middle part; it filled nearly half the calibre of the vessel.

The sac of the hernia of the left side, represented in the plate, had the same form, the same relations, as in the preceding case; and occasioned, also, a deviation of the femoral artery and vein. It contained a portion of indurated omentum, having a schirrous appearance, with which it had contracted some adhesions. The femoral artery, at its displacement, exhibited exactly the same cartilaginous thickening of its coats as that of the right side: in addition, the femoral vein below the hernia presented a considerable varicose dilatation. The other parts of the femoral as well as the principal arteries of the trunk, of this subject, were exempt from this cartilaginous "degenerescence," which is properly and only to be attributed to the local pressure of the hernial tumours upon the sides of the arteries.

No. 1. Inferior part of the external iliac artery.
2. Circumflex iliac artery cut off.
3. The epigastric artery cut off.
4, 4. The femoral artery.
5. The deep femoral artery.
6. The dotted line indicates the extent and situation of the cartilaginous degenerescence of the coats of the femoral artery.
7. Inferior part of the external iliac vein.
8, 8. Femoral vein.
9. The saphena vein cut.
10. Varicose dilatation of the femoral vein.
11. The opening—and
12. The neck of the hernial sac.
13. Body of the sac.
14. Point where the sac passes behind the femoral artery and vein.

FIGURE 5.

Transverse section of the preceding femoral artery, through the cartilaginous degenerescence.

No. 1. Section of the cartilaginous degenerescence, and the thickness of the coats of the artery in this situation.
2. The section of the sides of the artery which have preserved their natural thickness.
3. The oblong form of the cavity of the artery.

FIGURE 6.

Atheromatous tumour obliterating the half of the calibre of the right subclavian artery, upon the first rib. (From the body of a man about fifty years of age. Pavillon de l'École-Pratique, 1815.)

Externally, the artery presented no visible change in its calibre, its colour, or its organization, in the site of the tumour, which projected only into its cavity. This tumour, six lines in length, occupied in width the half of the diameter of the vessel, the cavity of which, in a transverse section, appeared oblong. The internal healthy membrane enveloped the tumour, which was

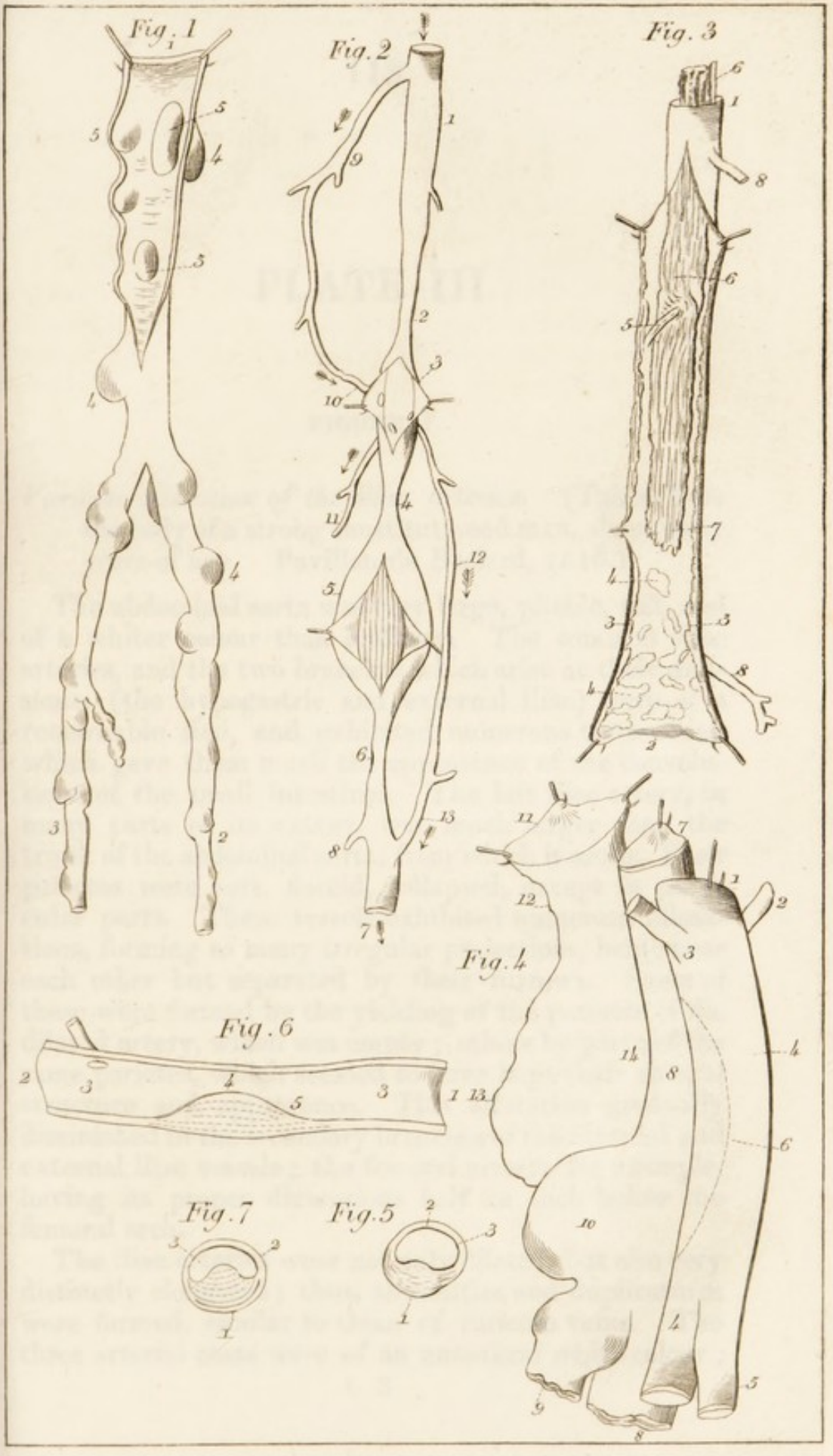
formed of strata of yellow, granular, very friable matter. The circular fibres of the middle coat had disappeared in the site of the tumour, which was found to be contained between the internal and external tunics.

No. 1. Internal extremity—and
2. External extremity of the artery.
3, 3. Cavity of the artery, of its natural diameter.
4. Contraction of the arterial cavity by
5. The atheromatous tumour.

FIGURE 7.

Represents the transverse section of the preceding artery, through the tumour.

No. 1. The tumour.
2. Portion of the sides of the artery of their natural thickness.
3. The cavity of the artery.



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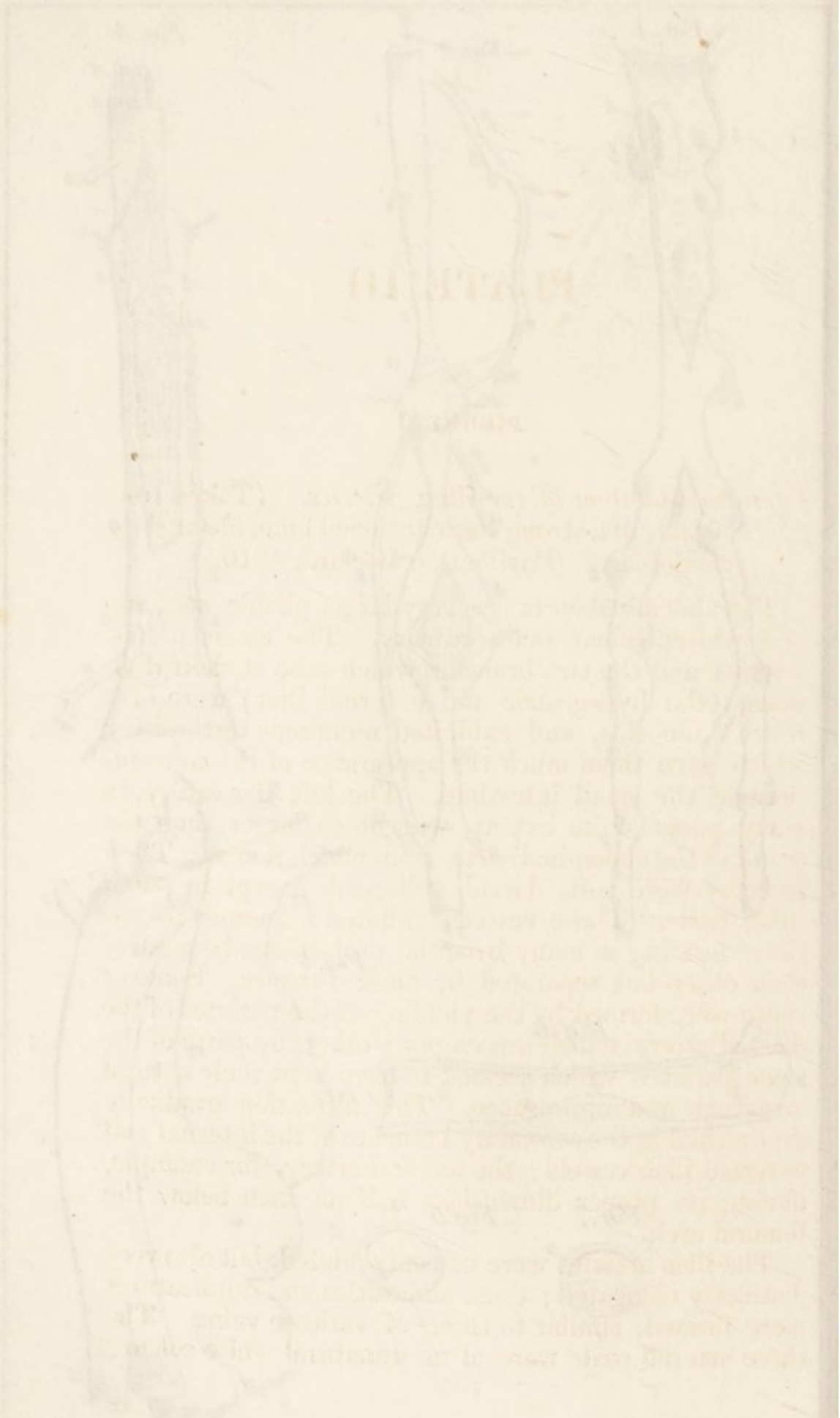

PLATE III.

FIGURE 1.

Varicose dilatation of the iliac arteries. (Taken from the body of a strong constitutioned man, about sixty years of age. Pavillon de Beclard, 1816.)

The abdominal aorta was very large, pliable, soft, and of a whiter colour than ordinary. The common iliac arteries, and the two branches which arise at their divisions, (the hypogastric and external iliac) were of a remarkable size, and exhibited numerous tortuosities, which gave them much the appearance of the convolutions of the small intestines. The left iliac artery, in many parts of its extent, was much larger than the trunk of the abdominal aorta, from which it arose. Their parietes were soft, flaccid, collapsed, except in particular parts. These vessels exhibited numerous dilatations, forming so many irregular projections, being near each other but separated by their furrows. Some of these were formed by the yielding of the parietes of the dilated artery, which was empty ; others by parts of the same parietes, which seemed to have kept their natural structure and appearance. This alteration gradually diminished in the secondary branches of the internal and external iliac vessels ; the femoral artery, for example, having its proper dimensions half an inch below the femoral arch.

The iliac arteries were not only dilated, but also very distinctly elongated ; thus, sinuosities and duplicatures were formed, similar to those of varicose veins. The three arterial coats were of an unnatural white colour ;

the middle one, in the site of the dilatations, was blanched, and the circular fibres indistinct; it resembled, in many parts, a thin lamina of fibro-cartilage, pliant and very elastic in the transverse direction.

The arterial coats were not perceptibly diminished in thickness in the site of the dilatations, the collapse being entirely occasioned by their relative thinness, compared with the double or triple diameter of the artery in the dilated parts.

No. 1. Extremity of the abdominal aorta.
2. The mesenteric artery.
3. Left common iliac artery.
4. Right common iliac artery.
5. External iliac—and
6. Left internal iliac.
7. External iliac—and
8. Right internal iliac.
9, 9, 9. The furrows which separate
10, 10, 10. The arterial dilatations.

FIGURE 2.

True aneurism of the abdominal aorta. The formation of a central canal in the coagulum for the passage of the blood. The tumour is seen in front. (From a female about sixty-six years of age. Pavillon de Beclard, 1816.)

The tumour, situated at the inferior part of the aorta, immediately above its bifurcation, was oblong, irregular, prominent, and of very smooth surface; it presented to the left a large black spot, formed by an ecchymosis of blood in the cellular coat, which, although very much dilated, was still of considerable thickness. The middle coat was equally dilated and thin; its circular fibres, distinguishable throughout the extent of the tumour, were very small and scattered. The internal coat could not be traced many lines further than the commencement of the dilatation. The aneurismal cavity was filled with superincumbent layers of fibrine, of a greyish colour, becoming redder as they approached the centre

of the tumour, and were of more recent formation. In the centre of these fibrous concretions was found an artificial canal, through which the blood passed. This canal, slightly tortuous, contracted at its middle and bifurcated at its inferior part, was continuous with the cavities of the two common iliac arteries; and its interior was lined with a very thin fibrous membrane, easily detachable. The fibrine, in many points of its extent, had undergone a softening, like that produced in cerebral substance by boiling; this "ramolissement" was especially remarked at the left side of the tumour, where the blood, from the central canal, had infiltrated itself through this pulpous substance, forming the ecchymosis which was seen from the exterior. The layers of fibrine were much thicker before than behind the central canal, owing to this last being nearer the posterior than the anterior side of the dilated artery.

Other parts of the aorta presented some ossifications, and many pustules formed under the internal membrane, containing a whitish, cretaceous, fluid matter.

No. 1. The abdominal aorta.
2. Left common iliac artery.
3. Right common iliac artery.
4. The inferior mesenteric artery.
5. The tumour.
6. Ecchymosis, which was observed in the left central part.

FIGURE 3.

Represents the same tumour, seen from its left side. The cellular coat has been opened longitudinally; then dissected and separated from the middle coat, through the extent of the ecchymosis.

Nos. 1, 2, 3, 4, 5, indicate the same parts as in the last figure.
6, 6. The cellular coat detached and turned back.
7. Ecchymosed spot.
8, 8. The circular fibres of the middle coat, forming the second envelope of the tumour.

FIGURE 4.

Represents the same tumour, opened longitudinally through the whole thickness of the coagulum, into the central canal; and the divided parietes extended.

Nos. 1, 2, 3, 4, shew the same parts as in Figure 3.

5, 5. The parietes of the arterial tumour, and the divided layers of fibrine, extended.

6. The central canal.

7, 7. Bifurcation of the inferior part of the canal.

8. The softened fibrine, infiltrated with blood, and extending from the central canal to the external ecchymosis.

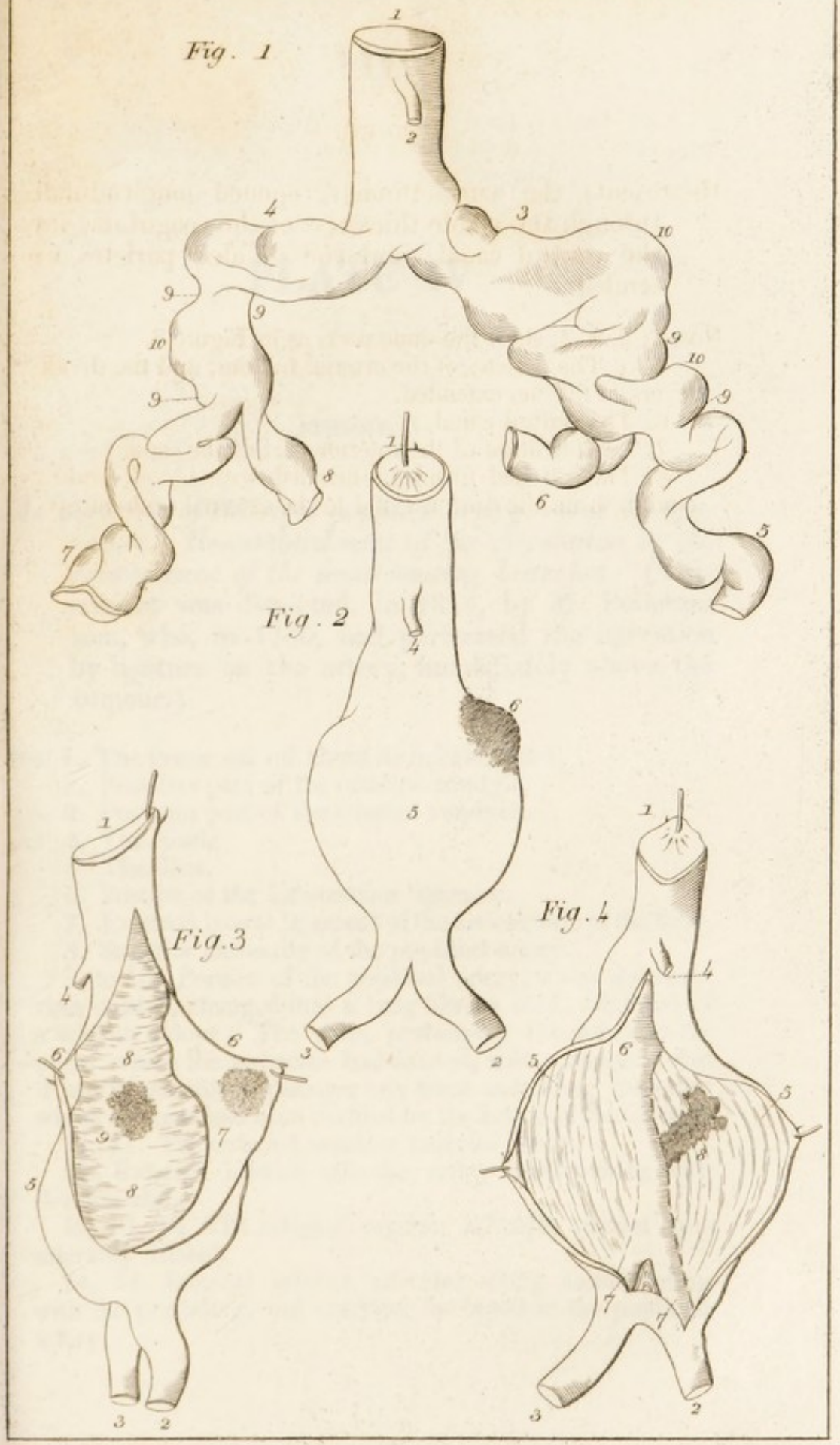

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PLATE IV.

FIGURE 1.

An aneurism of the right popliteal artery, cured by operation. Re-establishment of the circulation by the enlargement of the anastomosing branches. (This subject was dissected, in 1815, by M. Pelletan, sen., who, in 1780, had performed the operation by ligature on the artery, immediately above the tumour.)

No. 1. The femur cut off about its inferior third.
2. Posterior part of the external condyle.
3. Posterior part of the internal condyle.
4. The fibula.
5. The tibia.
6. Portion of the interosseous ligament.
7. External lateral ligament of the articulation of the knee.
8. Superior extremity of the popliteal artery.
9, to 10. Portion of the popliteal artery, where the aneurism existed, changed into a long fibrous cord, solid and of a whitish colour. The cord, prolonging the artery to the point where the aneurism had existed, still remained; but it was impossible to discover any trace indicating the point where its coats had been divided by the action of the ligature.
11, 11. The external superior articular artery.
12. External inferior articular artery anastomosing with the preceding.
13, 13, 13. The internal superior articular arteries considerably dilated.
14, 14. Internal inferior articular artery anastomosing with the preceding, and carrying the blood to the popliteal artery.

15. Dilated branch of the posterior tibial artery anastomosing with one of the internal superior articular arteries.
16. The posterior tibial.
17. The peroneal artery.
18. Anterior tibial artery passing through the foramen of the interosseous ligament.

FIGURE 2.

An aneurism of the arch of the aorta, containing three very distinct layers of fibrine; the oldest in the centre, and the latter effusions being found towards the exterior of the tumour.

This specimen of Pathological Anatomy was obtained from the body of a foreign merchant, about forty-six years of age, of a tolerably good constitution; who was admitted into l'Hopital de Perfectionnement, in 1818, and died about six weeks after his admission. It was three years since the commencement of the disease: after remaining stationary for a long time, the tumour began suddenly to increase, which determined him to enter the hospital: two days before his death, the tumour again rapidly increased so as to appear, by the next day, double its former size. Upon a post-mortem examination with Beclard, these were the appearances:—externally, the tumour round and prominent, occupied the whole of the superior part of the right side of the chest, and extended even above the clavicle. The skin was thin and of a purple colour. The tumour had destroyed the five superior right ribs; and their anterior cartilages were also slightly absorbed, though not to be compared with that of the ribs: the clavicle also, from its interior surface, was partially destroyed. The tumour, formed by an aneurism of the arch of the aorta, a little before the origin of the arteria innominata, was supported by a rather narrow base or pedicle; it compressed the lung, was adherent to it, and had permitted the transudation of blood into the tissue of that organ. Cut through its whole thickness, and examined externally and internally, it appeared to be formed—1. Exteriorly, by a

fibro-cellular membrane, of unequal thickness, though thin in general, and containing under it a very thick layer of black blood, lately effused, and only imperfectly coagulated—2. In the middle, by a second layer of yellow-reddish fibrine, more solid than the preceding, within which it was contained—3. Interiorly, by a third layer of fibrous substance still more solid, yellower, and manifestly older than the preceding: this third layer formed a central tumour, about the size of a small apple; covered by the middle layer, hollow within, and its cavity lined with a false membrane, rather firm and rugose, having loose floating fringes, like those which are observed in the stomachs of ruminating animals. Inferiorly, towards the pedicle of the tumour, the small central pouch, and the middle fibrous layer which enveloped it, were detached from the internal side of the exterior envelope of the aneurism, so as to leave between those parts a free passage for the aortic blood, which had been poured out between the external cellular envelope, and the middle fibrous layer of the aneurism. The manner in which the blood was successively effused through the crevices of the fibrous layers, in order to surround them externally, explains at once the mode of the formation of the tumour, and its very sudden increase at the two different periods.

No. 1. The arch of the aorta.
2. The extremity of the arch of the aorta.
3. The arteria innominata.
4. Right subclavian.
5. Right carotid artery.
6. Left carotid artery.
7. Left subclavian artery.
8, 8. External cellular envelope of the tumour.
9. Pedicle of the tumour.
10. Layer of recently effused coagulated blood.
11. Second layer of fibrous coagula.
12. Third layer of fibrine.
13. Small central cavity of the third layer.
14. The part where the two internal layers adhere to the inside of the external layer or covering of the tumour.

15, 15. Part where the two internal layers are separated from the external, by which the blood was effused between the middle layer and external envelope of the tumour.

16. The parietes of the aorta opened in order to shew the communication between it and the pedicle of the tumour.

FIGURE 3.

A false organized membrane, developed within the right crural vein, forming a canal for the passage of the blood. (Taken from the body of a man above sixty years of age. Pavillon de l'Ecole-Pratique, 1816.)

The crural vein, from the inferior part of the thigh, to its passage through the femoral arch, was hard and callous, and exhibited many successive contractions and dilatations in different parts of its length. Enveloped by a white, concrete, lamellated tissue, it closely adhered to the parietes of the femoral artery, which were covered with cartilaginous and osseous plates. When opened throughout its whole length it appeared—1. that its three tunics, and especially the external and middle, were much whiter and thicker than usual—2. that its internal membrane could easily be separated from the middle—3. that the whole of its cavity was lined with a false membrane, rather dense and white, and in some parts of its substance, traversed by very fine capillary vessels, beautifully injected with blood. This false membrane became distinguishable, near the popliteal artery, and its thickness greatly increased towards the external iliac vein, about the middle of which it terminated. Rather adherent to the internal membrane, especially at the parts where the vein was contracted, it passed over the valves, adhering to them and preventing their falling, and shewing the impression of their shape through its substance. Thus, it formed within the vein, a perfect canal, alternately dilated and contracted, and containing some uncoagulated blood. From its internal surface were given off a multitude of white or rose-coloured filaments, round, smooth, and of a fibrous appearance, resembling the tendons of the

carneæ columnæ of the heart, or the fibrous bands which are seen in many of the sinuses of the dura mater. These filaments crossed each other in every direction, and were very numerous at the upper part of the vein, giving it the appearance of an areolar tissue, through which the blood continued to circulate: here, they arose from one principal fibrous rounded cord, connected to the false membrane by means of the filaments from each side, and prolonged inferiorly into a longitudinal band, becoming blended with the false membrane, and at last totally lost. The branches of the femoral vein were dilated and varicose, but did not contain any membranous productions.

No. 1. The superior extremity of the femoral vein, near the crural arch.

2. False membrane, seen in the interior of the vein at its transverse section.

3, 3, 3, 3. The parietes of the vein, opened longitudinally and separated by hooks.

4, 4, 4, 4. The false membrane adhering to the internal surface of the vein, but partially separated at its edges.

5. The false membrane at its inferior part, completely separated from the interior of the vein.

6, 6. Portions of the valves uncovered by the separation of the false membrane.

7, 7. The other part of the valves visible through the false membrane.

8, 8, 8, 8. Capillary vessels of the false membrane.

9. The middle fibrous cord, from which depart many filaments of the same nature, which connect it to the false membrane.

10. Inferior termination of the preceding cord.

11. The fibrous bundles.

12. Deep femoral vein.

13. Muscular vein.


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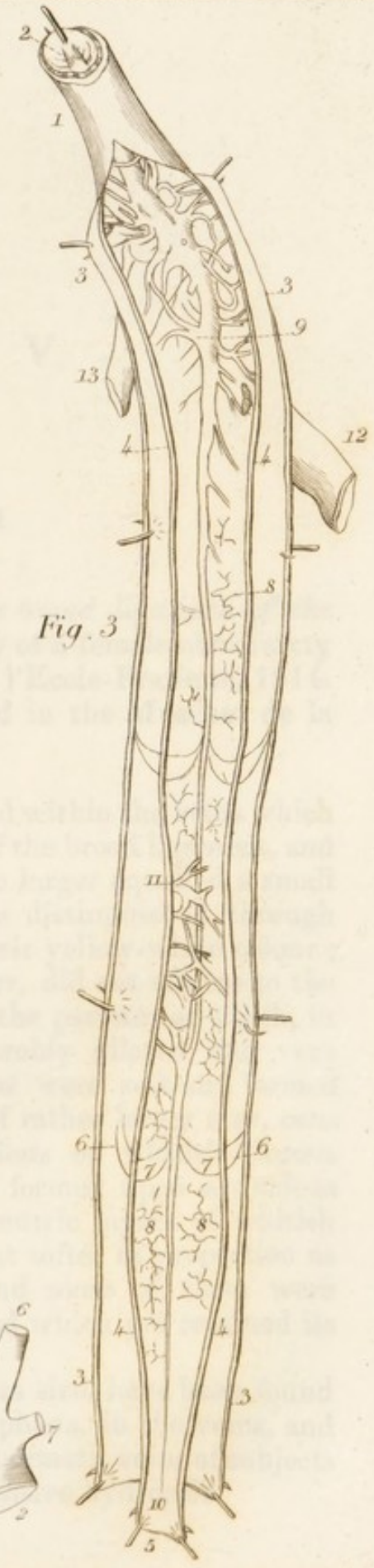
Fig. 3
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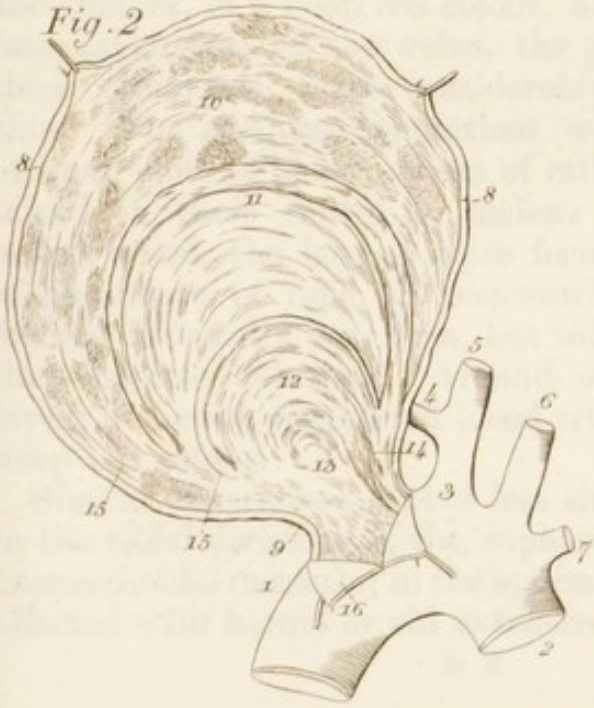
Fig. 2
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Stott. Sculp.

PLATE V.

FIGURE 1.

Concretions in the veins of the broad ligament of the uterus. (Found in the body of a female about sixty years of age. Pavillon de l'Ecole-Pratique, 1814. —The specimens deposited in the Muséum de la Faculté.)

These concretions were formed within the veins which ramify between the two folds of the broad ligament, and pass to the fallopian tubes : the larger equalled a small hazel nut in size, and could be distinguished through the parietes of the veins by their yellow-white colour ; the smaller, of a deep red colour, did not adhere to the internal surface of the veins, the parietes of which, in those situations, were considerably dilated and very thin. The smallest concretions were soft and formed of small clots of blood ; those of rather larger size, contained in their centre a nucleus of whitish fibrous matter ; and, the largest were formed upon a nucleus of phosphate of lime, of concentric layers of whitish fibrine, internally very firm, but softer in proportion as they became external. Around some of them were layers of newly coagulated blood which yet retained its deep red colour.

Similar concretions, but of less size, have been found in the tibial divisions of the saphena, in the veins, and hæmorrhoidal tumours ; in the spermatic veins of subjects affected with hernia or old extensive hydrocele.

No. 1. Left fallopian tube.
2. Internal extremity of the tube cut off at its origin.
3. External or fimbriated extremity of the tube.
4, 4. The anterior fold of the broad ligament.
5. Posterior fold of the same raised by a hook.
6, 6, 6. Principal branches of the veins of the broad ligament cut.
7, 7, 7. Concretions in their first degree of developement.
8, 8, 8. Concretions in their last degree of developement.
(Figure reduced two-fifths.)

FIGURE 2.

A.—A bisection of one of the largest concretions of the preceding figure, of its natural size. In the centre is seen the white bony nucleus and the fibrous layers which enclose it becoming broader externally.

B.—A small concretion exhibiting, in the centre, a clot of whitish fibrine.

FIGURE 3.

A concretion, found loose in the cavity of the inferior vena cava, above the renal veins. (In the body of a female about sixty-six years of age. Maison de Retraite de Montrouge, 1812.)

This calculus was formed by an apparently granulated mass of fibrine; enclosing in the centre a small nucleus of phosphate of lime, from which emanated osseous radii, having a crystallized appearance and burying themselves in the fibrous substance. The figure represents a bisection of this stone, of the natural size.

Sœmmerring preserves, in his Anatomical Collection, a concretion nearly similar, of a greyish colour, with radiated fibres, and which he stated to have been found in the vena cava of a child.

FIGURE 4.

Varices of the internal saphena vein. (From the body of a man about fifty years of age.)

No. 1. One of the branches of the vein taken from above the internal malleolus, and partially opened.
2, 2, 2, 2. Branches opening into the former.

FIGURE 5.

The aorta of a rickety child about ten years of age. (Pavillon de l'Ecole-Pratique, 1816.)

The vertebral column, deformed, was twisted to the left side and backwards. The aorta followed exactly the same curvature, and throughout its length was bound down in such a manner as to be doubled upon itself for the extent of two inches; and the flexed portions were united together by a lamellated cellular tissue. The artery gradually diminished in size, towards the abdomen, to such an extent that the abdominal was not more than a third of the diameter of the thoracic aorta, which, along the convexity of the diseased curve, strongly adhered to the ribs by a tough, fibrous, cellular tissue.

The inferior extremities of this child were in a state of atrophy, or at least very little developed, in comparison with the superior extremities: it is probable that the obstruction in the circulation to the inferior parts of the body, by the accidental curve of the aorta, had powerfully contributed to the non-developement of the extremities.

No. 1. The trunk of the aorta divided between the arteria innominata—and
2. The left carotid artery.
3. The left subclavian.
4. The first curvature of the aorta.
5. The second curvature of the aorta.
6. The commencement of the abdominal aorta.
7, 7. The common iliac arteries.

8. The cœliac artery.
9. The superior mesenteric.
10, 10. The renal arteries.
11. The inferior mesenteric artery.

FIGURE 6.

Vessels of a false membrane, uniting a fold of the small intestine with the peritoneum of the left iliac region. (From the body of a man fifty-five years of age, sent from l'Hopital Necker to the Pavillon de l'Ecole-Pratique, 1816.—The dissected preparation deposited in the Muséum de la Faculté.)

This subject presented an external inguinal hernia of the left side, formed by the sigmoid flexure of the colon, which exhibited the natural connexions inferiorly and posteriorly, and was deprived of its peritoneal sac in one portion of its extent, as we have often seen in cases where the cœcum forms the hernia of the right side.

Numerous folds of the peritoneum and the omentum, entirely free from fat, were covered, as well as the intestines, by false membranes of old formation. Internally, the intestines were full of ulcerations, which could be distinguished, under their peritoneal covering, by the deep red patches arising from the injection of the vessels of the serous membrane.

Of the false membranes, some were firm, as fibrous; others thin, as membranous tissues, and of an irregular figure; some united the intestinal folds to each other, whilst others attached them to the abdominal parietes. These membranes were formed of two folds, united by a very hard lamellated tissue; some of them were destitute of vessels, but in the greater number they were present. These vessels, very minutely injected, were elongated and undivided; not anastomosing with each other, in the middle portion, where they were above half a line in diameter: at each extremity they were divided into a great number of capillary branches, gradually diminishing in size until totally lost to the sight,

like the vessels of the tunica conjunctiva: thus diminished, they seem to terminate in dots, giving a rosy tint to the serous membrane, where it receives, on one side, the equally capillary branches of the mesenteric vessels; and on the other, the vessels of the peritoneum, which lines the abdominal parietes. Consequently, no direct anastomoses could be distinguished between the vessels of the peritoneum and those of the false membranes—which may be considered as representing, in miniature, the vena portal system.

No. 1. A fold of the small intestine, inflated and tied at both extremities.

2, 2, 2. Portion of the peritoneum of the left iliac fossa, extended and held by two hooks.

3. False membrane, narrow in the middle, and by its expanded extremities, connecting the fold of the intestine to the abdominal peritoneum.

4. Extreme branches of the vessels of the preceding false membrane, which are divided into capillary tubes at the point of adhesion, between that membrane and the intestine.

5, 5. Red dots which seem to be produced by the preceding vessels.

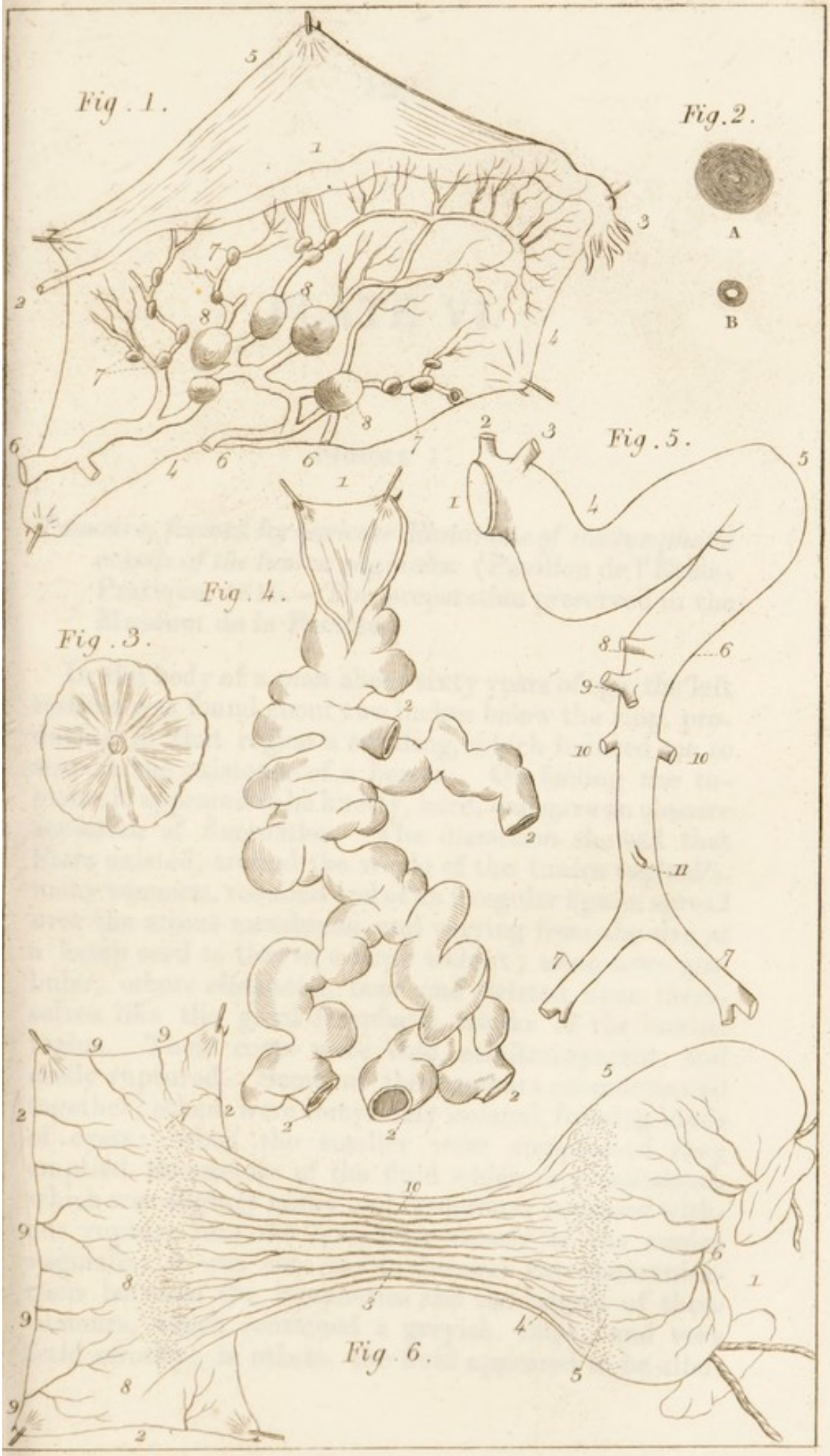
6. Ramifications of the mesenteric vessels whose capillary extremities are lost in the preceding dots.

7. Vessels of the false membrane redividing near the point of its adhesion to the peritoneum of the iliac fossa.

8, 8. Rosy patches.

9, 9, 9, 9, 9. The vessels of the peritoneum, whose capillary extremities are lost in the preceding dots.

10. The longitudinal and large vessels contained in the false membrane.



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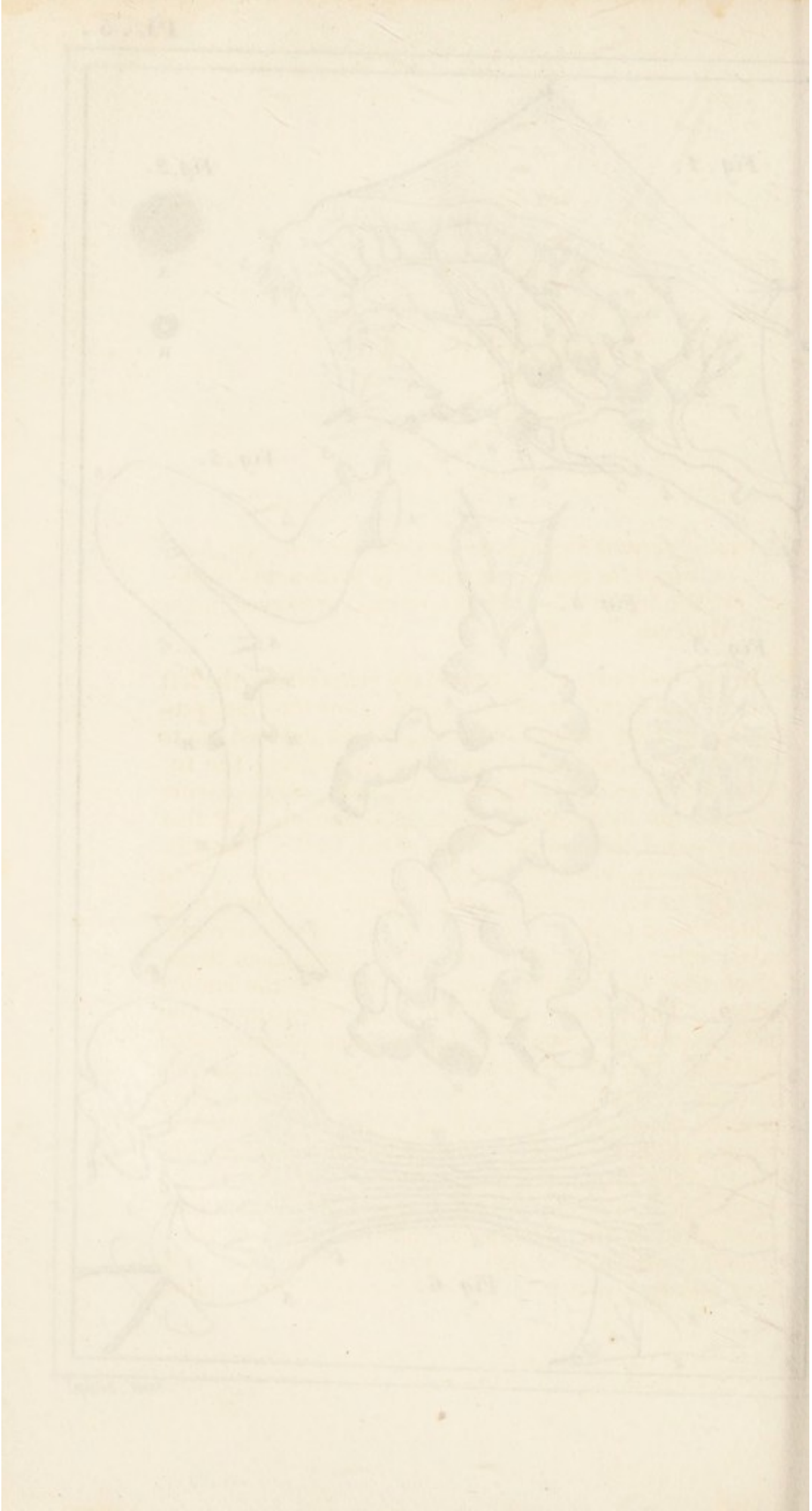


PLATE VI.

FIGURE 1.

Tumours, formed by varicose dilatations of the lymphatic vessels of the tunica vaginalis. (Pavillon de l'Ecole-Pratique, 1816.—The preparation preserved in the Muséum de la Faculté.)

In the body of a man about sixty years of age, the left testicle was found about two inches below the ring, producing in that region a swelling, which induced me to suspect the existence of a hernia. On feeling the tumour, it appeared to be knotty, hard, and gave an obscure sensation of fluctuation. The dissection shewed that there existed, around the whole of the tunica vaginalis, many tumours, rounded and of an irregular figure, spread over the serous membrane, and varying from the size of a hemp seed to that of a large walnut; some were globular, others elongated, bent and twisted upon themselves like the great lymphatic trunks of the lumbar region. Their coats were thin, semitransparent, and easily ruptured. Some of the tumours communicated together; others were completely isolated, forming kinds of cysts: when the smaller were compressed they emptied themselves of the fluid which they contained, which was slightly milky and inodorous; it passed without rupture into the lymphatic vessels of the tunica vaginalis: it was not easy to discover the communications between the lymphatics and the largest of these tumours, which contained a greyish, thick, and very fetid serosity: in others, the fluid appeared to be albu-

minous, inasmuch as there was a considerable precipitate by alcohol and the hydro-chloric acid. One of these tumours, the size of a cherry, was developed in the fold of the tunica vaginalis which covers the testicle, which appeared altered in its structure and atrophied to such a degree, that the seminiferous ducts were not larger than a very fine hair.

No. 1. The spermatic cord cut.

2. The spermatic artery. (The spermatic veins are not represented here, to make the drawing more intelligible.)

3, 3, 3, 3. The tunica vaginalis distended and held by hooks.

4. The superior extremity of the preceding tunic terminating in an elongated point on the cord.

5, 5. The largest of the lymphatic tumours of the tunica vaginalis.

6, 6. Lymphatic vessels of the cord, distinctly continuous with the smaller tumours.

7. The testicle.

8. Lymphatic tumours developed on the surface of the tunica albuginea testis.

A, A, A. Lymphatic vessels and tumours detached from the preceding preparation.

B, B, B. The largest tumours also detached from the same.

FIGURE 2.

An ivory pessary, having formed the nucleus of a stercoraceous concretion on one extremity, and of an urinary calculus on the other. (The preparation presented by Dr. Laroche to the Société de la Faculté de Médecine.)

This pessary was found in the body of an old woman. Its cup or expanded extremity, having perforated the rectum, was lodged in that intestine: the extremity of its shank, having ulcerated through the vesico-vaginal partition, had introduced itself into the bladder. The cup was three-fourths filled by a white crystalline concretion, adhering strongly to the pessary, and tinged

a dark-brown colour by the fecal matter between the crystals. The shank of the instrument was covered by another irregular concretion, of a smooth surface, a yellowish colour, and composed of uric acid.

No. 1. and 2. The cup of the pessary.
3, 3. The stercoraceous concretion adhering to the preceding part of the instrument.
4. The shank of the pessary.
5. The urinary concretion surrounding the free extremity of the shank.

FIGURE 3.

A calculus, formed upon hair, extracted from the bladder of an English lady. The figure is of the natural size.

In 1821, Dr. Gibbings kindly shewed me a calculus which was extracted from the bladder of a lady of the city of Cork. She experienced, for a long time, a difficulty in voiding her urine, accompanied by acute pains; and sometimes she parted with long hairs in her urine. The existence of a stone in the bladder having been proved, Dr. G. cut the patient, and extracted with the forceps a concretion which appeared adhering, and was formed around a lock of light coloured hair, slightly curled, and five or six inches in length. Some of the hairs were very bristly, others woolly, and they traversed the long diameter of the stone in such a manner as to pass through its extremities. The hairs appeared to be destitute of their bulbs, for they were examined with every possible care. I think they may perhaps be considered as a hairy production of the urinary passages, and probably of the internal surface of the bladder. The calculus is triangular, rather flat, of a grey colour, marked on its surface with yellow spots. The hair of the diseased person was of a light brown colour.

No. 1. The superior extremity of the lock of hair, passing through the summit of the stone.
2. The inferior extremity of the lock, coming out of the middle of the base of
3. The calculus.

FIGURE 4.

A hairy calculus. (In the collection of Professor Roux.)

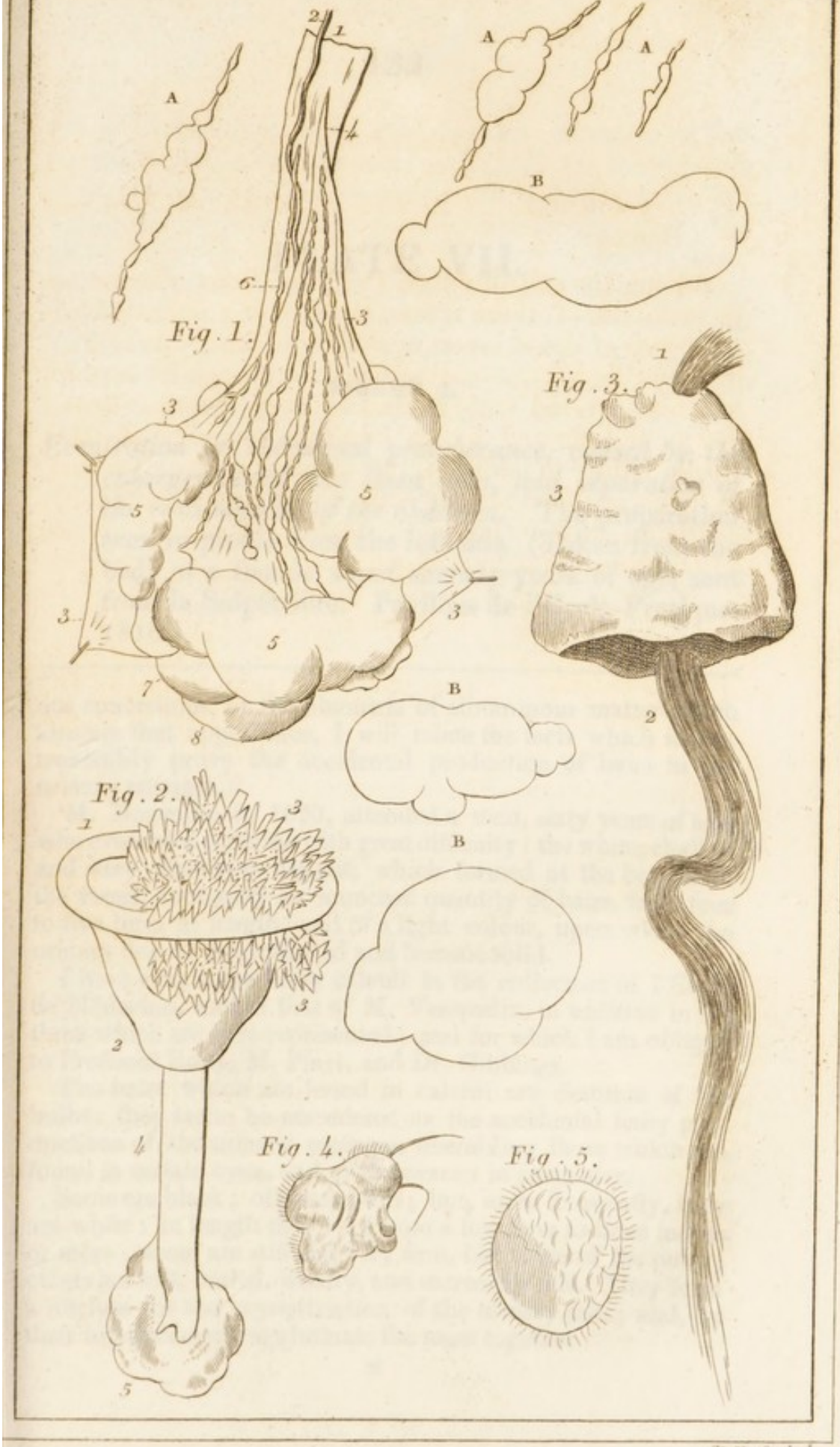
Among the calculi which Professor Roux allowed me to make use of, there is one, the size of a nut, which is composed of dense layers of oxalate of lime. It is of an irregular figure, presenting six tubercles on its surface, which is covered with a kind of deep brown-coloured down, and formed by an immense quantity of short woolly hairs: in addition, the calculus is also traversed, in different directions, by many thick, brown, stiff hairs, nearly an inch long, and resembling those which are found about the organs of generation.

FIGURE 5.

A hairy calculus. (This stone was sent to me by Dr. Pinel, jun. : it was found in the bladder of an old woman, who died at la Salpétrière.)

This stone, greyish, rounded and flattened, is of the size of a nut, and formed of a greyish friable deposit, easily broken by friction; but, towards the centre, found agglutinated together by many light auburn hairs—some very fine; others thicker. It is composed of uric acid and phosphate of lime.*

* There are sometimes, accidentally, found in the urinary passages, hairs which are evacuated in the urine: this affection, which we have named *pili-miction* or *pissement de poils*, *trichiasis*, *mictus pilaris*, has been long observed. Hippocrates often observed these hairy urinary concretions: he noticed filaments like hair evacuated with the urine. Galen is said to have known persons who evacuated hairs in their urine—sometimes one, at others many, of various colours and length. Similar observations have been made by Schenck, Tulpius, Fabricius, Hildanus, Wierus, Klett, Leuwenoeck, Young, Powell, Mœbius, Horstius, Gœlike, and many other physicians. Since the fact of pili-miction is still doubtful, and the greater number of physicians think that the hairs are merely sanguine-



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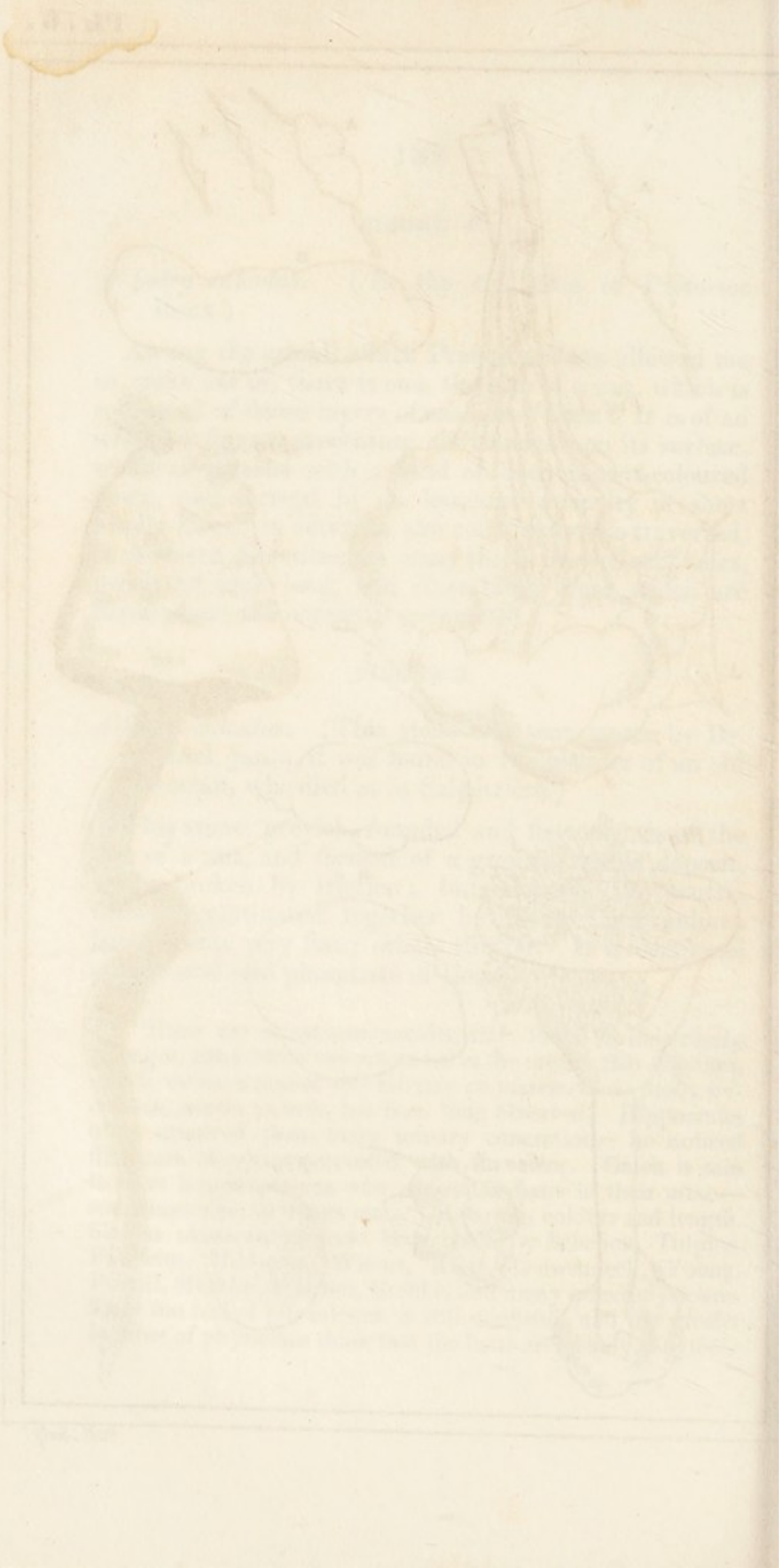

PLATE VII.

FIGURE I.

Eventration or abdominal protuberance, caused by the enlargement of the linea alba, and separation of the recti muscles of the abdomen. The preparation seen in profile from the left side. (Taken from the body of a female about seventy years of age, sent from la Salpétrière. Pavillon de l'Ecole-Pratique, 1816.)

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ous concretions, or the filaments of albuminous matter which assumes that appearance, I will relate the facts which incontrovertibly prove the accidental production of hairs in the urinary passages.

M. Magendie, in 1820, attended a man, sixty years of age, who evacuated his urine with great difficulty: the white, chalky, and very abundant deposit, which formed at the bottom of the vessel, contained an immense quantity of hairs, from four to five lines in length, and of a light colour, upon which the urinary deposit agglutinated and became solid.

I have seen some hairy calculi in the collection of l'Ecole de Médecine, and in that of M. Vanquelin, in addition to the three which are here represented; and for which I am obliged to Professor Roux, M. Pinel, and Dr. Gibbings.

The hairs which are found in calculi are destitute of the bulbs: they are to be considered as the accidental hairy productions of the urinary passages, resembling those which are found in certain cysts, and of the ovaries in particular.

Some are black; others auburn; but, more frequently, they are white: in length they vary from a few lines to three inches or more: some are stiff and very firm, like those of the pubis; others are soft, curled, woolly, and extremely fine. They form a nucleus for the crystallization of the urinary salts; and, by their interlacement, agglutinate the mass together.

The abdomen was occupied, at its middle part, by an oblong tumour, extending from the xiphoïd cartilage to the pubis. The skin, which covered this tumour, was very thin, and allowed the convolutions of the intestine to which it was applied, and as it were moulded, to be distinguished. On each side, and at the inferior part of the tumour, it formed folds, and numerous ridges, which encircled the greatest part of its circumference. The cicatrix of the umbilicus was yet visible upon the thin skin, and was drawn rather to the left side.

No. 1. The anterior part of the abdomen.
2, 2. The intestinal convolutions perceptible through the parietes of the tumour.
3. The umbilical cicatrix.
4, 4. Folds of skin which encircle the tumour.
5. The right thigh.
6. The left thigh.

FIGURE 2.

A front view of the preceding preparation. The skin is turned back for the purpose of shewing the subjacent parts.

The skin which covered the tumour was extremely thin, and united by a very loose cellular tissue to a second envelope, of an aponeurotic nature, occasioned by the attenuation of the linea alba into a very thin, fibrous, and semitransparent lamina, which adhered very intimately to the peritoneum above the umbilicus; whilst, below, it could easily be separated. The peritoneum, lining the interior of this aponeurotic lamina, was also thin, and formed very fine white fibres, separated from each other, having a netted and areolar appearance. The umbilical arteries and the urachus were changed into fibres, which were lost in those of the peritoneum. Externally, the tumour was bounded by the recti muscles, which were separated from each other to the extent of eight inches. The external edge of these muscles was convex and rather thickened; their internal, was very

thin, and the fibres scattered and colourless. The pyramidal muscles were natural, but were lost above in the fibrous membrane, by some fine filaments. The epigastric artery was pushed considerably outwards, along with the rectus muscle; and was rather smaller, and its coats thicker than natural. The tumour was formed by the small intestine, the transverse colon, and the stomach, the superior part of which descended behind the bundle of intestines.

No. 1, 1, 1, 1. The flaps of skin, turned back and separated.
2. The xiphoïd cartilage.
3. The pyramidal muscle.
4 The umbilical cicatrix.
5, 5. Intestinal convolutions visible through the two envelopes of the tumour.
6, 6. The internal edges of the recti muscles, thinner and altered.
7, 7. The great abdominal oblique muscles.

FIGURE 3.

An internal and external inguinal hernia of the right side. (Found in the body of a man about forty years of age, of a strong constitution. Pavillon de l'Ecole-Pratique, 1814.—The preparation preserved in the Muséum de la Faculté.)

The drawing is taken from its anterior aspect. The skin has been dissected off. The sac of the internal hernia passes through an opening in the fascia transversalis, and contains a portion of omentum: the sac of the external hernia empty, and insinuated in the fascia propria of the spermatic cord. The epigastric artery is situated between the two sacs.

No. 1, 1. The aponeurotic tendon of the great abdominal oblique muscle
2. The inferior part of the linea alba.
3, 3. Part of the peritoneum.
4. Part of the rectus muscle.
5. The epigastric artery.
6. The inguinal ring.

7, 7. The common sheath of the two sacs, opened longitudinally.
8. The sac of the internal inguinal hernia.
9. The sac of the external inguinal hernia.
10. The spermatic vessels passing from under the sac of the external hernia.
11. The spermatic cord cut and tied.
12. Insertion of the tendon of the great oblique into the pubis.

FIGURE 4.

Represents the preceding preparation seen from its abdominal aspect. The peritoneum has been dissected off to the commencement of the neck of the sac of both herniæ, in order to shew the relation of the sacs with each other and with the surrounding parts.

No. 1. The posterior surface of the rectus muscle.
2. The posterior surface of the right pubis.
3. The foramen ovale.
4. Section of the descending ramus pubis.
5. Gimbernat's ligament.
6. The crural arch.
7. Poupart's ligament.
8. The external iliac artery.
9, 9. The epigastric artery.
10. The vasa deferentia.
11. The spermatic arteries and veins.
12, 12. The fascia transversalis.
13. Portion of the aponeurotic tendon of the great oblique.
14. The superior opening of the inguinal canal.
15. The sac of the external hernia descending obliquely in the inguinal canal.
16. The sac of the internal hernia passing directly through the fascia transversalis.

Fig . 1

Fig . 2

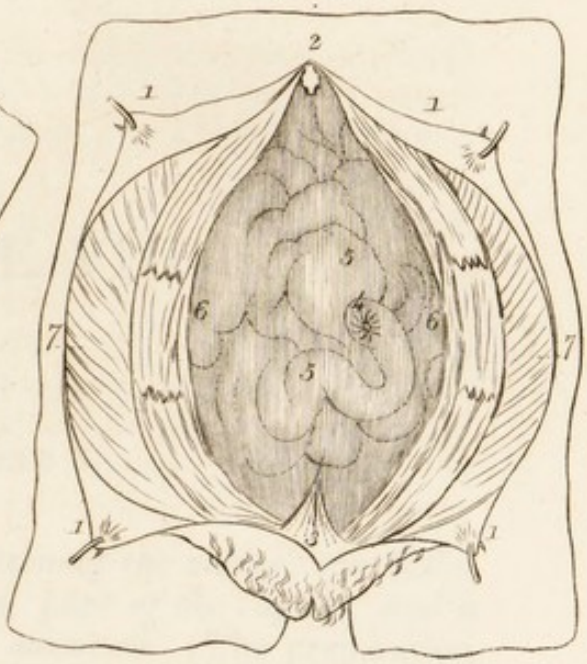

Fig . 3

Fig . 4

Stott. Sculp.

PLATE VIII.

FIGURE 1.

A right crural hernia, containing the uterus, the fallopian tubes, the ovaries, part of the vagina, and a considerable portion of omentum. (The preparation presented to the Société de l'Ecole de Médecine, 22nd December, 1825, by Professor Lallement: it is described in the reports of the Faculty, January, 1826: the hernia existed forty years.) The drawing which is given was taken before any wax model was made of this preparation.

The skin which formed the external envelope of the tumour was natural: under it was found a considerable quantity of firm and compact fat.

The hernial sac was difficult to distinguish, the neighbouring parts not being in a natural state. Very deep was situated a fatty substance of considerable bulk, which seemed to unite, by two prolongations, with the omentum: having opened this substance no intestine was found, but the following organs adhering to the surrounding fat—the womb, ovaries, fallopian tubes, part of the vagina, two cords of omentum, as well as two cysts, or perhaps hydatids. The more easily to distinguish these parts, we proceeded, in the first place, to uncover the inguinal ring; and, having divided the fallopian ligament, a crural hernia was discovered.

The epigastric artery was external to the whole of these parts, which were anterior to the conjoined tendons of the iliacus and psoas muscles; and rested, in

their passage, upon the internal part of the horizontal ramus of the pubis; the crural vessels were, consequently, external, and posterior to the displaced organs.

These organs were thus disposed:—proceeding from the left to the right, was situated—

1. A cord of the omentum, proceeding from a portion of the transverse colon, inferiorly was lost in the mass of fat at the base of the tumour.

2. More to the right, was seen a second cord of omentum, terminating inferiorly, as the former, and proceeding from the more ascending part of the transverse colon. These two cords, of which the latter had a fleshy appearance, seemed to have drawn down the base of the arch of the colon.

3. Further to the right side were found, above, the left fallopian tube; below, the right ovary and the broad ligament, much contracted.

4. Next was seen the uterus, its neck superiorly continuous with the parietes of the vagina; and its fundus, inverted forwards, was in relation with the mass of fat before alluded to: by the introduction of the finger per vaginam, you explore the unnatural direction of the vagina from left to right; and a sound introduced, makes its appearance through the crural arch; and in this manner the vagina forms part of the superior contents of the hernia.

5. The right fallopian tube, part of the broad ligament, the right ovary, diseased and exhibiting a kind of cyst, were also seen: below, a second cyst, or perhaps hydatid, distinct from the former, which had certainly contained a quantity of serosity, which the patient had parted with. Lastly, quite to the right was found a great quantity of cellular tissue. The bladder and rectum preserved their natural position, and functions.

No. 1. The left side of the abdominal parietes, seen externally.
2. The right side of the same, seen internally.
3. The pubic region, mons veneris.
4. The left thigh.
5. The right thigh.
6. The vulva.

7, 7. The envelope of the tumour, opened and turned down.

8. The womb everted forwards, and presenting its posterior surface.

9. The fallopian tube—and

10. The left ovary.

11. The fallopian tube—and

12. The right ovary changed into a cyst.

13. Another cyst adhering to the right ovary and womb.

14. The mass of fat, strongly adherent to the womb and the sac, and continuous with

15, and 16. The two prolongations of the omentum, which are represented as cut and turned down.

FIGURE 2.

Ulcerations and contraction of the sigmoid flexure of the colon. Polysarcia of the fatty appendices of the intestine, one of which forming a crural hernia of the left side. (From the body of a woman about sixty years of age. Pavillon de l'Ecole-Pratique, 1816.)

The folds of the peritoneum were loaded with a great quantity of fat, which also distended the appendices of the large intestine; but in no part were they so much developed as upon the sigmoid flexure of the colon; forming around that intestine an enormous mass of fat, the size of the arm, and causing a protuberance of the abdominal parietes. The appendices were, for the most part, sustained by a pedicle, elongated, and connected with the peritoneum, which nourished them. One or two more developed, and supported by a long pedicle, rounded, and of a fibrous appearance, filled the sac of a left crural hernia: the cœcum and transverse colon were greatly dilated and filled with fecal matters. The left lumbar colon, and the sigmoid flexure, were considerably contracted; in some places they were not larger than the little finger, and would hardly admit a female catheter. Above the place where the intestine began to diminish in diameter, its mucous membrane was grey, viscid, and separated from the contracted

portion by angular serrated erosions, ragged, and bordered by black edges. The contracted portion was formed of a white homogeneous tissue, easily torn, and in which no trace of the primitive organization of the intestine could be discovered. It exhibited on its surface some longitudinal lines, fringed with a beautiful red, and some irregular, deep, grey ulcerations. The rectum was very equally contracted, and scirrhous at its inferior extremity. The anus was surrounded by four very large excrescences of a syphilitic appearance. The vagina was also ulcerated and filled with similar excrescences.

No. 1. The inferior extremity of the left lumbar colon.
2. The sigmoid flexure of the colon.
3, 3, 3. Fatty appendices which surround the intestine.
4. A larger appendix than the rest, forming the hernia.
5. The pedicle which supports it.
6. The cavity of the intestine, opened longitudinally, and lined by its mucous membrane.
7. Black ulcerated edges of the membranes of the intestine.
8. The internal surface of the contracted portion of the intestine, shewing the disorganization alluded to.
9. Ulcers spread over its surface.
10. The most contracted portion of the intestine.
11. The portion where the mucous membrane retains its natural appearance.

FIGURE 3.

Fibrous contractions of the sigmoid flexure of the colon. (From the body of an old woman. Pavillon d'Anatomie, 1816.)

The cœcum and the colon were enormously distended by gas and mucous matters. The sigmoid flexure of the colon exhibited two contractions, each about eight or ten lines in length; its cavity, at these situations, would hardly admit a middle sized catheter; and the parietes were formed of a white, fibrous, inelastic tissue. No appearance of muscular fibres could be distinguished, except externally, some fibres of the

longitudinal bands. The mucous membrane, in the interior of the contractions, was very thin, smooth, and did not present any trace, or cicatrix of old ulcerations.

No. 1. The superior extremity—and
2. The inferior extremity of the sigmoid flexure of the colon.
3, 3. One of the longitudinal bands.
4, 4. The superior and inferior contractions.

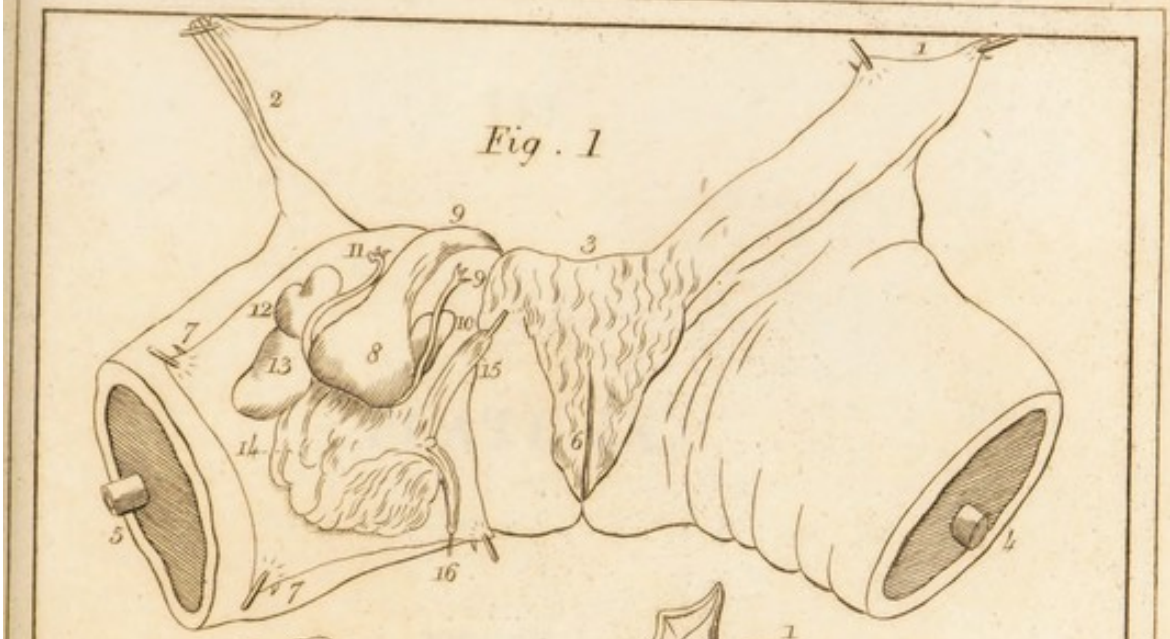
Fig. 1
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Fig. 2
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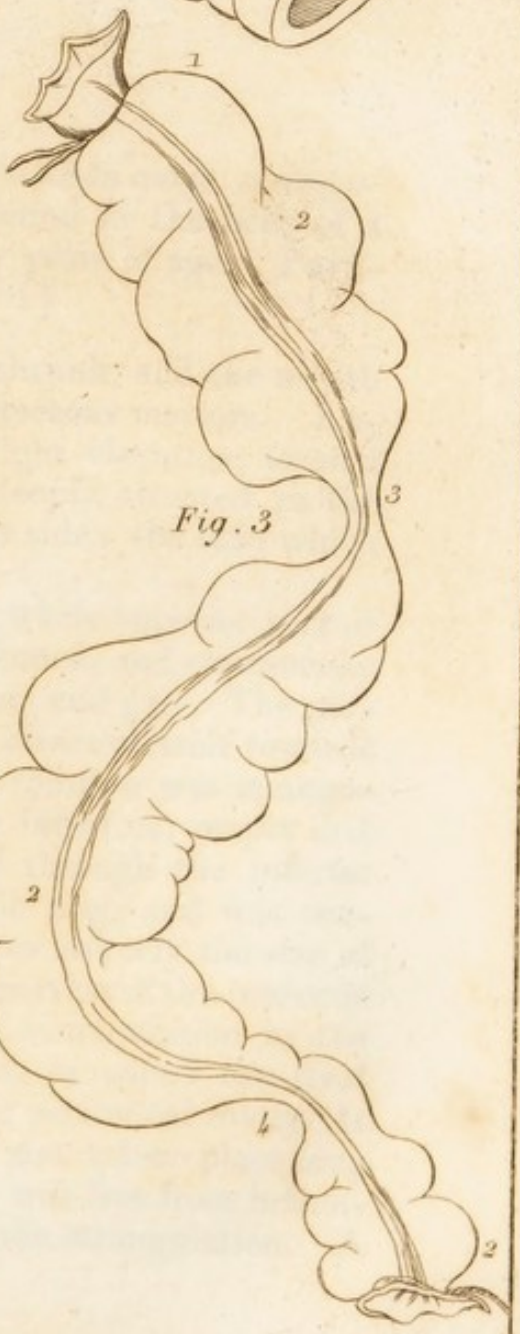
Fig. 3
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Stott, Sculp.

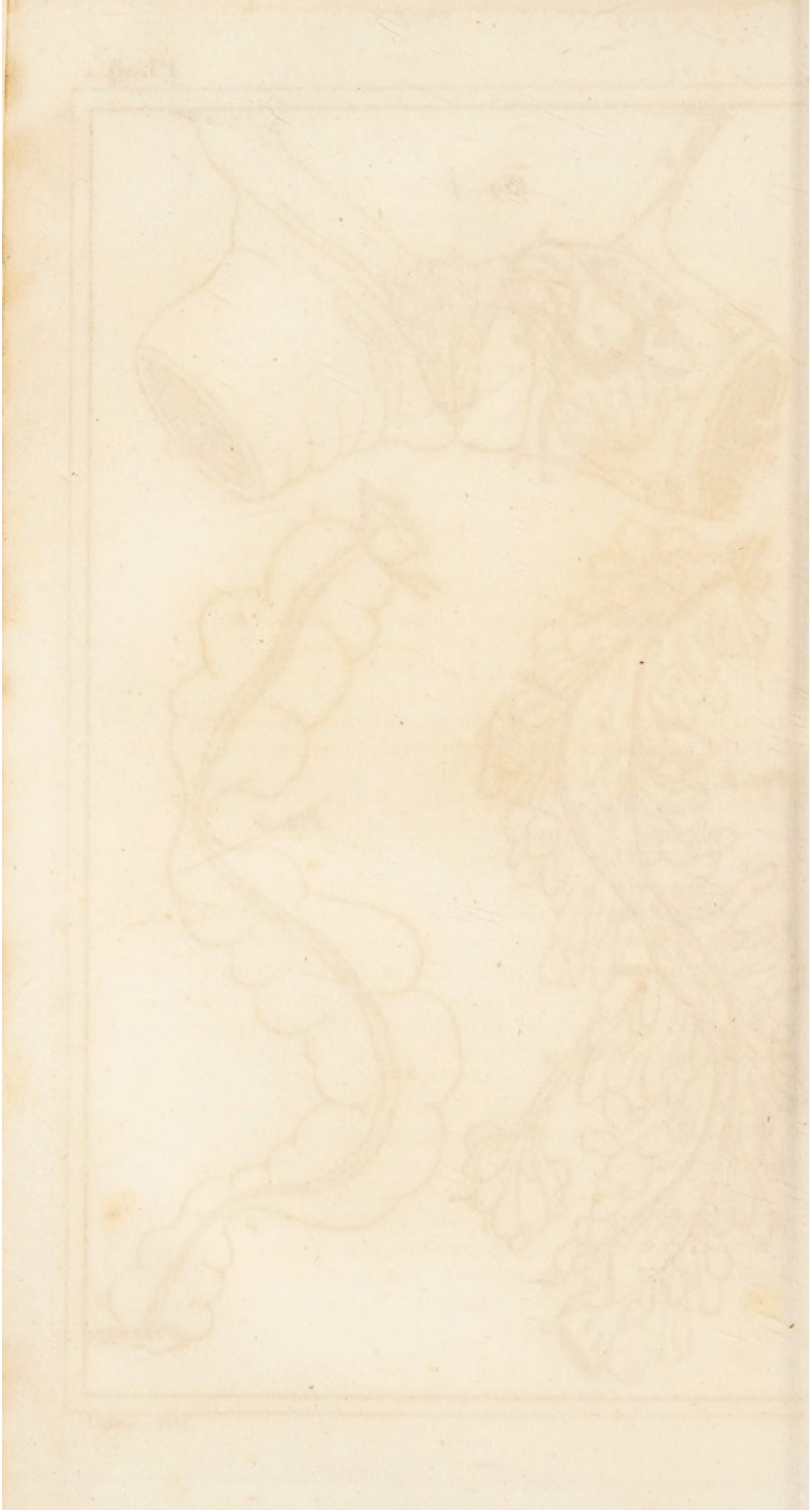


PLATE IX.

FIGURE 1.

Hernia of the left sub-pubic or foramen ovale, strangulated entero-epiploicele. (Found in the body of a very thin woman, about fifty years of age. Pavillon de l'Ecole-Pratique, 1816.)

In this subject the visage was shrunk, and the mouth filled with bilious and fluid stercoraceous matters. Externally, there was observed a slight elevation, formed by a roundish shining tumour, deeply situated in the inferior inguinal region of the left side: the skin which covered it was of a purple colour.

On opening the abdomen, the whole superior part of the small intestine was found inflamed, and enormously distended with liquid fecal matters and gas. The portion of the intestine thus dilated directed itself towards the foramen ovale, in which a convolution was strangulated. The inferior part of the intestine, empty and free from inflammation, returned through the inferior and internal part of the sub-pubic ring, and was contracted to such a degree that it was scarcely the size of the little finger. The distended portion of the intestine exhibited, immediately above its strangulation in the foramen ovale, two small crevices, by which the fecal matters had escaped freely into the peritoneal cavity. It is probable that this effusion had not taken place long before death; for the peritoneum was free from inflammation, except the portion above the strangulation. A

fringe of omentum was, also, engaged in the sub-pubic ring along with the intestine.

The dissection of the tumour having been made from without, it was found to be successively covered by the skin and *superficial fascia:* the two saphena veins and the crural vessels were displaced outwards by the tumour: underneath the superficial fascia it was covered by the femoral aponeurosis, and the middle adductor; and the pectineal muscles, which were elevated by the tumour, flattened, thin, and infiltrated with serosity. The fleshy fibres of the small adductor were separated over the tumour; so that, passing through this separation, it came into immediate contact with the middle adductor and pectineal muscles. The tumour, oblong and directed obliquely from above and within, was divided, by a middle contraction, into two parts; of which the superior was the larger, and ascended towards the spine of the pubis, near to the external obturator muscle and behind some fibres of the small adductor. This part of the sac was above the opening in the foramen ovale, by which the hernia protruded. The obturator vessels, which arise from the hypogastric artery and vein, were situated, along with the obturator nerve, without and behind the neck of the sac; and, below the neck, the obturator artery divided into two branches; the inferior one passed behind the sac to distribute itself to the external obturator and small adductor muscles; the other, descending regularly behind the sac, directing itself towards the internal and contracted part, winded round, encompassing the tumour, and went to supply the pectineal muscle. The hernial sac was thin, much inflamed, of a deep red colour, and surrounded by cellular tissue infiltrated with sanguineous serosity. Posteriorly, the sac rested upon the external obturator muscle which it separated from the ligament of that name. The sac was filled, superiorly and anteriorly, by a portion of inflamed omentum; and behind and below the omentum was found the strangulated fold of the intestine, about two inches in length, black, distended, and its parietes thickened and infiltrated with blood.

Figure 1 represents the situation of the tumour, undissected.

Nos. 1, 1. The left side of the anterior parietes of the abdomen.
2. The left pubis.
3. The fold of the groin.
4. The internal—and
5. The external surface of the thigh.
6. The circular dotted line indicates the situation of the tumour in the inferior inguinal region.

FIGURE 2.

Represents the preceding preparation, partially dissected; the skin, superficial fascia, and the internal and anterior part of the femoral aponeurosis, being taken off.

No. 1. Part of the aponeurosis of the external oblique, belonging to the anterior parietes of the abdomen.
2. Poupart's ligament.
3. The inguinal ring.
4. Part of the round ligament of the womb.
5. The external and anterior part of the femoral aponeurosis.
6. The great saphena vein, passing through an opening in the femoral aponeurosis to reach the crural vein.
7, 7. The two divisions of the preceding vein.
8. The internal part of the small adductor.
9. Part of the middle adductor.
10. The pectineal muscle, as well as the middle adductor, elevated by the tumour.

FIGURE 3.

Represents the same preparation, further dissected; the saphena vein and the femoral aponeurosis being taken off. The pectineal muscle and the femoral vessels being separated from the middle adductor in order to shew the tumour and its passage through the separated fibres of the small adductor muscle.

No. 1. Part of the aponeurosis of the external oblique.
2. Poupart's ligament.
3. The inguinal ring.

4. Part of the round ligament.
5. The internal—and
6. The external surface of the thigh.
7. The pectineal muscle elevated and drawn outwards.
8. The middle adductor elevated and drawn inwards.
9, 9. The small adductor, its fibres separated by the protrusion of the tumour.
10. The place where its fibres cease to be separated.
11. The superior—and
12. The inferior part of the tumour.
13. A branch of the obturator artery, encircling the tumour, to distribute itself on
14. The internal surface of the pectineal muscle.
15. The femoral artery and vein, drawn outwards.

FIGURE 4.

Represents an internal view of the same preparation: the peritoneum, lining the internal surface of the abdominal parietes, is preserved. The portion of omentum, forming the superior contents of the hernia, has been removed in order distinctly to shew the two extremities of the strangulated intestine engaged in the foramen ovale.

Nos. 1, 1, 1, 1. Part of the peritoneum.
2. Part of the rectus muscle of the left side of the abdomen.
3. The left pubis.
4. Trace of the ligament of the left umbilical artery.
5. The round ligament, going to pass through the inguinal canal.
6. The dotted lines indicate the course of the epigastric artery under the peritoneum.
7. The neck of the hernial sac, moulded exactly upon the opening in the foramen ovale, through the superior part of which the portion of omentum protruded.
8. The superior—and
9. The inferior extremity of the strangulated convolution.
10. The two small crevices, by which the fecal matters escaped into the belly.
11. Portion of the mesentery, which supported the intestinal convolution.

FIGURE 5.

Represents the hernial sac above described, disengaged from the soft parts which surrounded it.

No. 1. The superior extremity.
2. The inferior extremity—and
3. The middle contraction of the tumour.
4. Branch of the obturator artery, which passes successively behind, within, and before the tumour.
5. A few fibres of the obturator ligament.

FIGURE 6.

Represents the hernial sac, opened to shew its contents.

No. 1. The internal surface of the hernial sac.
2. The inferior part of the sac, unopened.
3. The portion of omentum, which was contained within the sac, elevated, in order to shew
4. The convolution of the intestine situated behind it.

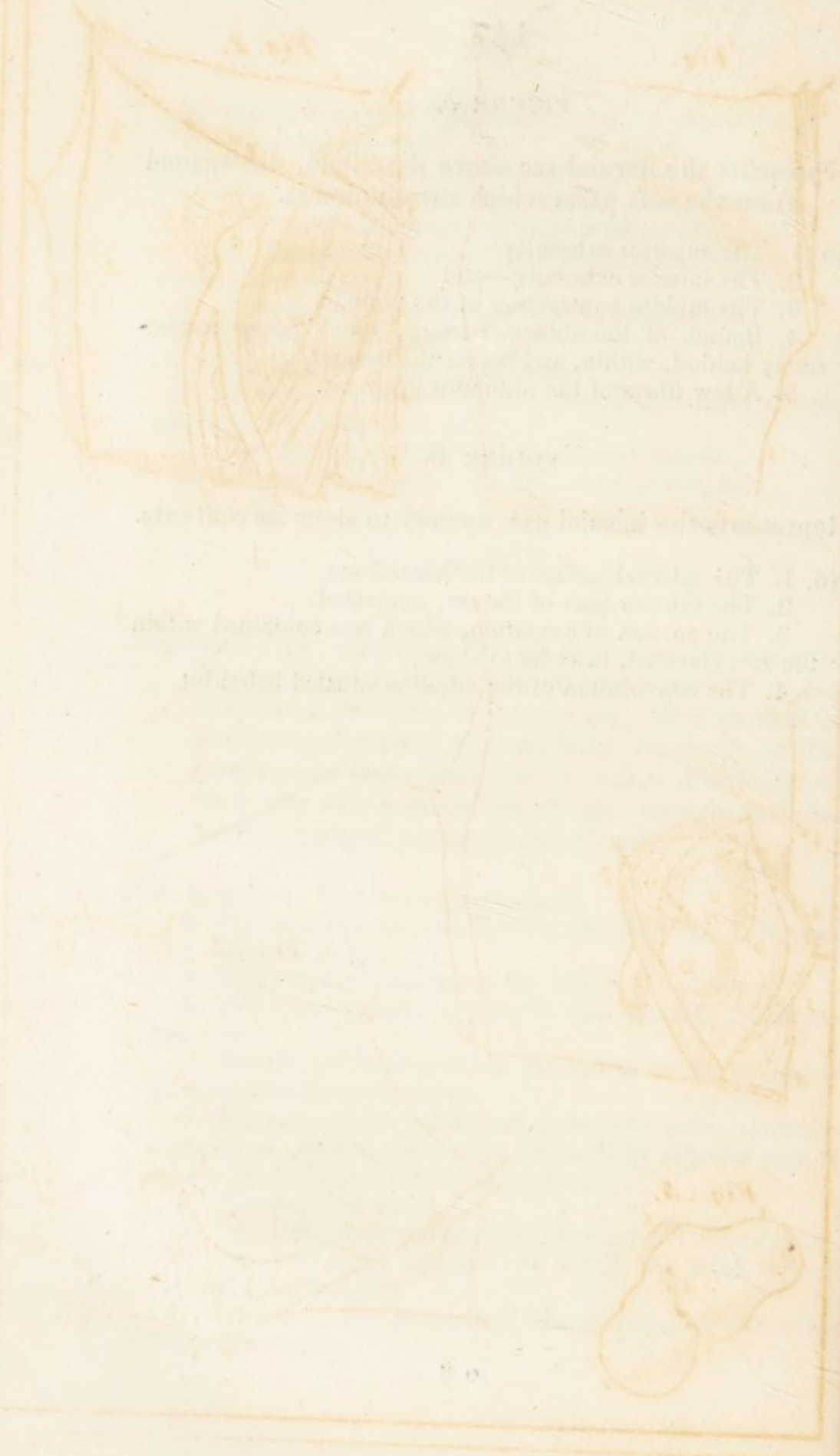


Fig. 1.

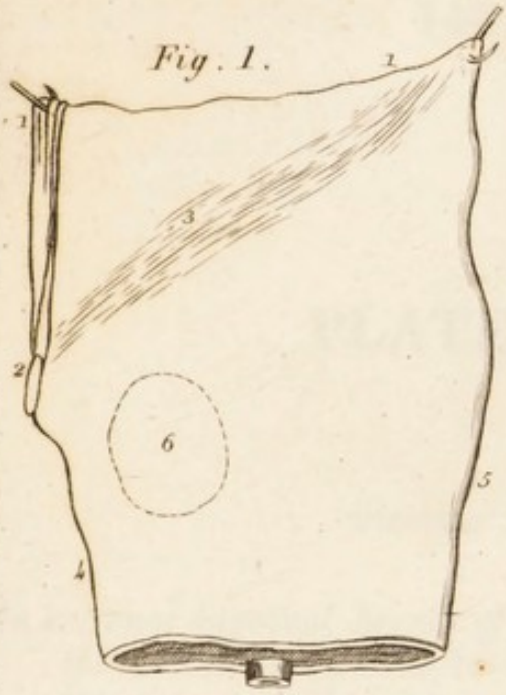


Fig. 2.

Fig. 3.

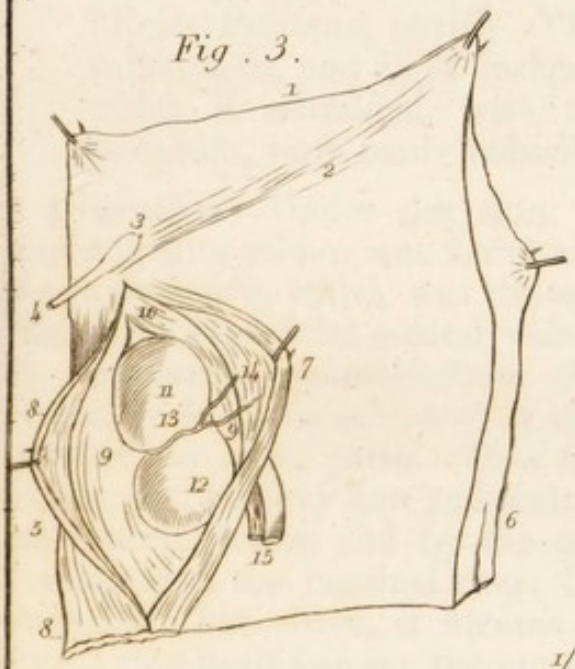


Fig. 6.

Fig. 4.

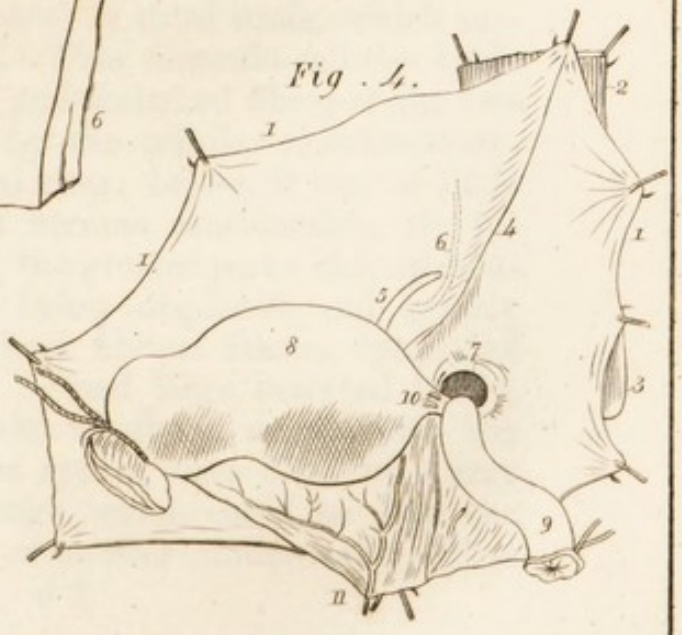


Fig. 5.

Stott, Sculp.t

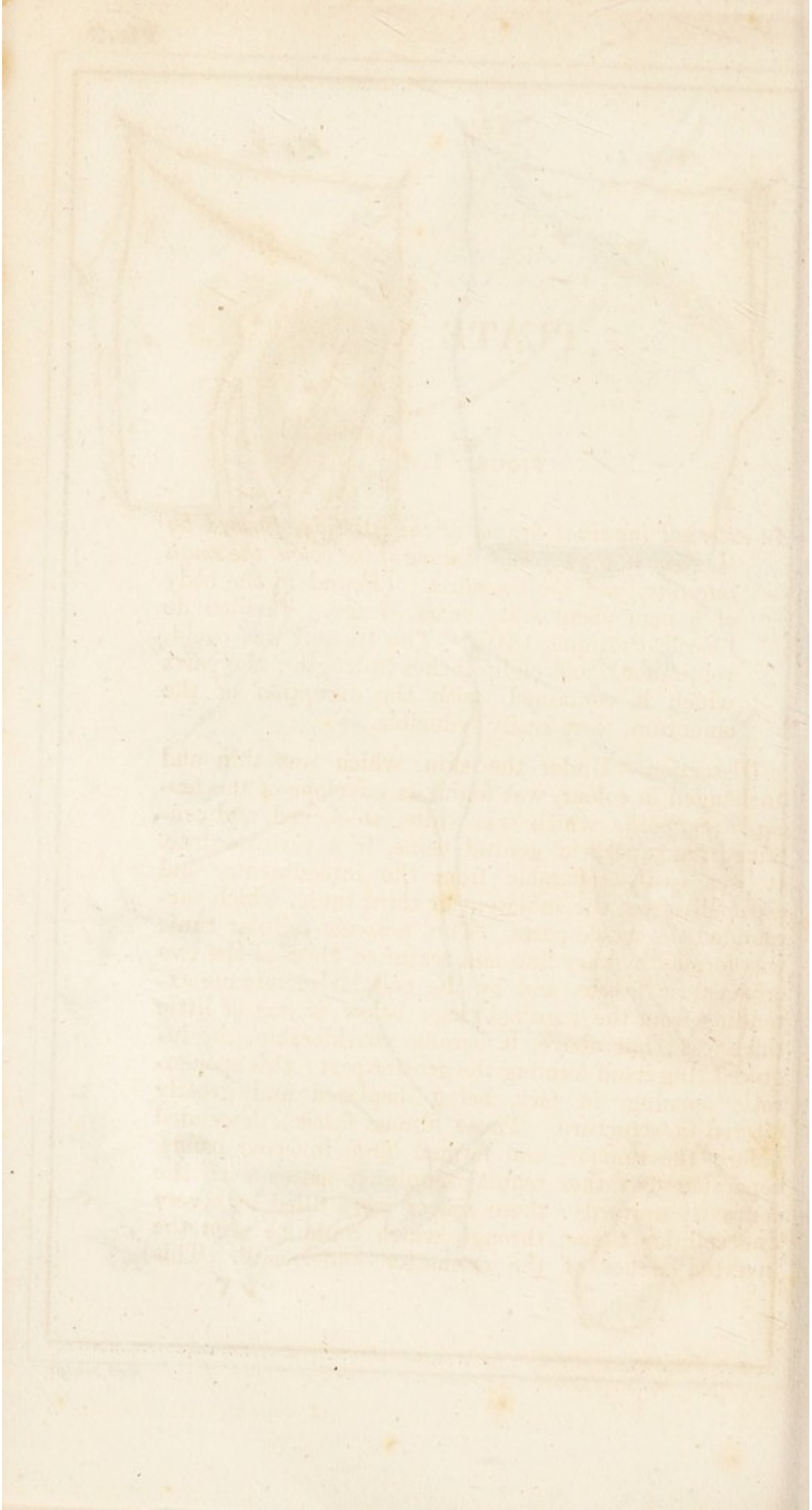


PLATE X.

FIGURE 1.

An external inguinal hernia of the left side, formed by the cœcum, the sigmoid flexure of the colon, the small intestine, and the omentum. (Found in the body of a man about sixty years of age. Pavillon de l'Ecole-Pratique, 1816.) The tumour was ovoid, voluminous, and eight inches in length; the parts which it contained, with the exception of the omentum, were easily reducible.

Dissection.—Under the skin, which was thin and unchanged in colour, was found an envelope of the *fascia superficialis*, which was white, thickened, and contained the superficial genital veins, in a varicose state. It was easily separable from the integuments, and especially from the subjacent or third tunic, which surrounded the whole parts. This musculo-cellular tunic was formed by very fine and scattered fibres of the two cremasteric fasciæ, and by the cellular membrane extending from the inguinal ring: below, it was of little thickness; but above, it became considerable, the inguinal ring itself forming the greater part: this aponeurotic opening, in fact, being displaced and greatly altered in structure. These fibrous fasciæ, descended before the tumour, and formed large inverted bands, separated by rather regular semilunar spaces with the concavity upwards: these spaces were filled by a very fine cellular tissue, through which could be seen the inverted arches of the cremaster underneath. This

envelope intimately adhered to the hernial sac, to the tunica vaginalis, and especially to the spermatic cord. The peritoneal sac formed one great bag, the opening of which was large, and an inch and a half in its great diameter, which was transverse; and was destitute of any fibrous neck; and very intimately adhered, internally, to the superior orifice of the inguinal canal, which had lost its obliquity, and was found supported, in this direction, by the *fascia transversalis*, (of considerable thickness,) and still more so by the epigastric artery and the umbilical ligament. The coat of the sac presented, at certain distances, large fibro-cellular fasciculi; some of which, more distinct and horizontal, were the remains of former strictures; whilst others, having an irregular and areolar appearance, were nothing but the filamentous appearance of the serous membrane. At the bottom of this sac was situated a small rounded cavity, furnished, at its opening, with a fibrous neck, and filled with omentum, intimately adherent to it. The spermatic cord situated, at first, internal to the sac; then, became anterior; and, lastly, covered it below. The testicle and the tunica vaginalis were fastened underneath the tumour, and were easily separable. The sac was filled—1, by a considerable bundle of small intestine, which was placed behind, and from which the mesentery, very elongated, exhibited a number of filaments—2, by the omentum which descended amongst the intestinal convolutions, to pass down into the small cavity above mentioned—3, before and to the left, by a free convolution of the sigmoid flexure of the colon—4, before and to the right, by the cœcum and its appendix. This intestine traversed the pelvic viscera obliquely to get into the sac: the meso-cœcum was six inches and a half in length, presenting numerous folds, and was attached to the promontory of the sacrum. The right iliac fossa was nearly empty, and lined by peritoneum, which was supported and seemed to be furnished by a prolongation of the meso-cœcum; but contained the pylorus and the first portion of the duodenum.

This subject, also, presented a crural hernia of the right side.

In the figure the small intestines are not represented, in order that a better view might be given of the disposition of the large intestine and the omentum.

No. 1, 1, 1. The abdominal parietes, opened and turned back.
2. The anterior surface of the stomach.
3. The omentum, gathered into a single bundle, to be introduced into the hernial sac.
4. The right lumbar colon and a portion of the transverse colon.
5. The left lumbar colon.
6. The iliac fossa, empty.
7. The external envelope of the tumour.
8. Small cavity, connected to the base of the hernial sac.
9. The extremity of the omental prolongation.
10. The rounded opening, communicating with the base of the hernial sac.
11. The cavity of the hernial sac, the sides of which are opened and turned back.
12. The cœcum and its appendix.
13. The sigmoid flexure of the colon.
14. Prolongation of the omentum, passing behind the contents of the hernia.

FIGURE 2.

A rare case of strangulation of a crural hernia. (Reported from l'Hopital Saint-Antoine, by M. Bompard, junr.)

A woman, about sixty-nine years of age, of slender form, but of good constitution, frequently came to the consultations at l'Hopital Saint-Antoine, in order to obtain a proper bandage for a crural hernia, which existed at the right side; having refused the usual treatment, she neglected the hernia, which was suffered to remain six years without any support whatever; and during that time no accident occurred.

On the 2nd July, 1831, the severe symptoms, violent colic, tension of the abdomen, obstipation, profuse and frequent vomitings of fecal matters, indicated a stran-

gulation ; and the patient was received into the hospital. The tumour, of a middle size, about two inches in length, extending outwards and upwards from the crural arch, before the inferior pillar of the inguinal ring, was hard and tense ; internally, large and rounded ; externally, narrow and irregular.

The attempts at reduction, by the taxis, caused very acute pain ; and could only be practised with the greatest management. The skin, perfectly sound, did not exhibit any trace of inflammation. The accident continued twenty-four hours, when M. J. Cloquet decided to operate : an incision, made in the integuments, from above downwards, and from within outwards, divided the skin over the tumour ; the sac opened at its inferior part, discharged a considerable quantity of lemon-coloured serosity ; and its cavity, when laid open, appeared to be continuous in all directions, like a serous membrane. The strangulated fold was rounded, shining, slightly injected, and appeared to be formed of the large intestine ; its external extremity was connected with an irregular, fibrous mass, containing some adipose lumps, and having the appearance of an omental "degenerescence." The sac adhered to this fibro-cellular mass, but was free all round the intestine, which was situated in the hernial sac, precisely as the testicle is in the tunica vaginalis.

Some very dense fibres of the *fascia transversalis*, which compressed the intestine, having been divided, the fibrous prolongation, resulting from the omental transformation, carefully separated from its adherences, and Gimbernat's ligament suitably relaxed : there appeared to be nothing to oppose the reduction of the intestine, or, at least, prevent the cessation of the strangulation ; nevertheless, it still continued : by a careful dissection it was clearly ascertained, that an adhesion had formed between the serous layer of the neck of the sac and the corresponding portion of the peritoneum of the intestine ; and that this conjunction had given rise to the formation of an excessively dense fibrous sheath around the neck which caused the strangulation. This

was then divided, in the axis of the opening; but the intimate adhesion, between the intestine and this circular sheath, rendered the incision insufficient: it was necessary, in order to separate this almost aponeurotic sheath, to dissect, and detach it to the right and left, from the muscular fibres of the intestine. The shreds, resulting from this dissection, having been cut off, allowed the coats of the intestine a certain extension; and, at that time, a rumbling of the bowels, and a decrease of the tension and hardness of the tumour, announced the cessation of the strangulation. The reduction of the hernial portion did not seem possible; since, that, in making the circular dissection of the peritoneum equal to the circumference of the base of the hernia; and in returning into the abdominal cavity a portion of intestine, which had been deprived of its serous envelope to such an extent, M. J. Cloquet judged it better to allow the hernial portion to remain outside the ring, where it had remained for six previous years without accident. The causes of the strangulation having been completely destroyed, without the abdominal cavity being opened, the wound was immediately united by three sutures.

The operation was performed 3rd July.—*(Laxative injections were ordered;)* no pain during the day; flatulence; belly tympanitic; evacuation in the evening; spirits excellent.

4th July.—In a satisfactory state; pulse slightly increased; constipation, *(Seidlitz water ordered;)* two evacuations; wound healthy.

5th.—Pulse rather febrile; tongue dry; the tumour slightly swelled, and of a dull red colour, not phlegmonous; the wound united at the middle part, but from its extremities there escaped a bloody serosity; *(the sutures to be taken out; emollient poultice to the tumour; veal broth; simple injection;)* evacuations in the evening.

6th.—Pulse more feeble and frequent; tongue dry; the lips of the wound separated, and a discharge of unhealthy pus; sensation of hunger; no pain, inflation or meteorism of the belly, which is insensible to pressure; *(continue the broth, slightly lithed.)*

7th.—Spirits very low; vomitings of yellow fecal matters; full evacuations of fecal matters; tongue dry; pulse imperceptible, very slow; clammy sweat; extremities cold; acute pain, and inflation of the belly; swelling of the tumour, presenting indications of sphacelus at its surface, the cellular tissue of a pale-yellow tint; no discharge externally from the wound; (*twenty-five leeches to the belly, poultice to the tumour;*) death, an hour after the visit.

Dissection twenty-four hours after death. An active inflammation affected the tumour and its adjoining parts; many parts of the cellular tissue were sphacelated: the intestine was very extensively adherent to the sac, but inferiorly it was separated by a small collection of pus, and presented some traces of inflammation. The hernial portion was found to be formed by an appendix above an inch and a half in length, and nearly an inch in breadth, proceeding from the portion of the small intestine adjoining the cœcum. The side of the intestine, to which the mesentery was attached, was carried down, and formed a duplication, which was inserted into the orifice of the appendix; and, as well as its mesentery, engaged, and so completely strangulated, as to obstruct the course of the feces into the large intestine. The abdominal cavity presented the evidences of the most violent peritonitis. The peritoneum, *scarcely humid*, exhibited over the whole surface, those innumerable vascular arborifications which are observed during the first periods of inflammation of a serous membrane. Among the convolutions of the intestine was found a small quantity of yellow broth, the same as contained in the small intestine: and its passage into the peritoneal cavity had taken place through the small ulcerated perforations which surrounded the superior end of the intestine, immediately above its strangulation within the appendix; and were, no doubt, caused by the retention of the fecal matters. These ulcerations exhibited different degrees of progression; the least advanced, situated at the superior part of the circumference of the intestine, had only partially de-

stroyed the mucous coat; and their surface presented an analagous appearance to the mucous coat lining the interior of the gall-bladder: the more advanced, had totally destroyed the mucous, and part of the muscular coat, and appeared to be porous and without any colour: lastly, those only which had extended to the serous coat, and those which had so far progressed as to have caused its complete perforation, were surrounded by a bluish areola, caused by the injection of the sub-serous cellular tissue. A blackish tint indicated, externally, the part of the intestine and its mesentery, which had suffered strangulation.

Figure 2 represents the fold of the intestine, and its appendix, entirely separated from its adhesions, and from the parts in which it was strangulated.

No. 1. The superior extremity—and
2. The inferior extremity of the intestinal fold.
3. A portion of mesentery.
4, 4. Blackish tint, indicating the place where it suffered strangulation, extending to the two ends of the intestine, the appendix—and
5. The part of the mesentery immediately connected to the intestine.
6. The appendix.
7. Small perforations of the superior end of the intestine, immediately above the strangulation.

FIGURE 3.

Represents the preceding preparation; the appendix contained within the hernial sac, and the mesenteric side of the intestine engaged with the corresponding part of the mesentery, causing an interruption of the intestinal cavity, and the strangulation. The hernial sac, and the aponeurotic ring which adhered to the neck of the appendix, are opened and turned outwards: the cavity of the intestine, and of the appendix, are shewn for the purpose of explaining the mechanism of this strangulation.

No. 1. The superior extremity—and
2. The inferior extremity of the intestinal fold.
3. Portion of the mesentery.
4. Cavity of the superior end—and
5. Cavity of the inferior end of the intestine.
6. Cavity of the appendix.
7. The mesenteric side of the intestine, introduced into the cavity of the appendix, and thus strangulated.
8. Small portion of the mesentery accompanying the preceding side of the intestine, and also strangulated.
9, 9. The fibrous band of the neek of the sac, detached from the appendix and turned outwards.
10. The cavity of the hernial sac.
11. Part of the external surface of the sac.

FIGURE 4.

An internal inguinal hernia of the right side, occurring through an opening in the aponeurosis of the fascia transversalis. (Found in the body of a man about fifty years old. Pavillon de l'Ecole-Pratique, 1816.) The tumour is seen anteriorly, and dissected in order to shew the successive envelopes from without, inwards.

Nos. 1, 1. The inferior part of the recti muscles of the abdomen.
2, 2. The pyramidal muscles.
3. The anterior part of the symphysis pubis.
4. The left side of the scrotum.
5. The penis.
6, 6, 6. The external covering of the hernia, formed by the skin of the groin and scrotum.
7. The aponeurosis of the external oblique, detached and inverted.
8. The internal pillar of the inguinal ring.
9. Portion of the inguinal ring.
10, 10. The fascia superficialis and cellular expansion of the inguinal ring, forming the second envelope of the tumour.
11. The internal oblique muscle, divided and turned down.
12. The fleshy fibres and aponeurosis of the preceding muscle, forming the third envelope of the tumour.
13. The spermatic cord, within its sheath, and upon which are seen the inverted arches formed by the cremaster muscle.

14. The testicle enveloped by the tunica vaginalis, and the cellular expansion of the sheath of the cord.

15. Portion of the transverse muscle of the abdomen, in situ.

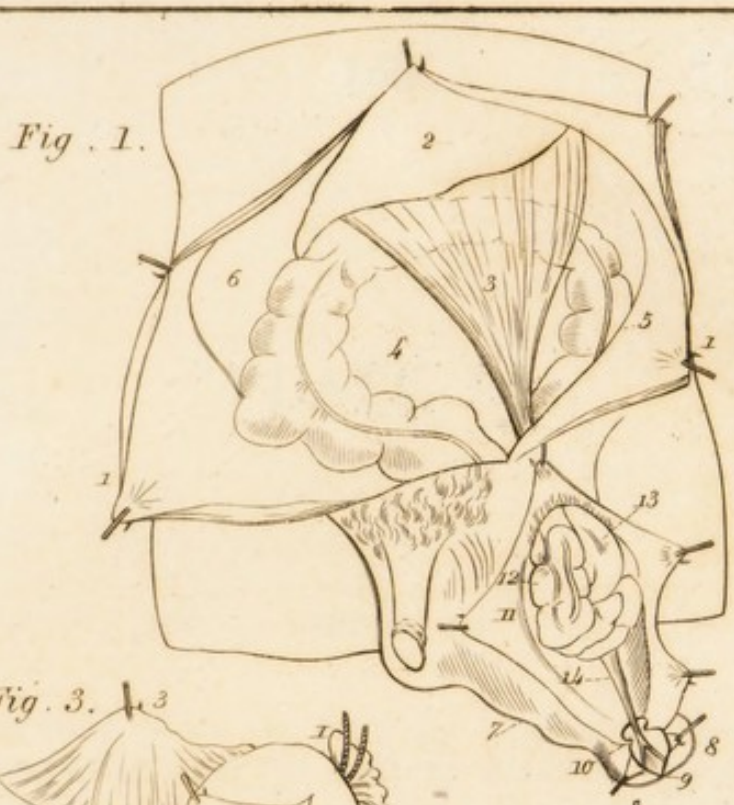
16. Fibrous ring, which encompasses the accidental opening of the aponeurosis of the fascia transversalis, through which the hernial sac protrudes.

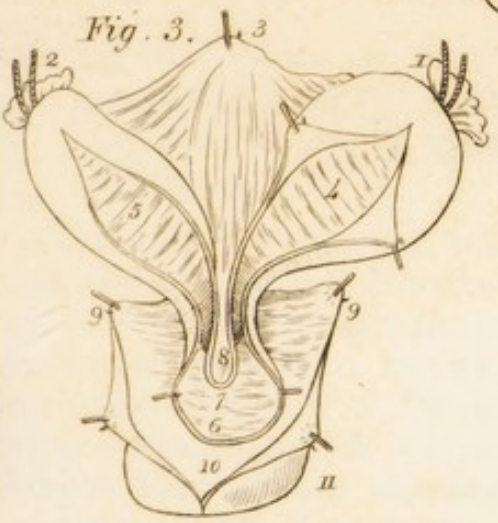
17, 17. Thin fibro-cellular pouch, which is prolonged from the preceding opening, forming the fourth envelope of the tumour, and immediately containing the hernial sac.

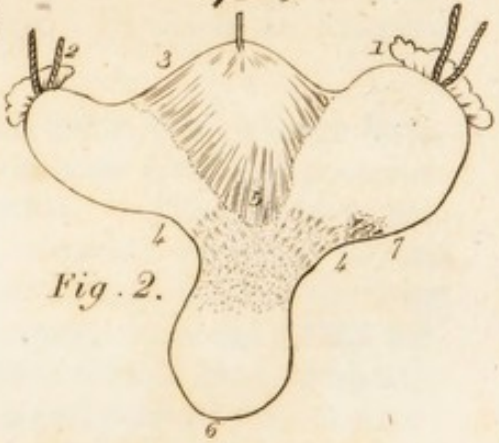
18. The hernial sac which contains a portion of omentum.

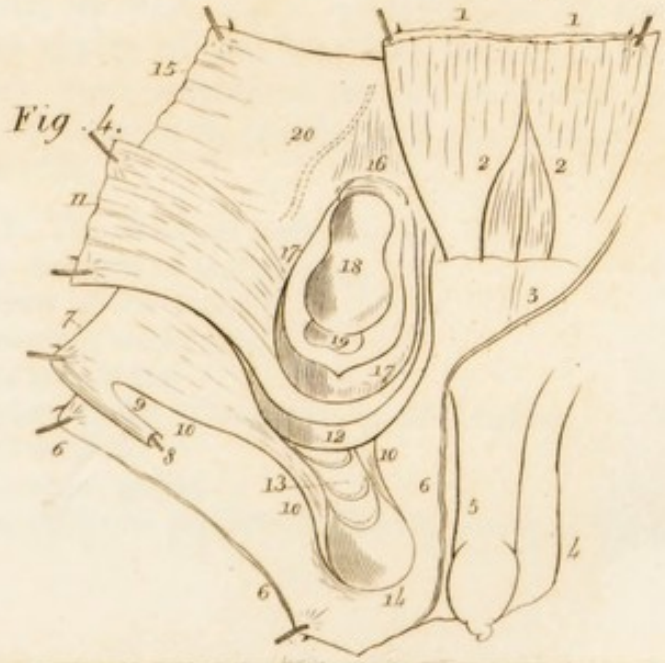
19. Serous cavity, bound to the bottom of the hernial sac and separated from it by a partition, upon which are seen many cicatrices: this cavity is evidently only an old obliterated hernial sac, which has been protruded before the sac 18, which is of new formation.

20. The dotted lines indicate the course of the epigastric artery behind the fascia transversalis, united to the aponeurosis of the transversalis muscle.









Stutt. Sculp.t

PLATE XI.

FIGURE 1.

An exostosis, from the posterior surface of the pubis, projecting into the urinary bladder. (Found in the body of an old woman. Pavillon de l'Ecole-Pratique, 1819.)

This tumour, irregular, tubercular, with a large base, and ossified, projected fourteen lines from the posterior surface of the symphysis pubis. The bladder was intimately adherent, by its anterior surface, to the corresponding part of the pubis, and around the base of the extosis, which was covered by a very thin adherent fibro-cellular membrane, which was evidently continuous with the mucous membrane of the bladder: the tumour, at first sight, appeared to be contained within the cavity of the bladder; during life it might easily have been mistaken for an adherent calculus. The tumour is seen in profile, and the bladder opened at the left side.

Nos. 1, 1, 1. The external surface—and
2. The summit of the bladder.
3. Cavity of the bladder.
4. The right ureter—and
5. The left ureter.
6. Orifice of the right ureter in the bladder.
7. The urethra.
8. The right pubis.
9. The exostosis projecting into the cavity of the bladder.

FIGURE 2.

A hydrocele of the tunica vaginalis, containing six cartilaginous and osseous concretions.

The tumour, of the size of the fist, was slightly oblique and irregular at its surface; the expansion of the fascia propria of the spermatic cord, which enveloped it, was very thin; the tunica vaginalis was thin, knotted, semitransparent, and of a blackish colour, from the colour of the fluid which it contained; superiorly, was situated a second cavity, with which it communicated by two small oval apertures. The testicle, situated at the posterior part of the tumour, was slightly flattened. The liquid contained in the tunica vaginalis was greenish, like bile, not viscous, and very fluid; in it were found six perfectly round, smooth, grey, cartilaginous concretions, free from any adhesions. They were formed of concentric layers of concreted albuminous matter, upon a calcareous nucleus, and their surface covered by a very thin pellicle, which joined two of them together. The tunica albuginea testis exhibited a rounded, very thick cartilaginous plate, tuberculous on its surface. At the junction of the testicle with the head of the epididymis there existed a serous cyst, the size of a hazel nut, and filled with a limpid fluid. The tumour is seen from its posterior surface, to shew its relation with the testicle and the spermatic vessels; the fascia propria of the cord is opened its whole length and separated, to shew its prolongation upon the tunica vaginalis.

Nos. 1, 1. The sheath of the cord.

2. Prolongation of the sheath over the tumour formed by the tunica vaginalis.

3. The spermatic cord.

4, 4. The vas deferens—and

5, 5. The spermatic vessels passing to the posterior part of the tumour.

6. The tumour formed by the distension of the tunica vaginalis.

7, 7. The small cavity situated above the tunica vaginalis.

8. The testicle projecting to the posterior of the tumour.

FIGURE 3.

An encysted hydrocele of the left spermatic cord. (Found in the body of a man about sixty years old. Pavillon de l'Ecole-Pratique, 1816.)

The tumour was covered by the envelopes of the spermatic cord, which passed at its posterior surface; it was voluminous, oblong, flaccid, the cyst which formed it not being half distended by the yellow serosity which it contained; its parietes were thin, semitransparent, and only containing in their thickness some capillary vessels; the internal surface was smooth, and the external adhered to the covering of the spermatic cord by a very fine cellular tissue.

The vas deferens was the size of a swan's quill; its coats being very thick and its cavity not larger than natural. The cremaster muscle was placed before the tumour; its fibres were very distinct. The testicle was healthy and situated below the tumour. The tunica vaginalis was pushed down before the inferior part of the tumour, with which it was in apposition, and united by a layer of cellular tissue. The tumour is seen from its anterior surface; the envelopes of the spermatic cord and of the tunica vaginalis are opened and turned outwards.

No. 1. The spermatic cord.

2, 2, 2, 2, 2. The common envelope of the cord of the tumour, and of the tunica vaginalis, opened and separated.

3, 3, 3, 3. The cyst of the hydrocele.

4. The vas deferens.

5. The dotted lines indicate the course of the vas deferens behind the tumour.

6. The tunica vaginalis.

7. Cavity of the preceding tunic.

8. The testicle.

9. The partition formed by the adhesion of the tunica vaginalis to the inferior part of the tumour.

FIGURE 4.

Congenital eventration, with protrusion of a great portion of the small intestine. (Observed along with Dr. Flaubert, of Rouen, 1818.)

The infant, a female, the subject of this disease, was born the preceding day, and belonged to healthy parents. It was very feeble, and incessantly uttered plaintive cries. At the right side of the umbilicus there was a round perforation, with red ulcerated edges, and through it a great portion of the small intestine had escaped. The protruded convolutions, about a foot and a half long, were united together into one mass, by membranous adhesions; some of which appeared recent and were easily torn; whilst others were old and solid; both, evidently, the effect of albuminous effusions from the inflamed intestine. The portion of mesentery supporting the convolutions strongly adhered to the circumference of the ulceration, and thus prevented the reduction of the bundle of intestine, which was cold, greenish, filled with meconium, and possessed no perceptible peristaltic motion. The intestine, in some places, was extremely dilated, as large as the finger, whilst in others it was scarcely the size of a quill: its coats were firm and thicker than natural. The belly was depressed, painful, and shrunk. The umbilical cord was large and well formed, and projected to the left from the hernial parts.

The intestines, and the portion of omentum already protruded, were inflamed, no doubt, in consequence of their strangulation in the abdominal aperture; and, perhaps, by the unavoidable contact with the liquor amnii.

Nos. 1, 1. The anterior walls of the abdomen.
2. The bundle of protruded and agglutinated intestine.
3. The aperture which gave passage to the intestine.
4. The umbilical cord.
5. The right thigh—and
6. The left thigh.

FIGURE 5.

An omental umbilical hernia, contained in a portion of the umbilical cord, which forms its external covering. (Observed September 10th, 1817.)

The subject of this hernia was a very thin female child, about eighteen months old, who was brought to the public consultation of Professor Dubois.

The tumour, instead of being round and globular, as is generally the case, was elongated, cylindrical, the size of the finger, about an inch and a half long, and exhibiting slight dilatations, separated by a deepish spiral groove, as in the umbilical cord. The summit of the tumour presented the umbilical cicatrix: its base was surrounded by some folds; and the skin, in the neighbourhood, was not stretched, nor did it appear to have been elongated. When the omentum was returned within the belly the envelopes of the hernia appeared very thin; in its substance, by pressure between the fingers, some elongated fibrous cords were felt; probably formed by the obliterated umbilical vein and arteries. The tumour is seen in profile.

Nos. 1, 1. The anterior walls of the abdomen.
2. The pubis.
3. The right thigh.
4. The left thigh.
5. The tumour.
6. The folds which surround the base of the tumour.
7. The umbilical cicatrix.

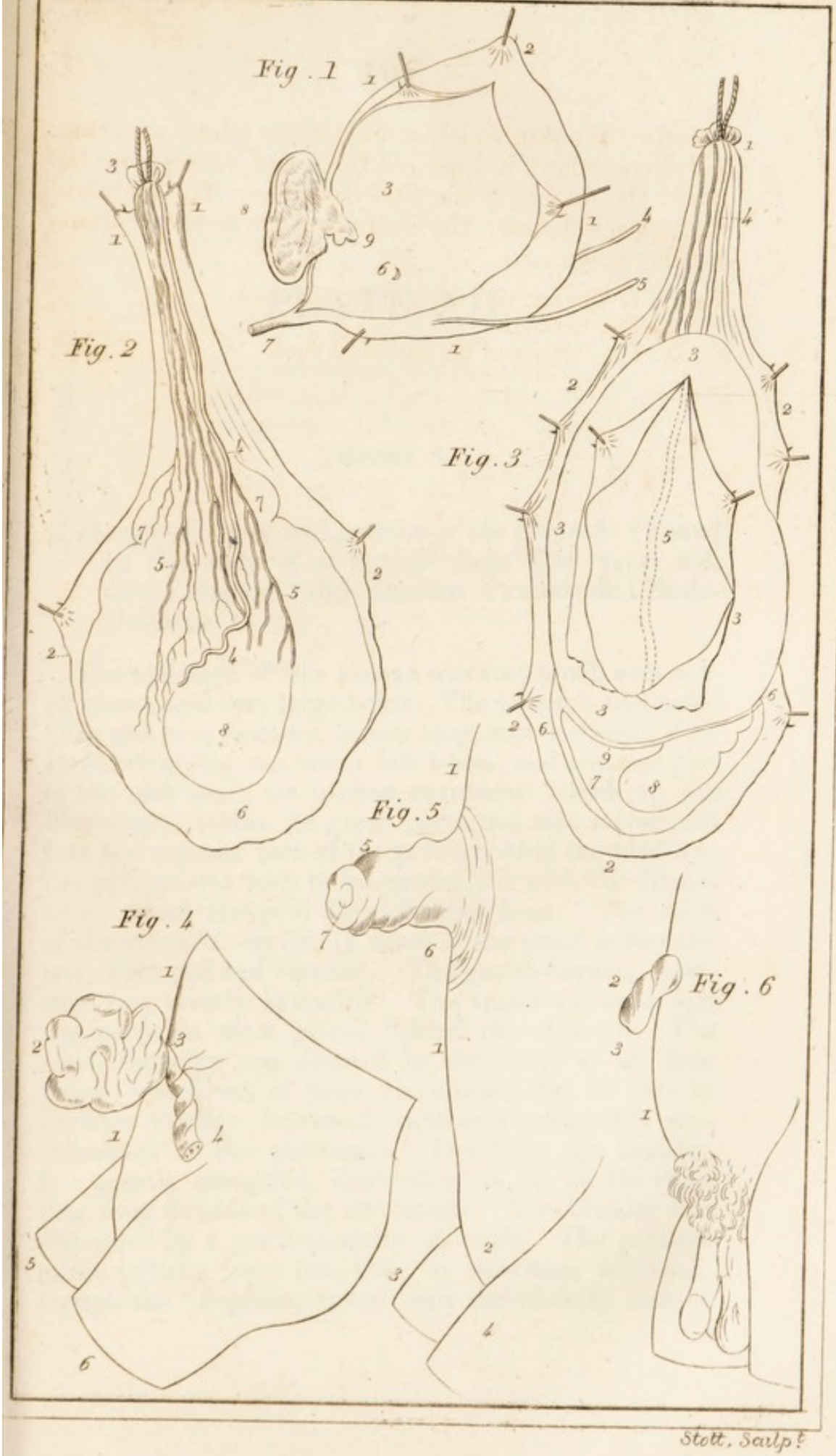
FIGURE 6.

The continuance of a portion of the umbilical cord, in a man about twenty-five years old. (Hopital St.-Louis.)

The tumour existed from birth: it was soft and pendant, cylindrical, as large as the little finger, above an inch long, curved, alternately swelled, and slightly strangulated. It exhibited on its summit the umbilical

cicatrix ; the skin which covered it was white, very thin, and unvascular ; it appeared full ; and, on pressure between the fingers, it was little sensible. The umbilical ring appeared firm : the individual never had a hernia in this region.

Nos. 1, 1. The anterior walls of the abdomen.
2. The tumour.
3. The cicatrix of the umbilical cord.



Stott. Sculp.t

PLATE XII.

FIGURE 1.

A change of figure and position of the stomach. (Found in the body of a woman about fifty years old, from l'Hopital Saint-Antoine. Pavillon de l'Ecole-Pratique, 1816.)

The abdomen of this woman was very much contracted above, and very large below. The stomach, distended with gas, was fourteen inches long, and vertically situated, occupying the whole left lateral and anterior part of the abdomen; its cardiac extremity raised up the diaphragm, whilst its great curvature was introduced into the superior part of the pelvis behind the bladder; the pylorus was bent to be continuous with the duodenum, which occupied the right iliac fossa. The veins of the stomach, especially those of the great curvature, were enlarged and varicose. The gastro-hepatic omentum was greatly extended. The transverse colon and the omentum were placed behind the stomach. The small intestine was situated in the cavity of the true pelvis, which was of large dimensions, and its inferior parietes forcibly depressed, causing a remarkable protuberance at the perineum. The liver was healthy, but greatly elongated, descending as far as the right iliac fossa outside of the duodenum. The bladder was distended by a great quantity of urine. The parietes of the pylorus were five lines in thickness, scirrhous, though the "degenerescence" only included the muscu-

lar and peritoneal coats; the mucous membrane being healthy, but of a greyish colour. The parietes of the stomach were rather thickened, and could be torn with extreme facility. All the other organs were healthy.

Nos. 1, 1. The abdominal parietes, opened and turned outwards.
2, 2. The liver.
3. The cardiac extremity—and
4. The great curvature of the stomach.
5. The right gastro-epiploïc veins injected with blood.
6. The small curvature of the stomach.
7. The gastro-hepatic omentum.
8. The gall-bladder.
9. The pylorus.
10. The commencement of the duodenum.
11. Convolutions of the small intestine.
12. The urinary bladder distended.

FIGURE 2.

Represents the extent which ought to be given to the longitudinal incision of the inferior part of the prepuce, in the operation of phymosis; a method which, I believe, I first pointed out, and which I have employed for more than ten years.

The method consists in laying open the whole length of the prepuce, in the situation of the frænum, by means of a bistoury and a grooved director; by one cut of the scissors divide the frænum; then, taking hold of the lips of the incision, separate them from each other, and they become everted, as it were, upon themselves below the corona glandis. The wound, which was longitudinal, becomes transverse, and its union must be in this last direction—the superior part of the incision uniting with its inferior part; that is, taking from the length to add to the breadth of the prepuce.

The principal advantages from this mode of operating, are—1. A much more speedy union of the wound, which often unites by the first intention, and consequently with less pain—2. A cicatrix free from deformity, the

prepuce only becoming shorter and broader, and not presenting the pendulous flaps which are too often observed after the operation by incision of the superior part of this folding membrane.

No. 1. The yard, seen from its inferior surface.
2. The prepuce, contracted and prolonged beyond the glans.
3. The slight projection formed by the glans.
4. The longitudinal incision extending from the orifice of the prepuce to the base of the frænum.

FIGURE 3.

The preceding preparation, shewing how the longitudinal wound, by the separation of the lips, has been brought into the transverse direction.

No. 1. The glans uncovered.
2. The yard.
3. The superior angle of the wound, drawn down so as to approach
4. The inferior angle, which by that process was elevated.
5, 5. The middle part of the lips of the incision, held outwards in order to cause a transverse union.

FIGURE 4.

The same preparation. The incision of the prepuce being drawn behind the glans.

No. 1. The glans.
2. The middle part of the wound, resulting from the junction of the superior and inferior angles of the longitudinal wound.
3, 3. The lips of the longitudinal incision, separated from each other and placed under the corona glandis.

FIGURE 5.

The same preparation after the cure, the prepuce having become short and broad.

FIGURE 6.

Defective formation of the prepuce. (Observed at the public consultation of Professor Dubois, 1817.)

The child, fifteen months old, was not born with the deformity for which its parents consulted M. Dubois. The skin of the yard presented a rounded aperture through which the glans protruded, forming a red tubercle; the prepuce was imperforated, wrinkled, pendulous, and projected beyond the glans.

No. 1. The yard.
2. The prepuce.
3. The glans.

FIGURE 7.

A fibro-cartilaginous tumour of the sternum: its removal: cure. (The case recorded by M. Bompard, junr. house-pupil of the Hospital.)

Besnier, nineteen years of age, a labourer, had a tumour half the size of his head, projecting from the anterior part of the thorax; it had been growing for the last seven or eight years, but no very satisfactory account could be obtained by enquiries respecting its origin, or the cause which produced it. The uneasiness which it caused the patient from the laborious nature of his employment, made him desirous of its removal; he consulted Professor Dubois, who, judging an operation necessary, sent him to M. Cloquet, and he was received into l'Hopital Saint-Antoine.

The tumour extended, above and a little beyond the superior edge of the sternum, in such a manner that the insertions of the sternal fasciculi of the mastoid muscles were carried before it; inferiorly, it descended within two inches of the base of the xiphoid cartilage; laterally, it extended beyond the sides of the sternum, and received upon it the anterior insertions of the great pectoral muscles; to the left, it was less extended; but to the right it covered the whole of the anterior surface

of the second, third, and fourth true ribs. Its free surface, directed before, formed a projection, which was very considerable at the upper part; it was lumpy, irregular, and presented the nipples, projecting and surrounded by deep furrows. The nipples, towards their base, were hard and appeared osseous; but their summits could easily be depressed, as if they were filled with a soft and fluctuating substance; but the impulse of the movement of this substance in one nipple was not communicable to the other. The adherent surface of the tumour formed a large base, united to the sternum and to the cartilages of the right ribs, though it was difficult to determine by what medium this adhesion took place. M. Cloquet confidently anticipated a continuity between the substance of the sternum and the tumour, and had determined upon the plan of its removal. The patient, wishing to return to Seine-Port, his native place, quitted the hospital. Some time after he applied to M. Cloquet for the removal of the tumour; and the operation, at which I assisted, was performed on the 16th of July, 1831, in the presence of Dr. Fantin, the patient's ordinary physician; and Drs. Gillet, of Melun; Petit sen. and jun., of Corbeil; Creté sen. and jun., of Seine-Port; and many other surgeons who were invited.

Two curved and vertical incisions united at their extremities, circumscribed, upon the anterior surface of the tumour, an elliptical portion of skin which was removed with it: from the middle of each incision the integuments were again divided transversely as far as the base of the tumour, and the four flaps were dissected from each side; the insertions of the pectoral muscles were detached from the sides, and the sterno-mastoidei from above; and, in this direction, a delicate dissection was necessary to separate the tracheal artery from its adhesions to the upper part of the tumour, which was prolonged, under the clavicle, towards the subclavian artery. After this dissection the tumour was uncovered around its base; in doing which we saw, in the situation of the nipples, the openings from which a

semifluid gelatinous matter escaped, resembling a strong decoction of starch: the rest of the surface had the appearance of a very dense fibro-cartilaginous tissue. The whole of the base of the tumour being detached around, some attempts were made to raise it with a large pointed lever, made for the purpose, and which grasped this fibro-cartilaginous mass. The continuity of the tissue of the tumour with the sternum was no longer doubtful. M. Cloquet resolved to remove it with the chain saw: having surrounded the superior part of the base of the tumour with it, and working the instrument with precision and method, he at last, by a vertical action of the saw, succeeded in separating the greater part of the tumour; but there still remained, upon the sternum and the cartilages of the right ribs, a considerable portion, which he chiseled away from the anterior surface of the chest with a large gouge, with thin cutting edges; upon the handle of which he struck with the palm of the hand.

During this tedious part of the operation every precaution was taken that the violent percussion of the parietes of the thorax should not endanger any severe lesion of the viscera of that cavity. There proceeded, between the clavicle and the first rib of the left side, a conical prolongation of the tumour, which penetrated behind the subclavian vein and artery. M. Cloquet passed, with caution, the concavity of the gouge under this prolongation; and, after some difficulty, by using the instrument as a lever, succeeded in extracting it. The pulsation of the subclavian artery could be very distinctly seen at the bottom of the wound. When the whole of the tumour appeared to have been removed, the operator, with a knife, took away all the asperities from the surface of the section, which seemed to be of a fibro-cartilaginous substance; towards the middle of which existed some ossific formations. The divided extremities of a number of vascular ramifications furnished a slight hæmorrhage, which was easily arrested. The flaps of the integument met with great exactness; they were applied to the denuded part and kept in ap-

position by adhesive plaister; above which layers of "*agaric*" and "*charpie*" were maintained in application by a bandage. The patient, who had borne with courage this painful operation, was now delivered over to the care of Dr. Fantin, who has furnished the details subsequent to the performance of the operation.

July 16th.—The pulse, after the operation, was full: *(ordered to drink weak nitre whey, and orangeade:)* in the evening, violent fever, dyspnœa; *(bled copiously from the arm:)* rather tranquil night.

17th.—Violent headach; pulse hard, (110); face animated, *(bled to two ounces.)*

18th.—Pain better; fever diminished; on taking away the dressings they were found soaked with blood; the plaisters had not united the flaps, the edges of which were very much separated; they were adherent to the whole of the subjacent parts. The uncovered surface was irregular and rugged. M. Fantin took away several fragments of bone which had been left by the washing after the operation. The pulsations of the subclavian artery could be seen at the superior part of the wound. *(Compressed the opening with a large tent of charpie.)* The sanguineous discharge abundant, in a few hours soaking all the dressings.

22nd.—The suppurative process established.

27th.—Pleuritic symptoms of the right side, which, in a short time, were subdued by the usual means. The cicatrization proceeding slowly, an exfoliation appearing to be detached from the left part of the sternum, and three other small pieces from the left side.

The regular dressings were continued till the 15th of September: on the 17th the patient was seized with excessively acute muscular pains occupying the neck, shoulders, and the whole of the dorsal muscles; these disappeared by the use of the bath.

Oct. 10th.—The wound completely firm, no pain in the cicatrix, which is solid, of a slight purple colour, and rather puckered.

After the operation, the tumour was carefully ex-

amined by Dr. Monod, who has published the details of the dissection in a work upon the diseases of the bones.

Figure 7 represents a front view of the tumour.

No. 1. The tumour.
2. The insertion of the sternal portion of mastoid muscles, at the superior part of the tumour.

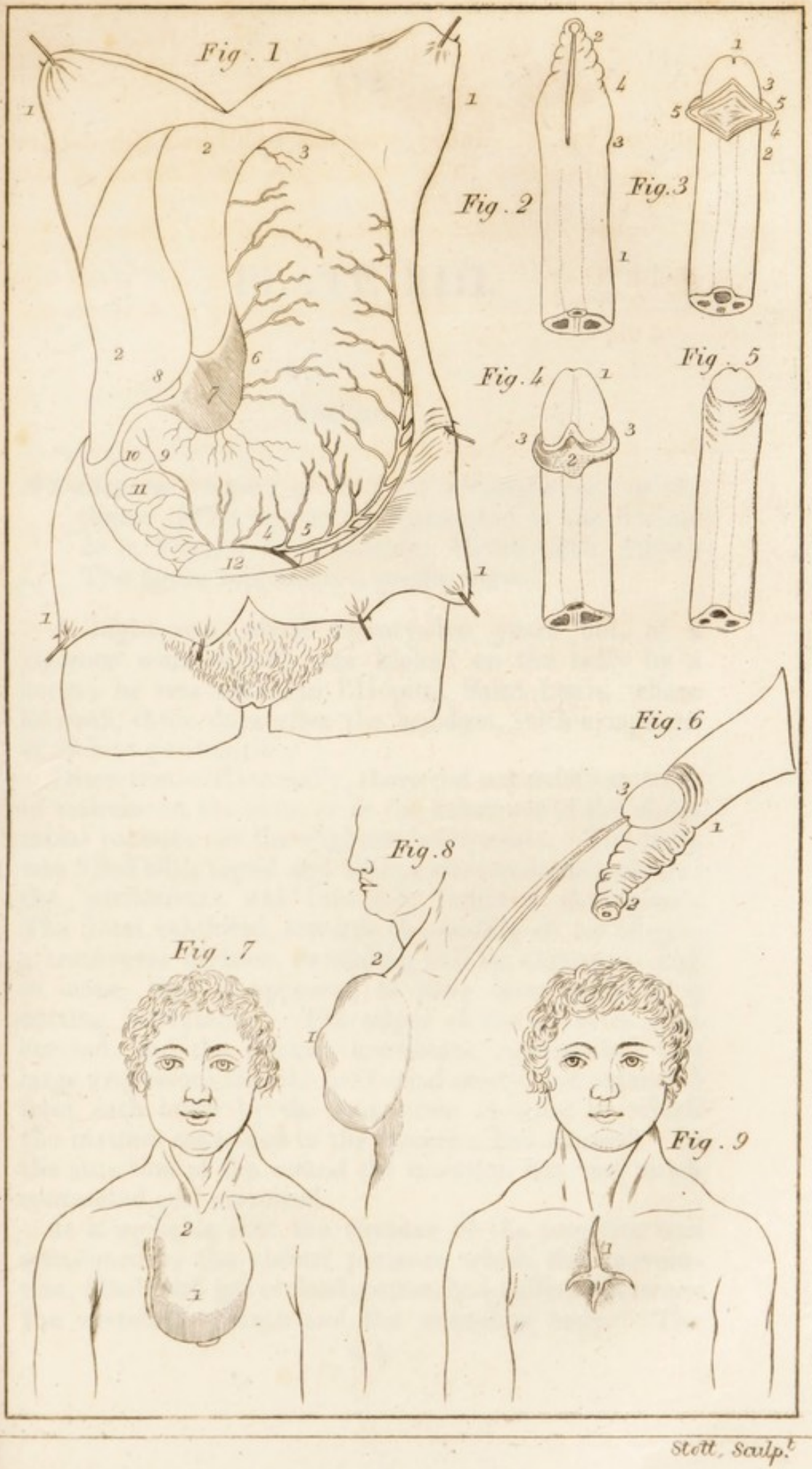
FIGURE 8.

No. 1. The same tumour seen in profile.
2. Insertion of the sterno-mastoid muscles, upon the tumour.

FIGURE 9.

The patient, after the operation: the cicatrization complete.

No. 1. The cicatrix.



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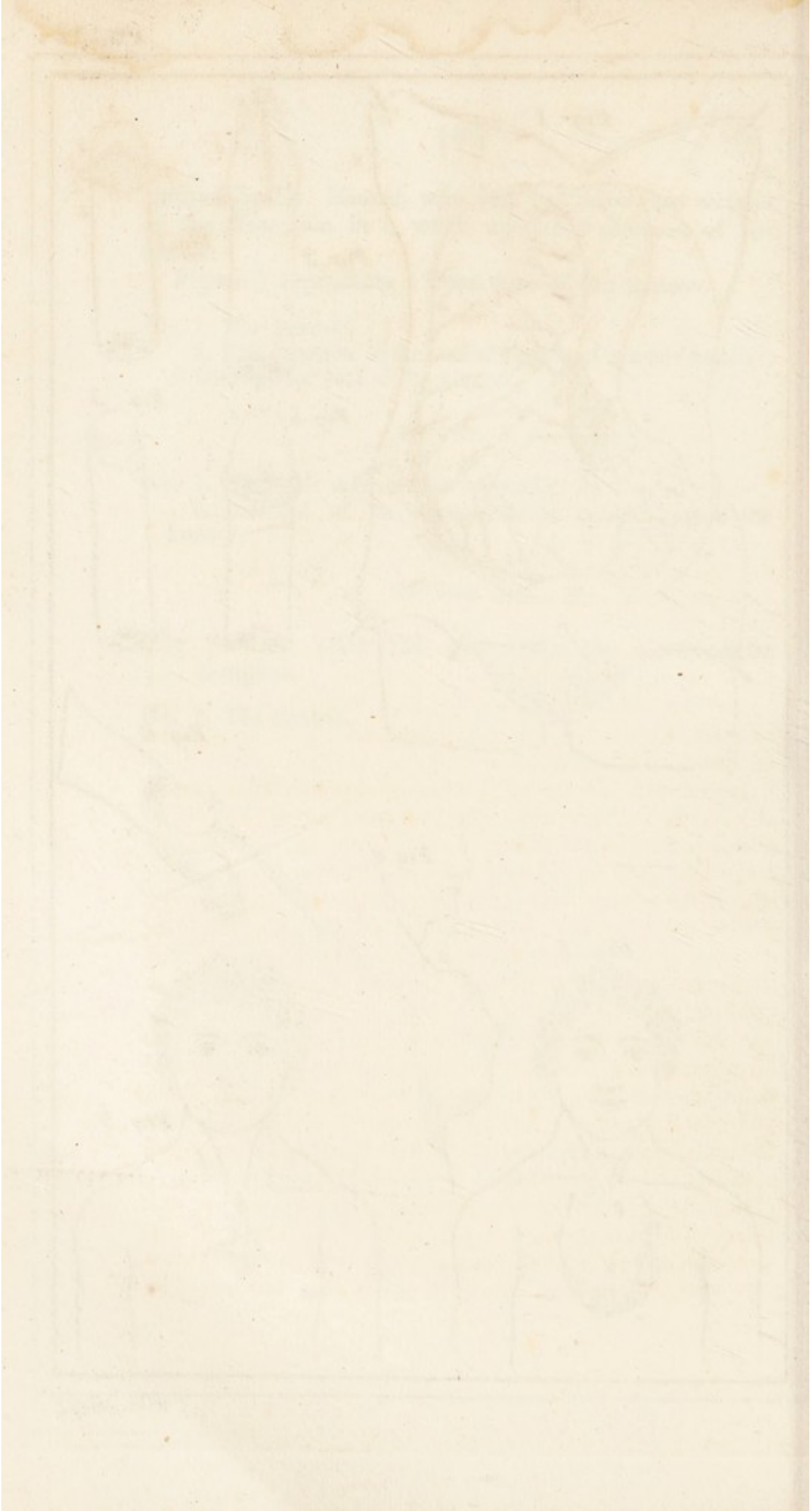

PLATE XIII.

FIGURE 1.

A transverse rupture of half the circumference of the ilium. (The preparation presented to the Societé de la Faculté de Médecine, March 20th, 1820.) The figure represents a profile view.

A night-man, about twenty-five years old, of a vigorous constitution, was kicked on the belly by a horse; he was taken to l'Hopital Saint-Louis, where he sunk, three days after the accident, with symptoms of violent peritonitis.

Dissection.—Externally, there did not exist any trace of violence on the skin, or in the substance of the abdominal parietes not the slightest ecchymosis. The belly was filled with liquid and bilious stercoraceous matters; the peritoneum was intensely inflamed throughout. The ilium exhibited, towards the middle of its length, a transverse division, extending half its diameter; and so clean, that it appeared to have been made by a cutting instrument. The edges of the division were everted, and the mucous membrane represented two large projections into the peritoneal cavity, and separated from each other by the transverse opening by which the matters contained in the intestine had escaped. In the situation of the wound the intestine was very much contracted and narrowed.

It is probable that the rupture of the intestine was occasioned by the violent pressure which the convolution, filled with gas or fecal matter, had suffered between the vertebral column and the wounding body. The

eversion of the edges of the rupture of this intestine was very similar to that which is seen by dividing the integument of half the circumference of living intestinal lumbrici ; an integument, which, like the intestine, contains, in its parietal thickness, both circular and longitudinal fleshy fibres.

No. 1. The superior extremity—and
2. The inferior extremity of the ilium.
3. Projection formed by the eversion of the mucous membrane of the superior lip of the wound.
4. Projection formed by the eversion of the mucous membrane of the inferior lip, and separated from the former by
5. The opening of the intestine situated between the two mucous projections.
6. The contracted portion of the intestine, in the situation of the wound.

FIGURE 2.

Represents a front view of the preceding preparation.

No. 1. The superior—and
2. The inferior end of the intestine.
3. The superior eversion—and
4. The inferior eversion of the lips of the wound.
5. The opening by which the fecal matters escaped from the intestine.

FIGURE 3.

A transverse ligature, applied to the small intestine of a large dog, causing the complete division of its parietes. (The experiment was made for the purpose of shewing the process nature employs to re-establish the continuity of the intestine in such cases.)*

* See Traver's Work on Wounds of the Intestine. This celebrated surgeon accurately describes, from his own experiments, the phenomena which follow the application of a ligature.

No. 1. Portion of mesentery.
2. The superior—and
3. The inferior extremity of the intestine.
4. Ligature passed through the mesentery and tightly twitching the intestine.
5, 5. The place where the serous membrane of the two ends of the intestine is in apposition, from the action of the ligature.

FIGURE 4.

Represents the preceding intestine, five days after the application of the ligature. The two ends of the intestine are covered and agglutinated by a considerable effusion of coagulable lymph, which also connects them to the adjoining convolutions.

No. 1. The superior end of the inflamed and dilated intestine.
2. The inferior end of the intestine, inflamed but unchanged in size.
3. The mass of coagulated lymph uniting the two ends of the intestine.
4, 4. Intestinal convolutions adhering to the two ends of the tied intestine, and slightly inflamed at the point of contact.

FIGURE 5.

The preceding intestine, opened longitudinally to the place where the ligature had been applied. The adjoining convolutions which adhered to it have been removed. The coats of the intestine are seen entirely divided, and the loosened ligature passed into its cavity.

No. 1. The superior extremity—and
2. The inferior extremity of the intestine opened longitudinally.
3, 3, 3, 3. The lips of the incision separated.
4, 4. The coats of the intestine completely cut through by the ligature.
5. The intervening space between the lips of the circular wound, after the separation of the ligature and the establishment of the continuity of the canal.

6, 6. Mass of coagulated lymph which unites and maintains in contact the lips of the wound, by adhering to the serous membrane of the two ends of the intestine.

7. The separated ligature, which has passed into the cavity of the intestine.

FIGURE 6.

Portion of small intestine of a middle-sized dog, upon which a ligature had been applied. (Examined a month after the experiment: the animal had entirely recovered after having suffered the severe effects of strangulation.)

The two ends of the intestine are perfectly united, and form, in the cavity, a circular projection, which, by slightly contracting its calibre, prevents the free passage of the fecal matters. The intestine is laid open its whole length.

No. 1. The superior end—and

2. The inferior end of the intestine.

3, 3. Reunion of the sides of the wound from the ligature.

4. Circular projection formed in the intestinal cavity by the cicatrized lips of the wound.

5, 5. Coagulated lymph adhering strongly to the two ends of the intestine.

FIGURE 7.

Left strangulated crural hernia, followed by gangrene of the small intestine. Retraction of the intestine, and the formation of an infundibulum by the elongation of its sides. (Found in a man about seventy years old. Pavillon de l'Ecole-Pratique, 1816.)

The inferior inguinal region was elevated by an irregular, round, soft, and yielding tumour. The skin which covered it was black, and exhibited an irregular opening, jagged at its edges, from the incomplete separation of a gangrenous slough, and from which issued pus, and liquid, and bilious fecal matters: this opening lead into an immense purulent chamber, lined by a false

membrane, filled with gangrenous substances, and surrounded by hard and enlarged inguinal glands. At the bottom of this chamber was found a hernial sac pierced in several places by gangrenous eschars; its neck was narrow and puckered, and intimately united, by solid membranous bands, both to the fibrous ring of the crural arch and to the convolution of the intestine. The ilium, which formed the hernia, had been pinched into nearly half its circumference; nevertheless, its cavity was not perceptibly diminished at the point of strangulation: the fold of the intestine had, in fact, partially withdrawn itself from the crural ring. This retraction had elongated its coats into a kind of infundibulum, the summit of which adhered to the opening of the sac, and was continuous with the sphacelated portion of intestine, yet within the sac below the point of adhesion; and its base was continuous with the intestinal convolution. The whole of the infundibulum was of a blackish colour, but which did not proceed from gangrene; its parietes, rather thinner than other parts of the intestinal canal, were destitute of the valvulæ conniventes; and the mucous membrane was rather redder than natural.

The hernia had protruded itself by a round fibrous opening, situated outside of Gimbernat's ligament. The intestinal convolutions, adjoining the strangulated portion, were slightly inflamed. The spermatic cord and the epigastric artery, retained the relations they usually bear with a crural hernia in man.

No. 1. The purulent chamber in which is found

2. The hernial sac.

3, 3. Gangrenous sloughs and perforations of the sac, by which it discharged the matters it received from

4. The gangrenous and perforated intestine within the sac.

5, 5, 5. Part of the anterior parietes of the abdomen everted, and seen from their peritoneal surface.

6. The neck of the sac, puckered and adhering to the strangulated intestine.

7. The epigastric artery in the abdominal parietes, and found outside the neck of the sac.

8. The superior—and

9. The inferior end of the intestine.

10. Portion of mesentery which supports the strangulated convolution.

11, 11. The base of the infundibulum indicating the place where the intestine had been strangulated, before its retraction within the abdomen.

12. The summit of the infundibulum adhering to the neck of the sac.

13. A pin piercing the infundibulum and passing through the opening of the sac.

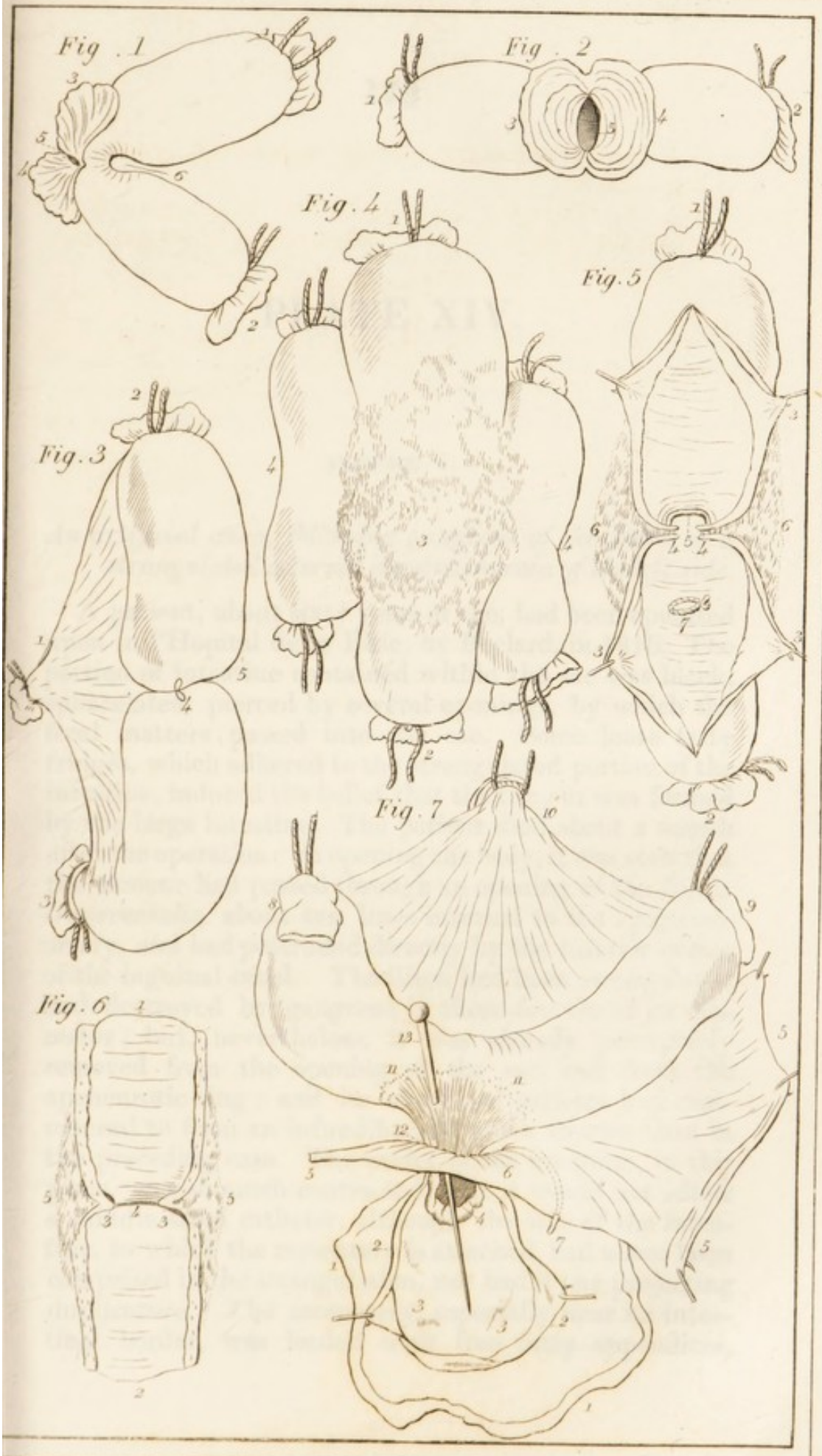

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PLATE XIV.

FIGURE 1.

An artificial anus, following gangrene of the ilium, in a strangulated internal inguinal hernia of the left side.

A patient, about sixty years of age, had been operated upon in l'Hopital de la Pitie, by Beclard, in 1816. The portion of intestine contained within the sac was black, sphacelated, pierced by several openings, by which the fecal matters passed into the sac. Some loose fatty fringes, which adhered to the strangulated portion of the intestine, induced the belief that the tumour was formed by the large intestine. The patient died about a month after the operation: on opening the body, it was seen that the tumour had passed through an opening of the *fascia transversalis*, about ten lines internal to the epigastric artery, and had protruded directly by the inferior orifice of the inguinal canal. The ilium had been strangulated and destroyed by gangrene in three-fourths of its diameter; but, nevertheless, it was already perceptibly removed from the opening of the sac, and from the aponeurotic ring; and its elongated parietes had commenced to form an infundibulum much shorter than in the preceding case. The cavity of the intestine, in this place, was so much contracted, that it would not admit a middle-sized catheter, although the side of the intestine, to which the mesentery is attached, had never been comprised in the strangulation, nor had it any projecting duplicature. The mesentery, especially near its intestinal border, was loaded with free fatty appendices,

which had caused the belief, during the operation, that the strangulation was of the large intestine.

On the left side, this body presented an omental crural hernia; the omentum strongly adherent to the sac.

No. 1. The superior—and
2. The inferior end of the convolution.
3. Part of the mesentery supporting the convolution.
4, 4. Fatty appendices attached to the free border of the mesentery.
5. Elongation of the intestinal coats into an infundibulum.
6. Portion of integument which surrounds
7. The orifice of the artificial anus.

FIGURE 2.

An artificial anus, with inversion of the small intestine, forming a tumour eleven inches long. (Observed in the body of an old soldier, in l'Hopital des Oiseau, 1814.)

The disease was of many years' standing, and appeared, after the operation for strangulated inguinal hernia, complicated with gangrene of the intestine. When I saw the patient, the tumour, hanging from the groin, was round, cylindrical, soft, red, moist, and its pendulous extremity penetrated by a puckered orifice, by which the fecal matters discharged. The mucous membrane investing the tumour was thinly spotted with white granulations, occasioned by the obstructed mucous follicles. The vermicular motion of the intestine was very distinctly seen: the patient generally supported it by a buckled bandage, furnished with a pad, which closed the opening in the groin. With the exception of this infirmity the veteran enjoyed good health.

No. 1. The base of the tumour, roundish, and rather constricted by the orifice of the groin through which it protrudes.
2. The orifice at the summit of the tumour by which the fecal matters escape.

FIGURE 3.

An artificial anus, cured by the closing of the opening of the intestine. (Found in the body of a stout old woman. Pavillon de l'Ecole-Pratique, 1817.)

This body exhibited, at the fold of the groin, an irregular puckered cicatrix, which appeared to have been occasioned rather by an old suppurated bubo, than by the operation which had been performed in this region.

On opening the abdomen, a convolution of the small intestine was found adherent to the peritoneum of the right crural region by a conical cord, whitish and narrow towards the point of adhesion, but gradually enlarging towards the intestine from which its base arose. Having carefully dissected this cord, it was found to be continuous through the crural arch with the external cicatrix; it was solid, except at its base, which was penetrated by a small conical cavity, lined by a very fine mucous prolongation from the intestine. Many adjoining convolutions of the intestine were united to this cord by old adhesions.

No. 1. The superior—and
2. The inferior extremity of the intestine.
3. Portion of the mesentery.
4. The conical cord, uniting the convolution to
5, 5. The peritoneum of the crural region.
6. Cavity of the base of the cord, communicating with the intestine.
7, 7. The flaps of an incision, made into the sides of the intestine, to expose
8. Its cavity.

FIGURE 4.

An artificial anus, consecutive to a strangulated, internal inguinal hernia of the right side, with gangrene of the intestine. Retraction has taken place; the two ends of the intestine prolonged into an

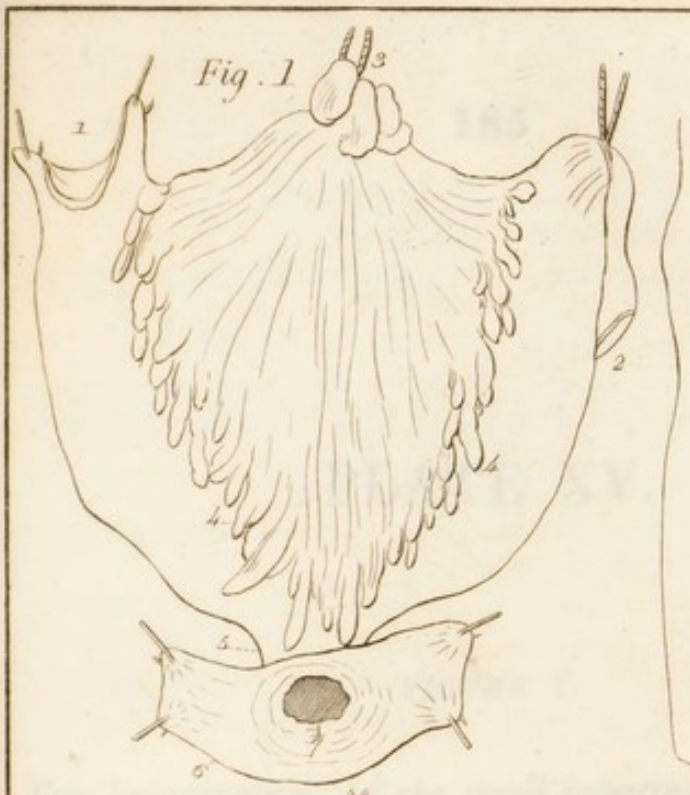
infundibulum, and the external orifice almost completely closed. (Found in the body of an old man, which came from the Depôt de Mendicité de Saint-Denis. Amphitheâtre de MM. Rullier and Blainville, 1811.)

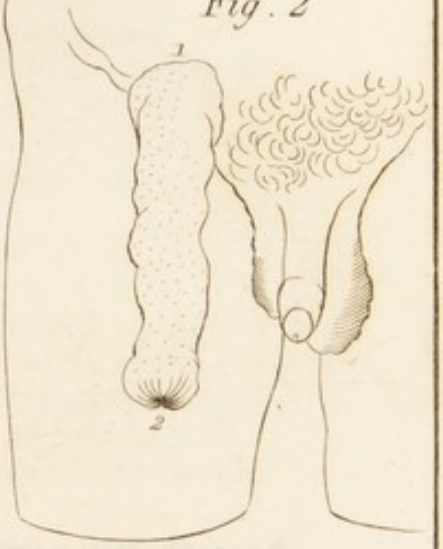
This body presented, in the right inguinal region, a large cicatrix; at the inferior part of which were found three roundish rose-coloured tubercles, the size of a large pea; and between these an opening by which a stilet could be introduced into the abdomen.

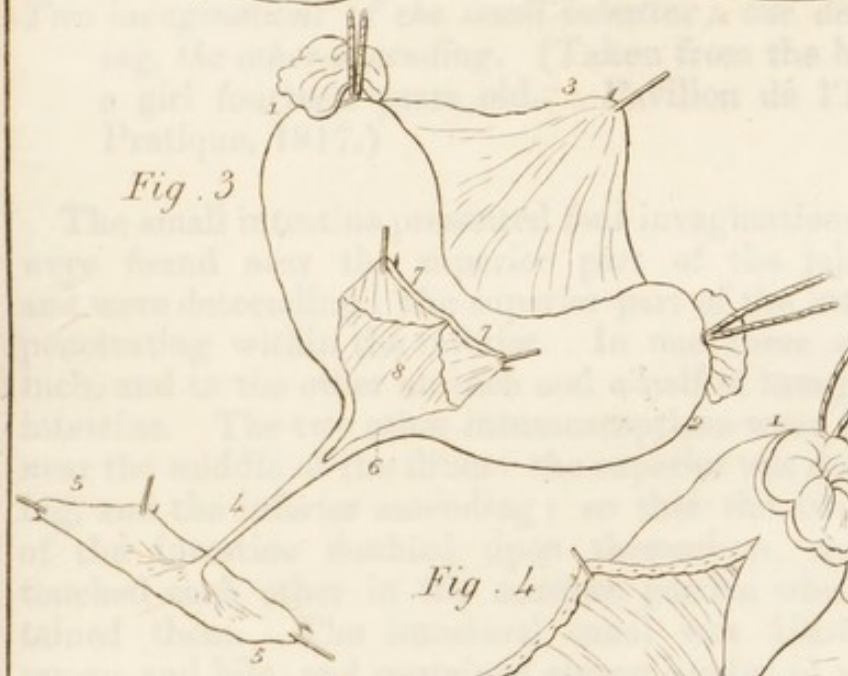
Having opened the abdomen, the stilet was found to have proceeded through a conical prolongation into a fold of the intestine, the two ends of which were firmly united to each other and to the adjoining convolutions, by old membranous adhesions. The mesentery supporting the convolution was gathered together, thickened, and its folds so adherent that it formed one oblong mass. Having opened the infundibulum, which was more than an inch long, it was difficult to determine whether it was formed by the sac, or an elongation of the connexions which had been formed between the sac and the intestine; however, it was quite certain that the mucous and muscular coats of the latter did not, in the least, enter into the formation of the infundibulum. Its parietes were thin, semitransparent, of an unequal thickness, and strewed with very fine capillary vessels, altogether different from those of the intestine, the two internal coats of which did not extend beyond the base of the infundibulum; its cavity was lined by a very fine membrane, of a mucous appearance, like those which are observed in fistulous openings. The conjoined sides, from the duplicature of the intestine, formed a very prominent projection into its cavity; and the free edge of this projection was whiter and firmer than the neighbouring parts of the intestinal coats.

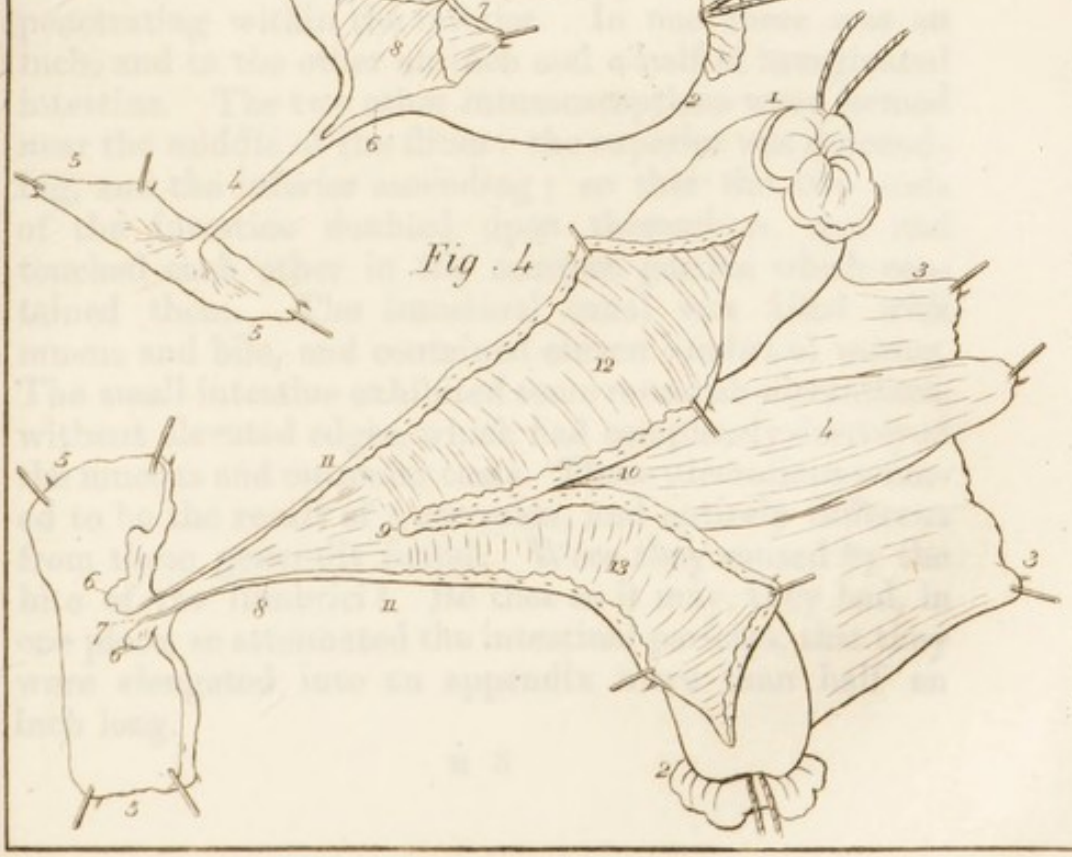
The infundibulum passed through the *fascia transversalis* six lines internal to the epigastric artery, and in its course through the inguinal canal intimately adhered to the spermatic cord.

No. 1. The superior—and
2. The inferior end of the fold of the intestine.
3, 3. Portion of the mesentery.
4. The mass formed by the adhesion of the folds of the mesentery together.
5, 5. A portion of integument of the inguinal region.
6, 6. The tubercles which surround
7. The external orifice of the infundibulum.
8. The infundibulum laid open.
9. The projection into the intestinal cavity of the union of the adjoined sides of the intestine, extending to the place where the coats had been destroyed.
10. The place where the coats cease to be united.
11, 11. The termination of the intestinal coats at the base of the infundibulum.
12, 12. The cavity of the two ends of the intestinal fold.









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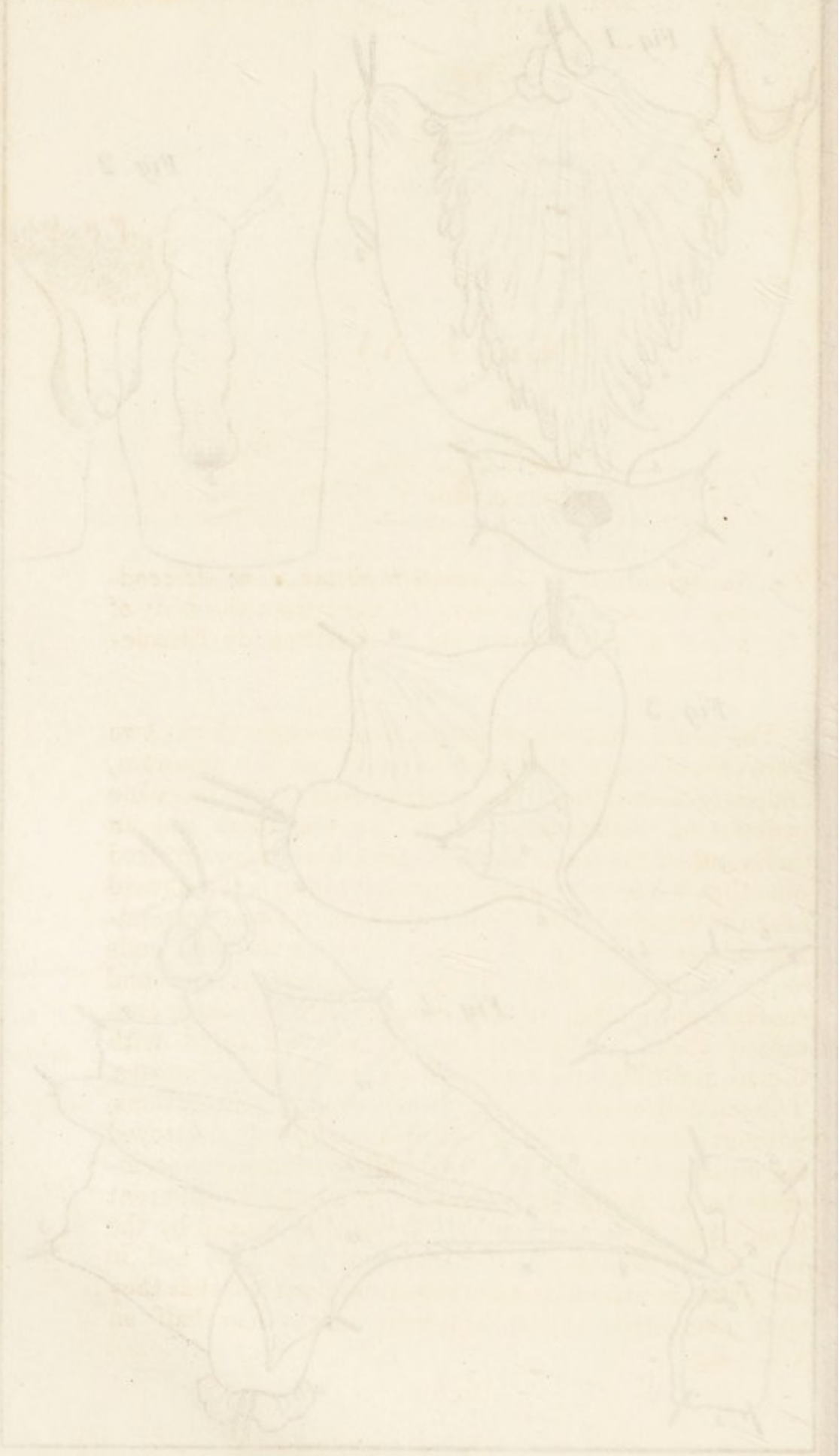


PLATE XV.

FIGURE 1.

Two invaginations of the small intestine; one descending, the other ascending. (Taken from the body of a girl fourteen years old. Pavillon de l'Ecole-Pratique, 1817.)

The small intestine presented four invaginations: two were found near the superior part of the jejunum, and were descending; the superior part of the intestine penetrating within the inferior. In one there was an inch, and in the other an inch and a half of invaginated intestine. The two other intussusceptions were formed near the middle of the ilium: the superior was descending, and the inferior ascending; so that the two ends of the intestine doubled upon themselves, met and touched each other in the common portion which contained them. The intestinal canal was filled with mucus and bile, and contained eleven lumbrical worms. The small intestine exhibited some roundish ulcerations, without elevated edges, which had completely destroyed the mucous and muscular coats. These ulcerations seemed to be the result of a corrosion, and entirely different from those generally found. Were they caused by the bite of the lumbrici? Be that as it may, they had, in one place, so attenuated the intestinal parietes, that they were elongated into an appendix more than half an inch long.

No. 1. The superior extremity of the intestine.
2. The same intestine introduced within
3. The middle portion which receives the two invaginations.
4. Portion of mesentery.
5. Part of the mesentery gathered into folds in accompanying the superior end of the intestine into its invagination.
6. The inferior extremity of the intestine.
7. Part of the same, invaginated and remaining within the middle portion of the intestine.
8. Part of the mesentery, gathered into folds by the invagination of the intestine.
9. Place where the two ends of the intestine, invaginated in contrary directions, touch each other in the middle part.

FIGURE 2.

A longitudinal section of one of the descending invaginations.

No. 1. The superior extremity of the intestine.
2. The cavity of the same part.
3. Cavity of the invaginated portion.
4. Mucous and circular projection, formed by the invaginated portion.
5. The cavity of the intestine which receives the invagination.
6. Place where the peritoneum is carried within the invagination, and in contact with itself, forming a circular cul-de-sac.
7. The bottom of the preceding cul-de-sac.
8. Cul-de-sac, which is formed by the duplicature of the mucous membrane, in the inverse direction to that of the peritoneum.

FIGURE 3.

The small appendix produced by the attenuation of the intestinal coats. (See observations to figure 1.)

Nos. 1, 1. The two ends of the intestinal fold.
2. Part of the mesentery.
3. The appendix.

FIGURE 4.

The preceding intestine and appendix, inverted, and seen from their internal surface.

Nos. 1. 1, The two ends of the intestinal fold.
2, 2, 2, 2. The ulcerations of the coats.
3. The appendix, covered with ulcerations.

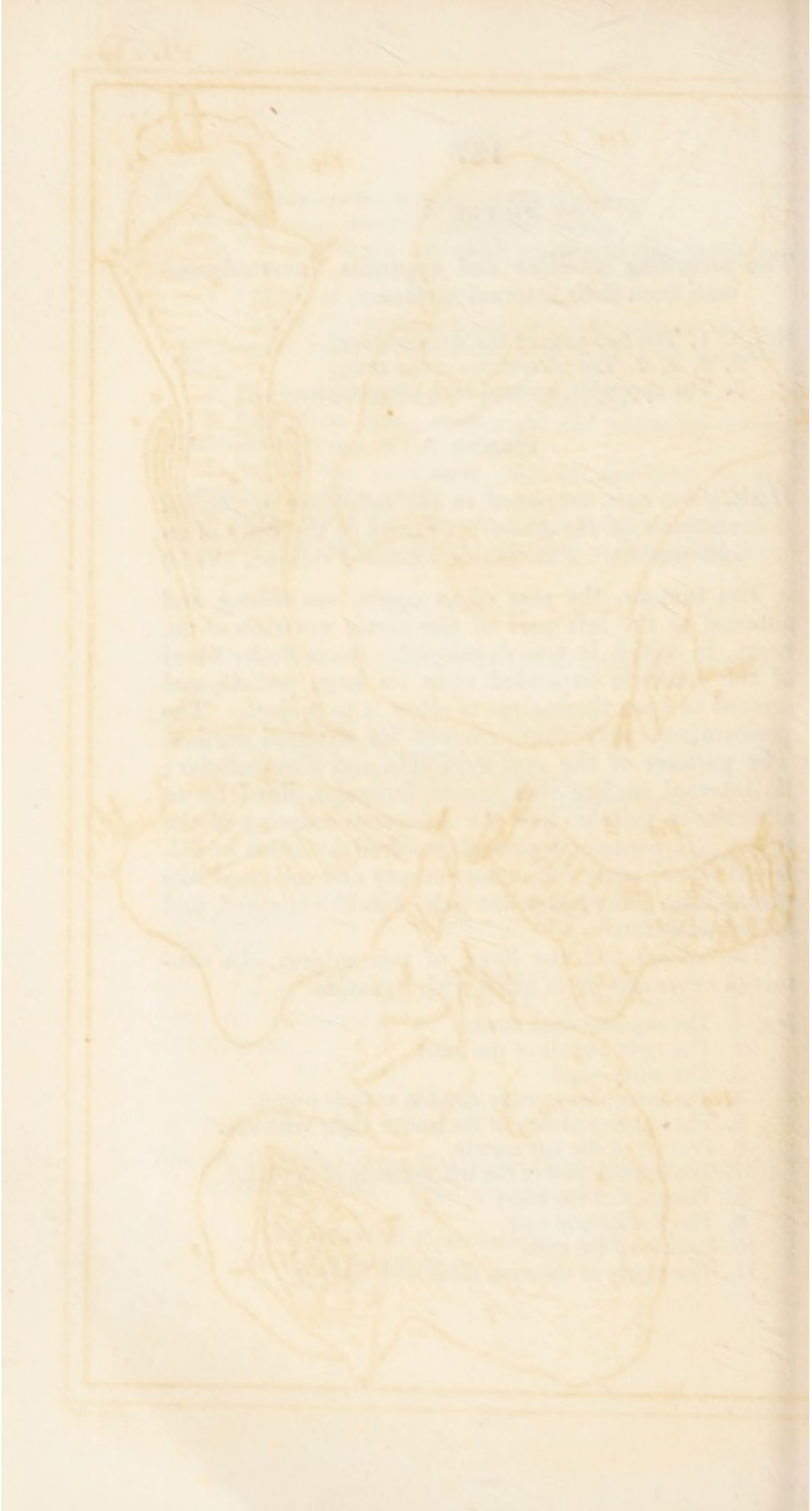
FIGURE 5.

Hydatiform cyst, developed in the substance of the left ventricle of the heart. (Found in the body of an old woman. Pavillon de l'Ecole-Pratique, 1815.)

The tumour, the size of an apple, was oblong, and adhered to the left part of the aortic ventricle of the heart, in which it was developed. Some fleshy fibres of the ventricle expanded upon its large pedicle, and seemed to open themselves to allow it to project. The pericardium, very thin, covered its external surface. The parietes of the cyst were thin and fibro-cellular; its internal surface was rugose, irregular, lined by an albuminous matter, like the sebaceous covering of the fœtus. It contained several hundred hydatids of different sizes; some full, others empty and collapsed like raisin skins. The heart was pale, flaccid, collapsed, and loaded with fat.

The spleen and the liver, of this subject, also contained enormous cysts filled with hydatids.

No. 1. The superior vena cava.
2. The right auricle of the heart.
3. The aorta—and
4. The pulmonary artery divided at their origin.
5. The anterior surface of the heart: right ventricle.
6. Portion of the left auricle.
7. The inferior part of the left ventricle of the heart.
8. The apex of the heart.
9. The hydatiform cyst.
10. Pedicle of the cyst.
11. The cavity of the cyst, filled with hydatids.



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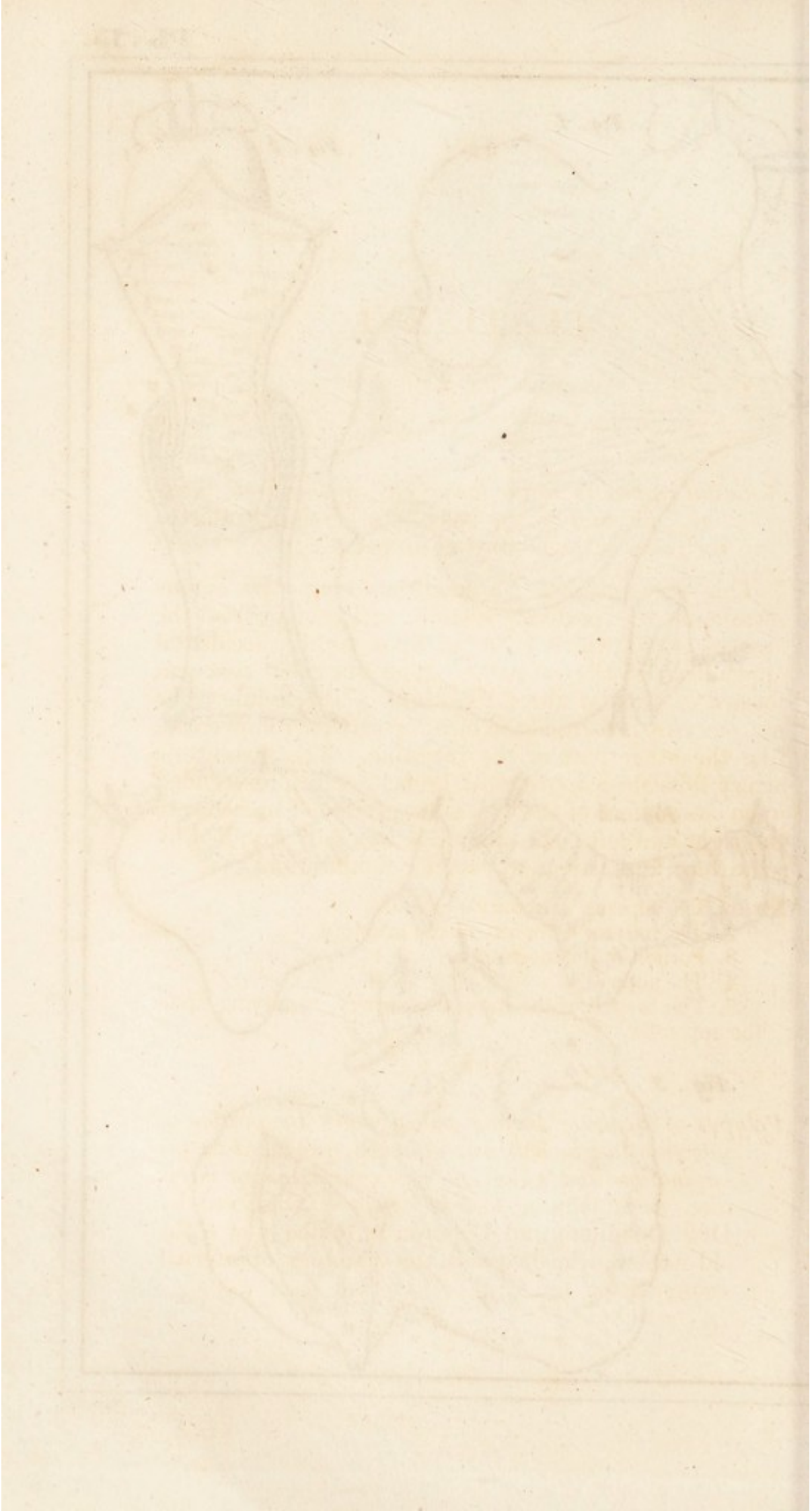

PLATE XVI.

FIGURE 1.

A digital appendix of the lower part of the small intestine. (Found in the body of a gendarme, thirty-six years old, who died of dropsy.)

This appendix was three inches long. Its serous membrane was perfectly smooth, and exempt from the areolar tissue which is found upon certain accidental appendices of the intestine. The muscular coat was formed of circular fibres, like those of the ilium. The mucous coat presented the circular valvulæ conniventes, like the other part of the intestine. The mesenteric artery furnished a principal branch, which descended upon one surface of the appendix, giving off branches to the right and left: the other side was only supplied by some very fine, irregular, vascular ramifications.

No. 1. The superior extremity—and
2. The inferior extremity of the intestine.
3. Portion of the mesentery.
4. The appendix.
5. The branch of the mesenteric artery, ramifying upon the appendix.

FIGURE 2.

Polypus of the ilium, having pulled down the portion of intestine to which it was attached, produced an invagination and gangrene of a convolution of intestine, more than a foot in extent. (Observed by Drs. Devilliers and Capuron in the body of a fat old woman, who died with the symptoms of internal strangulation.)

Nos. 1, 1. Portion of the ilium, containing
2, 2. The invaginated part of the same intestine, tied above.
3, 3. The inferior end of the ilium, opened in order to shew the polypus.
4. The polypus.
5. The invaginated portion of the intestine, pulled down by the tumour.
6. The inferior orifice of the invaginated intestine, situated behind the pedicle of the polypus.

FIGURE 3.

An agglomeration of the convolutions of the lower part of the small intestine, within one common peritoneal envelope. (Found in the body of a man about sixty years old. Pavillon de l'Ecole-Pratique, 1815.)

From the middle part of the small intestine, extending to its termination, there was found an augmentation in size representing an elongated, tortuous, lumpy mass, in some parts larger than the cœcum. After an attentive examination of this mass, it was seen to be formed by an agglomeration of the convolutions of the intestine included within one single peritoneal envelope. From each side this envelope had, as is ordinary, formed the two layers of mesentery, which was in this situation much thicker, and its vessels much closer than in the other part of its extent. The peritoneum exhibited no band or accidental adhesions, nor any trace of inflammation. The muscular coats of the agglomerated convolutions of the intestine were in apposition, and united by a very fine cellular tissue; no peritoneum whatever entering into the structure of this mass. Having inflated and dried this portion of the intestine, and made transverse sections of it in different parts, there were always shewn three or four cavities of different convolutions of the intestine. Was this agglomeration caused by an old local inflammation of the peritoneum of the intestine, which had agglutinated the intestine; or, rather, had it not depended upon congenital formation?

The absence of any trace of inflammation inclines me to the latter opinion.

Nos. 1, 1, 1, 1. The mass of the agglutinated intestine.

2, 2, 2, 2, 2, 2. The places where the peritoneum, in passing from one convolution to another, forms slight grooves.

3. The termination of the small intestine in

4. The cœcum.

5. The cœcal appendix.

6. Portion of mesentery which supports the intestinal mass.

FIGURE 4.

Represents a section of the preceding intestinal mass, after having been inflated and dried.

Nos. 1, 1. The peritoneum, forming the two layers of the mesentery.

2. The vessels contained between the layers.

3, 3, 3, 3. The peritoneum, covering only a part of each convolution.

4, 4. The peritoneum, passing from one convolution to another, without penetrating between them.

5, 5, 5, 5. Cavities of the convolutions, shewn by the section.

6. Portion of the intestinal mass, seen from its external surface.

Fig. 1

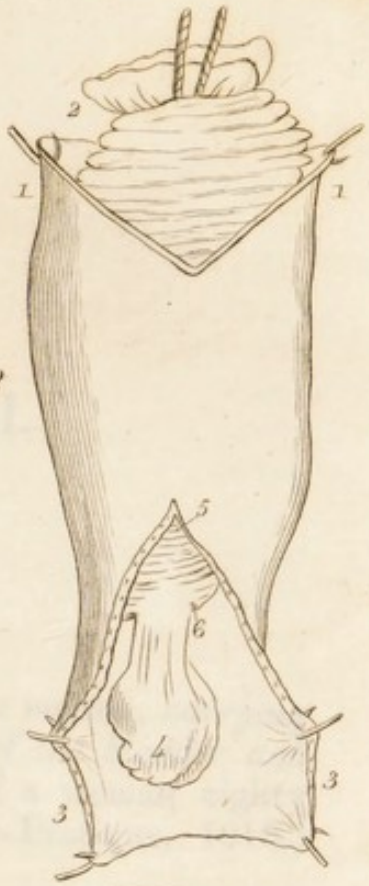

Fig. 2

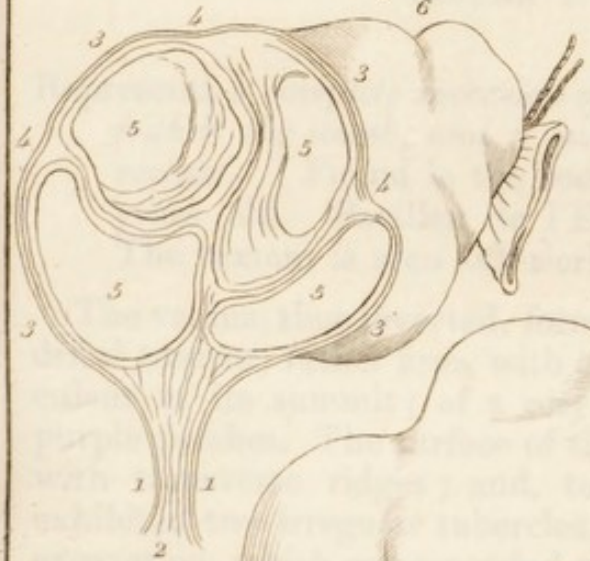

Fig. 4

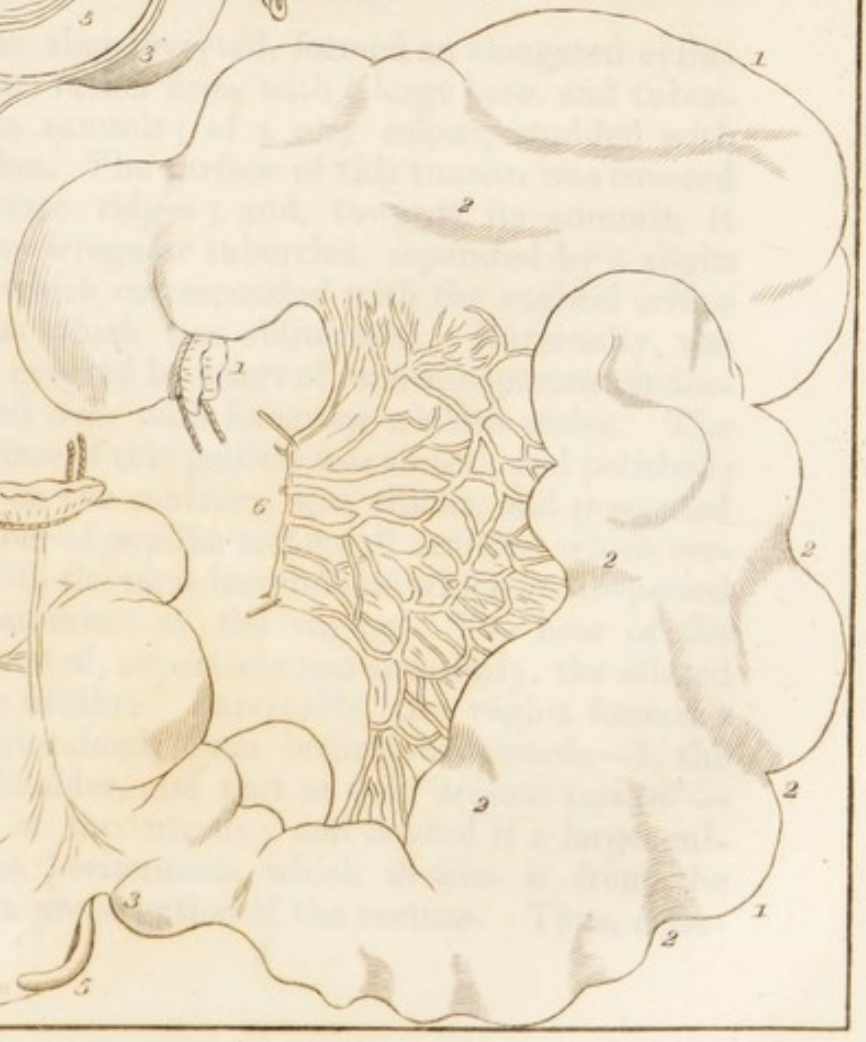

Fig. 3

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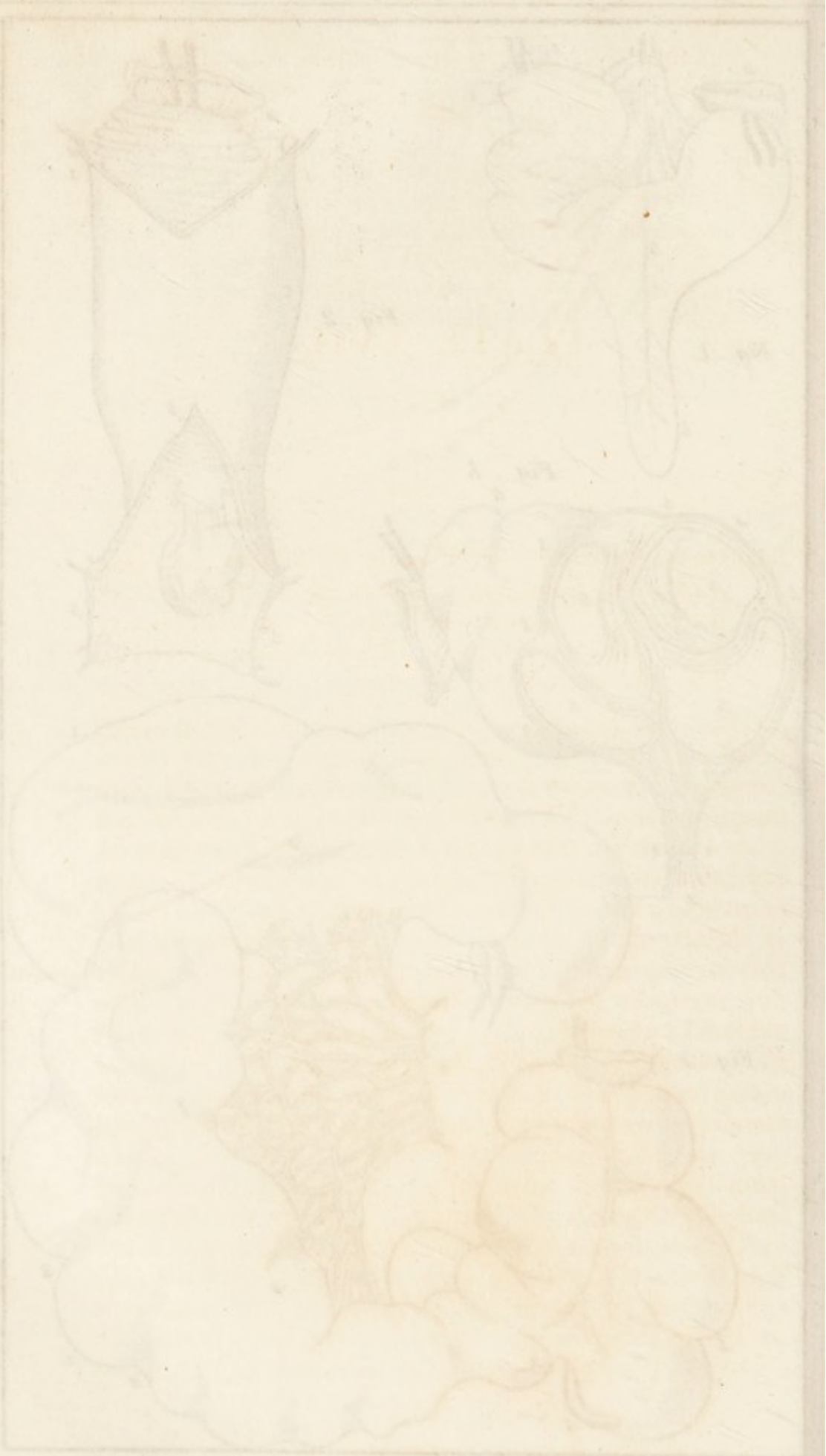


PLATE XVII.

FIGURE 1.

Represents *a complete inversion of the vagina, carrying with it the womb, and a part of the bladder and rectum.* (Found in the body of a woman eighty years old. Pavillon de l'Ecole-Pratique, 1816.) The tumour is seen anteriorly.

The vagina, thus inverted, formed an elongated cylindrical tumour, rather firm, with a large base, and tuberculous at its summit; of a rosy colour, studded with purple patches. The surface of this tumour was covered with transverse ridges; and, towards its summit, it exhibited two irregular tubercles, separated by a slight excavation, which corresponded with the vaginal orifice of the uterus which was obliterated. Externally, the tumour was covered by a sort of semitransparent epidermis, scattered over with irregular whitish scales. The external surface of this pellicle was smooth and polished; its internal, on the contrary, was villous, and presented a great number of papillæ and small cavities, which corresponded with the same inequalities which are dispersed over the membrane of the vagina. The base of the tumour presented, superiorly and anteriorly, the dilated orifice of the urethra. Internally, the vagina formed a sac which contained, from before, backwards—1, the base of the bladder, and part of the "*trigone vesical*"—2, the neck of the uterus; and behind it a large cul-de-sac of the peritoneum, which divides it from the rectum—*3*, a prolongation of the rectum. Thus, a sec-

tion of the *base* of the tumour would open the bladder, the neck of the uterus, the cavity of the peritoneum, and the rectum. The bladder, carried down with the vagina, was prolonged about two inches into the superior and anterior part of the vaginal sac; the urethra had totally changed its course, which was nearly vertical and straight, its external orifice being above, and its internal, below: therefore, to sound the bladder the catheter must be introduced, at first, backwards and downwards; then, vertically downwards. The "*trigone vesical*" was found drawn downwards, and the base of the bladder carried beyond it, forming the prolongation which this organ exhibited within the vagina. The bladder contained two round, yellow, rough calculi, each about the size of a small walnut, and formed of white concentric layers upon a reddish-yellow nucleus. The cul-de-sac of the peritoneum, situated between the bladder and the womb, was not so deep, nor prolonged as far into the tumour, as that between the womb and the rectum. The womb was small, elongated and flabby; it exhibited, towards its inferior part, a rounded fibrous tumour; the body of the womb did not exceed two inches in length, and was insensibly continuous with the neck, which was at least four inches long: the cavity of the neck was free, rather narrow, and terminated inferiorly in a dilatation, forming a cul-de-sac filled with mucus, and having no external communication. The womb, in consequence of the length of its neck, was situated above the sac of the inverted vagina. The rectum was greatly dilated at its inferior extremity; and, from its anterior surface, proceeded a considerable digital prolongation, passing over the perineum, and introduced into the posterior and inferior part of the vaginal sac.

No. 1. The anterior part of the tumour.
2, 2. The great lips.
3. The small lips.
4. The clitoris.
5. The meatus urinarius.
6. The summit of the tumour.

FIGURE 2.

The preceding tumour, seen in profile from the right side.

No. 1. The great lips.
2. The small lips.
3. The anterior surface.
4. The posterior surface—and
5. The summit of the tumour.
6. The meatus urinarius.
7. The dotted line shewing the situation of a part of the bladder within the tumour.
8. The dotted lines indicating the position of the prolongation of the rectum within the tumour.
9. The perineum.
10. The anus.

FIGURE 3.

Represents a section of the preceding tumour, seen in profile: the pubes are separated, and the right half of the pelvis removed, in order to shew the disposition of the parts contained within the tumour.

No 1. The bladder.
2. The left pubis.
3. The uterus.
4. The rectum.
5. Part of the left labium.
6. The clitoris.
7. The meatus urinarius.
8. The urethra.
9. The vagina opened.
10. The fibrous tumour of the uterus.
11. The neck of the uterus, occupying the centre of the vaginal sac.
12. The prolongation of the bladder, within the tumour.
13. The prolongation of the rectum, within the tumour.
14. The cul-de-sac of the peritoneum, between the neck of the uterus and the prolongation of the rectum.
15. The perineum, divided.
16. The anus.
17. The right ureter.

FIGURE 4.

Represents *one of the two calculi found in the bladder of the woman, the subject of the preceding disease.*

FIGURE 5.

A section of the preceding calculus, shewing its central nucleus and concentric structure.

FIGURE 6.

Dropsy of the right fallopian tube. (Taken from the body of a woman fifty years old. Pavillon de l'Ecole-Pratique, 1814.—The preparation is deposited in the Muséum de la Faculté.)

The fallopian tube, distended with a yellow, transparent fluid, formed a pyriform tumour, the small extremity of which corresponded with the insertion of the tube into the uterus. The contracted part of the tumour was tortuous, and rather resembled the convolutions of the intestine. The tube was obliterated nearly from its fimbriation to its insertion into the uterus, so that it neither communicated with the cavity of the peritoneum, nor with the womb. In the ovary, and adherent to the tumour, was developed a serous cyst with semi-transparent parietes, and filled with fluid.

(The preparation is seen from its posterior surface.)

No. 1. The posterior surface of the uterus.
2. The vaginal orifice of the neck of the uterus.
3. The insertion of the right tube into the corresponding angle of the uterus.
4. The first dilatation of the tube, near its insertion.
5, 5. The tumour formed by the tube.
6. The right ovary.
7. The serous cyst of the ovary.
8. Portion of the broad ligament, ramified with vessels.
9. The ovarian ligament.

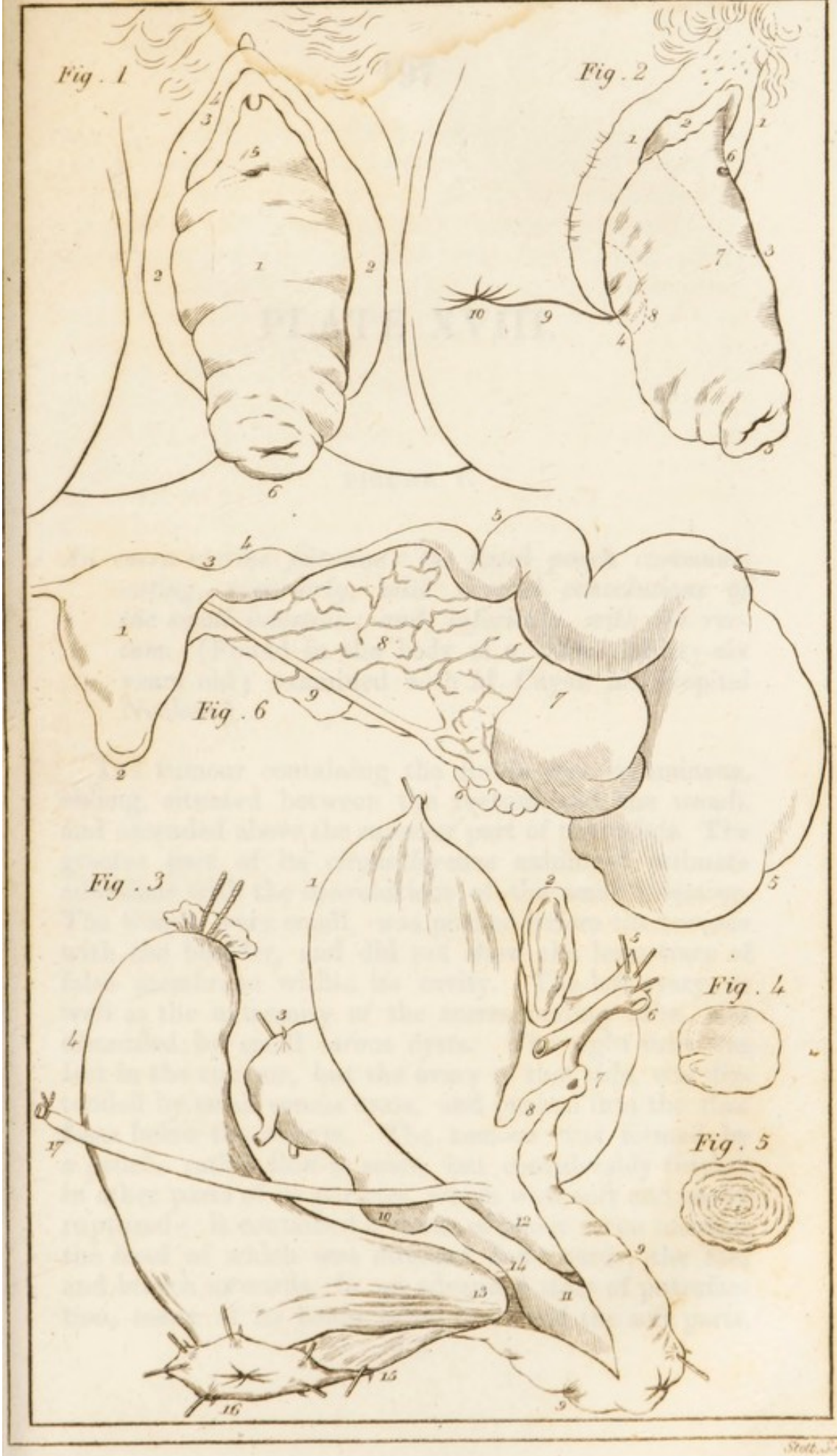


Fig. 1
Fig. 2
Fig. 6
Fig. 3
Fig. 4
Fig. 5

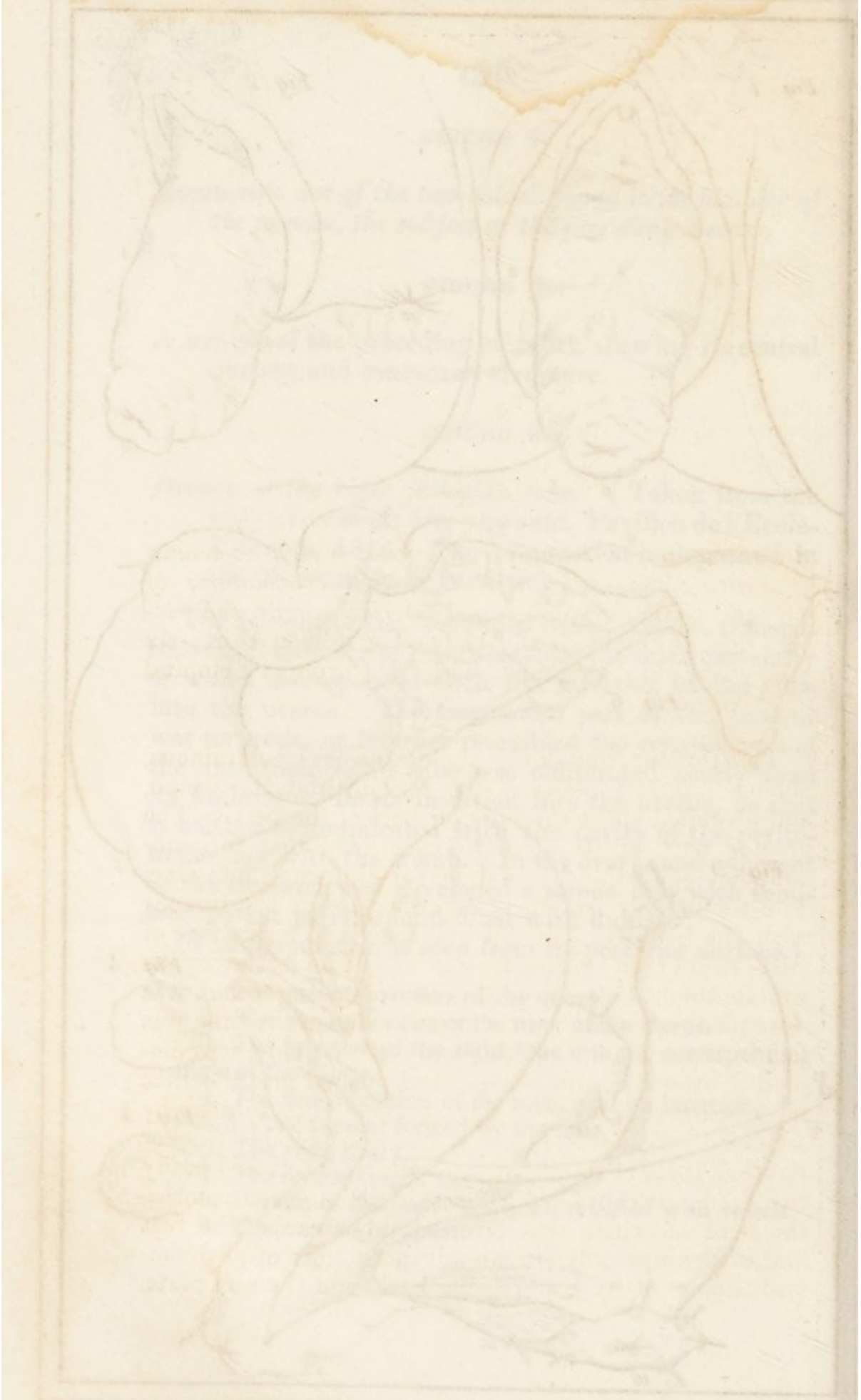


PLATE XVIII.

FIGURE 1.

An extra uterine fœtation: the fœtal pouch communicating, superiorly, with several convolutions of the small intestine; and, inferiorly, with the rectum. (Found in the body of a woman thirty-six years old; examined with M. Cayol, in l'Hopital Necker.)

The tumour containing the fœtus was voluminous, oblong, situated between the rectum and the womb, and ascended above the superior part of the pelvis. The greater part of its circumference exhibited intimate adhesions with the convolutions of the small intestine. The womb, very small, was pushed before the tumour with the bladder, and did not shew the least trace of false membrane within its cavity. The left ovary, as well as the extremity of the corresponding tube, was distended by small serous cysts. The right tube was lost in the tumour, but the ovary of that side, was distended by small serous cysts, and pushed into the iliac fossa below the cœcum. The tumour was formed by a pouch, rather thin in some, but considerably thicker in other parts of its parietes, which were soft and easily ruptured; it contained a fœtus of about seven months, the head of which was directed downwards, the feet and breech upwards, in an advanced state of putrefaction, many of its bones being bare, and the soft parts,

which remained, converted into *adipocire ;* it was bathed in liquid fecal matters containing a great quantity of raisin stones.

The cyst, examined from within, exhibited five apertures, viz.—1, superiorly, four openings, distinct from each other, of an irregular shape with ragged edges, communicating with the convolutions of the small intestine, which adhered to it above—2, inferiorly, the orifice of an oblique canal, communicating between the cyst and the rectum in a direction downwards and forwards, about half an inch long, and easily admitting the finger. The result of this disposition of the parts was, that the fecal matters of the small intestine escaped by the fistulous openings into the pouch, surrounding the body of the fœtus, and were ultimately discharged by the inferior communicating canal into the rectum. The placenta, of which some remains were found, was attached to the upper and anterior part of the pouch, which, in this situation, was very much thickened. The preparation is seen in profile from the left side, the corresponding half of the pelvis and abdominal parietes having been removed.

No. 1. The internal surface of the fœtal pouch.
2. The fœtus.
3, 3, 3, 3. The four superior apertures communicating with
4, 4, 4. The convolutions of the small intestine, which adhered to the superior part of the tumour.
5. The canal communicating between the inferior part of the pouch—and
6. The rectum.
7. The cavity of the rectum, opened by a lateral longitudinal incision.
8. The anus, opened.
9. The bladder.
10. The womb.
11. The right pubis.
12. The vagina.
13. The right part of the abdominal parietes.
14. The right thigh.
15. Vertical section of the vertebral column.
16. The coccyx.

FIGURE 2.

An extra uterine fœtation of the left tube: rupture of the pouch, and the escape of the fœtus into the peritoneal cavity. (Found in the body of a young woman who died in la Maternité: the post-mortem made with Beclard, 1816.)

The pouch of the fœtus was developed in the left fallopian tube, and occupied the corresponding iliac fossa. It was ruptured by a large opening with ragged edges, and the fœtus had escaped into the abdominal cavity amongst the convolutions of the intestine. A portion of the great omentum strongly adhered to the external part of the pouch. The womb was, at least, twice its natural size, its structure softened and of a rosy-colour; its internal surface covered with injected vessels, ramifying in a sort of soft and pulpous membrane; the placenta was attached to the posterior and inferior part of the pouch.

No. 1, 1. The fœtal pouch.
2. The left tube, very much enlarged, loosing itself in the pouch.
3. The rupture of the pouch, by which
4. The fœtus escaped.
5. Portion of omentum, adhering to the pouch.
6. Another portion of omentum, raised up from the pouch.
7. The stomach, raised by a hook.
8. The superior surface of the liver.
9. The umbilical ligament.
10. The gall-bladder.
11. Portion of the large intestine.
12. Convolutions of the small intestine.
13 and 14. The abdominal parietes, opened and separated.
15, 15. The horizontal rami of the pubis divided, and the symphysis removed.
16. The right fallopian tube.
17. The anterior surface of the womb, which is pulled down in order to shew the whole of the pouch and the fœtus.
18. The cavity of the womb, shewn by a longitudinal incision through the anterior part of the neck and body of that organ.
19. The posterior lip of the os tincæ.

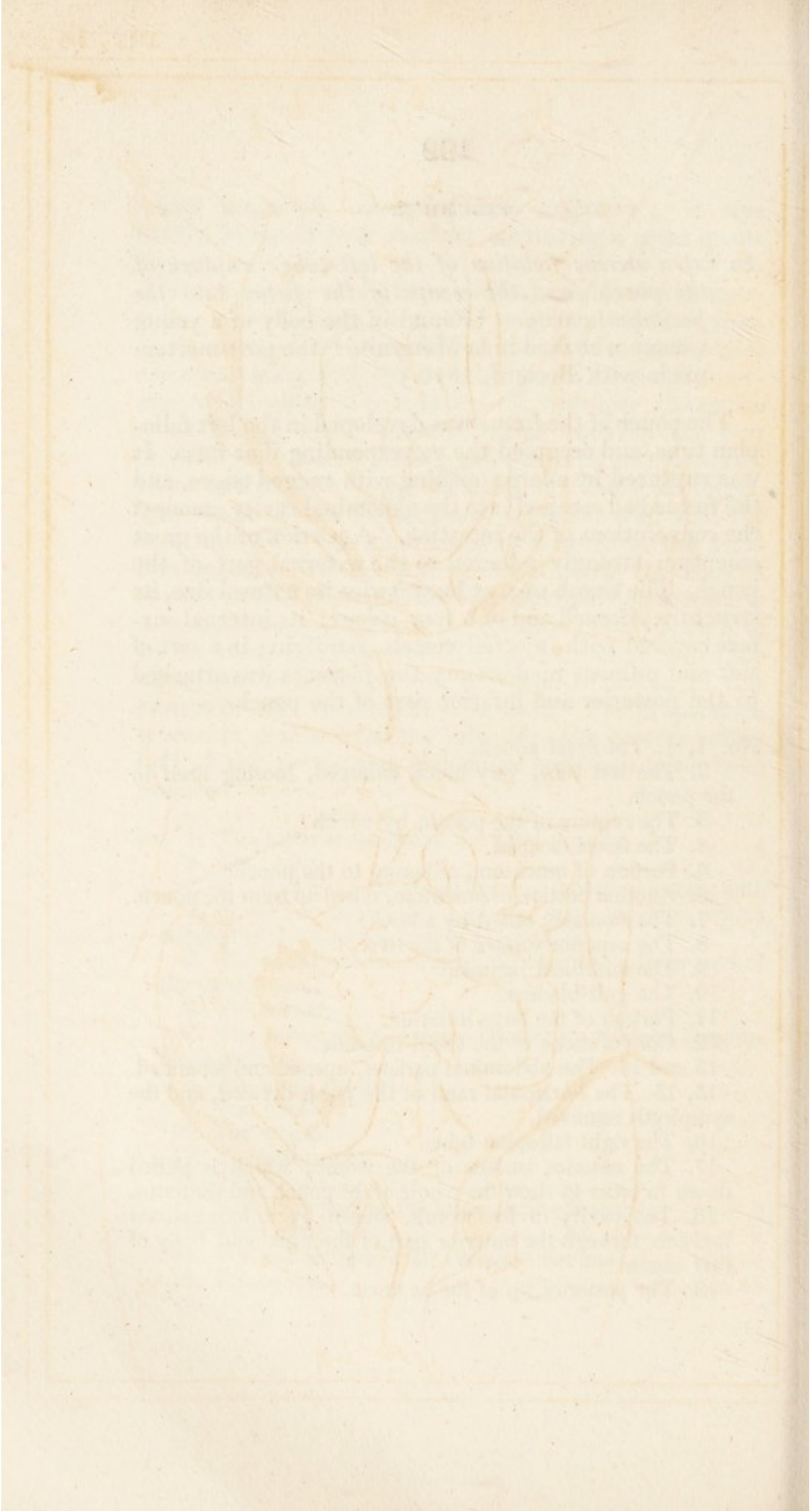


Fig. 1

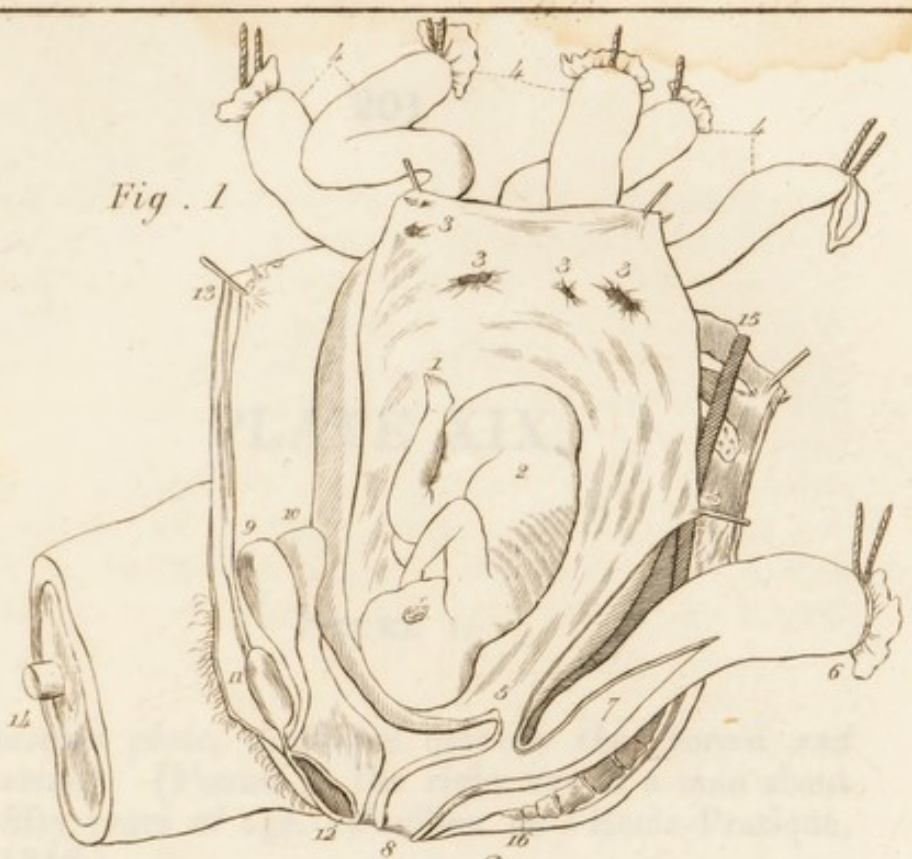
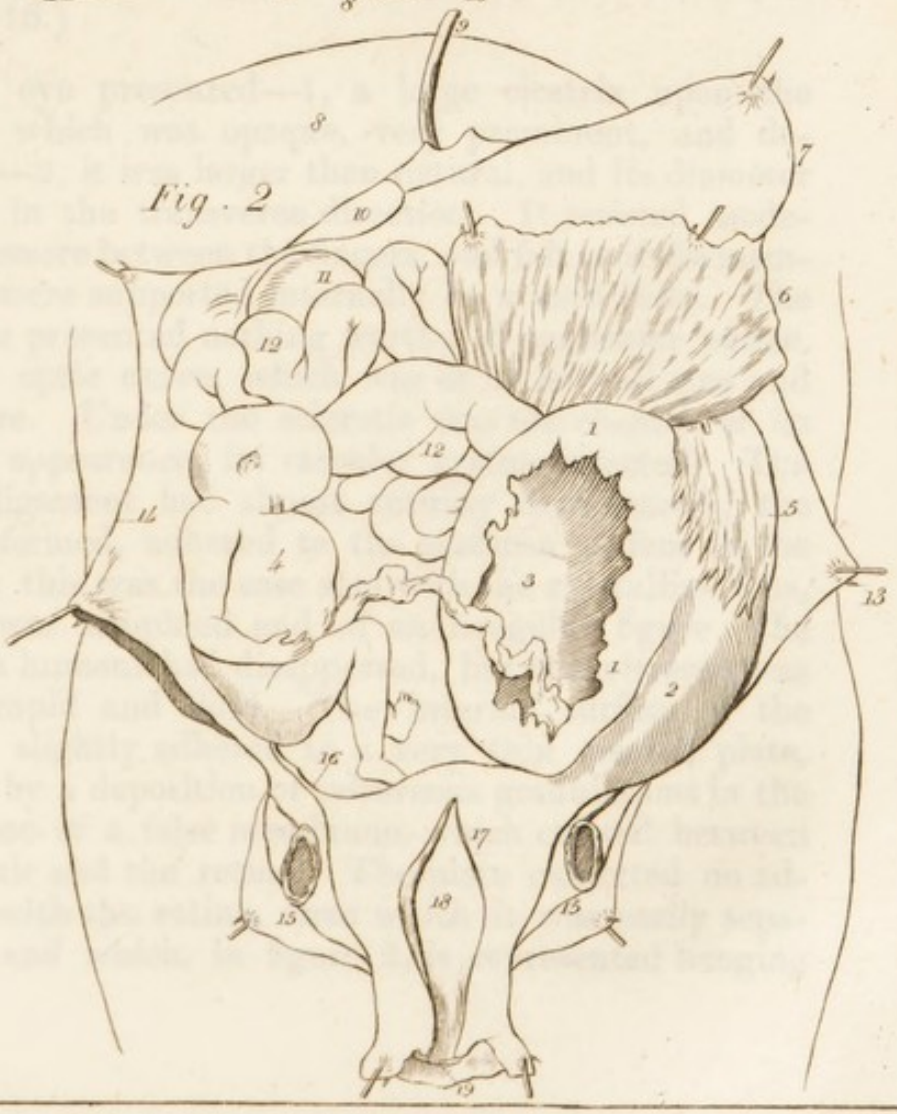


Fig. 2



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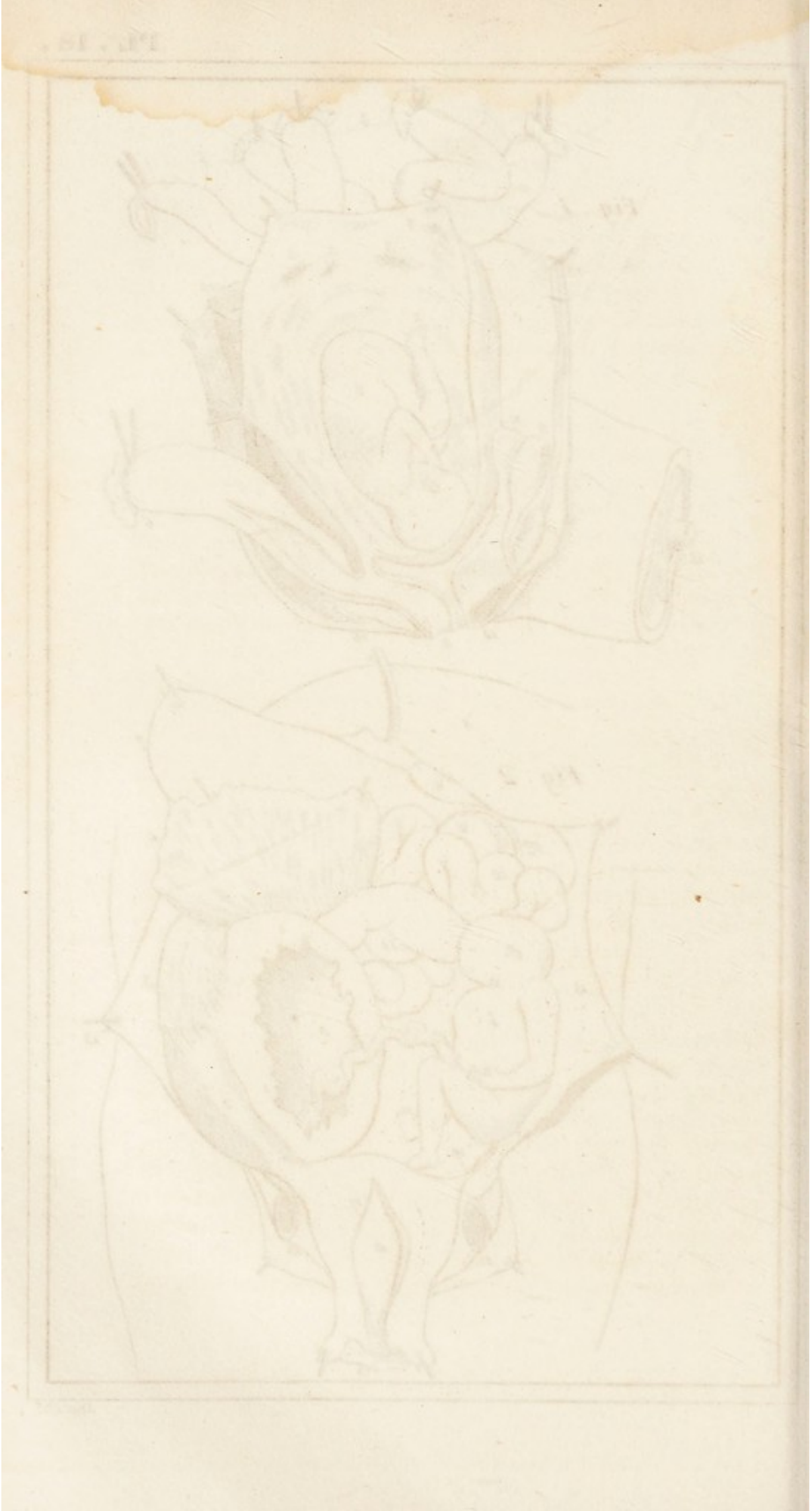

PLATE XIX.

FIGURE 1.

An osseous plate, developed between the choroid and retina. (Found in the right eye of a man about fifty years of age. Pavillon de l'Ecole-Pratique, 1816.)

This eye presented—1, a large cicatrix upon the cornea, which was opaque, very prominent, and deformed—2, it was larger than natural, and its diameter greater in the transverse direction. It resisted moderate pressure between the fingers, and felt as if the membranes were supported internally by a solid body. The sclerotic presented nothing worthy of particular notice, nor the optic nerve, which was of its natural size and structure. Under the sclerotic was the choroid, of its natural appearance, its vascular system injected. The ciliary ligament had almost entirely disappeared; the iris, deformed, adhered to the posterior surface of the cornea: this was the case also with the crystalline lens, which was atrophied and of an irregular figure: the aqueous humour had disappeared, but the vitreous was very limpid and fluid. The internal surface of the choroid slightly adhered to a very thin osseous plate, formed by a deposition of calcareous granulations in the substance of a false membrane, which existed between this tunic and the retina. The plate exhibited no adhesion with the retina, from which it was easily separated; and which, in figure 2, is represented hanging

from the centre of the osseous plate, which was pierced by a rounded opening for the passage of the optic nerve to the retina. Posteriorly, it was rather thick; but, anteriorly, very thin, and terminated by an irregular broken edge: it exhibited, in different points of its extent, small irregular holes, covered by a fine transparent membrane, in the thickness of which could be seen many very small white granulations, which were not yet united with the osseous plate. The retina, examined with care under water, presented no visible change in its structure.

No. 1. The cornea.
2. The selerotic.
3. The optic nerve.

FIGURE 2.

Represents the preceding eye, the external membranes having been circularly divided and inverted upon the optic nerve, in order to shew the whole extent of the osseous plate.

No. 1. The optic nerve.
2. The sclerotic.
3, 3. The choroid.
4. The osseous plate, seen from its external surface.
5. The anterior edge of the same.
6, 6, 6. Aperture in the osseous plate.
7. Portion of the internal surface of the same.
8. The retina, soft and pendent.

FIGURE 3.

Separation of the superior part of the iris of the left eye, consequent to the operation of cataract by depression. (Seen in a man sixty-one years old, 1813.)

The operator had caught hold of the posterior surface of the iris with the point of the needle. The patient's sight remained very imperfect: he could not see objects placed above him. The separation included nearly half

the circumference of the iris. The pupil was elongated, and appeared like a transverse narrow slit.

No. 1. The sclerotic.
2. The cornea, and behind it the iris.
3. The cavity of the eye, appearing through the separation of the iris.
4. The pupil.

FIGURE 4.

Double separation of the iris of the left eye, following the operation of cataract by depression. (Seen in a patient of l'Hopital Saint-Antoine, 1816, who had been operated upon two years before by an itinerant surgeon.)

The separation of the iris extended, superiorly and inferiorly, nearly the whole of its circumference, so that it was like a transverse belt of light brown, situated rather obliquely from above downwards, and from without inwards; and the internal part was broader than the external. The obliterated pupil appeared like a black parallel line in the belt. The sight was completely lost.

Nos. 1, 2, 3, 4. Indicate the same parts as in the former figure.

FIGURE 5.

Separation of the inferior part of the iris, following the operation of cataract by extraction. (Observed in a man fifty-eight years old. Public consultation at the Hotel-Dieu, 1811.)

The cicatrix of the cornea was very slight. The separation of the inferior part of the iris exposed to view, between it and the cornea, the base of the eye, which represented a black crescent. The pupil was disfigured and transversely elongated. The sight almost entirely lost.

Nos. 1, 2, 3, 4. Indicate the same parts as in figure 3.

FIGURE 6.

Adhesion of the iris to the cornea, and disfiguration of the pupil, following the operation of cataract by extraction. (Seen at Havre, in the right eye of a man seventy years old, who had been operated upon many years before, 1816.) The sight was very imperfect.

No. 1. The sclerotic.
2. The cornea, and behind it the iris.
3. Point of adhesion of the iris to the transparent cornea.
4. The disfigured pupil.

FIGURE 7.

Another adhesion of the iris to the cornea, following the operation of cataract by extraction. (Observed in the right eye of an old man, operated upon about two years before. Public consultation at l'Hopital Saint-Louis, 1823.)

The sight of the right eye was completely lost. The left eye had been operated upon by depression, and the patient could see by it sufficiently to walk alone.

Nos. 1, 2, 3, 4. Indicate the same parts as in figure 3.

FIGURE 8.

Disfiguration of the pupil, following the operation of cataract by depression. (Observed in a man forty-five years old, operated upon about six months. Hospice de Perfectionnement, 1817.)

This patient had been troubled for many years with the general symptoms of syphilis, for which he had only undergone a partial treatment. The pupil was contracted above and below; and, at first sight, there appeared to be two pupils, laterally connected. I have seen many patients affected by syphilitic iritis, with a similar deformity of the pupil.

No. 1. The sclerotic.
2. The cornea, and behind it the iris.
3. The deformed pupil.

Fig . 1

Fig . 2

Fig . 3

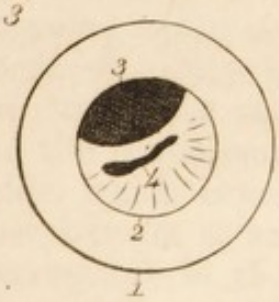

Fig . 6

Fig . 4

Fig . 7

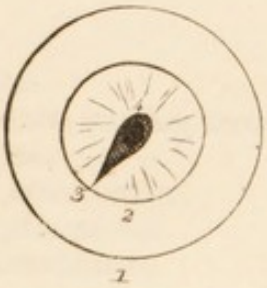

Fig . 5

Fig . 8

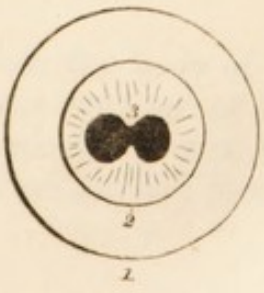

PLATE XX.

FIGURE 1.

Represents *the commissure of the optic nerves: atrophy of the left eye.* (From the body of an old woman. Pavillon de l'Ecole-Pratique, 1816.)

The eye was uneven, puckered, white, entirely empty, and not the sixth part of its natural size. The corresponding optic nerve was grey, semitransparent, and atrophied. Near the commissure it became whiter, and the grey fibres could easily be traced obliquely to traverse the commissure to arrive at the nerve of the right side, which beyond the commissure was white as the other, but not so large. This difference in size was very perceptible in the tuberosities which these nerves exhibit at their origin from the posterior part of the optic thalami.

No. 1. The right optic nerve.
2. The left optic nerve, atrophied.
3. The commissure of the optic nerves.
4. The grey fibres of the left optic nerve, passing through the white substance of the commissure into
5. The right optic nerve, before the commissure.
6. The tubercles of the base of the optic nerves.
7. The left optic nerve, before the commissure.
8. The tubercles of the posterior part of the preceding nerve.

FIGURE 2.

Atrophy of the globe of the eye. (From the body of an old woman, who had a cancerous tumour of the right breast, accompanied with enlargement of the lymphatic glands of the axilla. Pavillon de l'Ecole-Pratique, 1814.)

The eyes, of both sides perfectly alike, were sunk, and exhibited five white tubercles, very remarkably disposed. One of them, smaller than the rest, placed in the centre, was smooth, of a pearly white, very prominent and separated by a deep groove from the others, which were of greater size, had the same appearance as the centre one, and were separated from each other by four decussating furrows, which corresponded with the anterior insertions of the four recti-muscles of the globe of the eye, and seemed to have been caused by their retraction. The muscles were very perceptibly atrophied, of a whitish colour, and fibrous appearance. The globe of the eye was atrophied, puckered, flattened, before and behind. The two optic nerves were greyish, and not a third of their natural size; the diminution and colour of the nerves continued the same within the cranium, extending also to the optic thalami and the parts of the brain adjoining the tractus opticus. The eye, having been transversely opened, it was found that the crystalline lens and vitreous humour had entirely disappeared. The internal membranes of the eye were white, atrophied, and strongly adherent to a transverse linear cicatrix, situated at the base of the central tubercle, formed very evidently by the cornea. Examined, internally, the tubercles were found hollow and the furrows projecting.

No. 1. The central tubercle.
2, 2. The two superior tubercles, and
3, 3. The two inferior tubercles.

FIGURE 3.

Represents the eye of the preceding figure, taken from the orbit, and seen in profile from its internal side.

No. 1. The central tubercle.
2. The internal superior tubercle.
3. The internal inferior tubercle.
4. The optic nerve.

FIGURE 4.

Represents the anterior segment of the globe of the preceding eye, seen from its internal surface.

No. 1, 1. Section of the sclerotic.

2, 2, 2, 2. Hollows, corresponding with the internal surface of the tubercles.

3. Hollow of the central tubercle: at the base is seen the transverse cicatrix to which the atrophied internal membranes adhered.

FIGURE 5.

Hypertrophy of a crystalline cataract of the right eye. (Found in the body of a young man. Pavillon de l'Ecole-Pratique, 1815.)

The globe of the eye, externally, exhibited no alteration, with the exception of a considerable projection of the transparent cornea. The iris was forcibly pushed forwards before the crystalline lens, which protruded through the pupil and touched the posterior surface of the cornea. The lens was opaque, and changed into a white friable matter, similar to that which is found in crude tubercles; its capsule, especially the posterior layer, was opaque: anteriorly, it adhered to the posterior surface of the projecting iris. The other parts of the eye had not undergone any change.

The eye is represented by a vertical section, seen from its internal surface. The iris is left untouched just as it adhered to the crystalline lens.

No. 1. Section of the external membranes of the eye.

2. Section of the optic nerve, and the central artery of the retina.

3. The vitreous humour, exposed by the section of the eye.

4. The posterior surface of the lens.

5. The iris.

6. The anterior surface of the lens, protruding through the pupil.

7. The transparent cornea.

FIGURE 6.

Represents *the situation of the crystalline lens after the operation of cataract by depression: the eyes dissected two years after the operation.* (Observed in the body of a woman sixty years old. Hopital Saint-Louis, 1814.)

The crystalline lens of the right eye, yet enveloped by its capsule, had preserved its natural size, and was found laid flat in the anterior and inferior part of the vitreous humour, behind the iris.

In the eye of the left side the pupil was disfigured and obliterated by a white false membrane, extending in radii over the posterior surface of the iris to which they adhered. The crystalline lens, deprived of its membranous capsule, was white, atrophied, and reduced to not more than a third of its natural size.*

* M. Sœmmering, junr., shewed me, at Frankfort, in 1822, the eye of an old man of eighty-six years, operated upon for cataract by depression thirteen months before his death. The crystalline lens, situated at the inferior part of the vitreous humour, had not perceptibly diminished in size. The posterior surface of the iris was covered by a whitish false membrane. The capsule had been torn and nothing more remained than some floating shreds which adhered to the edges of the pupil, which was obliterated by a very slight false membrane. The sight was not perfectly restored.

The same surgeon shewed me, also, two eyes procured from a woman of seventy-three years, operated upon for cataract three years before her death. One lens was completely absorbed, the other had not at all diminished in size, nor was its capsule opened. It is possible, in fact, to note, from day to day, the phenomena of absorption of the crystalline cataract, when deprived of its capsule, and accidentally situated in the anterior chamber of the eye; but, when yet enveloped by its capsule, it generally acts as an extraneous body, causing inflammation of the eye and often rendering its extraction necessary, by an incision of the cornea. I have twice been obliged to perform this operation in similar cases.

Figure 6 represents a vertical section of the right eye, seen in profile.

No. 1. Section of the membranes of the eye.
2. Section of the optic nerve, and central artery of the retina.
3. Section of the transparent cornea.
4. The anterior chamber of the eye.
5. Section of the iris, passing through the pupil.
6. The crystalline lens.
7. The vitreous humour.

FIGURE 7.

Represents the left eye of the woman, mentioned in the observations on Figure 6. The eye has been transversely divided, and its anterior segment is here seen from its internal surface.

No. 1. Section of the membranes of the eye.
2. The internal surface of the choroid and the ciliary processes.
3. Portion of the posterior surface of the iris, visible in the intervals between the prolongations of the false membrane.
4, 4, 4. The false membrane.
5. The crystalline lens, greatly absorbed.

FIGURE 8.

A false structure, obliterating the whole of the inferior part of the pupil, consecutive to the operation of cataract by extraction. (Observed eighteen years after the operation in a woman forty-five years old. Hospice de Mont-Rouge, 1812.)

The cicatrix of the incision of each eye, by the operation, was still visible. The sight of the right eye was partially restored; that of the left totally lost, and the inferior four-fifths of the pupil obliterated by a white rounded body, which at first sight, I took for the crystalline lens, thinking that it had not been extracted. Having made an examination, the right eye did not

present any alteration. The left, at its posterior surface, presented a large, thick, opaque, false membrane, adhering to the whole of the inferior part of the choroid, and extending upon the posterior surface of the iris, which it almost entirely covered; it was formed of fasciculi, converging and uniting at the thickest part of this membrane, placed behind the pupil; and during life this part might very easily be mistaken for a crystalline cataract.

The eye has been transversely divided, and its anterior segment is seen from its posterior surface.

No. 1. Section of the membranes of the eye.

2. The internal surface of the choroid, and ciliary processes.

3. The posterior surface of the iris.

4, 4. The false membrane.

5. The place where the false membrane was of the greatest thickness and obliterated the pupil.

Fig . 1

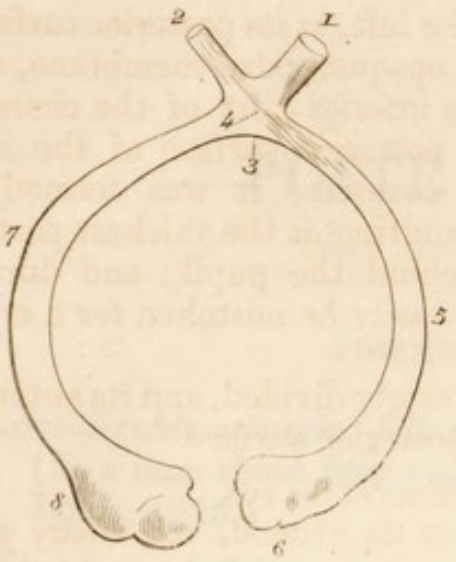

Fig . 2

Fig . 3

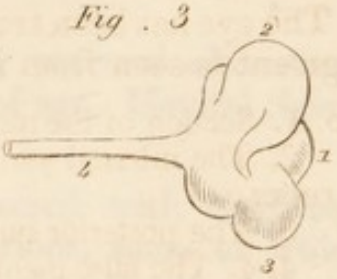

Fig . 5

Fig . 4

Fig . 6

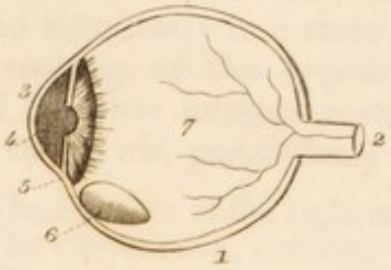

Fig . 7

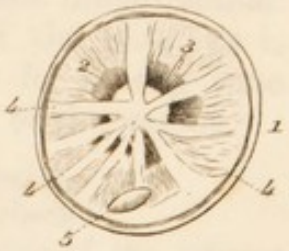

Fig . 8

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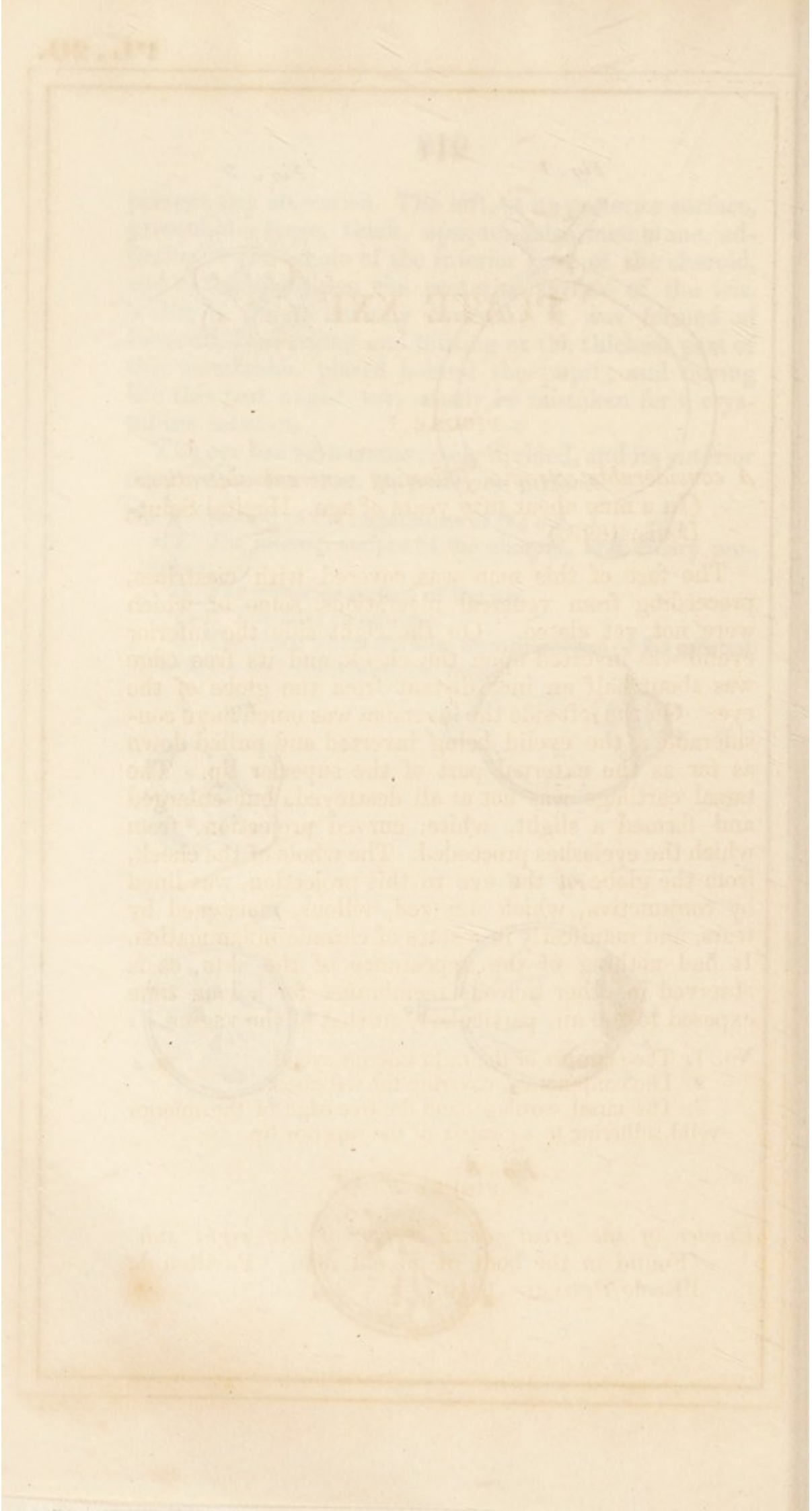


PLATE XXI.

FIGURE 1.

A considerable ectropia, following venereal ulcerations. (In a man about fifty years of age. Hopital Saint-Louis, 1828.)

The face of this man was covered with cicatrices, proceeding from venereal ulcerations, some of which were not yet closed. On the right side the inferior eyelid was inverted upon the cheek, and its free edge was about half an inch distant from the globe of the eye. On the left side the inversion was much more considerable: the eyelid being inverted and pulled down as far as the external part of the superior lip. The tarsal cartilage was not at all destroyed, but enlarged and formed a slight, white, curved projection, from which the eyelashes proceeded. The whole of the cheek, from the globe of the eye to this projection, was lined by conjunctiva, which was red, villous, moistened by tears, and manifestly in a state of chronic inflammation. It had nothing of the appearance of the skin, as is observed in other mucous membranes for a long time exposed to the air, particularly in that of the vagina.

No. 1. The ectropia of the right inferior eyelid.
2. The conjunctiva, covering the left cheek.
3. The tarsal cartilage, and the free edge of the inferior eyelid, adhering to a cicatrix of the superior lip.

FIGURE 2.

Cancer of the great sciatic nerve of the right side. (Found in the body of an old man. Pavillon de l'Ecole Pratique, 1816.)

The tumour, situated in the sciatic nerve, immediately below the quadratus femoris, was oblong, irregular, and knotty: in some parts rather firm, in others soft, and giving an obscure sensation of fluctuation; of a brownish red colour, and its surface ramified with injected capillary vessels. It was united to the surrounding parts by a great quantity of cellular tissue. Some posterior filaments of the sciatic nerve passed behind the tumour, and were in that situation separated from each other, but without exhibiting any perceptible alteration in structure: the rest of the filaments were expanded and entirely confounded, and lost in the tissue of the tumour. A section having been made of the whole length of the tumour, there flowed from it nearly half a spoonful of reddish serosity: internally, it was formed of a scirrhous tissue and soft brainy matter, giving it a marbled appearance. The vessels, varicose and injected with blood, ramified in every direction in its substance, and could easily be separated. Externally, it was covered by a fibro-cellular envelope, intimately united within to the cancerous structure.

In figure 2 the tumour is untouched and seen posteriorly.

Nos. 1. and 2. The sciatic nerve above and below.
3. The tumour.
4. Filaments of the nerve, raised and separated, passing behind the tumour.
5, 5, 5. Vessels ramifying upon the exterior.

FIGURE 3.

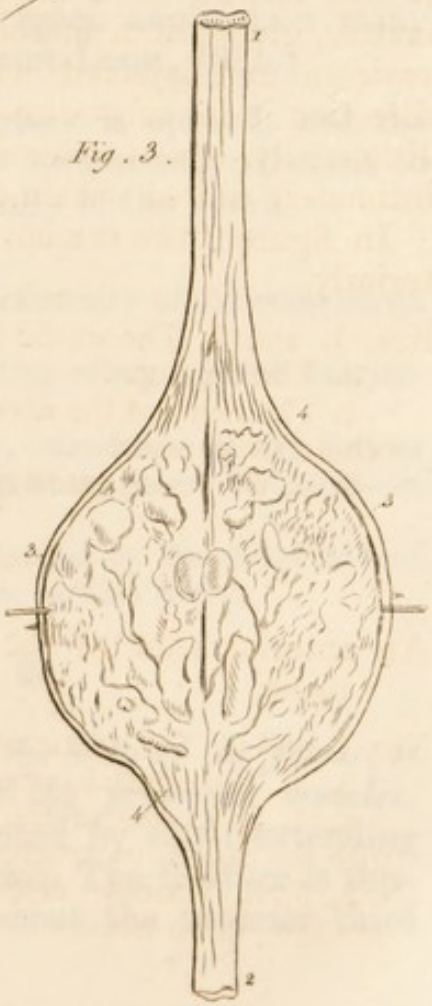
An anterior view of the section of the preceding tumour.

Nos. 1. and 2. The sciatic nerve above and below the tumour.
3, 3. The opened tumour.
4, 4. Filaments of the nerve, scattered and confounded with the cancerous structure.
5, 5, 5. Varicose filaments, which ramify within the structure of the tumour.

Fig. 1.

Fig. 2.

Fig. 3.



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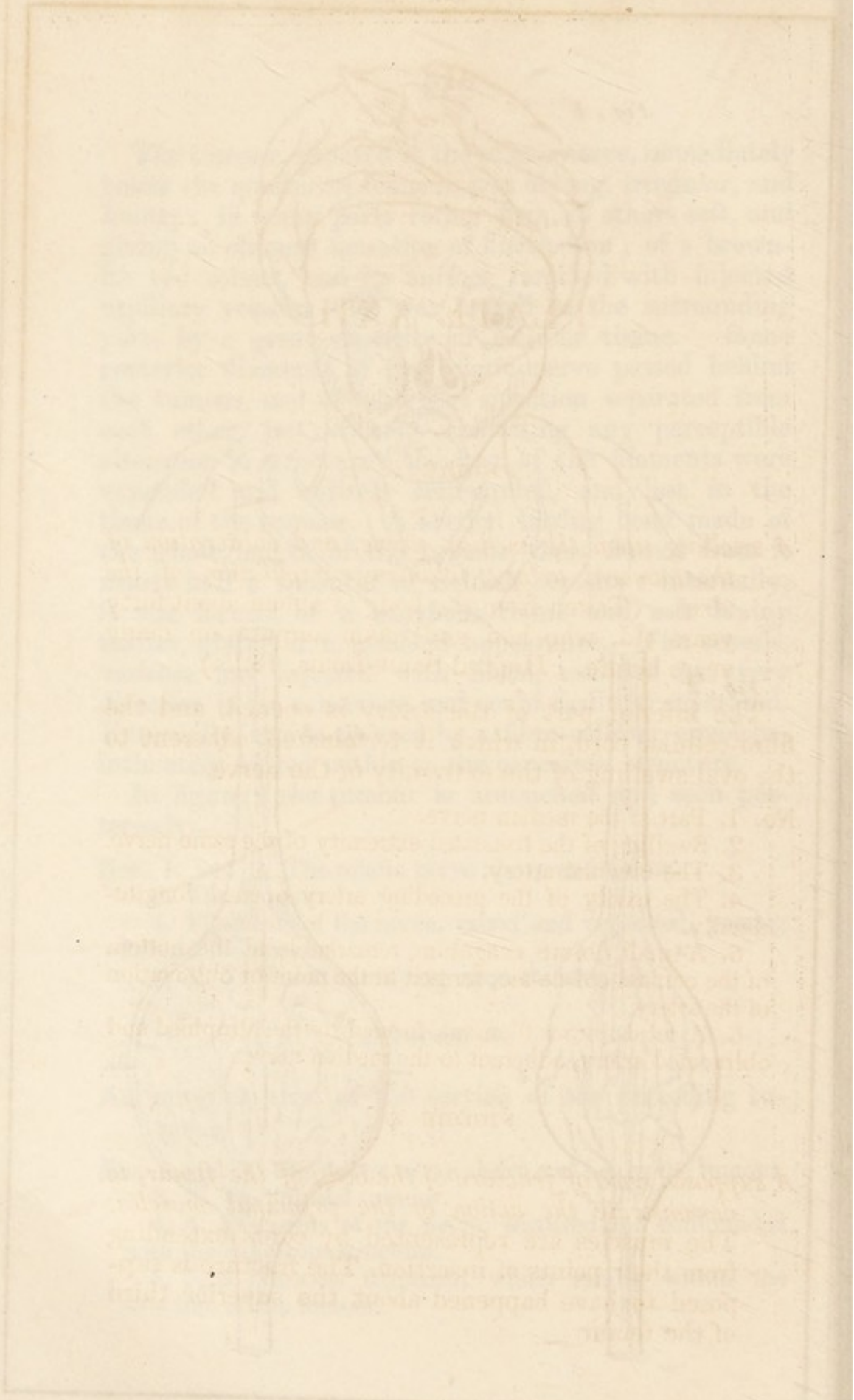

PLATE XXII.

FIGURE 1.

A swelling upon the median nerve, and obliteration of the humoral artery, following amputation of the Arm. (Taken from the body of a man about forty years old, who had undergone amputation many years before. Hopital Saint-Louis, 1825.)

The inferior part of the artery is opened, and the fibro-cellular cord, in which it terminated, adherent to the oval swelling of the extremity of the nerve.

No. 1. Part of the median nerve.
2. Swelling of the truncated extremity of the same nerve.
3. The brachial artery.
4. The cavity of the preceding artery opened longitudinally.
5. A small fibrous coagulum, remarkable at the bottom of the conical cul-de-sac, formed at the point of obliteration of the artery.
6. A solid fibrous filament, formed by the atrophied and obliterated artery, adherent to the median nerve.

FIGURE 2.

A supposed case of fracture of the body of the femur, to demonstrate the action of the principal muscles. The muscles are represented by cords extending from their points of insertion. The fracture is supposed to have happened about the superior third of the femur.

No. 1. The situation of the fracture.
2. The superior fragment—and
3. The inferior fragment of the bone.
4, 4. A cord, representing the triceps femoris, which is inserted into both fragments.
5, 6, 7. Cords representing the action of the psoas, iliacus, and glutæus medius, which are inserted into the superior fragment, and arise from the bones which are above.
8. A cord, indicating the action of the adductor magnus, proceeding from the bones of the pelvis, to the inferior fragment.
9. A cord representing the action of those muscles which extend from the bones of the pelvis to those situated below the inferior fragment.
10. A cord, indicating the action of the muscles which arise from the inferior fragment and are inserted into the bones of the leg.

FIGURE 3.

Represents *a longitudinal fracture of the left femur.* (From the body of a tiler, who died in l'Hopital Saint-Louis, from a fall from the roof of a house. The preparation presented to the Académie de Médicine.)

No. 1. The body of the femur, representing the external fragment.
2. The external condyle, separated from
3. The internal condyle.
4. The internal fragment, extending from between the condyles to the small trochanter.

FIGURE 4.

Represents the internal fragment of the bone separated.

FIGURE 5.

An incomplete longitudinal fracture of the femur; caused by a ball which had passed from before, through the inferior extremity of the bone above the con-

dyles. (Taken from the body of a soldier, who died of hospital gangrene, in 1814.)

No. 1. The round perforation made by the ball.
2. The two condyles, separated by the fracture, which extends above the perforation of the ball as far as
3. The middle part of the body of the bone.

FIGURE 6.

An incomplete and transverse fracture of the inferior part of the left fibula. (Found in the body of a quarry-man, who died in l'Hopital Saint-Louis, from several fractures caused by the falling of a stone.)

The fracture occupied the internal half of the thickness of the fibula: on pressure, in this situation, upon the unfractured portion of the bone, it yielded a little, and the edges of the fracture became slightly separated.

No. 1. The tibia.
2. The fibula.
3. The fracture.

Fig. 1.

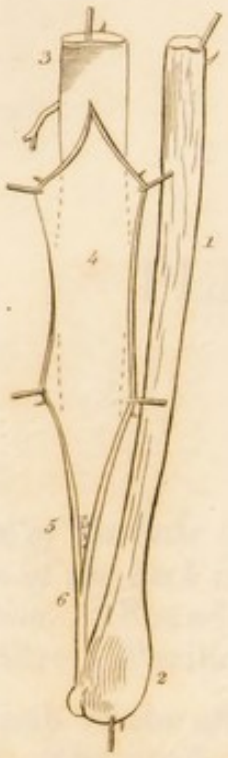

Fig. 2.

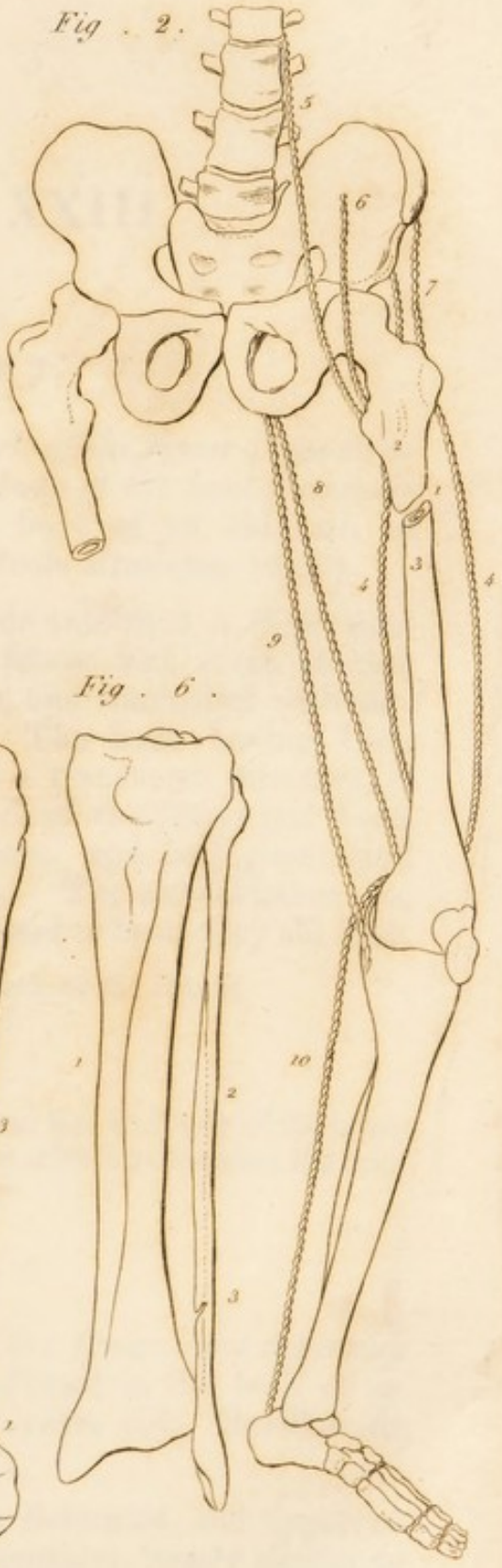

Fig. 3.

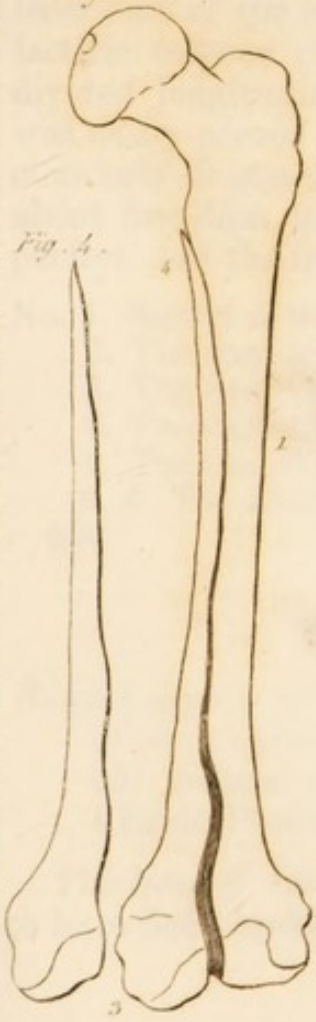

Fig. 4.

Fig. 5.

Fig. 6.

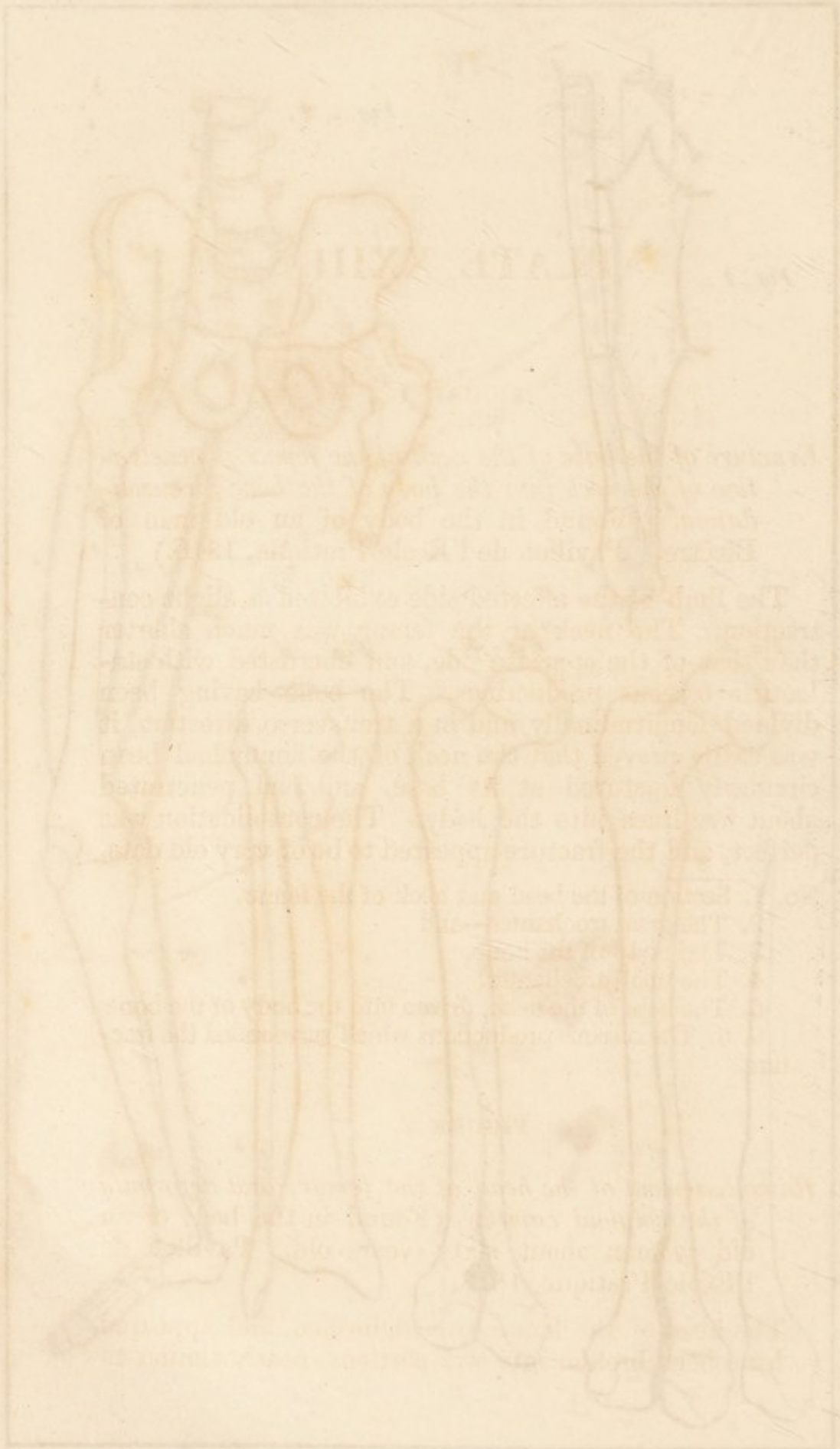

PLATE XXIII.

FIGURE 1.

Fracture of the base of the neck of the femur; penetration of the neck into the body of the bone; consolidation. (Found in the body of an old man of Bicêtre. Pavillon de l'Ecole Pratique, 1816.)

The limb of the affected side exhibited a slight contraction. The neck of the femur was much shorter than that of the opposite side, and encrusted with stalactitic osseous productions. The bone having been divided longitudinally and in a transverse direction, it was easily proved that the neck of the femur had been circularly fractured at its base, and had penetrated about five lines into the body. The consolidation was perfect, and the fracture appeared to be of very old date.

No. 1. Section of the head and neck of the femur.
2. The great trochanter—and
3. The body of the bone.
4. The small trochanter.
5. The base of the neck, driven into the body of the bone.
6, 6. The osseous productions which surrounded the fracture.

FIGURE 2.

Ramollissement of the head of the femur, and deformity of the cotyloid cavity. (Found in the body of an old woman about sixty years old. Pavillon de l'Ecole-Pratique, 1818.)

The head of the femur was deformed, and appeared to have been broken into two portions, nearly similar to

the case which I presented, with Beclard, in 1816, to the Société de la Faculté de Médecine. One of the two portions of the head was larger and lower than the other which remained connected with the neck of the femur, and was found encrusted with stalactitic osseous productions. The interarticular ligament had disappeared: the cotyloid cavity was found enlarged, higher than on the other side, and covered with irregular osseous productions: the limb was shortened, and the point of the foot turned outwards, as in fracture of the neck of the femur.

No. 1. The crest of the ilium.
2. The internal iliac fossa.
3. The pubis.
4. The tuberosity of the ischium.
5. The sub-pubic foramen.
6. The cotyloid cavity, enlarged and compressed above.
7. The body of the femur.
8. The inferior portion of the head of the femur, enlarged, flattened, and as if crushed.
9. The other portion of the head of the femur, remaining in connexion with
10. The neck of the femur.

FIGURE 3.

Fracture of the neck of the left femur: false articulation found between the neck and the head, which remained moveable in the cotyloid of the cavity. (Found in the body of a woman sixty years old. Pavillon de l'Ecole-Pratique, 1816.)

The fractured extremity of the neck of the femur was contracted, rounded, covered with a fibro-cartilaginous substance, and is received into a rather deep cavity also lined with cartilage, which was found in the head of the bone, and formed with it a false articulation. No synovial membrane could be distinguished upon the incrustations of these osseous surfaces. The round ligament seemed to be contracted, and shorter, and thicker than natural. The capsular ligament was thicker than

that of the other side. The limb was not in the slightest degree shortened.

No. 1. The crest of the ilium.
2. The pubis.
3. The tuberosity of the ischium.
4. The sub-pubic foramen.
5. The cotyloid cavity.
6. The inferior part of the head of the femur.
7. The central cavity, seen in the head of the femur, at the part corresponding with the neck.
8, 8. Part of the capsular ligament.
9. The body of the femur.
10. The fractured extremity of the neck, received into the cavity of the head.

FIGURE 4.

Luxation of the left femur, above and rather outwards. (The preparation taken from the body of a woman thirty years old. Pavillon de l'Ecole-Pratique, 1816.)

The dislocated limb was very short, and the corresponding hip very prominent, the foot and knee turned inwards: the cotyloid cavity, of triangular figure, was considerably contracted, and completely filled with fatty cellular tissue. The cotyloid ligament was membranous, and perceptibly atrophied. The cartilage, from the incrustation of the cotyloid cavity, had disappeared. The capsular ligament, extending from that cavity, embraced the neck of the femur, and appeared to have been ruptured at its superior part. There existed a new articular cavity, lined with a layer of fibro-cartilage, and situated at the anterior part of the external iliac fossa, above and a little behind the cotyloid cavity. The cavity of the new articular surface was enlarged by the existence, at its circumference, of a fibro-cartilage, similar in consistence and appearance to that of the articulation of the knee. This fibro-cartilage was continuous with the new capsular ligament, which embraced the head of the femur as well as its neck, and around which

it was united with the old capsular ligament of the articulation; hence, the cotyloid cavity and the new articular cavity evidently communicated with each other. The new capsular ligament was formed of condensed cellular tissue, and by a few fibres of the glutæus minimus, which became perceptibly white and fibrous the nearer it approached the head of the femur, which was irregular, small, and deformed; its cavity, for the attachment of the round ligament, had disappeared; and its cartilage, from the incrustation, was worn through in some places.

No. 1. The crest of the ilium.
2. The pubis.
3. The tuberosity of the ischium.
5. The cotyloid cavity.
6. The new articular cavity.
7, 7. The new capsular ligament, opened and continuous with the natural fibrous ligament.
8. The head of the femur.

Fig. 1.

Fig. 2.

Fig. 3.

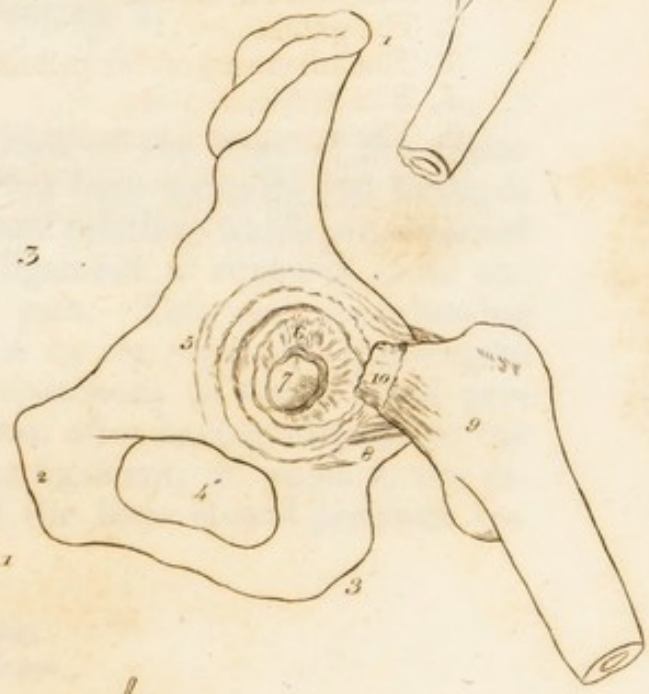

Fig. 4.

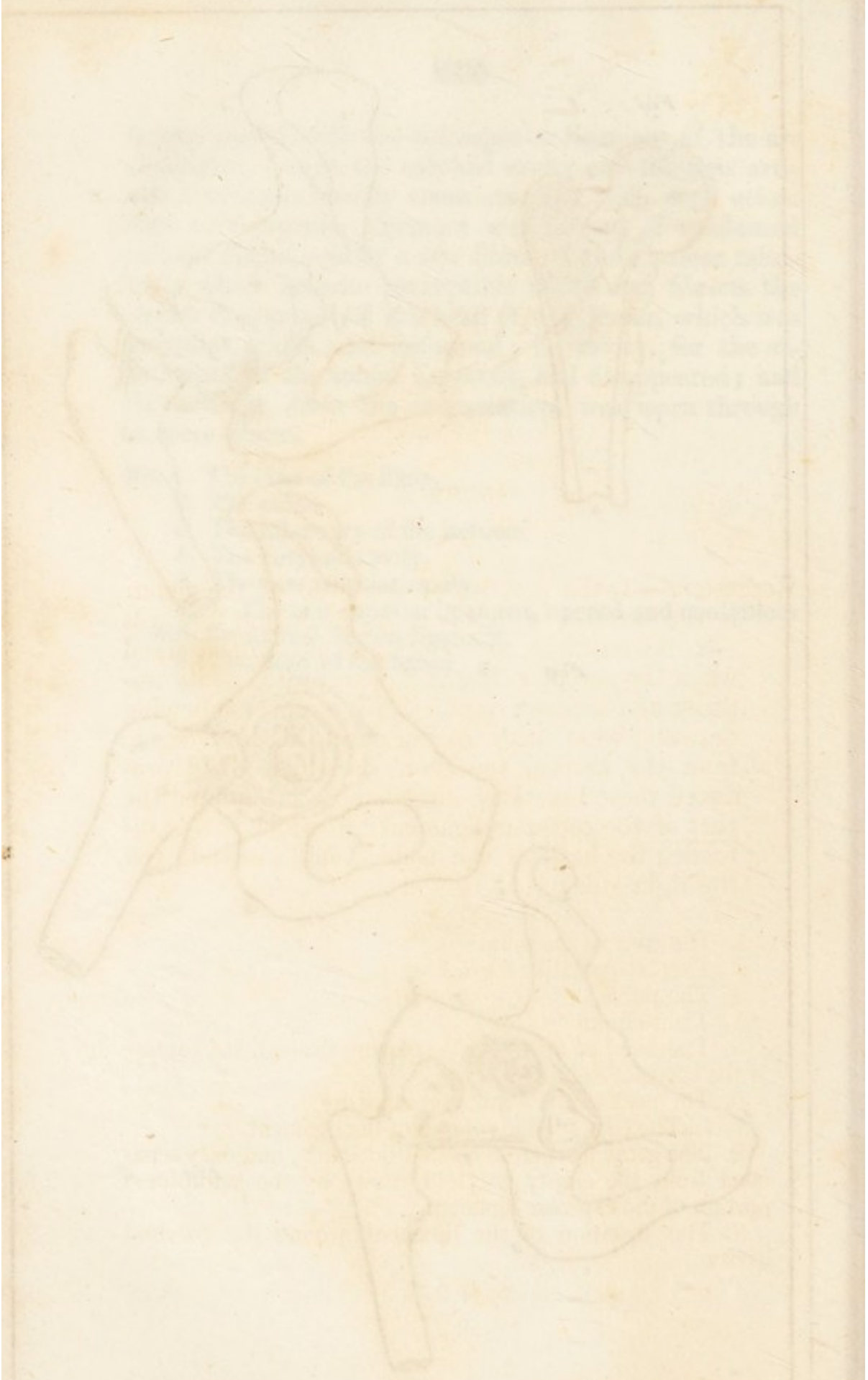

PLATE XXIV

FIGURE 1.

Represents—1, the position of the head of the femur in the luxation of that bone upwards and forwards —2, the condition and relations which are observed when the capsular ligament is ruptured at its anterior and superior part. This, and the following drawing, were made by my pupil, M. Dauvergne, from the natural specimens in which I had produced these luxations, after having attenuated the part of the capsular ligament, at which it was intended the head of the bone should protrude (on the right side).

No. 1. The crest of the ilium.
2. The external iliac fossa.
3. The pubis.
4. The ischium.
5. The head of the femur, appearing through the rupture of the capsular ligament.
6. The neck of the femur embraced by
7, 7. The edges of the rupture of the ligament.
8. The great trochanter rotated outwards, and only separated from the empty cotyloid cavity by the unruptured portion of the capsular ligament.
9. The insertion of the ligament around the cotyloid cavity.

FIGURE 2.

Represents—1, the position of the head of the femur, in the luxation of that bone upwards and backwards —2, the condition and relations, when the capsular ligament is ruptured at its posterior and superior part.

No. 1. The crest of the ilium.
2. The pubis.
3. The sub-pubic foramen.
4. The tuberosity of the ischium.
5. The head of the femur, luxated upwards and backwards into the external iliac fossa.
6. The anterior part of the capsular ligament, unruptured and forming a kind of bridle from the cotyloid cavity to the anterior part of the base of the neck of the femur, so as to maintain the rotation of the limb in that direction.
7. The great trochanter rotated forwards and inwards.

FIGURES 3, 4, 5, 6.

These four figures are intended to represent the comparative differences of length and rotation, which the inferior extremities exhibit in the four principal kinds of luxation of the head of the femur.

In Figure 3 the pelvis is represented with the two inferior extremities; that of the right side is in its natural state, in order to serve as a point of comparison with that of the left side, which is luxated upwards and forwards; as also with those of the other three figures, 4, 5, 6.

The pelves of these several figures are placed upon the same level, and a horizontal line passed through the articular surfaces of the knee of the sound limb, and prolonged through the dislocated limbs, in order to shew the elongation or contraction following the direction of their dislocation: the direction of the point of the foot sufficiently indicates, in each figure, the direction of the rotation of the limb in the different kinds of luxation.

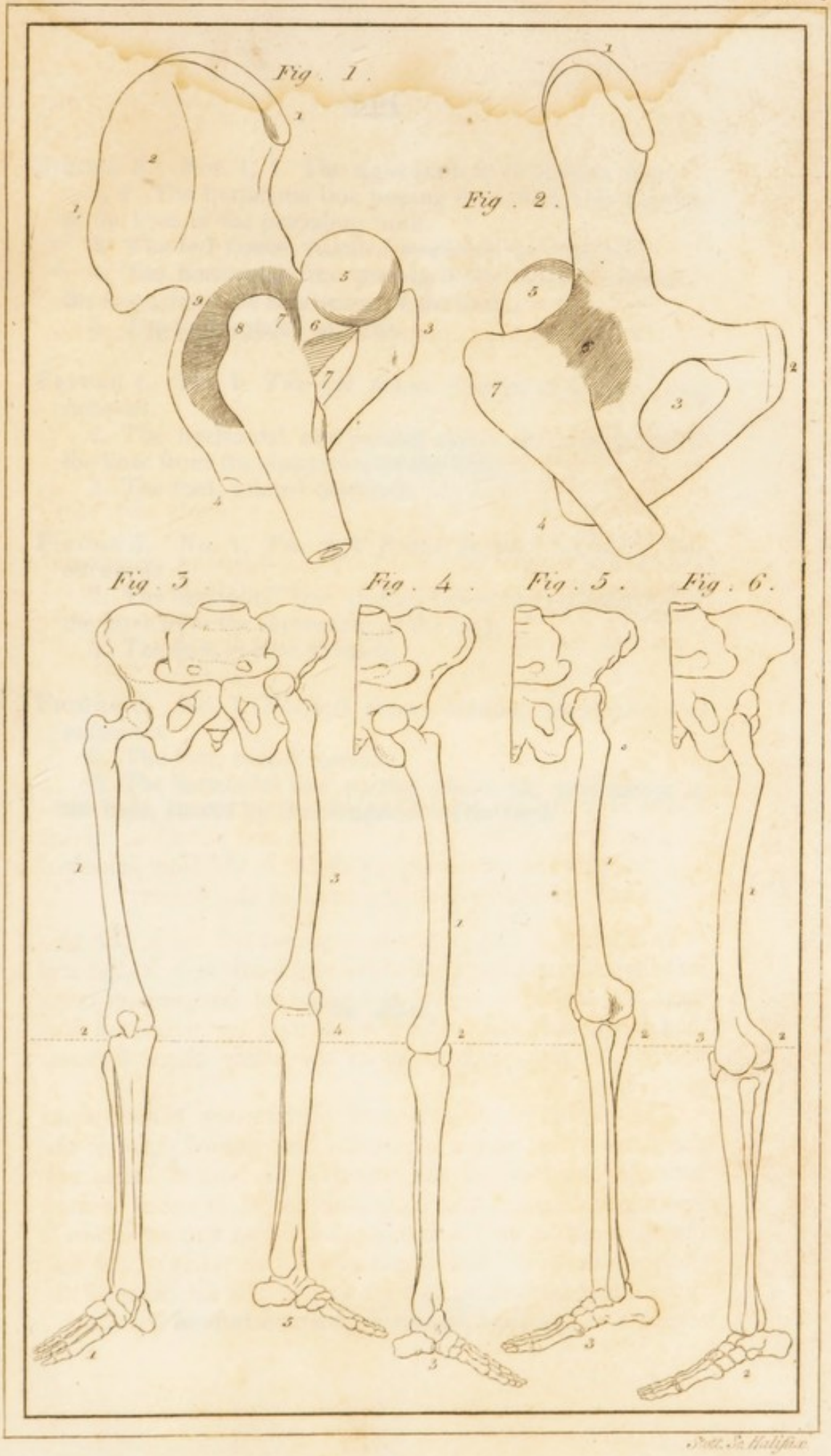
Fig. 1.
Fig. 2.
Fig. 3
Fig. 4.
Fig. 5.
Fig. 6.

FIGURE 3. Nos. 1, 1. The right limb in its natural state.
2, 2. The horizontal line passing through the articulation of the knee of the preceding limb.
3. *The left femur, luxated upwards and inwards.*
4. The horizontal line passing below the articulation of the knee, from the shortening of the limb.
5. The foot, rotated inwards.

FIGURE 4. No. 1. *The left femur luxated downwards and inwards.*
2. The horizontal line passing above the articulation of the knee from the elongation of the limb.
3. The foot, rotated outwards.

FIGURE 5. No. 1. *The left femur luxated upwards and outwards.*
2. The horizontal line passing below the articulation of the knee from the shortening of the limb.
3. The foot, rotated inwards.

FIGURE 6. No. 1. *The left femur luxated downwards and outwards.*
2. The foot, turned inwards.
3. The horizontal line passing above the articulation of the knee, caused by the elongation of the limb.

THE END.

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