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Thomas, T. Gaillard 1832-1903.
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Philadelphia : Henry C. Lea, 1869.

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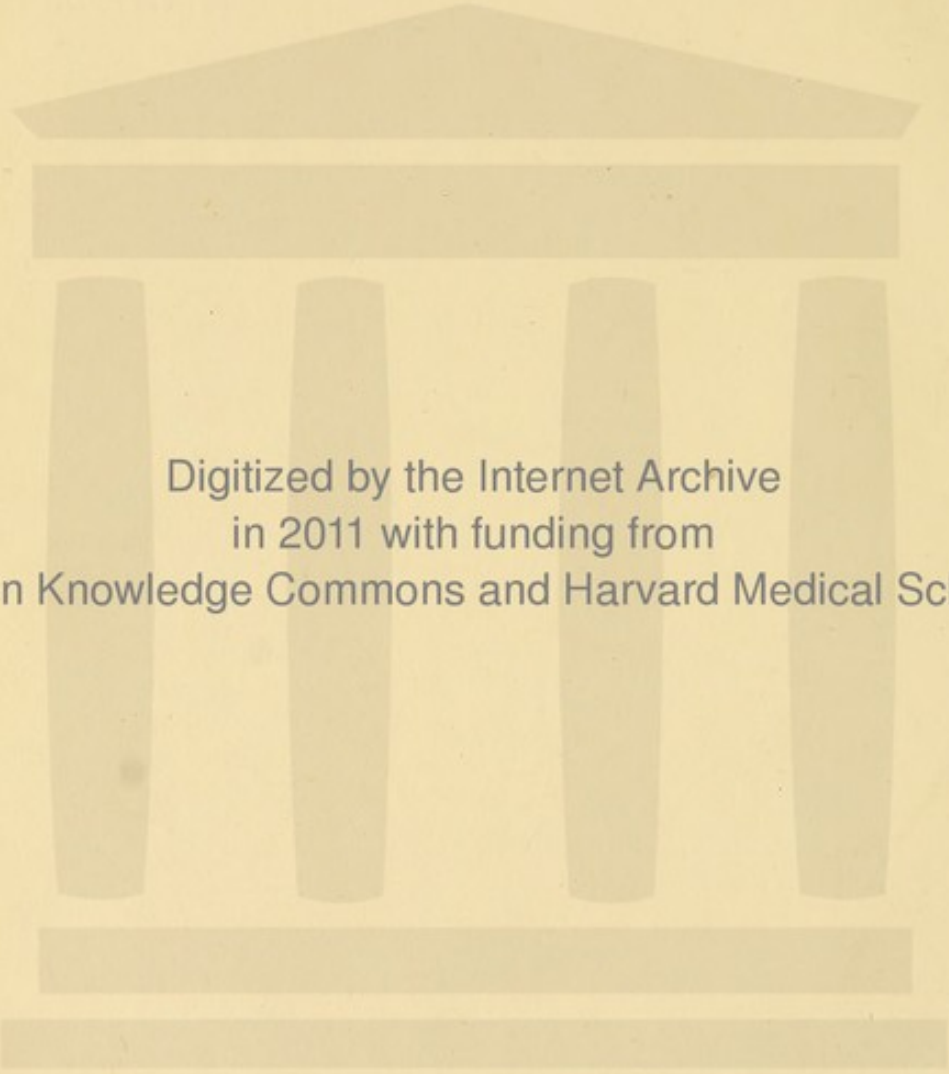
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A

PRACTICAL TREATISE

ON THE

DISEASES OF WOMEN.

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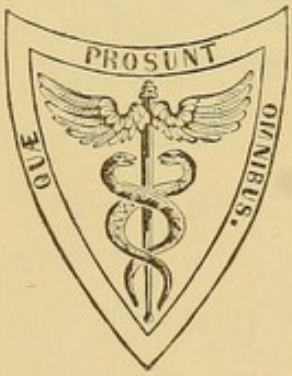
BY

T. GAILLARD THOMAS, M. D.,

PROFESSOR OF OBSTETRICS AND THE DISEASES OF WOMEN AND CHILDREN IN THE COLLEGE OF PHYSICIANS AND SURGEONS, NEW YORK; PHYSICIAN TO BELLEVUE HOSPITAL; CONSULTING PHYSICIAN TO THE STATE WOMAN'S HOSPITAL; LATE PRESIDENT OF THE NEW YORK OBSTETRICAL SOCIETY; MEMBER OF THE NEW YORK ACADEMY OF MEDICINE, OF THE COUNTY MEDICAL SOCIETY, ETC. ETC.

WITH TWO HUNDRED AND TWENTY-FIVE ILLUSTRATIONS.

SECOND EDITION, REVISED AND IMPROVED.



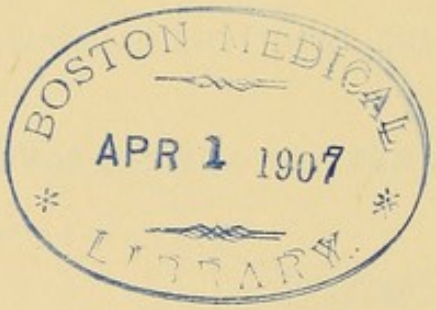
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TO

JOHN T. METCALFE, M.D.,

PROFESSOR OF CLINICAL MEDICINE IN THE COLLEGE OF PHYSICIANS AND SURGEONS, NEW YORK.

My Dear Doctor—

In the publication of this treatise I am secure of at least one pleasure, that of acknowledging my great indebtedness to you. Such an acknowledgment is usually merely a matter of compliment, but in my case it is more. Your conduct towards me from the first moment of our acquaintance has been such, that I find myself called upon, in simple justice, to confess that whatever of professional success has thus far attended me has been due much less to merit on my part, than to a generosity on yours which has known no bounds except those which I have been constantly forced to prescribe it. But not only has my connection with you yielded me many material advantages; a constant association with you has furnished one of the chief pleasures of my life, and the privilege of calling you friend has always been to me a source of pride.

What more can I ask for our relations for the future than that they may be as intimate as those of the past and equally free from any thought or word of reproach.

Very truly yours,

T. GAILLARD THOMAS.

PREFACE TO THE SECOND EDITION.

In a science so rapidly progressive as that of medicine, the profession has a right to expect that, when its approbation of a work is manifested by a call for a new edition, the author should respond by giving to his book whatever of additional value may be derivable from more extended experience, maturer thought, and the opportunity for correction. Fully sensible of this, the author of the present volume has sought by a careful revision of the whole, and by the addition of a chapter on Chlorosis, to render his work more worthy of the favor with which it has been received. Circumstances, however, have prevented him from rendering this revision in all respects as thorough as he could have wished. The first edition was so large that he reasonably anticipated ample time for the preparation of a second, and when, within six months after its publication, he was called upon to revise it for the press, the call found him unprepared, and the labor thus unexpectedly undertaken has had to be performed under the pressure of excessive professional duties. Even under these adverse circumstances, the author hopes that many imperfections have been removed, and that material of some value has been introduced.

He takes this opportunity of expressing his sincere gratitude to many of his *confrères* who have generously encouraged him

by their commendation and indorsement, and to acknowledge his indebtedness to Drs. James L. Brown, J. C. Nott, and Theophilus Parvin for valuable suggestions which have greatly aided in whatever improvement may be noticed in this edition.

No. 86 Fifth Avenue, New York,
March, 1869.

PREFACE TO THE FIRST EDITION.

THIS work was undertaken with the conviction that a treatise, such as that which the Author has aimed to prepare, was needed as a text-book for the American student and a book of reference for the busy practitioner.

No department of medicine has made greater advances within the last few years than Gynecology; yet the record of its progress is, for the most part, to be found only in special monographs, journals, transactions of societies, &c., which are inaccessible to the mass of the profession in this country. It has, therefore, seemed to the author that a volume which should, within a limited space, present the latest aspect of the subject in a systematic form, could scarcely fail to prove useful, while his position for the last thirteen years as a teacher in this department has encouraged him in the hope that his familiarity with the needs of the student may, to some extent, have fitted him to undertake the task.

In the preparation of the treatise the Author has, therefore, striven to be as concise and practical as possible, and to bring the subject up to the level of the most recent improvements. Many chapters will, probably, appear very short when the importance of their subjects is considered; but it has been his effort to condense within the narrowest limits all that is of real value in reference to the matters treated. In furtherance of this view some very rare conditions have been omitted, as, for example, Physometra and Hydrometra.

As the speciality of Gynecology is being rapidly separated

from its sister branch, Obstetrics, this volume has been devoted to diseases of the non-pregnant woman; such affections as phlegmasia dolens, puerperal fever, mammitis, &c., being properly referable to the province of the accoucheur.

The discussion of all unsettled questions has been avoided, the writer preferring to state the views which he regards as correct rather than to risk confusion by entering upon lengthy arguments.

The space allotted to historical sketches may be regarded by some readers as unnecessary; yet it has seemed to the Author that the information thus conveyed with respect to the progress of this art from the earliest times might not be unacceptable to the earnest student. At the same time, the Author would disclaim any pretensions to profound research by confessing that he has drawn largely upon contemporaneous writers for his facts. He has more particularly availed himself of the publications of Drs. H. G. Wright, of London, John Watson, of this city, Colombat de l'Isère, of France, and of Dr. Francis Adams's Notes to Paulus Ægineta. The works of Hippocrates, Paul of Ægina, Aëtius, and some others have, indeed, been constantly by his side, but many which have been referred to have been quoted through modern writers.

The Author takes much pleasure in acknowledging his indebtedness to Dr. B. F. Dawson, of this city, for material assistance in preparing the work for the press.

February, 1868.

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THE

DISEASES OF WOMEN.

CHAPTER I.

HISTORICAL SKETCH OF UTERINE PATHOLOGY.

NOTHING adds more to the interest of the student who investigates the present condition of any department of science than a knowledge of what was done in reference to it, and what was known concerning it in previous ages. This alone would be sufficient to call for the present chapter in advance of others of a more practical character. Any attempt, however, at a full and complete review of this subject would be out of keeping with the plan of this work.

That a knowledge of medicine as a science was possessed by the ancient Egyptians there can be no doubt, since Pliny informs us that in the time of the Ptolemies a medical school was established at Alexandria, and dissections of the human body commanded. As to the extent of their acquaintance with it, however, we have no information, as the literature of that remarkable people has been entirely closed to us, until, within a few years past, the genius of Champollion has discovered a key for its comprehension.

Thus far the deciphering of papyri and tablets has failed to enlighten us as to any knowledge which they possessed in Gynecology; though we may reasonably hope for such a result in the future, as Herodotus[1] distinctly announces the fact of specialties existing among them. "Here," says he, "each physician applies himself to one disease only, and not more. All places abound in physicians; some for the eyes, others for the head, others for the

[1] Book II. c. 84.

teeth, others for the parts about the belly, and others for internal diseases."

From Hebraic literature, which is so abundantly at our command, we learn almost as little upon our subject; and from the time of Moses, about 1500 B. C., to that of Hippocrates, 400 B. C., all testimony of knowledge upon it is utterly wanting. And yet the learning which the latter evinces in reference to it was surely handed down to him from previous ages, for the Greeks were instructed by the Egyptians, as the Romans subsequently were by the Greeks.

With the writings of Hippocrates commences the literature of Gynecology. He devoted three volumes to it, in which he discusses metritis, induration, menstrual disorders, displacements, &c. Aretæus, Galen, Archigenes, and Celsus, who probably lived in the first and second centuries, all treated of the subject; the first describing accurately the vaginal touch, the varieties of leucorrhœa, and ulceration of the womb; while the second makes the first allusion on record to the speculum vaginæ, as being a distinct instrument from the speculum ani, and the third gives an excellent description of peri-uterine cellulitis.

From this time, for centuries, there is abundant evidence that the study of the subject was pursued with vigor, but so many of the works of the authors of those periods exist only in fragments, and so many are strongly suspected of being fictitious, that we pass them over to stop at the faithful compilation of Aëtius,[1] who flourished at Alexandria in the sixth century after Christ. His works, compiled in the great library at Alexandria, contain a digest of what was known and done by his predecessors and contemporaries, and offer the fullest and most reliable evidence concerning the knowledge of those times. In quoting him, and his immediate successor, Paulus Ægineta, who was also a compiler, though a far less conscientious one, I must be understood as recording, not the views of these individuals, but those entertained by physicians who lived from the time of Hippocrates to the time of their writing, a period of about one thousand years.

In his XVI. book Aëtius treats of the diseases of women in such

[1] I am indebted to the library of the N. Y. Hospital for an opportunity of fully consulting this and other rare works which were accumulated by the late Dr. John Watson.

a manner as to leave no doubt as to his having had a thorough knowledge of many disorders and means of investigation and treatment, which being rediscovered thirteen hundred years afterwards, have, in many instances, been regarded by us as entirely new. Thus he speaks of the speculum, sponge-tents, peri-uterine cellulitis, medicated pessaries, vaginal injections, caustics for ulcers of the cervix, dilatation of the constricted cervix, a sound for replacing the uterus, &c.

As I have already stated, Galen speaks of the speculum vaginæ in the second century; but Aëtius still more clearly mentions it and gives rules for its introduction, which are copied almost verbatim by Paulus without acknowledgment. The use of sponge tents he very fully describes, telling of their mode of preparation, and even advising that a thread should be passed through them, for removal, and that a succession of them should be employed till complete dilatation is accomplished.[1] The importance of injections, the douche, hip-baths, and application of caustics to ulcers of the cervix, he also dwells upon, and advises the dilatation of a constricted cervix by means of a tin tube. The variety of vaginal injections in use among the Greeks was as great as that of to-day. As astringents, pomegranate rind, galls, plantain, rose oil, alum, sumach, &c., were employed, and as emollients, linseed, poppies, barley, &c., exactly as we use them now. Upon the use of medicated pessaries they relied to a great extent in the cure of ulcerations and inflammatory engorgements, employing wool covered with wax, or butter mixed with saffron, verdigris, litharge, &c. Octavius Horatianus even goes so far as to advise a mixture of arsenic, quicklime, and sandarach in very foul ulcers. In addition to injections and pessaries, Aëtius mentions the use of vapor, medicated or simple, conducted to the cervix by means of a reed passed up the vagina.

The use of a uterine sound, passed into the uterus and employed as a repositor, is likewise alluded to by this author, in a passage where he advises that displacements of the uterus should be corrected *specillo et digito*.

Paul of Ægina, who succeeded Aëtius, alludes distinctly to the speculum as an instrument in general use before his time. "If, therefore," says he, "the ulceration be within reach, it is detected

[1] Dr. H. G. Wright, Med.-Chir. Rev., No. lxxi.

by the dioptra; but if deep-seated, by the discharges." And again: "The person using the speculum should measure with a probe the depth of the woman's vagina, lest, the tube of the speculum being too long, it should happen that the uterus be pressed upon."

It is curious to see how, even in many minor matters, the ancients anticipated discoveries which our contemporaries have brought forward as entirely new. For example, the air-pessary, made so popular in France and other countries by Gariel, is described and recommended by the Greeks. Colombat[1] declares that "the ancient Greek physicians made use of pessaries like those just mentioned (air-pessaries), of the form and length of the male organ, which is the reason why they are called πριαπισκωτα, or priapiform pessaries." Albucasis, in 1104, advised the use of an inflated pig's-bladder for the same purpose. The last-named author also describes herpes uterinus, and uterine hæmorrhoids are alluded to by Paulus Æginetа[2] in this explicit manner: "Hæmorrhoids form about the mouth and neck of the uterus, which will be discovered by the speculum." And thus it is with so many other modern suggestions, that the student of ancient medical literature is most willing to admit the truth of the proposition, formulated by Aristotle over two thousand years ago, that "probably all art and all wisdom have often been already fully explored and again quite forgotten."

The learning of the Greek School was appropriated by the Roman, which was an offshoot from it, as the writings of Celsus, Aspasia, Moschion, and Antyllus abundantly testify. But the knowledge of the schools of Greece and Rome was destined to be scattered abroad. At the period of the subjugation of Egypt and the destruction of the celebrated library at Alexandria by the Saracens, A. D. 640, it passed as a trophy of war into the hands of the Moslem invaders. "In a few centuries the fanatics of Mohammed had altogether changed their appearance," says the learned Draper.[3] "When the Arabs conquered Egypt, their conduct was that of bigoted fanatics; it justified the accusation made by some against them, that they burned the Alexandrian library for the purpose of heating the baths. But scarcely were

[1] Diseases of Females, Meigs' translation, p. 152.

[2] Sydenham Society's edition, vol. i. p. 645.

[3] Intellectual Development of Europe, p. 285.

they settled in their new dominion, when they exhibited an extraordinary change. At once they became lovers and zealous cultivators of learning." The physicians of Alexandria were greeted by them as instructors, and from the seed thus planted sprang up the Arabian School. With other information, of course, they gained that pertaining to Gynecology, but, the Mahomedan laws forbidding the examination of women by one of the opposite sex, the study languished in their hands; and although Rhazes, Avicenna, and their successors copied from Greek writers upon it, a want of zeal, due to want of personal observation and experience, allowed a retrograde movement to occur which left the subject enveloped in darkness for centuries afterwards. Albucasis, one of the last of this school, flourished at the end of the eleventh century, and after him, although from time to time writers of greater or less merit on diseases peculiar to women appeared, nothing worthy of special note occurs, except the occasional allusion to the speculum, which had evidently fallen almost entirely into disuse.

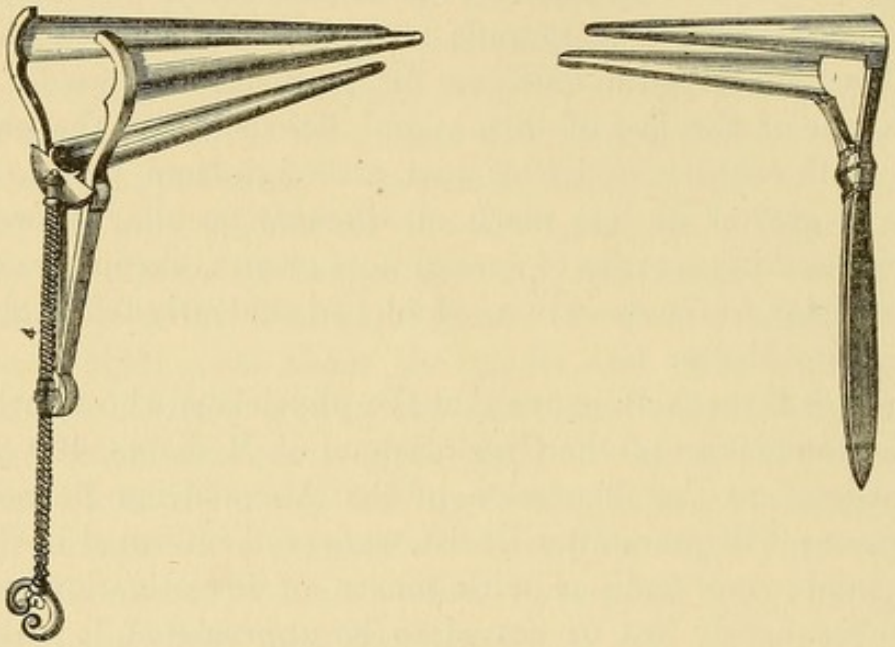
Although these facts prove that the physicians who flourished from the foundation of the Greek School of Medicine, 400 years before Christ, to the dispersion of the Alexandrian School by the Saracens, 640 years after Christ, were well informed in Gynecology, and were familiar with means of investigation which were subsequently lost or ceased to be appreciated, it must by no means be supposed that their knowledge was of the same exact and scientific nature as that which has prevailed since the modern introduction of the speculum. They did not sufficiently separate inflammations of the pregnant and non-pregnant uterus, confounded affections of that organ with those of the pelvic areolar tissue, and made no distinctions between mucous and parenchymatous metritis and morbid states of the neck and body. Among their remedies were numerous articles which to-day we regard as inert or even injurious—as pigeon's dung, woman's milk, stag's marrow, &c.; and Aëtius and Paulus seem to have been as partial to the "grease of geese" as our Milesian population is at present.

The learning of the Arabians was in time, as that of the rest of the world, gradually enshrouded by the ignorance and superstition of the period termed the "Dark Ages." During that time many of their writings, like those of the Greek and Roman

schools, were destroyed or lost; but as society emerged from the darkness which overshadowed its intelligence, we see the thread at once taken up and followed, though languidly and without vigor, to the beginning of the nineteenth century.

Toward the middle of the seventeenth century we find very special and full allusion made to the speculum and its uses by Ambrose Paré and Scultetus; the instrument being very well represented by diagrams, with descriptions attached.

Fig. 1.



Ancient valvular specula. (Scultetus.)

"Fig. 1," says the author, "is an instrument which they call 'speculum ani et vaginæ uteri,' in that by its help ulcers of the rectum, vagina, and uterus may be seen, to be carefully observed according to their extent and kind." (*Scultetus.*)

Aëtius and Paulus evidently knew of a tubular speculum, since they say, "lest the tube of the speculum be too long," &c.; but Scultetus figures a bi-valve and quadri-valve closely resembling those in our hands at present. It is worthy of mention, in this connection, that there is now preserved in the Museo Borbonico at Naples a bi-valve speculum which was removed from the ruins of Pompeii.

It has already been stated that Aëtius makes an obscure reference to a sound for replacing the uterus. This is by no means the first notice of this useful instrument, for it is repeatedly mentioned by Hippocrates, and Avicenna, the Arabian, likewise

alludes to it. Prof. Simpson[1] asserts, however, that it was used only for dilatation of the cervix, and not for exploration and measurement. In 1657 a probe, used as we now employ the uterine sound, and intended especially for uterine exploration, was actually described by Wierus,[2] and alluded to by Hilken, Cooke, and others.

As we pass in review the chief works which appeared upon our subject in the eighteenth century, we find frequent mention of the speculum, which is spoken of as a matter of course in the treatment of uterine affections, and yet was evidently not so employed as to render it really a valuable aid in diagnosis or treatment. This constitutes one of the most curious episodes met with in the history of any discovery with which we are acquainted. A most simple and useful instrument was not only well known in ancient times and subsequently fell into disuse, but fell into disuse without having ever been really forgotten. It was described by successive writers up to the nineteenth century in language as distinct as words could make it, and yet not only did they who read, but they who wrote it, not comprehend its meaning or appreciate its significance. Like the Indians possessed of the diamond, all saw and yet none valued. How could Ambrose Paré, for example, writing in 1640, have indicated its use more clearly than when he tells us, in chapter xix., that ulcers of the womb may be recognized, "by the sight, or by putting in a *speculum*"? In a copy of his works in the library of Dr. W. A. Hammond the word speculum is italicized in this sentence. Scultetus, as we have seen, not only described but figured the instrument in 1683.

In 1761, Astruc,[3] "Royal Prof. of Physic at Paris," in describing occlusion of the vagina and obstruction to the menstrual flow, says: "There is nothing more required than to examine the vagina by introducing the finger into it, rubbed previously with oil or pomatum; but, if that be not sufficient, a *speculum uteri* may be used, or some other more simple instrument for dilatation, in order to be able, by means of the dilatation of the vagina, to judge by the sight of what the touch could not decide."

[1] Obstetrical Works.

[2] Dr. H. G. Wright, *loc. cit.*

[3] Dis. of Women, Eng. ed., vol. i. p. 135.

In 1801, forty years after this, Récamier is supposed by many to have discovered the speculum. Nothing is farther from my mind than the wish to cast the slightest discredit upon the integrity of the labors of this great man, who was really the founder of the modern school of Gynecology; but after the evidence which I have adduced, I feel fully justified in asserting that the instrument was not his discovery. Guided by the advice found in many works which his library must have contained—works with which to suppose him not to have been perfectly familiar, would be to cast a slur upon his medical research—he employed a speculum vaginæ in 1801. Like his predecessors, he did not appreciate the great results which were to flow from it; nor did he appear to have regarded himself as having invented it. It was not until 1818 that he introduced it to the profession, and gave it its place as a valuable addition to science. Can any one suppose that it could have required seventeen years of experimentation and study for a man with the talent of Récamier, to have applied this simple and useful instrument to purposes of utility? Is it not more likely that the experience of seventeen years taught him the full value of the instrument? The credit which belongs to Récamier is not that of a discoverer, but that which is equally great, of having recognized the value of what was well known, but badly appreciated before his time.

Even before this fortunate revival, as the eighteenth century approached its close, the glimmer of the new era which was about to dawn could clearly be detected in the advanced views which were promulgated by Garangeot and Astruc in France, and Denman, John Clark, and Hamilton in England. The early part of the nineteenth century found the field occupied chiefly by Sir Charles Clarke and Dr. Gooch in England, and Récamier and Lisfranc in France. These were not the only eminent writers of that time, but they were unquestionably those who chiefly moulded professional opinion.

Even at that period Gynecologists ranged themselves into two parties, which, so late as at our day, have scarcely coalesced. In England the feeling was strongly in favor of regarding the local disorder as the result and not the cause of concomitant constitutional derangement: while in France the uterine disease was viewed as the main element, and the general condition as dependent upon and resulting from it.

The great advantages of the speculum secured its rapid adoption in France. More slowly it forced its way, in spite of many prejudices, into Great Britain, and before a great many years had passed, it was, throughout the civilized world, placed upon an enduring basis as one of the boons bestowed by medicine upon humanity. The way being opened for investigation by this instrument, new aids to diagnosis and treatment were rapidly advanced. In 1826 Guilbert read before the Academy of Medicine of Paris an essay proposing the application of leeches to the cervix. In 1828 Samuel Lair read before the same body a paper in which he counselled the use of the uterine sound. In 1832 M. Melier presented an essay, in which he offered two new suggestions in the treatment of uterine diseases—one, injections into the cavity of the cervix; the other, local applications in the vagina by dossils of lint saturated with astringents, narcotics, &c. His views are quoted extensively by French writers, and Nonat says that the author recognizes, "avec une franchise qui l'honore," that Boyle, Chaussier, Guillou, and others, had a short time before him used similar means. Very curiously neither Melier nor his commentators mention that both these suggestions are made and fully elaborated by Astruc, in his excellent article upon "Ulcers of the Uterus." He describes these applications of medicated charpie very carefully, remarking that it is advisable to "tie a thread to every pledget, in order to draw it out again when it is proper to renew the dressing." And he not only advises injections of water, impregnated with different substances, into the cavity of the womb, but also the juices of plantain, houseleek, nightshade, &c. "For," says he, "as it is of consequence that these injections should enter into the uterus, where the ulcer has its seat, it is proper they should be made by a professor of midwifery, capable of introducing skilfully the end of the canula into the orifice of the uterus," &c.

At this time arose the question as to cancer of the uterus, whether it was the local manifestation of a general blood state, or the result of an inflammatory engorgement long neglected; a question which excited warm discussion, and brought forth the most opposite views.

The ambition of Récamier was not satisfied with exposing the cervix uteri to view. He had the boldness to explore the cavity of the body of the organ, almost establishing the use of the

sound, and even, by means of a species of scoop called a curette, ventured in certain cases to scrape off its investing mucous membrane. In addition he described, through one of his students, pelvic cellulitis, and gave the first intimation which modern observers have had of the possibility of pelvic hæmatocele.

These discoveries on the part of the French physician mark an era in Gynecology; one no less important was created by the appearance in the field of labor of Professor, now Sir James, Simpson, of Edinburgh. About the year 1843 he rapidly developed and recommended to the profession several of the most important means of diagnosis now at our command. The utilization of the uterine sound, which Lair had never succeeded in introducing into general practice, and the dilatation of the canal of the cervix by sponge-tents, so that the body may be examined, are both due to his genius and enterprise. He likewise contributed from time to time original and valuable papers upon pelvic cellulitis, hæmatocele, uterine flexions, &c. His articles, indeed, first excited the study of uterine displacements in Great Britain, and to his efforts may be traced, in a great degree, the interest which has been of late years aroused in that country with reference to uterine pathology. Until this time the subject had attracted very little attention there, and advances which had been made in it were due almost entirely to French pathologists. It is true that the excellent work of Sir Charles Clarke existed; but that warm and zealous interest which has since resulted in so much benefit to Gynecology, had not then been excited. But Prof. Simpson was not alone in this work. Dr. J. H. Bennet, of London, at that time a young physician, who had for some years served as *interne* in the hospitals of Paris, returned to his own country imbued with the views which Récamier and Lisfranc had disseminated among a large circle of followers. In 1845 the first edition of his work on Inflammation of the Uterus appeared, and it is safe to assert that no work of modern times, written upon any subject connected with our profession, has exerted a more decided and profound influence. Taking up the subject with a vigor and energy which forced attention, if not conviction, he produced an undeniable impression upon the profession, not only in his own country, but in Germany, France, and America. However others may differ from him, no candid mind can deny him the obligation under which he has placed his brethren by

arousing their attention and directing their investigations into proper channels. The chief points insisted upon in his work are these: 1. That inflammation is the *primum mobile* in uterine affections, and that from it follow, as results, displacements, ulcerations, and affections of the appendages. 2. That menstrual troubles and leucorrhœa are merely symptoms of this morbid state. 3. That in the vast majority of cases, inflammatory action will be found to confine itself to the cervical canal, and not to have affected the cavity of the body. 4. The propriety of attacking the disease in its habitat by strong caustics.

About this time a discussion sprang up between Dr. Bennet on one side, and Drs. Robert Lee, West, and Tyler Smith on the other, with reference to the true character of ulceration of the neck; Dr. Bennet supporting the view that the cervix is often affected by inflammatory ulceration, and his opponents denying it. The discussion, looked at calmly by posterity—nay, even at the present time—will be pronounced a polemic disputation, which has not served to clear up the subject, nor to have accomplished any really good end.

One further benefit which Dr. Bennet conferred in his work, was in placing upon a surer basis than it had yet occupied, the differentiation of inflammatory engorgement and induration from commencing cancer of the neck.

It would be well, before proceeding farther, to state as succinctly as possible the different pathological views which from this time, and even somewhat before it, were offered to the profession, and more or less generally adopted.

They may be thus enumerated:—

1st. That inflammation is the starting point of most of the affections of the uterus, and that a large number of evils follow this morbid state as results.

2d. That uterine disorder is dependent upon a constitutional derangement, and would yield without other treatment than that directed to the removal of the general condition.

3d. The view of Dr. Bennet, which is similar to the first mentioned, with this additional point, that metritis generally limits itself to the neck, and only exceptionally affects the body.

4th. The view of Dr. Tyler Smith, that leucorrhœa arising from glandular inflammation in the cervix is the cause of granular degeneration of this part, and of subsequent engorgement.

5th. The view that uterine disorders often, if not generally, commence in displacement, which is a primary and not a secondary condition, and that to relieve the train of morbid symptoms, this, its exciting cause, should be first removed.

6th. The view that uterine disorder is commonly the result of ovarian inflammation, which reacting on the womb is the prime mover, in many cases, of its morbid states.

I have no intention of discussing here the merits of these theories, but will limit myself to a few words connected with the history of each.

The theory mentioned first in this enumeration is the oldest on record, the writers of the Greek School, even, adopting it. Thus Paulus Ægineta heads his chapter on the subject, "Inflammation of the uterus and change of its position." One of the symptoms of such inflammation he considers to be retroversion of the uterus. In the beginning of the present century this was generally accepted in France. Lisfranc and Récamier adopted it, and it was transferred to, and advocated in, Great Britain by the writings of Dr. Bennet. I do not believe that I state too much in asserting that the great majority of Gynecologists in this country accord in it; though of course I admit that the statement is open to error, as every other statement of this kind is when not fortified by statistical proof.

No one can devote himself to the practical study of uterine diseases without being impressed with the strong grounds which exist for the maintenance of the second of the theories mentioned. No grave uterine trouble affects the system for any length of time without reacting to a greater or less extent upon the general health. The nervous system becomes greatly disordered, the functions under its influence are badly performed, and derangement in hæmatosis is the invariable result. As the local disease often approaches stealthily, and may exist for a length of time without exciting suspicion, what is more natural than that many should view it as one of the numerous results of the general depreciation? These three facts, however, which will constantly repeat themselves, as often, I may say, as favorable cases offer for testing the question, will, I think, very generally lead to a distrust of the doctrine: 1st, the fact that uterine disease and constitutional derangement existing together, a cure can rarely be effected by general means alone; 2d, that the uterine affection

being removed, the general state is at once improved; and, 3d, that those general conditions which prostrate the vital forces to the last degree, as, for instance, tuberculosis, uræmia, scurvy, leucocythemia, &c., destroy life without ever showing, unless as an exception, the local disease as "a fragment of the constitutional malady."

The third of the theories mentioned has been already sufficiently spoken of. Those parts of it which are peculiar to Dr. Bennet will be fully dealt with elsewhere.

The theory of Dr. Tyler Smith[1] I lay before the reader in his own words: "It is my conviction, notwithstanding, that in the majority of cases in which morbid states of the os and cervix are present, cervical leucorrhœa, or, in other words, a morbidly augmented secretion from the mucous glands of the cervical canal, is the most essential part of the disorder, and that the diseased conditions of the lower segment of the uterus, which have been made so prominent, are often secondary affections resulting from the leucorrhœal malady." This theory was by no means a new one, when advanced as above mentioned, for Lisfranc[2] mentions it thus: "Observation proves that leucorrhœa can in the first place cause uterine engorgements, and that later it may be kept up by them; it occasions them often."

Lisfranc, however, says "often," while Dr. Smith says, "in the majority of cases." But even before Lisfranc it had attracted attention, for Paulus Ægineta[3] gives "defluxion" as one of the causes of "ulceration of the womb." That an acrid leucorrhœal discharge will create abrasion of the os, follicular vaginitis, urethritis, pudendal inflammation, and pruritus, no one will deny, for we see a similar irritation occurring on the upper lip in nasal catarrh in children, which sometimes spreads as an eruption over the whole face. The leucorrhœa regarded by Dr. Smith as the primary disease is only a symptom of cervical endometritis, which may cause inflammation in the deep tissues of the cervix, and result in enlargement and induration. The views of Dr. Smith were brought forth at a time when Dr. Bennet was pressing the theory of inflammation as the keystone of uterine pathology, and in combating the idea of parenchymatous inflammation, he merely

[1] On Leucorrhœa.
[2] Clin. Chirurg., vol. ii. p. 303.
[3] Op. cit., p. 624.

recorded the fact that it is often preceded by, and results from the same process taking its rise in the mucous lining of the canal. Dr. Smith's position was maintained with all that ability and force which have rendered him so popular as an author amongst us in America, and the influence of his writings upon uterine pathology can be at present clearly traced in this country.

In the year 1854 a discussion, which soon assumed extensive proportions and elicited great warmth, arose in the Academy of Medicine of Paris, with reference to the treatment of uterine displacements. M. Velpeau stood forth as champion of the view which is here expressed in his own words. "I declare, nevertheless, that the majority of the women treated for other affections of the uterus have only displacements, and I affirm that eighteen times out of twenty, patients suffering from disease of the womb, or of some other part of this region, those for instance in whom they diagnose inflammation (engorgements), are affected by displacements." In this and subsequent discussions he was upheld by some of the first physicians of Paris, and by many the view then expressed is still adhered to. It has resulted in a vast number of mechanical contrivances, called pessaries, to restore the organ to its place in the hope of thus striking the pathological series at its root. Intra-uterine, vaginal, and abdominal supporters have been employed, and attempts have been made to offer support even through the rectum.

I was present during the discussion in Paris in 1854, and being engaged in the report of it for an American medical journal,[1] paid strict attention to its progress. Influenced by the arguments which it elicited, and by the teachings of Valleix, whom I daily followed at La Pitié, I was convinced of the truth of Velpeau's position. Experience, however, has led me to dissent from it. I have found most of my cases of displacement, which were attended by evil symptoms, to be accompanied by marked evidences of inflammation; have found them usually susceptible of no permanent benefit from replacement; and have obtained relief from the symptoms for which I was called, chiefly by means which cured uterine inflammation. I have noticed that similar displacements almost invariably result from inflammation which commenced when the uterus was in its proper place; and have

[1] The Charleston Medical Journal for 1854.

seen complete retroversion of the womb, where no inflammation existed, produce, after the patient had become accustomed to it, no symptom.

These observations have led me to discard the belief in the mere dislocation as being commonly the cause, and induced me to regard it as generally a result, of inflammation.

In making this statement I am not, however, disposed to deny the occasional morbid agency of uncomplicated displacement which may have resulted from inflammatory action, which has entirely passed away, or from force suddenly or gradually applied, or from loss of power in some of the uterine supports. A source of error which may arise in such cases as to the primary link in the chain of disease, exists in the fact that a displacement induced by the second or third of these causes will sometimes create congestion, inflammation, and ulceration of the uterus.

The peculiar and very marked sympathy existing between the uterus and ovaries has given rise to the theory mentioned last in the enumeration. I meet very often, as I suppose every practitioner does, with cases of simple, uncomplicated uterine disease in which the patient has been treated for ovarian disorder, which is presumed to have been the cause of the uterine ailment. So often do I meet them, indeed, that I cannot but regard the belief in this view as very prevalent in America. Frequently it is used as a cloak for ignorance, the physician fixing upon it from his inability to elucidate the real pathological features of the case. At other times sensitiveness over the ovaries, with enlargement, is regarded by capable men as producing a series of evils, no special attention being paid to coexisting metritis, which is viewed merely as a complication. There can be no doubt that ovarian inflammation, which is clearly diagnosticable, gives rise to many of the symptoms of uterine disorders, but under these circumstances a carefully made differential diagnosis will generally settle the point. Nor is it less certain that uterine diseases very frequently produce sympathetic trouble in the ovaries, resulting in great sensitiveness upon pressure, and sometimes enlargement. As, however, in this case no treatment directed to the ovaries will remove existing uterine disease, while curing the latter will generally remove the ovarian affection, it appears to me that in the present state of our pathological knowledge we are forced to conclude that if certain symptoms diagnostic of uterine or ovarian

disease exist, and an examination shows a uterine lesion, with evidences of ovarian enlargement and sensitiveness, it is safe to decide that the latter state is the result of the former; but if no uterine disease is discoverable, and the ovarian symptoms alluded to exist, we are warranted in believing that ovarian disorder gives rise to them.

Of late years rapid advances have been made in the surgical treatment of the diseases of women. Under the lead of Marion Sims, Spencer Wells, Baker Brown, Clay of Manchester, Emmet and Bozeman of New York, and the Atlees of Philadelphia, operations for ovariotomy, the cure of ruptured perineum, vesico-vaginal fistulæ, constriction, or tortuosity of the cervix, &c., have been perfected and are now in constant practice.

France and Great Britain have laid the world under obligation by the advances made during the last half century in Gynecology. Germany has done little in comparison, though works which are pronounced of great merit, by those to whom this literature is open, have been produced by Siebold, Mende, Meissner, Kiwisch, Lumpe, and Oppolzer. The work of Scanzoni, translated by Dr. Gardner, of this city, is well known to all, and Dr. John Clay, of Birmingham, has rendered service by his able translation of the chapters of Kiwisch's work on the "Pathology and Treatment of the Diseases of Women," which relate to affections of the ovaries.

It is a great source of pleasure to me before closing this sketch to be able to record the fact that America has not been wanting in her contribution towards the progress of this branch of medicine. It is to this country that is due the credit, not only of the first performance of ovariotomy in 1809, by Dr. Ephraim McDowell, of Kentucky, but its subsequent development into a systematic operation by his compatriots. It was never even attempted in Great Britain until 1823. No successful case was ever performed in London until 1842, in Scotland only one successful case was reported up to 1862, and in Ireland, at that time, not one success was on record.[1] In the mean time it had taken deep root in America; even as early as 1830 Dr. McDowell having performed it thirteen times, with eight favorable results, and before 1862 Dr. Atlee had achieved that eminence, as an operator, which he now enjoys.

[1] Peaslee on Ovariotomy.

Systematic works upon Gynecology of great merit have been issued by Meigs, Hodge, Bedford, Sims, Byford, Elliot, and Emmet. It would be inappropriate for me to speak lengthily here in praise of these, but all who know them will admit the justice of the statement that each possesses a marked individuality, and that each has aided in the advancement of the science of which it treats.

I have elsewhere called the results of the labors of Récamier and Simpson eras in the progress of this department. I now venture so to style those of Marion Sims. In doing this I make no reference to the improvements inaugurated by him in the treatment of injuries to the genital organs; my allusion is to the great advantages which now flow and are to flow from the invention of his speculum, which exposes the uterus by a new principle, and opens the way to a more complete examination of that organ. Récamier marked an era by improving our powers of diagnosis in exposing the cervix uteri; Simpson another, by opening to investigation the body of the uterus; and Sims a third, by rendering both investigations more simple, complete, and satisfactory. The ordinary specula in use before the discovery of Sims's simply separate the vaginal walls mechanically, and thus expose the uterus. Sims's instrument, on the other hand, elevates the posterior vaginal wall, which allows the entrance of air to distend the whole passage, the woman lying on her side in such a manner that the cavity can be probed with the most perfect ease, and applications made to the fundus. I am fully aware that many will differ from me in this opinion, but being entirely free from prejudice in favor of this instrument, or against the ordinary varieties, I maintain it fearlessly, feeling confident that time will prove it to be correct. No one who has not tested the two methods of examination is really entitled to an opinion upon the point, and I cannot doubt the conclusion of him who has done so faithfully and intelligently.

Within the last twenty years a vigorous attempt has been made to open the field of Gynecology to female labor, and to place it and its sister branch, obstetrics, to as great an extent as possible, under the management of female practitioners. For this purpose female medical colleges have been established in Geneva, New York, Philadelphia, and other cities of America; and of late the English journals inform us of the foundation of one in

London. In France a proportion of the work has, for a long time, been allotted to the "Sages Femmes," or midwives. Many of those who foster the attempt appear to regard it as a novel one, and reiterate the assertion that woman has never been allowed a fair trial in this, her most appropriate sphere of action. This is a great error. Not only has the way been open to her as competitor with man, but at times it has been almost entirely relinquished to her keeping. If success has not attended her efforts, it has been due, not to want of opportunity, but of capacity or adaptation. Aëtius makes mention of the writings and practice of Aspasia, who was a doctress at Rome about the third century, and copies extensively from her upon ulceration and displacements of the womb. Paulus Ægineta is, for some of his chapters, indebted to Cleopatra, fragments of whose writings he has preserved to us. He evidently quotes her with respect and credits her with what he borrows. In the thirteenth century an Arabian woman, Trotula by name, published a treatise, in which she mentions that many Saracenic women practised the art of obstetrics at Salerno. In later times, during the eighteenth and nineteenth centuries, women were graduated as Doctors of Medicine in the Italian Universities, and as such enjoyed great consideration. In 1732, La Dottoressa Laura Bassi graduated at Bologna, and filled the chair of Natural Philosophy for six years. In the last part of the eighteenth century, Madonna Manzolina lectured on anatomy at Bologna, while others of lesser note filled positions of minor importance. The women of Greece and Rome approached the task much better prepared to meet its requirements, both mentally and physically, than do those of our day; and surely no lack of opportunity could have been complained of by the successors of Agnodice.[1] Those of the Arabian civilization had not only opportunity, but the incentive of necessity, to urge them on to the acquirement of knowledge and skill; for so great were the sensuality and libertinism of the Saracens, that the Mahommedan laws prohibited the attendance of males upon

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[1] The story of this physician is worthy of note. Contrary to the existing laws, she studied medicine, met with great success under the disguise of a man, was accused of corruption and brought to trial. Making her sex known to the judges, she was not only acquitted, but a law was passed allowing all free-born women to study medicine in future.

females; and thus the whole duty, except in extreme cases, devolved upon the midwives.

No one of extended views can desire to see the doors of science shut to any who are sincere in their wish to engage in its pursuits; nevertheless, there is no resisting the evidence of history, that, in spite of opportunities and incentives, female practitioners have failed in times past, not only to advance, but even to maintain the integrity of the art intrusted to their hands. The experience of the future may belie that of the past; but even its doing so will offer no good reason for despising the lesson which the past has left on record.

I am so often consulted by recent graduates as to the works which they should make the basis of a library upon Gynecology, that I feel that I may render a service by the following list. Only such works are recorded as will prove of absolute service to the active practitioner who seeks knowledge chiefly upon practical points:—

Nonat—Maladies de l'Utérus, 1 vol.
Aran— " " 1 vol.
Becquerel— " " 2 vols.
Blatin et Nivet—Maladies des Femmes, 1 vol.
West—Diseases of Women, 1 vol.
Tilt—Uterine and Ovarian Inflammation, 1 vol.
Bennet—On the Uterus, 1 vol.
Simpson—Diseases of Women, 1 vol.
Hewitt— " " 1 vol.
Churchill— " " 1 vol.
Byford—Medical and Surgical Treatment of Women, 1 vol.
Sims—Uterine Surgery, 1 vol.
Baker Brown—Surgical Diseases of Women, 1 vol.
Tilt—Uterine Therapeutics, 1 vol.
Scanzoni—Diseases of Females, 1 vol.
Meigs—Diseases Peculiar to Females, 1 vol.
Bedford—Diseases of Women and Children, 1 vol.
Colombat—On Females (annotated by Meigs), 1 vol.
Ashwell—Diseases of Women, 1 vol.
McClintock— " " 1 vol.
Courty—Maladies de l'Utérus et de ses Annexes, 1 vol.
Hodge—Diseases Peculiar to Women, 1 vol.
Klob—Pathological Anatomy of the Female Genital Organs, 1 vol.
Spencer Wells—On Diseases of the Ovaries, 1 vol.
Kiwisch— " " " 1 vol.
Elliot—Obstetric Clinic, 1 vol.
Wright—Diseases of Women, 1 vol.
Emmet—On Vesico-Vaginal Fistulæ, 1 vol.

CHAPTER II.

THE ETIOLOGY OF UTERINE DISEASES.

In investigating the causes of uterine diseases which are active in this country, I would not be understood as drawing any comparison between their frequency here and abroad, for in the absence of statistical evidence such an attempt would necessarily be futile. It is easier, however, to write of habits which are under our immediate observation, than of those concerning which we merely read and hear, and for this reason I give myself the limits herein prescribed. My intention is not to review all the causes of uterine disorders, but to confine myself to the consideration of those which are avoidable, incurred merely from disregard of the laws of health, and which are generally rather predisposing than exciting. Others, which are accidental and exciting, will be mentioned in connection with special diseases as they come under notice.

If we compare the present state of women in refined society over the world with that of the working peasants of the same latitudes, or with the North American squaws or the powerful negresses of the Southern States, we can with difficulty believe that they all sprung from the same parent stem, and originally possessed the same physical capacities. Observation proves that women who are not exposed to depreciating influences can compete in strength and endurance with the men of their races, and in savage countries they are sometimes regarded as superior to them. In the lower orders of animals this equality is still more marked. The mare endures as much as the horse, and some of our most celebrated racers have represented the female sex. The lioness is fully as dangerous to the hunter as her more majestic consort, and the bitch proves as untiring in the chase as the most muscular dog in the pack.

From all these facts we may logically argue, that the human female, if properly developed and placed beyond causes which militate against her physical well-being, would be in no great

degree the inferior of the male. This position I now assume, and maintain that the customs of civilized life have depreciated her powers of endurance and capacity for resisting disease. My efforts will be directed to an endeavor to point out what these habits and influences are.

Those which are most prominent and universal may thus be enumerated:—

Want of fresh air and exercise.
Excessive development of the nervous system.
Improprieties of dress.
Imprudence during menstruation.
Imprudence after parturition.
Prevention of conception and induction of abortion.
Marriage with existing uterine disease.

Want of air and exercise, in deteriorating the blood and enfeebling the muscular and nervous systems, should be classed first among these predisposing causes.

There can be no doubt that American women take much less exercise than those of Europe. Walking, riding, rowing, bowling, &c., which are there so common, are here not much practised. In our large cities will be found hundreds of ladies who do not walk a mile in a day for weeks together, and many more who have never engaged in any exercise which called forth the action of other muscles than those employed in the quietest locomotion. This is partly due to the fact that, with us, recreations which require muscular efforts on the part of women are not fashionable; partly to a morbid desire to cultivate an appearance of delicacy in form and complexion; and in great part to improprieties of dress, which render it dangerous for them to remain in the open air except in good weather. Instead of our girls being encouraged to engage in out-door pursuits calculated to create muscular power, they are reared in the belief that such pastimes are hoydenish, unbecoming, and fit only for rough boys. Their hours of leisure are occupied by reading, music, drawing, or some similar light task, and an hour's walk every day is regarded as an accomplishment quite creditable to the performer. This pernicious system of training is observed most markedly in our large female seminaries or boarding schools, where every hour of the day is allotted by rule to its especial work. By this plan

the mind is constantly kept in the thraldom of control, and chafes under the depressing influence of a never-ending surveillance. A set of romping school-girls could as profitably laugh by rule as really enjoy and improve by exercise under the eye of an instructress or professor of calisthenics. It is not the mere bodily exertion which is of benefit, but the total mental relaxation, the exhilaration and the abandon which accompany it. The prisoner working for eight hours on the tread-mill does not profit by it as the free and happy equestrian or oarsman does, by one-eighth the time of exercise.

Excessive Development of the Nervous System.—The necessity for a due proportion existing between the development and strength of the nervous and muscular systems has always been recognized, and has given rise to the trite formula, "mens sana in corpore sano," as essential to health. Unfortunately the restless, energetic and ambitious spirit which actuates the people of the United States, has prompted a plan of education which by its severity creates a vast disproportion between these two systems, and its effects are more especially exerted upon the female sex, in which the tendency to such loss of balance is much more marked than in the male. Girls of tender age are required to apply their minds too constantly, to master studies which are too difficult, and to tax their intellects by efforts of thought and memory which are too prolonged and laborious. The results are, rapid development of brain and nervous system, precocious talent, refined and cultivated taste, and a fascinating vivacity on the one hand; a morbid impressibility, great feebleness of muscular system, and marked tendency to disease in the generative organs, on the other.

That this statement of the advantages which are gained and the price which is paid for them is perfectly true, no American practitioner will deny. But the mere existence of the fact is not the most melancholy feature of the case; it is far more painful to see mothers listening to it, admitting its truth, and yet calmly and dispassionately choosing to make the trial, as we see them doing every day.

Improprieties of Dress.—The dress adopted by the women of our times may be very graceful and becoming, it may possess the

great advantages of developing the beauties of the figure and concealing its defects, but it certainly is conducive to the development of uterine diseases, and proves not merely a predisposing, but an exciting cause of them. For the proper performance of the function of respiration, an entire freedom of action should be given to the chest, and more especially is this needed at the base of the thorax, opposite the attachment of the important respiratory muscle, the diaphragm. The habit of contracting the body at the waist by tight clothing confines this part as if by splints; indeed, it accomplishes just what the surgeon does who bandages the chest for a fractured rib, with the intent of limiting thoracic, and substituting abdominal respiration.

As the diaphragm, thus fettered, contracts, all lateral expansion being prevented, it presses the intestines upon the movable uterus, and forces this organ down upon the floor of the pelvis, or lays it across it. In addition to the force thus exerted, a number of pounds, say from five to ten, are bound around the contracted waist, and held up by the hips and the abdominal walls, which are rendered protuberant by the compression alluded to. The uterus is exposed to this downward pressure for fourteen hours out of every twenty-four; at stated intervals being still further pressed upon by a distended stomach.

In estimating the effects of direct pressure upon the position of the uterus, its extreme mobility must be constantly borne in mind. No more striking evidence of this can be cited than the fact, that in examining it by Sims's speculum, if the clothing is not loosened around the waist, the cervix is thrown so far back into the hollow of the sacrum as to make its engagement in the field of the instrument often very difficult, and that attention to this point in the arrangement of the patient will at once remove the difficulty. While the uterus is exposed by the speculum, it will be found to ascend with every expiratory effort, and descend with every inspiration; and so distinct and constant are the rapid alterations of position thus induced, that in operations in the vaginal canal the surgeon can tell with great certainty how respiration is being affected by the anæsthetic employed. An organ so easily and decidedly influenced as to position by such slight causes must necessarily be affected by a constriction which, in autopsy, will sometimes be found to have left the impress of

the ribs upon the liver, producing depressions corresponding to them.

No one will charge me with drawing upon my imagination, even in the remotest degree, for the details of the following picture, for a little reflection will assure all of its correctness. A lady who has habitually dressed as already described, prepares for a ball by increasing all the evil influences which result from pressure. Although she may be menstruating, she dances until a late hour of the night, or rather an early hour of the morning. She then eats a hearty supper, passes out into the inclement night air, and rides a long distance to her home. This is repeated frequently during each season, until advancing age or the occurrence of disease puts an end to the process.

A great deal of exposure is likewise entailed upon women by the uncovered state of the lower extremities. The body is covered, but under the skirts sweeps a chilling blast, and from the wet earth rises a moist vapor, which come in contact with limbs encased in thin cotton cloth, which is entirely inadequate for protection. It is not surprising that evil often results to a menstruating woman thus constantly exposed.

To a woman who has systematically displaced her uterus by years of imprudence, the act of sexual intercourse, which in one whose organs maintain a normal position is a physiological process devoid of pathological results, becomes an absolute and positive source of disease. The axis of the uterus is not identical with that of the vagina. While the latter has an axis coincident with that of the inferior strait, the former has one similar to that of the superior. This arrangement provides for the passage of the male organ below the cervix into the posterior cul-de-sac, the cervix thus escaping injury. But let the uterus be forced down, as it is by the prevailing styles of fashionable dress, even to the distance of one inch, and the natural state of the parts is altered. The cervix is directly injured, and thus a physiological process is insensibly merged into one productive of pathological results. How often do we see metritis occur just after matrimony, even where no excesses have been committed! It is not an excessive indulgence in coition which so often produces uterine disease, but the indulgence to any degree on the part of a woman who has distorted the natural relations of the genital organs.

But this is by no means the only method by which displacement

of the uterus may induce disease of its structures. It disorders the circulation in the displaced organ and produces passive congestion and its resulting hypertrophy, prevents the free escape of menstrual blood by pressing the os against the vagina, creates flexion, causes friction of the cervix against the floor of the pelvis, and stretches the uterine ligaments and destroys their power and functions.

Imprudence during Menstruation is a prolific source of disease. Some women, through ignorance, many through recklessness, and a few from necessity, go out lightly clad in the most inclement weather during this period, and many suffer in consequence from violent congestive dysmenorrhœa, and often from endo-metritis. Every practitioner will meet with a certain number of cases of uterine disease which have this origin, and run on for years, ending, perhaps, in parenchymatous metritis, which may prove incurable.

During a period in which the ovaries and uterus are intensely engorged, in which the peritoneum is broken through by the escaping ovule, and the nervous system is in an unusual state of excitability, ordinary prudence would suggest that the body should be well covered, that the congested organs should be left at rest, and that exposure to cold and moisture should be sedulously avoided. I need not say that these rules are commonly neglected; and in evidence of the fact I will venture the assertion that, on this very day, the thermometer 15° above zero, the skating-pond of our park contains scores of delicate and refined women who are showing a disregard of them by their presence there.

Imprudence after Parturition.—No sooner does fixation of the impregnated ovum upon the uterine surface occur than a surprising stimulation is exerted upon the fibre-cells forming part of the uterine parenchyma, which grow with rapidity, enlarging the organ, *pari passu*, with the requirements of its increasing contents. After the expulsion of the embryo, either at full time or at any period of pregnancy, the fibres thus developed undergo a fatty degeneration and absorption, which has received the name of involution. This process occurs rapidly after abortion, but after labor at term it requires six weeks for its full accom-

plishment. In order that it may proceed with normal rapidity and certainty, perfect rest is essential; and the woman who rises too soon, and resumes her usual occupations while the lochial discharge is still existing, risks the results of interference with it. Besides this, the uterus is much heavier than usual, and the additional danger of the induction of displacement is incurred by too early movement. Lastly, the mucous membrane lining the cavity of the uterus is for some time after parturition in an abnormal state, and is peculiarly liable to disease from exposure to cold and moisture. A very valid objection may be made to this view, that in the lower walks of life women rise after labor, and attend to their duties with impunity on about the ninth day, and yet enjoy a marked immunity from uterine affections. This is true; but let it be remembered that they are unaffected by the influences to which I have alluded, as calculated to enfeeble and deteriorate their generative systems.

Prevention of Conception and Induction of Abortion.—Means established for the accomplishment of the first of these ends are often productive of uterine disorder. This will not be wondered at when the harshness of some of them is borne in mind. The workings of nature in this, as in all other physiological processes, are too perfect, too accurately and delicately adjusted, not to be interfered with materially by the clumsy and inappropriate measures adopted to frustrate her laws. With this allusion we leave this unattractive subject to deal with one still more disagreeable, but which, from its importance, cannot conscientiously be passed over in silence. Statistics showing the frequency of criminal abortion have never been, and never will be written, for the crime creeps stealthily beneath the scrutiny of society, and, for some unaccountable reason, without material interference from the judiciary. It is, I feel, a bold statement, that, while the law pursues with relentless vigor the man who murders his fellow, it allows immunity to him who murders the young child in its mother's womb; and yet it is well nigh correct. Let me point to a few facts which will substantiate this assertion, and the additional one that this crime is with us one of fearful frequency. On my table at this moment lies one of the most popular, respectable, and best edited daily journals of New York —one which finds its way into the first circles of society, and

into the hands of maidens and matrons throughout the land. In its columns I count fifteen advertisements well known as being those of professional abortionists—men and women who make a business of infantile murder. It may be that the editors, who are esteemed amongst us as upright men, it may be that the police, are entirely ignorant of these facts; but it is hard to believe so when many of these advertisements announce distinctly the advantages of their having rooms in which their patients may be accommodated, and that one interview always accomplishes the desired result, without the use of means dangerous to life or health. At its last meeting in New York, the American Medical Association offered a prize[1] for "a short and comprehensive tract for circulation among females, for the purpose of enlightening them upon the criminality and physical evils of forced abortions."

However much I may desire reformation in this matter, it is not in the spirit of a reformer that all this is written. I am not raising my voice against a great national crime, but am striving merely to establish the truth of my statement, that this crime is so frequent as to constitute in all classes of society—for it is limited to none—a great cause for uterine diseases.

Marriage with Existing Uterine Disease.—It is a common practice with physicians to recommend marriage as a cure for uterine disease. There are a sufficient number of abnormal conditions which child-bearing cures to make the practice appear legitimate, but a vast deal of harm frequently results from it. A displacement without inflammation, a constricted cervix which causes dysmenorrhœa, a pure endo-metritis of neck or body, or an inactive state of the ovaries which results in amenorrhœa, may be relieved by the parturient act; but parenchymatous metritis in any of its forms, peri-uterine cellulitis or pelvic peritonitis, will very often produce evil results after labor, and very generally return with renewed violence as soon as involution has been accomplished. The advice is too often given empirically, and, like all such counsel, is hazardous in its results. My experience leads me to fear a return of metritis after child-bearing, even in

[1] The prize thus offered has been awarded to Prof. H. R. Storer, of Boston, for an able essay, entitled, "Why Not?"

a patient whom I considered entirely cured at the time of marriage; and in such a case I always predict it.

Much injury has been done, and a strong position weakened by the insisting of overzealous persons upon isolated causes as productive of injury to females. Chapter upon chapter has been written against tight-lacing, for instance, in so vehement a style that the reader, if she did not reflect, might suppose that to this abuse could be traced the whole catalogue of feminine ills. If perchance, however, she inspected the unyielding stays which once compressed the sturdy form of Alice Bradford, and which are now preserved in Pilgrim Hall, in Plymouth, she would at once see that the indictment was not a valid one; and similar objections might be raised against all the other causes which I have advanced, viewed as isolated influences.

The Indian squaw or Southern freedwoman may go half naked while menstruating, carry heavy burdens from morning till night, or rise to labor[1] or to travel in a day or two after parturition, and yet no evil will result; but to the civilized woman any one of these imprudences may prove a source of disease. It is the combination of evil influences, or the action of a single cause on a system so deteriorated by others as to be made incapable of resisting it, which produces the unhappy climax.

No one will doubt the conclusion, that if in cold weather the feet, legs, and abdomens of civilized women were clad in some woollen material; if they understood the necessity of caution during the period of menstruation and after labor; if they allowed the uterus to hold its proper place in the pelvis, uninterfered with by pressure; if they kept the sanguineous and nervous systems in their normal state of vigor by exercise, fresh air, and plenty of good food, and at the same time avoided any habits which directly produced disease by injuring the genital organs, much, very much less of uterine and kindred disorders would be seen by the physician. All these reforms would probably bring forth results in one generation, but it would require many generations of reformers to restore woman to her proper physical sphere.

[1] In this statement I do not desire to reiterate a report which has long been silenced—that uncivilized women rise *habitually* just after labor. I merely assert what my own observation puts beyond doubt in my mind that they *often* do so with impunity.

Before any improvement is attained in this or any other matter, its importance must be estimated by, and a desire for it cultivated in, those whom it most nearly concerns. Neither appreciation of, nor desire for, physical excellence sufficiently exists among the refined women of our day. Our young women are too willing to be delicate, fragile, and incapable of endurance. They dread, above all things, the glow and hue of health, the rotundity and beauty of muscularity, the comely shape which the great masters gave to Venus de Medicis and Venus de Milo. All these attributes are viewed as coarse and unladylike, and she is regarded as most to be envied whose complexion wears the livery of disease, whose muscular development is beyond the suspicion of *embonpoint*, and whose waist can almost be spanned by her own hands. As a result, how often do we see our matrons dreading the process of child-bearing as if it were an entirely abnormal and destructive one; fatigued and exhausted by a short walk or their ordinary household cares; choosing houses with special reference to freedom from one extra flight of stairs, and commonly debarred the great maternal privilege of nourishing their own offspring. These are they who furnish employment for the Gynecologist, and who fill our homes with invalids and sufferers.

CHAPTER III.

DIAGNOSIS OF THE DISEASES OF THE FEMALE GENITAL ORGANS.

THE diagnosis of the diseases of the pelvic viscera of the female offers many obscurities, and frequently foils the most careful and capable practitioner. With the utmost caution, assisted by the most practised skill, no one can avoid occasional errors, while in the experience of those not possessing these qualifications, they must be frequent and glaring. The only safeguard which can be established against their occurrence, and the only guarantee which can be obtained for success in prognosis and treatment, is the thorough mastery of the subject which is now to engage us.

It is not rare for one making a special study of Gynecology to find those less familiar with it committing errors of diagnosis, or, what is more common, arriving at no conclusion, in cases which are perfectly simple and present no obscurities whatever. When meeting such instances in the practices of intelligent men, I have been struck by the fact that the source of difficulty is almost always the same. The failure of diagnosis has not been due to their having drawn incorrect conclusions from diagnostic means, but to their not having brought these means fully into action, and properly applied them to the solution of the case in hand. In many instances, uterine disease being suspected, the physician employs the vaginal touch, and follows it by the speculum. If the os and cervix be diseased, he is successful in diagnosis; but if not, he becomes discouraged, forgetful of the fact that the rectal touch, uterine probe, dilatation by tents, conjoined manipulation and other means, should be resorted to, and that, without appealing to these, even the most skilful diagnostician would be as helpless as himself. There are means at our command for exploring every tissue within the pelvis; the uterus, the ovaries, the areolar tissue, &c.; and until they are brought into

service carefully, systematically and thoroughly, no one can feel that he has done justice to his powers of diagnosis, or allowed himself a full opportunity for drawing correct conclusions. Skill in diagnosis must be obtained at the bedside, but for that school to be made profitable, the student must have a thorough familiarity with the theory of the means of investigation which he is there to apply.

Rational Signs of these Diseases.

In the examination of a patient suspected of having uterine disorder no direct or suggestive questions should be asked, but the symptoms should be drawn forth by encouraging and properly directing her narrative of her case. Certain signs which we call "rational," from their appealing to our reason and not to our senses, such as pain in the head, back, and limbs, menstrual disorder, leucorrhœa, impeded locomotion, derangement of the digestion and nervous manifestations, will lead us to suspect the genital organs, and may even convince us of the existence of disease there. Generally, however, they result in the adoption of other and more certain means of diagnosis, which are termed "physical."

Every one will, after due experience, adopt some system by which his examination of patients will be expedited, and the certainty of arriving at a correct diagnosis be increased. The plan which I consider best adapted to these ends is that which follows:—

1st. The personal history, age, &c., of the patient should be obtained.

2d. The duration of the illness should be fixed.

3d. The history of the attack from commencement to date should be elicited.

4th. The present state of the patient should be ascertained.

In obtaining the history of the disease, no leading questions have thus far been asked; the patient has told us what she herself has observed. Her evidence leads us to suspect some special disorder, and then we proceed thus:—

5th. Direct questions are put with the intent of testing the correctness of the suspicion which the patient's story has excited.

6th. Physical means are brought to the corroboration of the diagnosis by rational ones.

Forms, either written or printed, such as that which follows, will not only save a vast deal of time and trouble, but give uniformity to histories taken, so that after a number of them have been accumulated they may be collated with reference to special points, or preserved for personal reference or publication.

CASE, No..... Date,.....

Name..... Age..... .....Married?

No. of children..... No. of abortions..... Time since last pregnancy..... Age at which menstruation appeared.....

Duration of present illness..... Symptoms during its course

.....

.....

.....

.....

.....

Supposed cause.....

Present condition as regards

Menstruation, { Regularity..... Amount..... Pain.....

Leucorrhœa, { Character..... Amount..... Constancy.....

Pain, { Locality..... Amount.....

Locomotion.....

Other symptoms.....

Physical signs, { By touch..... By speculum..... By probe.....

Diagnosis.....

Treatment.....

It will be observed that I have not enumerated the various rational signs generally attendant upon uterine affections, but merely the means for drawing them forth. Their special mention will be reserved for the study of particular affections. If the evidence elicited leaves any of the pelvic viscera under suspicion, this is verified or removed by means which are more positive and reliable from the fact that they address our senses.

MANAGEMENT OF PATIENT DURING PHYSICAL EXAMINATION.—Before commencing the consideration of physical signs, I shall premise a few remarks upon a subject of great importance in this connection, namely, the management of the patient during the examination. As Dr. Sims has taught us, she should never, unless it be impossible to do otherwise, be examined upon a bed or sofa, but upon a table covered with a blanket, shawl, or rug of some kind, and provided with a small pillow. The facility thus given for thorough investigation is very great, and the avoidance of the sinking of the body into the soft bed repays most fully the extra trouble which it causes to make the change. It may be said that many ladies will strongly object to the exposure incident to getting upon a table. This is not so; a little persuasion will overcome such objections at once, and the increased exposure is in reality imaginary, for the table is to all intents a bed, and a sheet for covering the person gives all desirable protection. Should it be necessary to employ a bed, the leaf of a dining-table, or a wide board should be slipped across the mattress under the upper sheet and covering, and a hard surface will thus be presented for the patient to lie upon, which will obviate, in a great degree, the objections to the bed otherwise arranged.

The patient should always lie upon her back in a first examination, with the clothing loose around the waist, the knees drawn up and the abdominal walls relaxed. A sheet should be spread over her so as to conceal the entire person. The table having been previously turned to a window admitting a strong light, a chair should be placed at its foot for the examiner, and at the right side of it another, upon which has been arranged a basin of warm water, Castile soap and a towel.

Means of Physical Diagnosis.

I shall enumerate and consider these in the order in which they will generally be employed in a case requiring the aid of all of them for its elucidation:—

1. Anæsthesia.
2. Vaginal touch.
3. Conjoined manipulation.
4. Abdominal palpation.
5. Rectal touch.
6. Vesico-rectal exploration.
7. The speculum.
8. The uterine probe.
9. Tents.
10. The endoscope.
11. The exploring needle.
12. The microscope.
13. Auscultation and percussion.

Anæsthesia.—This should not be resorted to unless there be some special indication for it. Should the patient be intractable, delirious, or a malingerer; should the investigation involve much severe pain; or should there be some tonic spasm of the muscles as an element of the disease, as is the case in spurious pregnancy and phantom tumors, it affords an aid to diagnosis of great value, and should never be neglected. When we are forced to examine a virgin who is very sensitive, and opposed to the investigation, it is sometimes advisable, for without it a diagnosis is frequently impracticable.

The Vaginal Touch.—This, which will be the first explorative measure to which the examiner will resort, constitutes one of the most important at his command. It will reveal much or little, as it is practised slowly and thoughtfully, or hastily and as a matter of routine. In making it the index finger of either hand may be employed, and when it is desirable to reach as far up the pelvis as possible, the index and middle fingers may be used. During this examination the patient should invariably be laid upon the back, with the legs flexed and the buttocks very near the edge of the table. The observance of this position is of great

importance, as the vaginal touch should in every case be combined with abdominal palpation, to which union the name of conjoined manipulation or bimanual palpation, has been applied.

The index finger of one hand being introduced into the vagina, the other fingers being flexed into the palm and the thumb laid upon them, passes directly to the cervix uteri, assuring the investigator, as it goes, of the perviousness of the vaginal canal. Upon reaching the os, this part is carefully examined with reference to size, consistency of lips, and character of discharge; a patulous os, with soft, velvety sides covered by a glutinous secretion, admonishing him of the existence of inflammation of the os and cervical canal. The cervix should then be examined with reference to location, size, and density. This being done, the finger should be slid along its posterior surface into the recto-uterine space, and the presence of any hardness or tumefaction there be noted. Should such be found, it will probably be due to one of these causes: retroflexion or retroversion of the uterus, uterine enlargement, a fibrous tumor, scybala in the rectum, inflammatory products the result of peri-uterine cellulitis or peritonitis, a prolapsed ovary or ovarian tumor, or an hematocele. Should no tumor be discovered, but the line of resistance given to the finger be found to disappear at the vaginal junction with the uterus, it may be inferred with moderate certainty that at this point none of the above mentioned conditions exist.

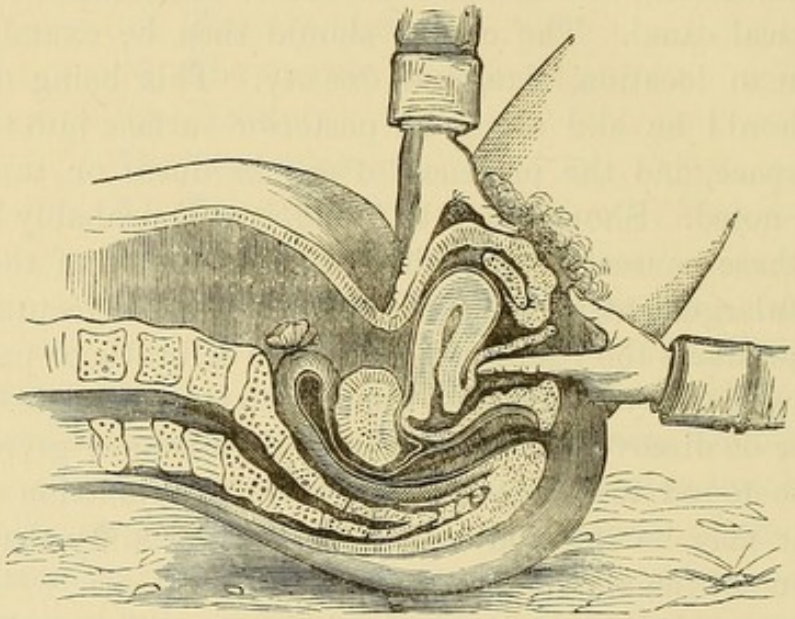
This space being explored, the finger should then be passed anteriorly, and swept upward and forward along the base of the bladder toward the symphysis pubis. Any hardness discovered here will probably be due to anteflexion or anteversion of the uterus, a fibrous tumor, stone in the bladder, uterine enlargement, or possibly cellulitis.

The state of the ovaries should then be interrogated by lateral pressure, and the condition of the pelvic areolar tissue and walls by firm pressure in all directions.

Conjoined Manipulation, or Bimanual Palpation.—As the preceding examination consists in touching organs above the pelvic roof for the most part, and which are generally quite movable, it is evident that its results are diminished by ascent of these parts as they are pressed upon. To bring them more fully within the reach of the finger in the vagina, and to obviate their

retreat, abdominal palpation should invariably be combined with the vaginal touch. While the latter is being performed by the index finger of one hand, the other hand should be placed on the abdomen, and by it the uterus be made to descend, so that even its upper parts may become accessible. This will enable the examiner to sweep the finger in the vagina over the posterior, anterior, and lateral surfaces of the organ, and detect the presence of any enlargement, sensitiveness, or abnormal growth there. Fig. 2 represents this.

Fig. 2.



Practice of conjoined manipulation. (Sims.)

But not only should the walls of the uterus be thus explored; the volume, shape, sensitiveness, and regularity of surface of this organ, as well of the ovaries, the broad ligaments, anterior vaginal wall and bladder should likewise be ascertained. To accomplish this, with reference to the uterus, let the vaginal finger be placed under it—anterior to the cervix if it be in normal position or anteflexed, posterior to it if it be retroflexed—and the organ will be distinctly felt resting between it and the fingers which depress the abdominal wall. By the same method the other parts mentioned should be examined. Conjoined manipulation is of great importance; indeed no examination can be considered complete without it. By a neglect of this seemingly trifling precaution I have known the existence of large tumors, and even of pregnancy quite advanced, entirely ignored. A short time

ago a physician sent to me from a distance a case which he supposed to be one of prolapsus uteri, from the fact that the uterus was low in the pelvis, never suspecting for a moment the existence of two fibrous tumors, each the size of a fœtal head, which depressed the displaced organ.

Abdominal Palpation.—The practice of bimanual palpation will have assured the investigator of the presence of any tumors which may exist in the pelvis. Should such have been discovered, a further examination will, of course, at once be entered upon to ascertain their size, shape, attachments, and contents. In this exploration both hands are employed externally, and by them firm pressure is made and the abdominal walls depressed, so that by grasping the masses their characters may be appreciated.

The Rectal Touch.—Should anything have been discovered upon either uterine wall to make further light upon the state of these parts desirable, or should symptoms have presented themselves which excite suspicion of the presence of some morbid growth, the index finger of one hand should be carried far up into the rectum, and if necessary to enable it to reach the upper portion of the posterior uterine wall, a tenaculum should be fixed in the outer surface of the cervix, and by gentle traction the organ drawn down. Generally, however, sufficient depression will be accomplished by firm pressure over the hypogastrium with the other hand, the tips of the fingers pressing the uterus toward the floor of the pelvis; or both of these means may be combined by bringing to our aid the hand of an assistant. They who have not employed this method systematically must have a faint idea of the great facility which it gives for exploration of the posterior wall and recto-uterine space.

Should any substance lie in the recto-vaginal space, its character may be accurately appreciated by what has been styled, by Dr. Tilt, the "double touch," which consists in introducing the index finger into the rectum and the thumb into the vagina, and then approximating them. Or the index of one hand may be introduced into the vagina and that of the other into the rectum.

Vesico-rectal Exploration.—This consists in passing a catheter or sound into the bladder, and pressing it towards the

index finger in the rectum. Its scope is not extensive, but for some purposes no other method answers the same end, as for example for the following:—

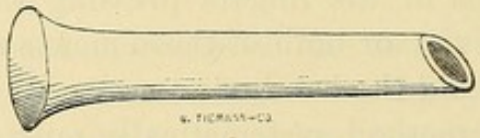
Appreciating the size of the uterus in very fat women;
Detecting absence of the uterus;
Differentiating inversion from polypus.

The only difference between this method and conjoined manipulation consists in the attempt to grasp the uterus between the finger and sound, instead of between the fingers of the two hands.

THE SPECULUM.—This is by no means our most valuable diagnostic resource. Too great a reliance upon it as such is calculated to diminish the physician's powers in arriving at a correct conclusion in obscure cases. Unquestionably the greatest benefits derived from the speculum demonstrate themselves in the therapeutic department of the art. As a diagnostic means it is inferior to the vaginal and rectal touch combined with abdominal palpation, and chiefly aids us in this field by opening the way to the proper use of the uterine probe, which constitutes one of the most reliable methods at our command for appreciating the condition of the cavity of the uterus.

All vaginal specula may be classified under two heads, cylindrical and valvular. Of the first variety cylinders of metal, porcelain, ivory and wood are in general use. None of these

Fig. 3.



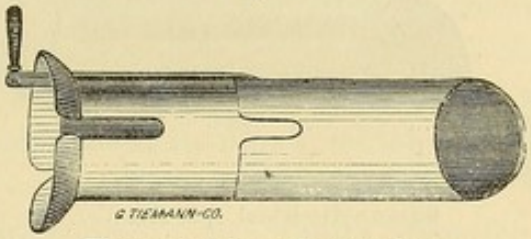
Fergusson's speculum.

compare in elegance, cleanliness and utility with that of Dr. Fergusson, of London, which consists of a tube of glass coated with quicksilver, and covered by India rubber, which is thoroughly varnished. This instrument is represented in Fig. 3.

Objections which attach to all cylindrical instruments are the following: to suit all cases they must be from five to six inches long, which renders probing the uterus through them impossible, and prevents applications from being carried to the fundus; it is not possible to examine through them by touch; in anteversion it is difficult to get the cervix into the field. The instrument

represented by Fig. 4 obviates many of these difficulties by accommodating itself to the length of every vagina, so that the shoulders come just between the labia.

Fig. 4.



Thomas's telescopic speculum.

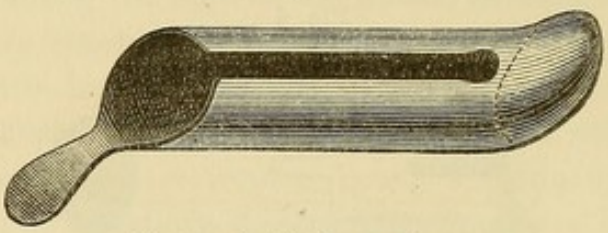
It consists of two thin metallic tubes, one of which slides within the other. To the inner tube are attached, at the mouth, wings which sustain the labia, and the outer tube ends in a tip which is either straight or curved. It is called the "telescopic speculum," from its mechanism, and measures, when not extended, along its shorter side two and a half inches, along the opposite, three. When extended, it is as long as the ordinary cylindrical specula. On both surfaces, upper and lower, are two fenestræ, which admit of elevating or depressing the probe in cases where flexion or version exists, and its handle must be much lowered. A downward curve may with advantage be given to the longer lip. This curve looks at first both odd and useless; but upon experiment it will be found to answer a very useful purpose. In cases where the uterus is normal in position it will not depress the cervix too much, while by turning it up when this part lies imbedded in the hollow of the sacrum the examiner will be enabled to lift it and engage it in the field of the speculum. When fully introduced the wings at the mouth of the instrument support the labia, and thus no superfluous portion extends beyond the vulva.

A rougher instrument which I have used with great satisfaction is one made of thin sheet iron, measuring on both faces three and a half inches (Fig. 5). The only objection to this is that in certain rare cases it will prove too short to reach an elevated cervix. Through it the uterus may be readily probed to the fundus.

Of valvular specula the bivalve of Ricord, the trivalve of Ségalas and the quadrivalve of Charrière have long been popular. No instrument of this variety with which I am acquainted equals

in beauty and utility that of M. Cusco. It is compact, easily introduced, and shows the cervix very clearly. They all, however, present these great disadvantages. It is difficult to avoid prolapse of the vaginal walls between their branches, and in removing the instrument they are liable to be painfully pinched. If, upon introducing and expanding their branches, the os uteri is exposed, all goes well; but if it is not in the field, these instruments are awkward and unwieldy in overcoming the difficulty; indeed, in many cases, the speculum must be withdrawn and reintroduced to accomplish the result. They have one great advantage over the cylindrical specula, namely, their introduction is attended by much less pain. Should the case be one of a multipara, the cylinder may be introduced without pain, but in a nullipara, or virgin, this is often produced.

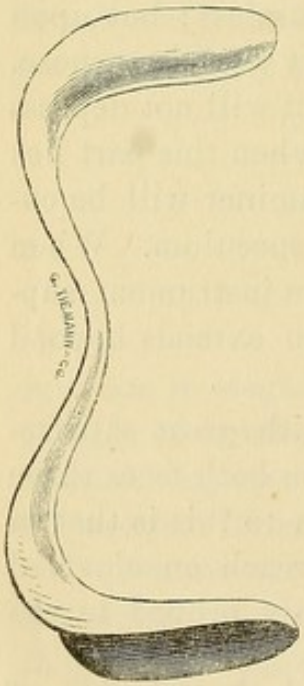
Fig. 5.



Short cylindrical speculum.

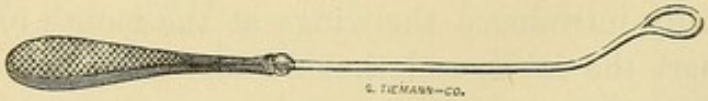
Like the cylindrical, the valvular specula in general use do not admit, as a rule, of probing the uterus and making applications to the fundus. I do not deny that in some cases it is possible, nor that by perseverance a skilful operator may succeed in effecting these objects in many instances, but it is usually so difficult that the general practitioner will not find such specula available for these ends.

Fig. 6.



Sims's speculum.

Fig. 7.



Sims's depressor.

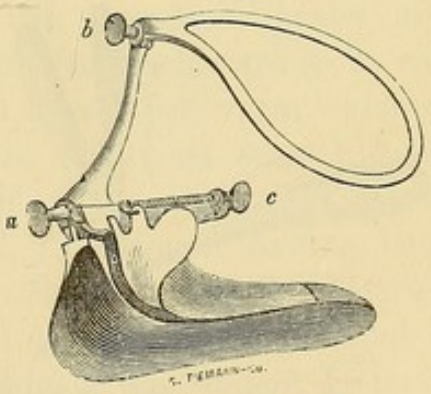
Sims's speculum, Fig. 6, which is in reality a bivalve, obviates

all these difficulties in the most complete and satisfactory manner. In exposing the uterus it develops a principle not brought into action by any other variety, the dilatation of the vaginal canal by air, which enters on account of the position of the patient and gravitation of the pelvic and abdominal viscera. I have stated that this instrument is a bivalve speculum; the upper valve is constituted by the blade of the speculum itself and the lower by the depressor, represented in Fig. 7, which acts upon the anterior wall.

The facility which Sims's instrument gives for exploration and treatment is very great; so great, I think, that the practitioner devoting himself to Gynecology who does not avail himself of it, loses as great an advantage as the auscultator would forego in not bringing to his aid the double stethoscope of Camman. But, unfortunately, this instrument presents such disadvantages that it can never come into general use. In the hands of specialists and obstetric surgeons it will always fill a large place, but in general practice it will not do so. It cannot be employed without an assistant, and not only so, a skilled assistant is necessary for it to be of real value. This fact has incited many to alter Dr. Sims's original model so as to combine its advantages in instruments free from the objections which have been mentioned. Four of these I shall describe as attaining this end, one by Dr. Emmet, another by Dr. Montrose A. Pallen, and two by myself.

When the posterior vaginal wall is lifted by Sims's speculum, the anterior must be depressed by an instrument held in the other hand. This occupies both hands, and the operator is bereft of power to proceed. The object of the alteration is to liberate one hand in order that the further steps of the examination may be proceeded with. Dr. Emmet's speculum, Fig. 8, does this by a piece of steel, like the blade of a pair of forceps, clasping the buttocks and exerting an elevating power upon the portion of the instrument within the vagina by action of a screw at *a*. When this is adjusted it keeps its place. One hand then depresses the anterior wall of the vagina, and the other is free. Should it

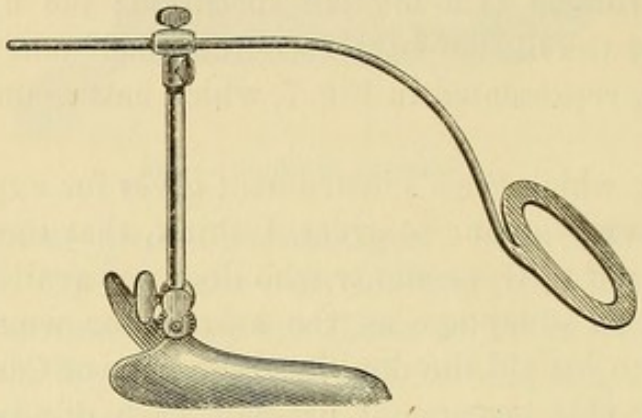
Fig. 8.



Emmet's speculum.

be necessary to alter the shape of the sacral blade to suit that of the buttock, this may be accomplished by a screw at *b*, and if it be desired to elevate the upper lateral wall of the vagina and right labium, a screw at *c* accomplishes it.

Fig. 9.

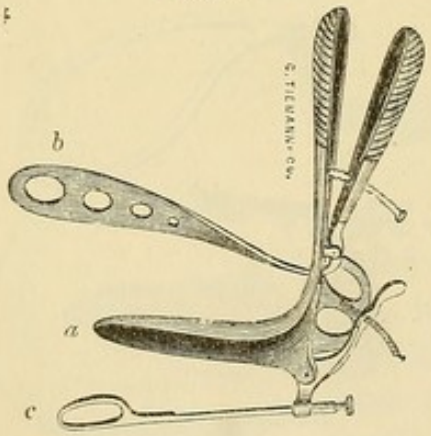


Pallen's speculum.

Dr. Pallen's speculum consists of Sims's blade somewhat altered, and for use without a nurse, certainly improved. To the head of the blade is attached a long rod which passes to a support which rests against the spine. This acts on a fulcrum, and the patient lying in the lateral position, with her right hand seizes the end of the rod which projects beyond the blade of the speculum, and by her own force lifts the perineum and posterior vaginal wall.

The instrument represented in Fig. 10 clasps the sacrum, one blade, *a*, the speculum itself, being placed within the vagina, and the other, *b*, on the outer surface of the sacrum. Their approximation by the left hand elevates the posterior vaginal wall, and the handle is held by one hand. The anterior wall is then depressed by the depressor *c*, and thus one hand is free. This instrument appears complicated in a diagram, but in reality it is by no means so. For a long time I employed it without the sacral piece as represented in Fig. 11. Some even now prefer it thus, though the fatigue which it causes to the left

Fig. 10.

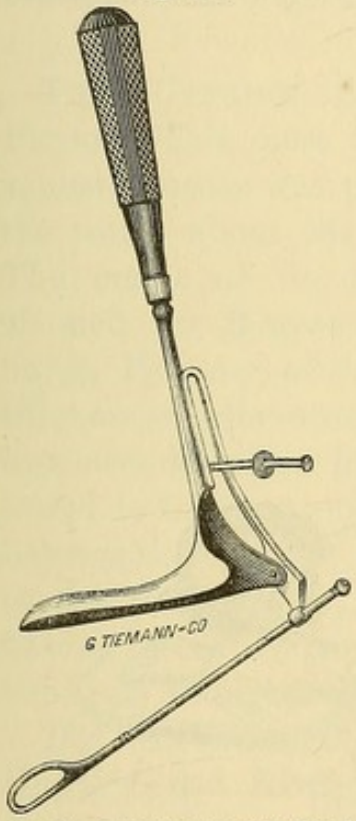


Thomas's modification of Sims's speculum.

arm in lifting the posterior vaginal wall and perineum, constitutes an objection to it.

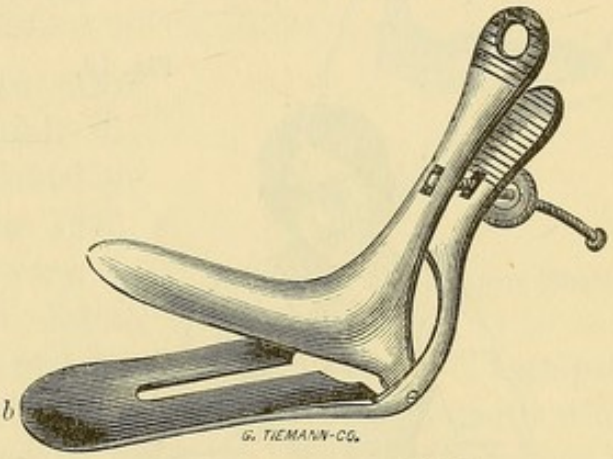
The same principle I have developed by an alteration in Cusco's speculum, as represented in Fig. 12. In its use, of course, the woman lies on the side. The blade *b* is very shallow, and is split by a long fenestra, which admits of depression of the handle of the probe, so that it may be passed to the fundus uteri. These instruments are inferior to that of Sims in almost every respect. They possess the single advantage of being available for general practice.

Fig. 11.



Sims's speculum with fixed depressor.

Fig. 12.



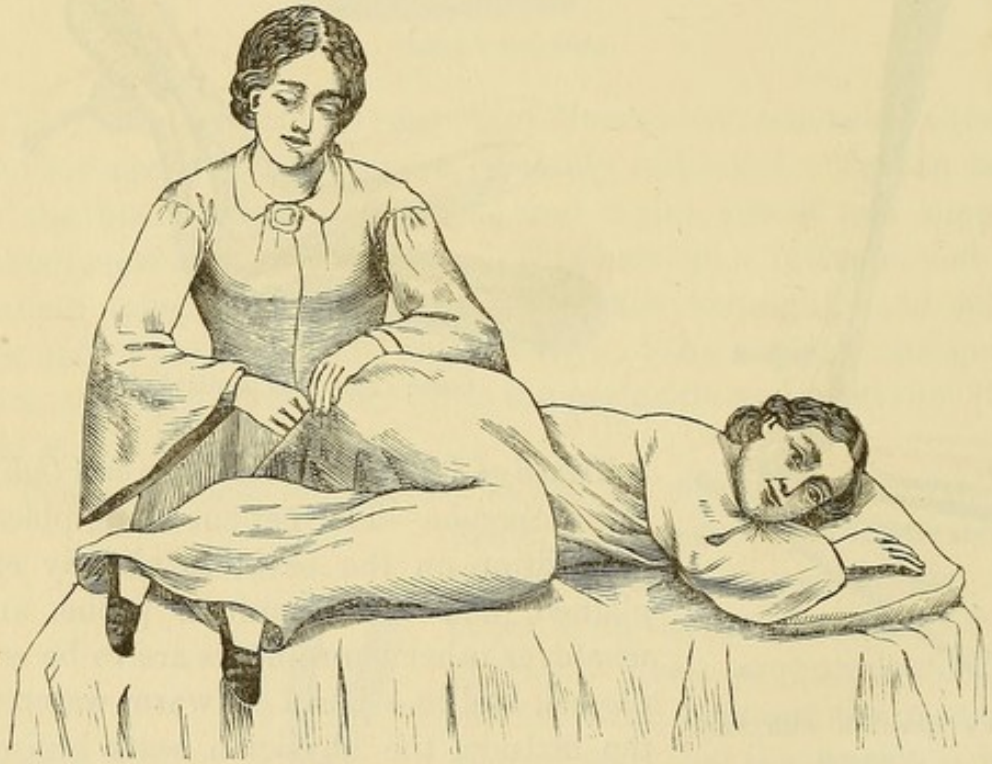
Cusco's speculum modified.

Method of Introducing Valvular and Cylindrical Specula.—The patient being placed in position on the back, as already explained, and the speculum, probe, and whatever other instruments are to be employed, laid in a basin of warm water at the bedside, the physician seats himself in a chair, or if a low bed be used instead of a table, kneels or sits upon a stool. The finger having been thoroughly lubricated with soap is passed up, and the location of the cervix ascertained. The speculum, similarly lubricated, is then passed in this way; if the cylindrical instrument be used, the perineum is depressed by its tip, and it is very slowly and gently inserted and carried to the cervix—should one of the valvular varieties be employed, it is inserted closed, and expanded after reaching the cervix.

Introduction of Sims's Speculum and its Varieties.—In this method of examination the element which controls success is not the use of the instrument, but the position of the patient. If the position recommended by Sims be attained, exposure of the cervix will be easy; if a similar, but not *identical* attitude be substituted, the examination will prove a failure.

The object of the position is to allow the abdominal viscera and walls to gravitate, so as to draw the anterior wall of the vagina forward, in a direction opposite to that impressed upon the posterior wall by the speculum. To accomplish this the patient must not be on her back, nor yet on her side, but in a position between the two. This is well represented in Fig. 13.

Fig. 13.



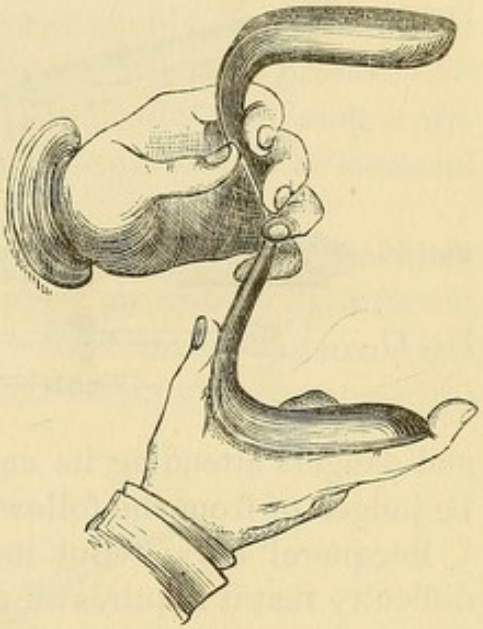
Nurse holding Sims's speculum. (Sims.)

The left arm must be drawn behind the patient so as to let her rest on the left side of the chest, and the right leg be so flexed as to let the right knee lie just above the left.

When the patient is arranged, the correctness of the posture may be tested by noting that the lower trochanter is not just opposite the upper, but nearer to the examiner by two or three inches. I am thus particular in describing this position, first,

because it is difficult for one unaccustomed to its employment, to place his patient properly in it; and, second, because upon its *perfect* attainment depends the successful use of Sims's speculum. The patient being in position, the speculum, held as represented in Fig. 14, is introduced, the posterior vaginal wall elevated by it and the anterior depressed by the depressor, Fig. 7, held in the other hand, or by the mechanical depressors represented in Figs. 10 and 11.

Fig. 14.



Position for introduction. (Sims).

THE UTERINE SOUND AND PROBE.—This most valuable diagnostic means was published to the world about the year 1843. The credit of its discovery is claimed for Simpson, of Edinburgh, Huguier, of Paris, and Kiwisch, of Prague. These practitioners simultaneously revived an old method of diagnosis which had been described in modern times by Lair,[1] but had been allowed to fall into oblivion. It matters little to which of them belongs the credit of having been the first to conceive the idea of the regeneration, to Dr. Simpson certainly belongs that of having forced it upon the attention of the profession and established its value by clinical evidence.

The instruments in general use are those of Simpson, Valleix, Huguier, and Kiwisch, which resemble each other closely in principle, each consisting of a stiff metal rod divided into half inches and bent so as to pass in the axis of the healthy uterus. The method of their introduction is this: the index finger of one hand being introduced into the vagina and placed against the cervix, the sound is by the other slid upon its palmar surface to the os, passed into it, and by depression of the handle gently advanced to the fundus. If the uterus is in its normal position, and the sound be used by a skilful hand, the operation is not

[1] Samuel Lair, "Nouvelle méthode de traitement des ulcères, ulcérations et engorgement de l'utérus," 1828.

difficult. But it is not healthy uteri which we are generally called upon to explore. If the organ be displaced, the difficulties

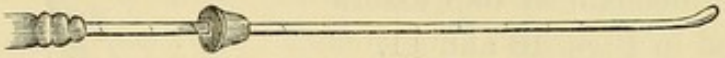
Fig. 15.



Fig. 16.



Fig. 17.



Sounds of Valleix and Kiwisch.

and dangers attending its employment are considerable, as may be judged of from the following quotations:—

Becquerel[1] says: "But its employment is attended with such difficulty that it requires all the skill of an adroit and experienced practitioner, and we dread seeing it popularized among young physicians of little skill and experience." Nonat[2] declares that "on account of the accidents which sounding may excite, it should only be resorted to with great caution and in those cases where its necessity is clearly shown." Scanzoni[3] candidly acknowledges that, "in the first place, the uterine sound is by no means so harmless as has been asserted," and then goes on to sum up the evils which may result from it. But I will not quote more; this suffices to show how the difficulties and dangers to which I have alluded are esteemed by some of the best authorities of our day.

The facts which may be ascertained by the probe are these:—

1. The capacity of the uterus.
2. The existence of growths within it.
3. Deviations of the course of its canal.
4. Differentiation of these from uterine tumors.
5. The existence of endometritis.
6. The mobility of the uterus.

The great importance of these facts with reference to diagnosis is evident, and one would suppose that an instrument revealing so much would be universally employed. Such, however, is not

[1] Maladies de l'utérus.

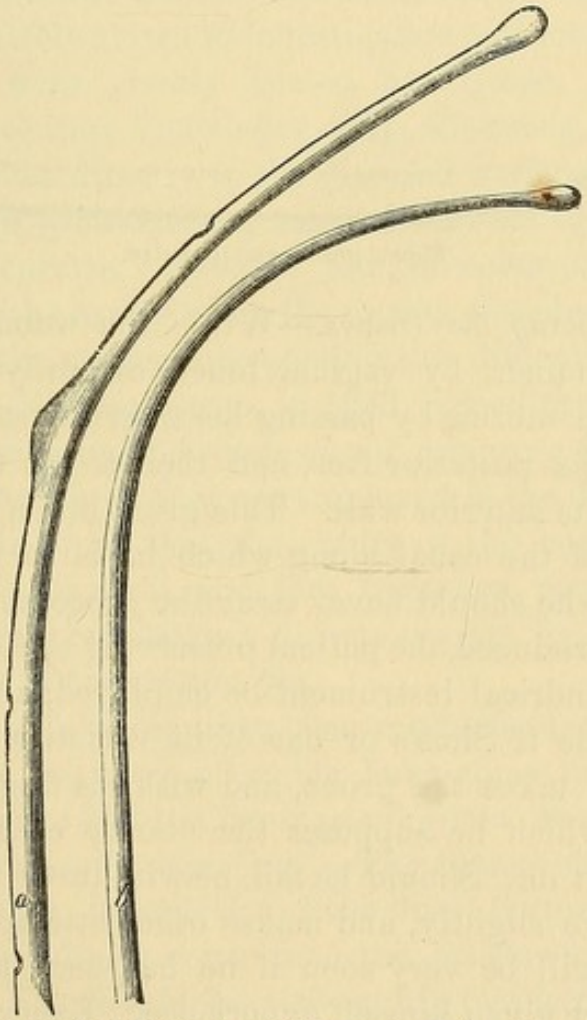
[2] Maladies de l'utérus.

[3] Diseases of Females, Am. ed.

by any means the case. By adepts it is commonly resorted to, but in general practice will be found many, indeed a majority, who do not employ it from fear of its results, the difficulty of its introduction, and uncertainty as to its revelations. It is my opinion that no case of uterine disease should be regarded as fully investigated unless the cavity of the uterus be probed. Of course there are, in some cases, contra-indications to such a procedure, but where none exists it should be considered as essential to a thorough examination.

Dr. Sims has furnished us with a new instrument and method for probing this organ, which acts upon an essentially different principle from that formerly employed, and makes the investigation so simple and void of danger that I strongly recommend its

Fig. 18.



Sounds of Simpson and Sims compared. (Sims.)

adoption. In my own practice I use it in almost every case which I examine, and never have I done injury to a patient ex-

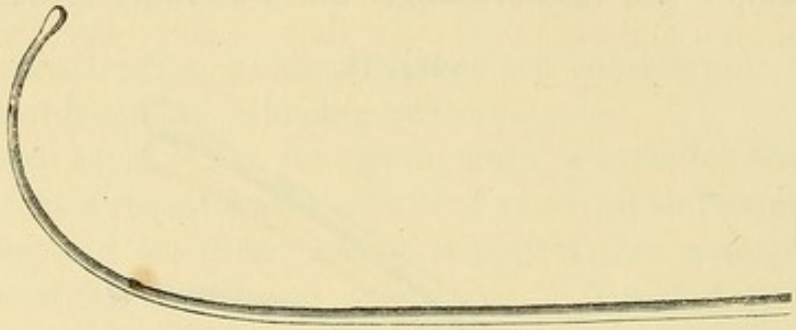
cept in a few rare cases where miscarriage was produced, no suspicion of pregnancy being entertained.

Figure 18 represents the sounds of Simpson and Sims, for the purpose of contrasting them. The first is a strong, unyielding staff, composed of German silver, and as large as a No. 3 catheter.

The second is not a sound, but a probe, only a little larger than the ordinary surgical probe, composed of pure silver or copper, and perfectly pliable.

Dr. Sims has gradually decreased the size of the probe, so that that which is very commonly employed in New York, at present, is no larger than represented in Fig. 19.

Fig. 19.



Sims's probe, smallest size.

Mode of Probing the Uterus.—While the woman lies on her back, the examiner, by vaginal touch, carefully ascertains the position of the uterus, by passing his finger, first into the fornix vaginæ over its posterior face, and then along the base of the bladder, over its anterior wall. This gives him a definite idea of the direction of the canal along which he is to pass his probe, and without it he should never essay the procedure. The speculum is then introduced, the patient preserving the dorsal decubitus if a short cylindrical instrument be employed, and being turned on the left side if Sims's or one of its varieties be used. The examiner then takes the probe, and with his fingers gives it the exact curve which he supposes the uterine canal to have, and gently passes it in. Should he fail, he withdraws the instrument, alters the curve slightly, and makes other attempts until he succeeds, which will be very soon if he has used this method so often as to have given himself experience. Every effort at introduction is made cautiously as if the probe were passing into the larynx instead of the womb, and no force whatever is exerted. Success is attained by properly curving the probe, and by that

alone. Sometimes the inflection given to it must be the arc of a small circle; at others a sharp angle; sometimes the instrument is left perfectly straight; in fact every variety of curve may be given it. In a certain set of rare cases, even a spiral twist is required.

Thus employed, the uterine probe becomes a means of verifying a diagnosis which has been made by touch, and is certainly safe, easy of introduction, and painless. It may be used in all cases, except pregnancy, doing no injury even in metritis, so gentle is its entrance into the inflamed cavity.

Having passed it, no one can dispute the fact that it performs the chief functions of the sound, proclaiming the course, length, and capacity of the uterine canal.

TENTS.—Before the time of Récamier, the cavity of the uterus was a space entirely closed to investigation and local therapeutics, unless the os were greatly dilated by disease. He not only aspired to an accurate knowledge of its affections, but boldly applied his remedies directly to the diseased surface; and in cases of intra-uterine granulations, scraped off the diseased mucous coat with the curette. Even to him, however, the diagnosis of diseases within the cavity when the os was closed was an impossibility, and for the means of combating this difficulty we are again indebted to Dr. Simpson, who, in 1849, placed the use of sponge tents among the most important of our resources for diagnosis.

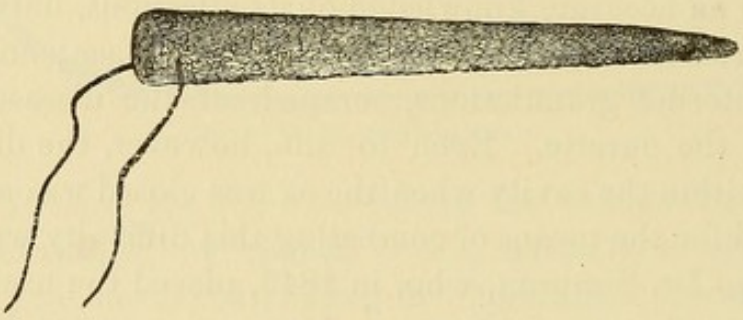
The object for which they are employed is the dilatation of the cervical canal in order that the cavity of the body may be examined by touch, or sight, and that treatment may be applied in cases of polypus, granulations, fibrous tumors, hydatids, removal of the products of conception, &c.

A variety of substances have been recommended for the manufacture of tents, only two of which have come into general use, compressed sponge and the laminaria digitata, or sea tangle.

Mode of Preparing Sponge Tents.—The sponge employed should be of good quality, though not of the finest texture, which is not sufficiently unyielding to overcome the resistance of the cervix as it expands. It should be thoroughly cleansed by boiling in water rendered alkaline by bicarbonate of soda, and all adhering particles of earthy matter carefully removed. This being done, it should be cut into conical pieces, varying in bulk from that of

the little finger to that of an egg, and in length from two inches to three and a half. Small tents which are to be employed only for opening the cervical canal, need not be made longer than two inches, but those employed for complete dilatation in cases of polypus and fibrous tumors should measure three or even three and a half. As Dr. Noeggerath has advised, each piece should then be soaked in a weak solution of carbolic acid, which destroys to a great extent the fetid odor developing itself after the tent has been kept in the uterus for some hours. The sponges are then saturated with mucilage of gum acacia, and a sharp wire being passed through the centre of one piece, it is tightly wrapped with strong cord from the apex to the base. The wire is then removed and the tent left to dry. As soon as it is thoroughly dried the cord is removed, the asperities of the tent pared off with a sharp knife, and a piece of cord or tape tied to the extremity, if the practitioner desires, to facilitate its removal.

Fig. 20.



A sponge tent.

In Europe they are prepared by machinery, and are far superior to those made as above described.

To prevent contact between the sponge, loaded as it is with organic elements, and the mucous lining of the uterus a variety of expedients has been resorted to, such as coating them with tallow, glue, wax, &c. A very ingenious plan for accomplishing this has been recently suggested by Prof. J. C. Nott,[1] of New York, who speaks highly of it from extensive experience.

The tent prepared as above directed and made smooth by sandpaper is covered by goldbeater's skin, which is brushed over with a paste which is prepared after the following formula. Take of acetate of lead and sulphate of alum each ʒiij and dissolve in water. Take of gum Arabic ʒv and dissolve in one pint of water. Mix in a dish a quarter of a pound of wheat flour with the gum

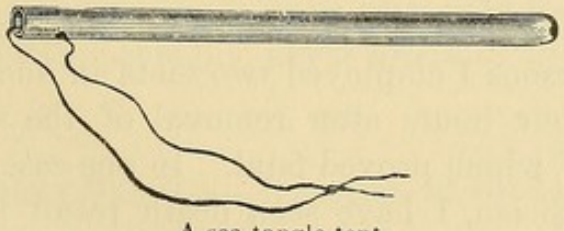
[1] Richmond Med. Journ., July, 1867.

water cold, till pasty in consistence. Put the dish on the fire and pour into it the mixture of alum and lead. Shake well, and take it off the fire when it shows signs of ebullition. Let the whole cool, and the paste is made; if too thick, add to it some gum water till of proper consistence. The goldbeater's skin, cut of the length of the tent, is coated with this paste, and the tent rolled in it until it is enveloped five or six times. It is then dried, after which several rows of perforations are made from end to end of the tent, with a pocket knife, to admit fluids. They are now as smooth as cigars, very firm, and can be introduced very easily. In introduction and removal the skin protects the uterus perfectly.

Preparation of Sea Tangle Tents.—In 1862 Dr. Sloan, of Ayr, Scotland, recommended the use of this substance for dilating the cervix uteri. The laminaria is an aquatic plant found upon various parts of the Atlantic coast of Europe and America. That found in the Bay of Fundy, I am informed by Messrs. Tieman & Co., is far superior to any other with which they have experimented. This plant, when saturated with moisture, swells to three times the bulk which it has when thoroughly dried. In its moist state a long piece of it is perforated at both extremities, in order that it may be hung up and allowed to dry, a weight being attached to the lower end so as to stretch it and make it straight. When dry, this is cut into pieces from two to two and a half inches long and made perfectly smooth and round by a knife, a piece of glass, or sandpaper. Tieman & Co. prepare them very beautifully by turning in a lathe.

Dr. Greenhalgh, of London, has improved these tents by having them perforated from one extremity to the other, so as to make them tubular instead of solid. Thus prepared they will dilate much more rapidly and completely. One of Dr. Greenhalgh's tents is represented in Fig. 21.

Fig. 21.



A sea tangle tent.

The advantages of these tents over those made of sponge con-

sist in their creating no fetor, and presenting no animal matter for absorption. Their disadvantages are their requiring a longer time for expansion, their being kept in the cervix with greater difficulty, and offering a harder substance to the walls of the cavity of the uterus. My own experience with them leads me to believe that from their decided inferiority to tents made of sponge, and to the fact that the latter are being rapidly freed from their disadvantages, sea tangle tents will in a few years disappear from practice.

Mode of Introducing Tents.—If the uterus be low in the pelvis and its neck dilated, a tent may be held in the bite of any pair of uterine dressing-forceps and slipped in without the speculum, the woman lying on the back. In ordinary cases they should be introduced through the short cylindrical, or one of the varieties of Sims's speculum. The introduction is most easily accomplished with the last in all cases, and in some it can only be effected with it. The uterus being fixed and held by the tenaculum, Fig. 22,

Fig. 22.



Tenaculum for fixing the uterus.

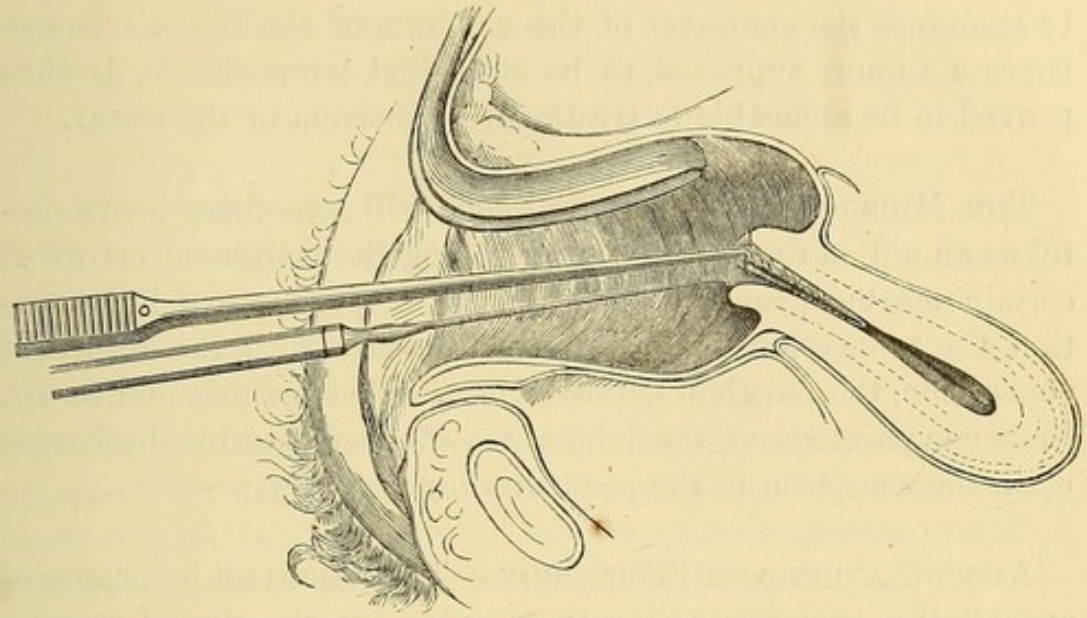
the tent grasped by a pair of mouse-tooth forceps, is directed in coincidence with the axis of the uterus, as ascertained by the probe, and gently pushed through the cervix, as represented in Fig. 23.

Should its retention be doubtful, a mass of cotton is then packed against it so as to keep it in place, and the woman is directed to keep quiet upon her bed until it is removed.

Its removal is accomplished, through the speculum, with the same forceps by which it was introduced, in from twelve to twenty-four hours.

Dangers.—There is always danger in dilating the cervix by tents, though it is by no means so great as to make one hesitate in employing them. In a case which I saw in consultation with Dr. Edward Parsons I employed two tents in succession, and, in about twenty-four hours after removal of the second, tetanus developed itself, which proved fatal. In one case, in the practice of another physician, I have seen death result from peritonitis after their use; and in three others have known peri-uterine cellulitis thus produced.

Fig 23.



Introduction of a tent. (Sims.)

THE ENDOSCOPE.—This instrument consists merely of a long cylindrical tube of metal, through which, by a very strong light, we are able to see for a considerable distance down narrow canals. It has been employed for visual examination of the deepest portions of the urethra, and by means of reflecting mirrors even hollow viscera, as the bladder, have been explored. I have not experimented with it sufficiently to determine what can be accomplished by it for the diagnosis of uterine disorders, but have satisfied myself that as far as the os internum it may be used with slight advantage. I have employed a straight tube only, and hence have not been able to explore the body of the uterus, but varieties which are bent and supplied with mirrors have been used. If the cervix be dilated, the endoscope may be at once introduced after the part has been carefully cleansed of mucus. If it be closed, it will be necessary to dilate it with a tent, and to wash away all blood oozing forth in consequence, with ice water, which will check further flow. Then the tube is carried up through the speculum to the requisite extent, and the light to be employed thrown through it. The endoscope will, probably, never prove of great value in this field.

THE EXPLORING NEEDLE.—By means of a long, delicate needle, or very narrow tube, constituting a canula for a trocar the size of a small knitting-needle, the contents and characters of tumors in the pelvis may be ascertained. These instruments are not employed

in treating cysts, but are required only to remove sufficient fluid to announce the character of the contents of the tumor. Sometimes a tumor, supposed to be solid and irremediable, is thus proved to be amenable to treatment by incision or the trocar.

THE MICROSCOPE.—The microscope will sometimes prove useful as an aid in diagnosis in determining the malignant nature of certain morbid growths, the character of products of inflammation, the connection of intra-uterine growths with the results of conception, the purulent nature of uterine leucorrhœa, and, as Dr. Sims has pointed out, the deleterious effects of uterine discharges upon the zoosperm in the production of sterility.

AUSCULTATION AND PERCUSSION.—The important assistance of auscultation and percussion in mapping out the size of tumors, determining pregnancy, differentiating this from ovarian cysts, &c., is so evident as merely to require a passing mention.

RECAPITULATION OF MEANS FOR EXPLORING THE VISCERA AND TISSUES OF THE PELVIS.

1*st. Vagina and Cervix*—
- Vaginal touch;
- Sight, through the speculum.

2*d. Outer Surface of Uterus*—
- Vaginal and rectal touch, while the organ is brought within reach by hypogastric pressure or the tenaculum;
- Conjoined manipulation;
- Vesico-rectal exploration.

3*d. Cavity of Cervix and Body*—
- Tents, followed by introduction of finger;
- The uterine probe;
- The endoscope.

4*th. The Ovaries, Broad Ligaments, Pelvic Peritoneum, and Pelvic Areolar Tissue*—
- Vaginal touch;
- Rectal touch;
- Conjoined manipulation;
- Abdominal palpation;
- Auscultation and percussion;
- The exploring needle.

CHAPTER IV.

DISEASES OF THE VULVA.

NORMAL ANATOMY.—The vulva is the elliptical opening which exists at the distal extremity of the vagina, and comprises the mons veneris, labia majora and minora, clitoris, meatus urinarius, vestibule, fossa navicularis, fourchette and hymen.

Labia Majora.—From the mons veneris, which consists of adipose tissue covered by skin in which exist numerous hair bulbs, two folds of integument pass downwards to unite at the fourchette. These are called the labia majora. Externally they are covered by skin, which contains scattered hair bulbs, but on their inner surfaces their covering is mucous membrane, which is studded with sebaceous follicles, the secretion of which is unctuous and semi-solid. Within, the labia are filled with adipose tissue, a portion of which is inclosed in sacs of which one arises from each external abdominal ring and extends downwards towards the fourchette.

The Clitoris.—Beneath the superior commissure of the labia juts forward a little erectile organ, which is analogous to the penis of the male, and receives the name of clitoris. It is covered by mucous membrane, consists of erectile tissue, and arises by two rami, one of which is attached to each ramus of the pubes. Like the male penis, this little organ is provided with a prepuce and frenum.

Labia Minora.—These consist of two folds which, arising at the clitoris, pass downwards and disappear about half way between the two commissures. Like the clitoris they are formed of erectile tissue covered over by mucous membrane, and an attentive examination discovers upon their surfaces a large number of glands which secrete a sebaceous material.

The Fossa Navicularis and Vestibule are merely spaces intervening; the first, between the perineum and vagina; the second,

between the meatus and clitoris. They are both covered by mucous membrane, and the latter is studded with follicles.

The Hymen is a thin veil consisting of a double fold of mucous membrane, which in part closes the ostium vaginæ. When ruptured its remains contract and form little tubercles on the walls of the vagina, which receive the name of carunculæ myrtiformes.

Passing over the clitoris, to which it is attached, and running downwards on each side of the vulva so as in part to cover the bulbi vestibuli, will be seen a muscle, the sphincter vaginæ. Some of its fibres pass down to the perineum to inosculate with the sphincter ani, with which it continues as a figure 8, but the greater portion decussate to the surrounding areolar tissue.

Vulvitis.

Definition.—Vulvitis is the name applied to inflammation of the mucous membrane lining the vulva. Affecting all of this structure, its surface covered by epithelium and the glands imbedded in it, the inflammatory action sometimes extends through the submucous tissue into the proper structure of the parts underlying it, creating tumefaction, pain, and sometimes even suppuration.

Varieties.—Authorities differ with regard to the classification of its varieties.

That which appears most appropriate is the following:—

Purulent vulvitis;
Follicular vulvitis;
Gangrenous vulvitis.

Purulent Vulvitis.

This variety of the affection may be either of non-specific form, or a true gonorrhœa of the vulva. The former is in many respects analogous to ulcerative stomatitis, while the latter resembles very closely specific inflammation in other mucous membranes of the body.

Causes.—It may result from

Vaginitis;
Want of cleanliness;
Injury;
Eruptive disorders;
Onanism;
Chemical irritants.

Symptoms.—The parts are red, swollen, hot and at first dry. Then a free flow of pus takes place which bathes the whole surface and stains the linen of a yellow hue. In addition to these signs of active inflammation, superficial ulcers will be found scattered over the parts affected, and in rare cases patches of diphtheritic membrane will be seen adhering to them. At times the meatus urinarius becomes affected, and painful micturition, with scalding and heat, is complained of. At others the most intense pruritus affects the vulva, and the patient, in endeavoring to obtain relief, may contract the habit of masturbation. Should the inflammation extend to the vagina, the symptoms of vaginitis will also show themselves, and by a similar extension to the bladder those of cystitis may develop. In severe cases febrile action, with thirst, heat of skin, and general discomfort, is present, but not usually.

Course and Termination.—Even without treatment it is probable that the affection would always be recovered from in time; but it would run a lengthy and tedious course, and perhaps give rise to complications which would be productive of greater evil than the original disorder. When properly treated, it generally runs a rapid course and is readily cured.

Treatment.—If inflammatory action is excessive, the patient should be kept in bed, upon low diet, and the bowels be freely acted upon by saline cathartics. Cooling and emollient applications should be made constantly to the inflamed part, and cleanliness scrupulously observed. The patient should be directed to bathe the vulva freely with warm water three or four times daily, and to apply a warm poultice of powdered linseed, slippery elm, or grated potato. To the poultices may be added with advantage acetate of lead and tincture or powder of opium.

As soon as the acute action has subsided, the lead and opium wash should be kept in contact with the parts, by dossils of lint soaked in it, and placed between the labia. It is thus compounded:—

R.—Tr. opii,	℥ij.
Plumbi acetat.	ʒj.
Aquæ,	Oj.—M.

At a still later period the diseased surface should be painted over several times a day with equal parts of solution of persulphate of iron and glycerine. Should the disorder not be entirely

eradicated by this treatment, the vulva may be painted over once in every forty-eight hours with a solution of nitrate of silver, ten grains to the ounce of water, and kept constantly powdered with lycopodium, bismuth, or starch, until recovery is complete.

Follicular Vulvitis.

Definition and Synonymes.—It has been already stated that in the mucous membrane lining the vulva, more especially in that covering the labia majora, labia minora, and vestibule, numerous follicles exist. Presenting themselves as solitary glands, they are classified under the three following heads—muciparous, sebaceous, and piliferous. In ordinary purulent vulvitis, these, as component parts of the diseased membrane, are implicated in the morbid action. Sometimes, however, they alone are affected by disease, when the name of follicular vulvitis or vulvar folliculitis has been applied to the condition. Any or all the varieties of glands just mentioned may be diseased, and authors have given special names to the varieties, so that a list which would comprise them all would be a long one. As examples may be mentioned papillary, pruriginous, erythematous, sebaceous, granular vulvitis, &c.

We may avoid tediousness of detail, and at the same time run no risk of being led into error, by classing all forms of inflammation affecting the solitary glands of the vulva under the head of follicular vulvitis; provided that we bear in mind that all the varieties of glands may be simultaneously affected, or that one set alone may be diseased, the others remaining healthy.

Causes.—This form of vulvitis may be induced by the following influences:—

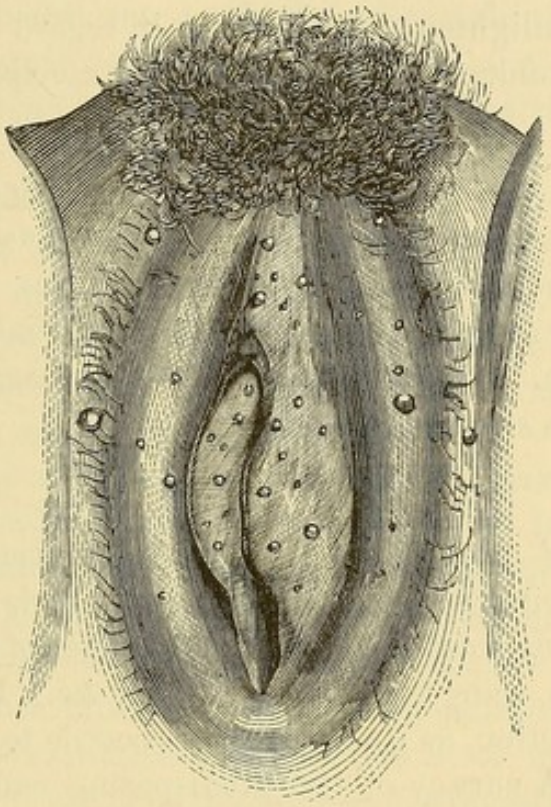
Pregnancy;
Neglect of cleanliness;
Vaginitis;
Exanthemata;
Eruptions on the vulva.

Symptoms.—These are burning, itching, and heat in the vulva, with increase of glandular secretion. At times the secretion is excessively offensive and irritating in character. The urethra frequently becomes inflamed at its vulvar extremity, and scalding in the passage of urine results. The vulva may become so sensi-

tive to touch, that efforts at sexual intercourse excite vaginismus, which thus constitutes a symptom of the disease.

Physical Signs.—Should the muciparous follicles be chiefly affected, the mucous membrane of the vulva is intensely red in spots or patches, which are slightly elevated. These are most commonly found on the edges of the lower vaginal rugæ, the

Fig. 24.



Follicular vulvitis. (Huguier.)

nymphæ, and the carunculæ. They sometimes resemble the swollen villi upon the tongue, and bleed upon slight irritation.

Should the disease have affected chiefly the sebaceous and piliferous glands, little red, rounded papillæ will be found on the surfaces of the labia majora and minora, and the base of the prepuce of the clitoris. After a while a drop of pus will appear in the apex of each, which is soon discharged, and the distended follicle shrivels. Beneath the labia minora a semi-fluid mass of offensive secretion will generally be found, which will, if not carefully removed, conceal the follicles underlying it.

Course and Duration.—If this disorder occur during pregnancy, it may disappear at its conclusion. If not, and it be not appropriately treated, it may continue for an unlimited time and estab-

lish urethritis, not only in the patient, but in her husband. This fact should be especially recollected, for a suspicion of want of chastity may be excited in the mind of the husband, and serious domestic difficulty result.

Treatment.—Follicular vulvitis should be treated upon the same principles as the purulent form, by repeated ablution, warm poultices, sedative washes, and astringents, especially the persulphate of iron and nitrate of silver. Dr. Oldham, who was one of the first to enlighten the profession in regard to this affection, placed great confidence in the following prescription:—

℞.—Acidi hydrocyanici dil. ʒij.
Plumbi diacetatis, ℈j.
Olei cacao, ʒij.—M.
Apply after washing the parts with cold water.

Sometimes the affection lasts for many years, and cure can be effected only by dissecting off the whole of the mucous membrane lining the vulva. By this procedure I have recently cured a case of twenty years standing.

Gangrenous Vulvitis.

Definition and Synonymes.—This singular disease, which is in many of its attributes akin to the cancrum oris of children, has been synonymously described under the names of noma, carbuncle of the genitals, gangrene of the vulva, &c. It is fortunately a very rare affection, as it commonly proceeds to a fatal issue.

Pathology.—A survey of the predisposing causes, none which are exciting being known, will convince the reader that this form of vulvitis, unlike the other affections of the genital organs which we have just considered, is dependent upon a depraved blood state, one somewhat similar to that which produces like results in the mouth and fauces in continued fevers, scarlatina, &c.

Causes.—The constitutional states which are known to result in it are—

Peculiar epidemics of puerperal fever;
An unknown epidemic influence;
Scarlatina, measles, and continued fever.

The affection has sometimes been observed to take on an epidemic character like similar disorders in the throat and mouth.

Symptoms.—Velpeau[1] describes these in the following graphic manner: "A patch or vesicle of grayish, reddish, or blackish

[1] Dict. de Méd., vol. xxx. p. 991.

hue, which ulcerates and soon becomes depressed in the midst of swollen and indurated tissues which are of a red color, forms generally the point of departure. From this moment the gangrene advances step by step; mortification affects the parts; an ichorous, fetid, nauseating fluid bathes the labia majora; separation of the gangrenous patches takes place slowly, and instead of limiting itself the process of destruction continues sometimes to extend until the death of the patient. The vital forces rapidly break down, and many children would die of this dreadful affection if art did not promptly interpose."

A swollen, purplish, and œdematous state of the labia, accompanied by grave constitutional signs, in a child exposed to any of the predisposing causes mentioned, would at once excite the suspicion of one at all familiar, even in theory only, with the existence of this malady. The only disease with which it would probably be confounded is diphtheria of the vulva, and this would readily be differentiated by the patches of false membrane which would cover the mucous lining of the part.

Treatment.—As soon as the nature of the disease is ascertained, both constitutional and local treatment should be promptly and energetically established. The patient should be placed in bed, in an apartment supplied by the purest air, and all depressing influences should be removed from her. The most nutritious food and wine or other stimulants should be administered, and the forces sustained by quinine and muriated tr. of iron in large and repeated doses. If the local disorder be not rapidly arrested, death will undoubtedly ensue in spite of all general means, and no time should be lost in trying inefficient remedies. A powerful caustic is the only hope. The gangrenous spot should be destroyed by the actual cautery or muriatic or nitric acid, the patient being under the anæsthetic influence. After this, disinfectant poultices should be applied, and every effort at sustaining the vital forces continued, and should a fresh gangrenous spot appear, a new application of the caustic should be resorted to.

Inflammation of the Vulvo-Vaginal Gland.

Anatomy.—Just anterior to the hymen, or its remains the carunculæ myrtiformes, will be found on each side a little opening, sufficiently large to admit a small probe or bristle. This opening leads through a canal three-fifths of an inch long, which is the

excretory duct of a conglomerate gland which has received the name of vulvo-vaginal gland. These glands are found, one on each side of the ostium vaginæ, between the vagina and the ascending branch of the ischium, from which they are distant three-tenths of an inch, and lie in contact with the transverse artery of the perineum. The fact that they are separated from the vagina by an aponeurotic prolongation, lie between the superficial and middle layers of the ischio-pubic fascia, and have the unyielding ischium on one side, accounts for the complete confinement of pus forming in their tissue, and its not being discharged by the rectum or vagina. They were described by Duverney, Bartholinus, Morgagni, and their immediate successors, but in time, very singularly, they were lost sight of. In 1841 M. Huguier, of Paris, redescribed them fully, and threw much light upon their diseased conditions.

Sometimes, their mouths becoming occluded by adhesive inflammation, their secretion is retained, and they undergo great enlargement and distension. At others their proper tissue becomes inflamed, as we see that of the breast in mammitis, and abscess is the result.

Causes.—The causes of inflammation of these glands are very much the same as those of vulvitis, of which, indeed, this affection is often a concomitant disorder.

Symptoms.—There is heat about the vulva, pruritus, and pain upon touch. The mouth of the duct is red, and the finger pressed over the site of the gland discovers a hard, painful, and perhaps fluctuating tumor about the size of a large almond.

Course and Duration.—The disease is one of no great moment, and its natural tendency is to recovery. Its usual duration is from two to three weeks, and the inflammatory process may terminate either by resolution or by suppuration. Should the latter occur, the pus may be discharged through the ducts of the gland, near them, or in the furrow between the labia minora and majora.

Treatment.—An emollient poultice or cooling and anodyne lotion should be kept applied to the vulva, and rest should be prescribed until suppuration has occurred. Then, if pain be very severe, the accumulated pus may be evacuated, by means of a lancet, near the mouth of the gland or at any other point where fluctuation is most distinct. If pain be not severe, the evacuation of the pus may be left to nature.

When frequent return of the morbid process makes it advisable to resort to an operation to give permanent relief, extirpation of the gland may be practised. An incision should be made at the point where one labium minus unites with the labium majus, through which the gland may be seized by forceps and dissected out with scissors. The transversus perinei artery will probably be severed, and should be ligated for fear of hemorrhage.

Eruptive Diseases of the Vulva.

The skin and mucous membrane making up the vulva may, like that of other parts of the body, be affected by eruptive disorders of various kinds. It is not my intention to enter with any minuteness into the consideration of these diseases, for which I refer the reader to any of the modern works upon dermatology, but merely to note the fact that they may occur at this part, and mention the leading characteristics of the most frequent of them.

Any eruptive disorder which may elsewhere affect the skin or mucous membrane of the body may show itself at the vulva. The following list includes those which are most commonly met with and most frequently call for diagnosis and treatment:—

Prurigo and lichen;
Eczema;
Acne;
Elephantiasis;
Erythema and erysipelas;
Syphilides.

As is the case elsewhere with prurigo, that of the vulva presents large, scattered papules, very irritating and generally having their apices bereft of cuticle. Lichen shows more numerous papules, and which rest upon a thickened and somewhat indurated cutaneous basis.

In eczema the surface is red, heated, and covered by little vesicles, which, breaking, give forth a serous fluid.

Acne consists in engorgement of the sebaceous follicles studding the labial faces; not in inflammation, which would bring the case under the head of follicular vulvitis, but merely in engorgement by their own retained secretion.

Elephantiasis of the labia differs in nothing from that of other parts.

Erythema and erysipelas are simply accompanied by graver symptoms when they affect the genital organs than when they develop on the skin elsewhere.

Syphilis in secondary and tertiary form may affect the labia, creating hypertrophy, ulceration, and all the evils which it excites in other parts.

These disorders create the ordinary symptoms of vulvitis, and hence they are commonly confounded with it. Pruritus vulvæ is one of their most constant signs, and the itching which it produces often first attracts attention to their presence.

Treatment.—Little need be said here of treatment, for it should be guided by the rules which govern the management of the same cutaneous disorders in other parts of the body. The general health should be carefully attended to; change of air advised; and tonics and alteratives, such as iron and arsenic, prescribed in combination, the second, with the tinctures of cinchona, or gentian; or, the first, with colombo. Local treatment should consist in the maintenance of strict cleanliness by bathing the diseased parts freely in tepid water, and the pruritus, which invariably exists and excites scratching, should be relieved by lotions containing acetate of lead, opium, borax, or a small amount of creasote or carbolic acid.

Phlegmonous Inflammation of the Labia Majora.

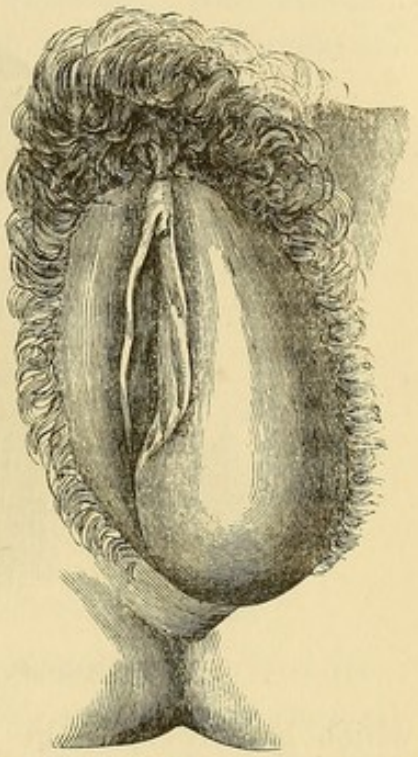
The areolar and adipose tissues, which in great degree make up the bulk of the labia majora, are very frequently the seat of inflammation and abscess. The disease is excited by irritating vaginal secretions, vulvitis, direct injury, and the peculiar blood state which results in the development of furuncles and carbuncles.

Symptoms.—In the first stage there is active congestion, which in the second produces hardness and tension from effusion of liquor sanguinis into the areolar tissue. The third stage consists in the breaking down of this mass by the process of suppuration and formation of abscess. The pus which is thus created is usually very offensive from propinquity to the rectum and vulva. Fig. 25 represents the disease.

The diagnosis is usually very easy. Attention is directed to the part by heat, pain, throbbing, difficulty of locomotion, and exquisite sensitiveness upon pressure. Upon physical explora-

tion one labium is found very much swollen, and quite hard and tender. Although this is usually the case, care must always be taken to differentiate it from labial hernia, displacement of an ovary, pudendal hæmatocle, œdema labiorum, and vulvitis. As this point will engage our attention elsewhere, it requires no further mention here.

Fig. 25.



Phlegmonous inflammation of the labia majora. (Boivin and Dugés.)

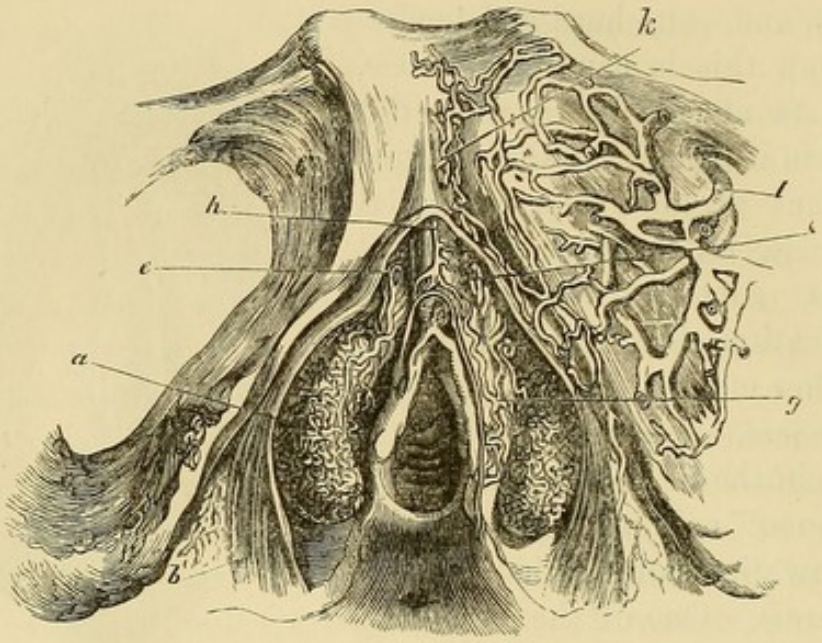
Treatment.—The treatment should consist, in the first stage, of the application of cold and sedative lotions, low diet, saline cathartics, and perfect rest. One of the best local applications will be found to be the lead and opium wash. As the second stage advances the process of suppuration, which is now inevitable, should be encouraged by poultices, and as soon as pus is distinctly discoverable it should be evacuated by puncture. Early opening is advisable, because the tissues obstinately resist natural evacuation, and the accumulation may pass upwards towards the abdominal ring through the dartoid sac.

Rupture of the Bulbs of the Vestibule.

Normal Anatomy.—If an incision be made by a scalpel through the skin and its subjacent adipose tissue, around the vulva, and all the tissues making up that part be dissected off, a reticulated plexus of large veins will be found beneath the labia called the pars intermedia and bulbi vestibuli. These extensive channels for blood have been represented by Kobelt, as shown in Fig. 26.

Any influence which causes a rupture of these vessels must produce one of two effects; if there be a corresponding rupture of the skin, a free hemorrhage will occur; if not, the blood pouring out into the areolar tissue, surrounding the wounded plexus, will soon form a coagulum, which will constitute a bloody tumor,

Fig. 26.



Plexus of veins of the vestibule. (Kobelt.)

which has received the name of thrombus or pudendal hæmatocele.

Pudendal Hemorrhage.

Especial attention has been called to this condition by Sir James Simpson,[1] who, in 1850, recorded from his own experience, and that of others, a number of instances in which from a very slight rupture of one labium fatal hemorrhage had taken place. He declares that criminal cases have repeatedly occurred in Scotland, in which women, both pregnant and non-pregnant, had suddenly died from pudendal hemorrhage, arising from rupture of the bulbs of the vestibule. Suspicion of injury at the hands of the husbands or neighbors, had been entertained in most or all of the instances referred to.

Causes.—The great predisposing causes are pregnancy, varicose condition of the veins, and a large pelvic tumor.

The exciting causes are:—

Great muscular efforts;[2]
Blows rupturing the labia;
Incisions or punctures;
Passage of the child's head through the pelvis;
Delivery by forceps.

[1] Obstet. Works, vol. i. p. 277, Am. ed.

[2] Prof. Simpson records a case due to straining at stool.

Symptoms.—The hemorrhage that announces the accident will lead to a physical exploration, which will at once reveal the nature of the lesion.

Treatment.—The nature of the accident being once recognized, the control of the flow will not be difficult. If it be not effected by cold and astringents, such as ice, the persulphate of iron, or tannin, the actual cautery will probably check it without delay. Before resorting to this powerful means, however, a stick of nitrate of silver should be passed into the bleeding opening and held there until coagulation of the albuminous elements of the blood takes place. Then pressure, kept up by means of a bandage and compress, will probably accomplish the end in view.

Pudendal Hæmatocele.

Definition and Synonymes.—The term thrombus, derived from the Greek θρομβοω, "I coagulate," and which is used synonymously with hæmatoma and sanguineous tumor, is that which is generally applied to this condition. I have preferred the appellation of pudendal hæmatocele, given to the disorder by Dr. A. H. McClintock, from its pointing out the similarity between it and pelvic hæmatocele, which resembles it in pathology.

Pudendal hæmatocele is a tumor formed by a mass of clotted blood effused into the tissue of the labia, the wall of the vagina, or the areolar tissue immediately surrounding these parts.

History.—As early as 1554, the disease was mentioned by Rueff, of Zurich, and in 1647 Veslingius is said by Dr. Merriman to have noticed it. It attracted the attention of Kronauer, of Basle, in 1734, and subsequently that of Levret, Boer, Andibert, and others.[1] But in time it passed somewhat out of notice, until the researches of Deneux,[2] in 1830, drew attention to it in more recent times. It is generally alluded to by authors only as one of the results of pregnancy aud parturition, though it is incontestably proved that it may occur in the non-pregnant and even in the virgin state. Velpeau records an instance in a girl of fourteen years, who had not yet arrived at puberty, and declares as the result of his experience, that "thrombus vulvæ occurs almost as frequently in non-pregnant women as in those who are

[1] Velpeau, Dict. de Méd., vol. xxx.

[2] Sur les Tumeurs sanguines de la Vulve et du Vagin.

in labor." He declares that he has, in the course of one year, observed six cases in the non-pregnant woman; and in his whole experience he has met with twenty instances of the affection.

Pathology.—The pathology of this condition is identical with that of pudendal hemorrhage, which has just received notice, for both are results of rupture of the bulbs of the vestibule. In that which we are now considering the effused blood, instead of pouring away, collects in the tissue of the labia, under the vagina, or even in the areolar tissue of the pelvis, and forms a coagulum. It bears to pudendal hemorrhage the same relation which a simple fracture bears to one of compound character.

Rupture of a branch of the ischiatic or pudic arteries may, during labor, likewise produce a bloody tumor,[1] but this should not be treated of under the technical head of thrombus, for it would really constitute a case of false aneurism.

Mode of Development.—When a large vessel has been injured, a tumor—perhaps the size of an orange—is suddenly discovered at the vulva. At other times the tumor is quite small, not larger than a hickory nut. The extent of the laceration likewise governs the rapidity with which the tumor forms after the injury has been inflicted. In some instances a slight flow slowly continues until compression from the clot checks it. Thrombus occurring in the non-pregnant state is generally less extensive than that in pregnancy, and is usually confined to the vulva.

Causes.—The causes are identical with those of pudendal hemorrhage, namely:—

Muscular efforts;
Blows rupturing the labia;
Incisions or punctures;
Passage of child's head in labor;
Delivery by forceps.

Symptoms.—The symptoms are usually a sense of discomfort, with pain and throbbing, and if the effusion reaches the urethra, there is obstruction to urination. The patient or attendant will often first recognize the fact that something abnormal has occurred by the sense of touch, practised without a suspicion of the real difficulty.

[1] Meigs' Treatise on Obstetrics, 5th ed., p. 94.

Differentiation.—Care must be observed not to confound the accident with—

Abscess of the labia;
Pudendal hernia;
Inflammation of vulvo-vaginal glands;
A mass of feces in the rectum;
Œdema labiorum.

The mere announcement of the possibility of error in diagnosis is all that is necessary, for the physical characteristics, mode of development, and rational signs of these affections are so different from those of thrombus, that examination will always settle the point with certainty.

Prognosis.—If the sanguineous collection be small, it will, especially in the non-pregnant state, generally disappear spontaneously. If, however, it be large, and if the patient have recently been delivered, there are always two dangers to be apprehended. The lesser of these is hemorrhage; the greater, purulent infection through the walls of the cyst left empty by evacuation of the clot, or the formation of an extensive abscess, which may produce the same result.

Natural Course.—Should the tumor be left to itself, it may be absorbed in a few days and leave no trace; or in five or six days it may burst and discharge; or the clot may become encysted, and remain indefinitely in the tissues.

Treatment.—Should the tumor be small, and not excite much pain, a cooling lotion of lead and opium should be applied, the patient kept quiet, and the evacuations of the bladder and rectum regulated, in the hope that absorption will take place. So soon as evidences of phlegmonous inflammation around the tumor appear, suppuration and discharge should be encouraged by poultices. When the tumor is large, and we feel sure, on this account, that it will not undergo absorption, it is advisable to evacuate the blood-clot by incision. This should be done by means of a bistoury, upon the mucous face of the labium majus, the patient being placed under the influence of an anæsthetic. After an incision has been made, one finger should be inserted, and the clot turned out of its nidus. If hemorrhage ensue, the cyst should be thoroughly washed with solution of the persulphate of iron, and pressure exerted. Should this not check it, pledgets of lint soaked

in this astringent should be passed into the cyst, and, if necessary, counter-pressure exerted per vaginam by a tampon of cotton.

Pudendal Hernia.

Normal Anatomy.—By some anatomists it is stated that the round ligaments of the uterus end in the mons veneris; but this view is not generally accepted. A more careful dissection traces them through the internal abdominal rings, along the inguinal canals, to the labia majora, where they are lost in the dartoid sacs, described by Broca as passing through these folds. The labia majora are unquestionably the analogues of the scrotum of the male, and the round ligaments correspond to the spermatic cords.

Definition.—Down one of these canals, by the side of the round ligament, a loop of intestine, and sometimes a portion of the mesentery, an ovary, or even the bladder, may pass, as inguinal hernia occurs in the male.

The fact that this disease is by no means frequent, makes its recognition the more important, for were the practitioner not aware of the possibility of its occurrence, the intestine might be wounded, under the supposition that the labial enlargement was due to abscess, or distension of the vulvo-vaginal glands.

Causes.—The displacement may be produced by violent muscular efforts, or blows, or falls, as in the male.

Symptoms.—Strangulation of the intestine with its characteristic signs may occur, according to Sir Astley Cooper and Scarpa,[1] although it is very rare. The hernia may usually be overcome by taxis. In one case with which I have met, reduction was extremely difficult, and could only be accomplished by prolonged effort. When the intestine becomes prolapsed, no strangulation existing, a sense of discomfort, upon bending the body or even upon walking, directs the patient's attention to the affected part, and leads her to apply to the physician. By him the nature of the case will at once be suspected, from the peculiar gaseous or airy feel yielded to the sense of touch. Certainty of diagnosis will be arrived at by absence of all signs of inflammation or œdema, impulse felt upon coughing, resonance upon percussion, and the possibility of diminishing the volume of the tumor by

[1] Scanzoni, op. cit., p. 560.

taxis and position. There are no difficulties attending the differentiation of the disease. The danger is that the possibility of hernia at this point may be forgotten, and deductions drawn without considering it. Although the probability of error be not great, the appalling nature of the accident in which it would result, warrants the relation of the following case, which is illustrative of its possibility. A patient called upon me with the following history: she had had an abscess just below the external abdominal ring, which, after poulticing, had been evacuated by her physician, about a month before the time of her visit to me. After this, she had felt well until a week before, when, after a muscular effort, the pain had returned with all the original signs of abscess, and these had continued, although she had painted the part steadily with tincture of iodine, as she had been directed to do in case of such an occurrence. Being in great haste at the moment, I examined the enlargement, while the patient was standing, and under a recent cicatrix, which was painted with iodine, I discovered what I supposed to be a reaccumulation of pus. As the patient came to me in the absence of her physician, merely for the evacuation of this, I placed her in the recumbent posture, and, bistoury in hand, proceeded to operate. But to my surprise, I discovered that change of posture diminished the size of the enlargement. This excited my suspicions, and I found that a recent hernia had occurred under the old cicatrix.

Treatment.—The patient having been placed in the knee-elbow position, the tumor should be grasped, compressed, and pushed up the canal, down which it has descended, until it returns to the abdomen. Then a truss, so arranged as to press upon the external abdominal ring, should be adjusted, and worn with a perineal strap, to keep the compress of the instrument sufficiently low down to effectually close the point of exit. Should strangulation have occurred, and return of the prolapsed part by taxis prove impossible, the case will require the surgical operation for that condition, for a description of which the reader is referred to works on general surgery.

Pruritus Vulvæ.

Definition.—This affection consists in irritability of the nerves supplying the vulva, which induces the most intense itching and

desire to scratch and rub the parts. Although not itself a disease, it is always so important, and often so obscure a symptom, that it requires special notice and investigation.

Pathology.—It has just been stated that it consists in disorder of the nerves supplying the vulva. It matters not whether this be a true neurosis or one secondary to some other pathological state, the great element of pruritus vulvæ is nervous irritability or hyperæsthesia. That it is often excited by irritating discharges and eruptive disorders there can be no question. Whether it ever depends upon idiopathic nervous hyperæsthesia, as some suppose, is doubtful. I have never met with an instance in which it appeared to do so.

Mode of Development and Course.—In the beginning, the irritability and tendency to scratch are sometimes very slight, so as to annoy the patient very little and give her but trifling uneasiness. Sometimes they exist only after exertion, in warm weather, upon exposure to artificial heat, or just before and after menstruation. The disorder is aggravated by the counter-irritation which it demands for its relief. The rubbing and scratching that are practised cause an afflux of blood, render the skin tender and its nerves sensitive, and in time greatly augment the evil by producing a papular eruption. The disease, and the remedy which instinct suggests, react upon each other, the first requiring the second, and the second aggravating the first, until a most rebellious and deplorable condition is developed. It would be difficult to exaggerate the misery of some of these cases. The patient is bereft of sleep by night, and tormented constantly by day, so that society becomes distasteful to her, and she gives way to despondency and depression. It is generally intermittent, in some cases occurring by night, in others only at certain periods of the day. In two cases that I have met, the patients were free from all irritation except at night, when the disturbance and nervous anxiety became so intense as to prevent sleep, except when large doses of opium were given. Loss of sleep, the use of opium, and the nervous disturbance incident to the disease, often prostrate and exhaust the patient to an astonishing extent.

Its duration has no limit, months and even years sometimes passing before relief is obtained.

Causes.—Every practitioner dreads to take charge of an aggravated case of pruritus, for he knows how obstinate the malady

commonly proves. The only reasonable hope of controlling it must rest in viewing it strictly as a symptom, and striving to discover and remove its cause. No fixed prescriptions, however much lauded for their efficacy, should be relied upon. The primary disorder should be sought for and cured, in the hope of removing that one of its results which is most pressing in its demands for relief. Should the case have progressed for some time, it will often be found impossible to decide as to its cause, for the friction excited by it will frequently establish a cutaneous disorder, the connection of which with the pruritus, whether as cause or effect, will be doubtful.

In all the instances of pruritus vulvæ that I have been able to examine early enough to determine as to the etiology, I have found one of the following conditions to exist as the apparent cause of the hyperæsthetic condition of the nerves:—

1*st.* *Contact of an irritating discharge*—
- Leucorrhœa;
- Hydrorrhœa;
- Discharge of cancer;
- Dribbling of urine;
- Diabetes.

2*d.* *Local inflammation*—
- Vulvitis;
- Urethritis.

3*d.* *Local irritation*—
- Eruption on the vulva;
- Animal parasites;
- Onanism.

Of all these, leucorrhœa is the most frequent cause. This symptom of uterine disorder fortunately produces pruritus only as an exception to a rule. Under certain circumstances it appears to possess peculiarly irritating and excoriating qualities, which, even when the flow is very slight in amount, will excite the most intolerable itching. This feature is most commonly observed in the discharge attending pregnancy; and in that of senile endometritis, which covers the vagina with bright red spots, and gives it a glazed look like serous membrane. In an exceedingly obstinate case, occurring in a woman of seventy years, the leucorrhœal discharge was so small in amount that the patient was not aware

of its existence, nor did I appreciate its connection with the disorder until I discovered accidentally that the only relief which could be obtained followed the application of a wad of cotton against the cervix uteri. In every case of pruritus the vagina should be carefully investigated for evidence of leucorrhœa, unless some other sufficient cause is apparent. In the same manner the other vaginal discharges mentioned may cause nervous irritability in the vulva.

I have so often found diabetes accompanied by this symptom that I always examine the urine in obscure cases. This result is probably not connected with the constitutional effects of the disease upon the nerves, but with some direct and local influence exerted by the disordered secretion.

Local inflammation, by the discharge which it excites and the itching which attends it, is very evidently calculated to give rise to pruritus; and yet cases thus established are not the most rebellious with which we meet.

Any form of eruption upon or around the vulva may, and usually does, excite itching. Eczema, prurigo, lichen, and many others, may do so here as they do elsewhere, and the natural warmth of the part, formed as it is of folds of tissue and covered by hair which is thickly interspersed with sebaceous and piliferous glands, makes them the more likely to prove active in causing it.

Animal parasites of two varieties may give rise to it, the pediculus pubis and the acarus scabiei. The first excites enough irritation to beget a lichenoid eruption, while the second produces scabies, or itch.

One of these causes will generally be found to have given rise to pruritus vulvæ, but it is only in originating the difficulty that it will prove active. Very soon secondary influences, as eruptions, excoriations, ulcerations, and increased discharges the results of scratching, superadd themselves as auxiliary agents, and keep up the difficulty.

Treatment.—It has been stated that the first effort of the practitioner should always be to discover the disease of which the pruritus is a symptom, and to endeavor to remove it by appropriate means. Should leucorrhœa be the cause, the uterine or vaginal affection which gives rise to it should be treated. Should an eruptive disorder be found to be the source of the difficulty, the measures which would be advisable elsewhere, laxatives,

baths, change of air, tonics, and arsenic would be equally beneficial here.

But this alone will not be sufficient. While eradication of the mischief is thus attempted, palliative means must be vigorously adopted for the sake of present relief. Should the case be regarded, upon careful investigation, as due to contact of an irritating fluid with the nerves of the vulva, perfect cleanliness should be secured by three, four, or, if necessary, a larger number of sitz baths daily. The vagina should, at the time of taking each bath, be syringed out with pure or medicated water, the irritated surface protected by unctuous substances, or inert powders, as bismuth, lycopodium or starch, from the injurious contact, and in case the discharge comes from the uterus, a wad of cotton should be placed daily against the cervix uteri to prevent its escape to the vulva. A very useful vaginal injection, and wash for the vulva, under these circumstances, is the following:—

℞.—Plumbi acetatis, ʒij.
Acidi carbolici sol. ʒj.
Tr. opii, ℥iv.
Aquæ, Oiv.—M.

This may relieve itching for the time, until removal of the cause of the symptom is accomplished.

In case the pruritus is the result of a local inflammation, this should be treated as elsewhere recommended, by poultices of linseed, potato or slippery elm, to which have been added a proper amount of lead and opium; or fomentations of lead and opium wash, or poppy-heads may be used in their stead. If vaginitis be present, great relief will often be obtained by painting the lining membrane of the canal over with a strong solution of nitrate of silver, or by touching the whole surface lightly with the solid stick.

Should an eruptive disorder be the exciting cause, it should, as already stated, be treated upon general principles. Meantime temporary relief may be obtained by painting the surface of the vulva over with a solution of nitrate of silver (ʒj to ℥j), the use of the ungt. creasoti, ungt. chloroformi, or ungt. atropiæ of the U. S. Dispensatory. Dr. Simpson advises an infusion of tobacco. Should eczema or lichen have produced inflammatory action in the skin and subcutaneous areolar tissue, poultices, &c., should

be employed, as if local inflammation was the cause of the affection.

While these palliative and curative means are being adopted, sleep should be secured by preparations of opium, or one of its substitutes, codeine, cannabis Indica, hyoscyamus, or chlorodyne. At the same time the general state of the patient should be improved by vegetable and mineral tonics, good food, and fresh air. In some cases more benefit will arise from the use of iron, the mineral acids, and sea-bathing, than from any other means.

Coccyodynia.

Definition and Frequency.—This affection consists in a peculiar condition of the coccyx, or the muscles attached to it, which renders their contraction, and the consequent movement of the bone, very painful. It is of frequent occurrence, numerous cases having been observed, since attention has been called to it, by practitioners who saw it previously without regarding it as a special disorder.

History.—Coccyodynia was first described in 1844 by Dr. J. C. Nott, formerly of Mobile and now of this city. Under the name of neuralgia of the coccyx he described a case which so fully embodies the symptoms and treatment of the affection, that I cannot refrain from a free quotation of it.

Extirpation of the Os Coccygis for Neuralgia.—Miss ——, aged about 25, had been very much deranged in general health and suffering from neuralgia for ten months, for which she was treated by an eminent physician in Charleston, and afterwards by Prof. Jones in New Orleans. She came under my care the latter part of June, 1843, at which time her condition was a deplorable one; her general health was completely shattered and strength exhausted; dyspepsia; constant nervous headaches; menstruation regular though difficult; excruciating pain at the point of the coccyx; pains in the uterus, vagina, neck of the bladder, and back. *The most prominent symptom was the excruciating pain at the point of the coccyx, which became intolerable when she sat up, walked, or went to stool, or in short when motion or pressure was communicated to it in any way.* This symptom was so peculiar, that I was led to suspect some organic lesion about the coccyx, and on questioning her closely, she informed me that she had fallen about

four years ago and received a blow upon the coccyx, which gave her a good deal of pain at the time and for several weeks afterwards; but these symptoms passed off, and did not return until about ten months before I saw her. This fact had been concealed from her former medical attendants.

I then told her that her physicians had exhausted all the articles of the materia medica which afforded any prospect of relief, and that she had better consent to an examination to ascertain whether the coccyx, either by disease or displacement, had not become a source of irritation to one or more of the nerves in its vicinity. She consented, and on examining the whole course of the spine, I found no tenderness of any consequence until my finger touched the point of the coccyx, when she screamed with pain. I then proposed the extirpation of this bone as the only chance of relief. She had suffered so long and so severely that she did not hesitate, and told me she was in my hands to do what I thought best, and would submit to anything I would advise.

Accordingly, on the 2d of July, I made an incision down to the bone, and extending from the point upwards two inches; I then disarticulated the bone at the second joint, divided the muscular and ligamentous attachments, and without much difficulty dissected out the two terminating bones. On examining the bones after the operation, I found the left one carious and hollowed out to a mere shell; the nerves were exquisitely sensitive, and the operation, though short, was one of the most painful I ever performed. For several hours after the pains were extremely violent, coming on every ten or fifteen minutes, and accompanied by a sensation of bearing down like labor-pains. Morphine in large doses and other anodynes afforded no relief; the pains became gradually less frequent and less violent; the wound soon healed, and at the end of a month the local disease disappeared and the general health was much improved.[1]

About the year 1860, Profs. Simpson and Scanzoni had their attention attracted to it, and the appellation which I have employed was applied to it by the former.

Anatomy.—The coccyx serves as a point of attachment for the greater and lesser sacro-sciatic ligaments, the ischio-coccygei muscles, the sphincter ani, levatores ani, and some of the fibres of

[1] N. O. Med. Journ., May, 1844.

the glutei muscles. These are thrown into activity by certain movements, as rising from the sitting into the standing posture, the act of defecation, &c., and in such acts the existence of the disorder which we are considering is revealed.

Pathology.—The pain which characterizes it is probably due to a hyper-sensitive state of the fibrous tissues surrounding the coccyx, or that making up the tendinous expansions of the muscles. So long as the bone is uninfluenced by contraction of the muscles attached to it, no pain is experienced, but as soon as contraction produces motion it is excited.

Causes.—It occurs most frequently in women who have borne children, but it is by no means confined to them. I have on two occasions met with it in young, unmarried ladies, and Herschelman reports two cases in children from four to five years of age.

The chief causes for it are the following:—

Parturition;
Delivery by forceps;
Falls or blows upon the coccyx;
Cold;
Exercise on horseback.

Symptoms.—The patient upon sitting down, rising to stand, making any effort, or passing feces through the rectum, experiences severe pain over the coccyx. In some cases this is so severe as to cause the greatest dread of sudden or violent movement. In others, the patient is unable to sit on account of the discomfort caused by pressure on the bone. The most trying process is that of rising from a low seat, and, to accomplish this, the sufferer will obtain all the aid that is practicable, by assistance with the hands, which will be placed as auxiliary supports upon the edges of the chair or stool upon which she rests.

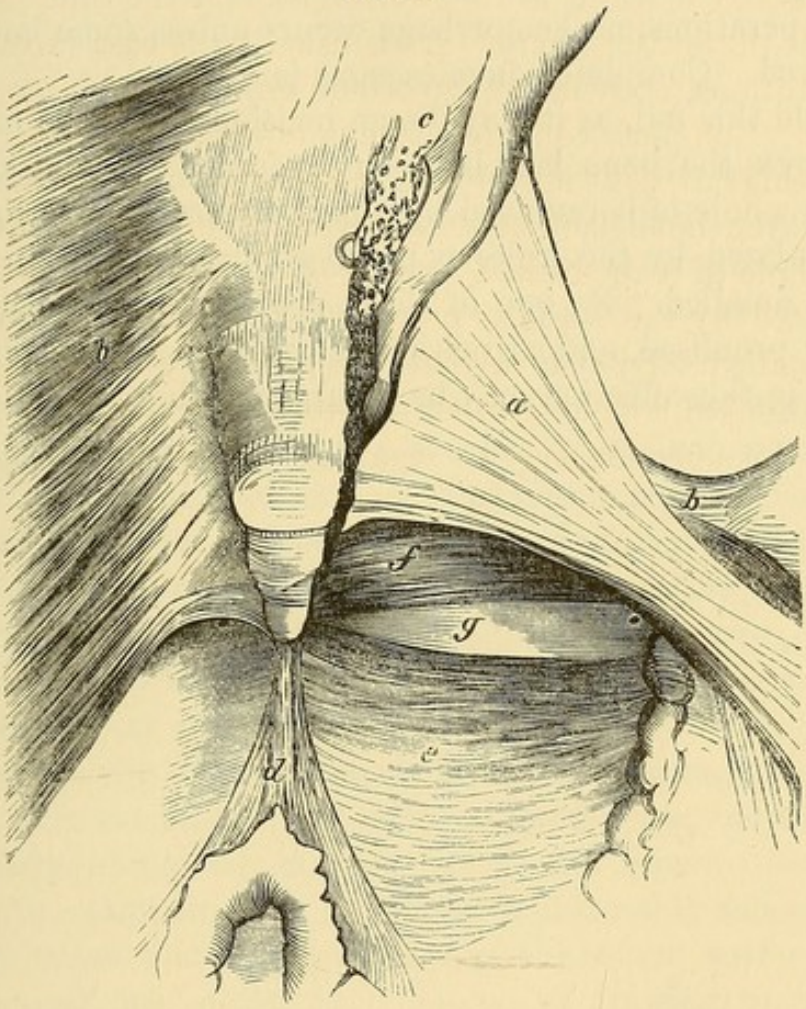
Differentiation.—The only conditions with which this may be confounded are painful hæmorrhoids and fissure of the anus, and from both a careful examination by sight and touch will always readily distinguish it.

Prognosis.—Coccyodynia often lasts for years, annoying and distressing the patient, but never to any degree depreciating her health or constitutional state. If left to nature, it may wear itself out, but it is probable that it would generally remain for a long time, if not relieved by art.

Treatment.—Counter-irritation, opiates by the mouth, rectum,

skin, and hypodermic injection have all been tried in vain in aggravated cases. In slight cases, blistering and the endermic use of morphia may effect a cure, but should they not do so promptly, no great length of time should be consumed in efforts

Fig. 27.



Sketch of the anatomical relations of the coccyx. *a*. Great sacro-sciatic ligament. *b*. Small sacro-sciatic ligament. *c*. Surface from which the gluteus maximus muscle (*h*) has been detached. *d*. Sphincter ani. *e*. Levator ani. *f*. Coccygeus muscle. *g*. Fascia in contact with the rectum. *h*. Glutæus maximus of the left side. (Simpson.)

of this kind. Recourse should at once be had to one of two radical methods of cure—section of the diseased muscles, or amputation of the bone to which they are attached. The first, placed at our disposal by the ingenuity of Prof. Simpson, consists in severing the attachments of all the coccygeal muscles; the second in amputating the coccyx itself, after the plan of Dr. Nott.

The first operation is performed subcutaneously by an ordinary tenotomy knife. This is passed under the skin at the lowest

point of the coccyx, turned flat, and carried up between the skin and cellular tissue until its point reaches the sacro-coccygeal junction. Then it is turned so that in withdrawing it an incision may be made which entirely frees the coccyx from muscular attachments. The knife is then introduced on the other side so as to repeat the section there. As is usually the case in subcutaneous operations, no hemorrhage occurs unless some large vessel be injured. Complete convalescence is rapid.

Should this fail, as it may do, an incision should be made over the coccyx, the bone laid bare by severance of its attachments, and the whole of it removed by a pair of strong bone forceps, or disarticulated by the knife as practised by Dr. Nott in the case already detailed. By one of these procedures cure can be confidently promised, and as neither is attended by danger, our resources in this affection may be regarded with great satisfaction.

CHAPTER V.

RUPTURE OF THE PERINEUM.

Definition.—The perineum, which consists of the union of the tendons of a number of strong and important muscles intervening between the verge of the anus and that of the vagina, may by certain traumatic agencies be torn or ruptured so as to weaken the normal support of the posterior wall of the vagina.

Normal Anatomy.—The perineum extends from the edge of the anus to that of the vagina over a space of an inch or an inch and a half. It consists of skin, areolar tissue, and the tendinous expansions of several muscles, and is covered over internally by the posterior wall of the vagina, which ends at the fourchette. No muscular tissue exists at the raphé of the perineum, but this part is formed by the junction of the following muscles, which have there a point of attachment; the sphincter ani attached posteriorly to the tip of the coccyx, the sphincter vaginæ passing upwards over the clitoris and attached to its crura, and the transversus perinei attached on each side to the tuberosities of the ischia. An examination of a diagram representing this part will show that rupture of the perineum at the raphé will result in destruction of one of the fixed points, by drawing upon which the muscles there inserted act, and that the other point, remaining fixed, the lips of a wound existing there must be made to gape.

Another fact connected with the anatomy of this part which must be borne in mind, is that it is the inferior support or buttress for the distal extremity of the posterior wall of the vagina. This wall runs to the end of the perineum, arching backwards towards the rectum. Should its support be destroyed, the vaginal wall may be affected unfavorably in two ways: first, the destruction of the perineal raphé weakens the sphincter vaginæ, and thus the whole of the ostium vaginæ loses support; second, the distal extremity of the posterior wall being carried, by the rupture and subsequent cicatrization, farther back towards the coccyx, the

previously existing arch is impaired, and prolapse is rendered probable. Figs. 28 and 29 will illustrate this view.

Fig. 28.



Normal perineum; posterior wall of vagina arching backwards, and ending at the fourchette.

Fig. 29.



Ruptured perineum; posterior arch destroyed.

It is evident that the greater the extent of the laceration the more serious will be the evils which will accrue from it.

Results.—The following are the evil results which may follow this accident, directly or remotely:—

Prolapsus vaginæ with cystocele or rectocele;
Prolapsus uteri;
Incontinence of feces and intestinal gases;
Prolapsus recti;
Cervical metritis, the result of friction.

These evils do not follow when the accident has involved the perineum to so limited an extent as not to have sundered the union of the sphincters, or at least they are not likely to occur. Even when the two passages are laid into one, it is sometimes surprising to see how little the patient may suffer; but generally, under these circumstances, her condition is truly deplorable. Fecal matters and gases pass without control, and the uterus, vagina, bladder and rectum tend so strongly to descend, that exercise, muscular efforts, or tenesmus, produce weariness, pelvic pain, and traction upon the broad ligaments. In some instances, so great is the disturbance of function that the unfortunate woman finds herself an object of disgust to her associates and even of loathing to her husband.

Varieties.—All cases may be classed under four heads:—

1st. Superficial rupture of the fourchette and perineum, not involving the sphincters;

2d. Rupture to the sphincter ani;

3d. Rupture through the sphincter ani;

4th. Rupture through the sphincter ani and involving the recto-vaginal septum.

Causes.—The usual causes of the accident are,

Parturition;
Passage of a large tumor;
Use of forceps;
Manual delivery;
Craniotomy;
Injury by falls or blows.

Minute details upon this subject and upon means which should be adopted for prevention, belong rather to a work upon obstetrics. All that is necessary to state here is that parturition is the great exciting cause of it, and that it is never met with in nulliparous women, except after removal of large tumors per vaginam.

Prognosis.—In an incomplete case of slight character, in which neither the sphincter vaginæ nor sphincter ani has been injured, no evil will probably result. Although the wound, occurring as it does immediately after labor, is extremely unlikely to heal by first intention, it may do so by the process of granulation without surgical interference other than binding the thighs together, and producing constipation by opium.

The first and second varieties of the accident are very generally trifling in their consequences, and frequently pass unnoticed by both patient and attendant. The third is an evil of much greater moment, and not at all likely to undergo spontaneous cure; while the fourth represents the most serious form of the condition.

The greater the injury the less likely will be spontaneous recovery, and the more probable the complications and results which have been mentioned. It may be affirmed, in a general way, that any laceration which does not entirely sever the sphincter ani may heal without surgical treatment, and that none which converts the two passages into one will do so. Even when the rupture has been complete it has been asserted that spontaneous cure has taken place, but such reports need confirmation. Peu[1] once affirmed that he had seen a woman thus

[1] Velpeau, Traité de l'Art des Accouchements, vol. ii. p. 639.

injured, and who passed her feces involuntarily, entirely recover. De La Motte declares that thirty years afterwards he met and examined Peu's patient in Normandy, and found that no recovery had occurred.

Treatment at Time of Occurrence.—If the case be an incomplete one in which it is not deemed advisable at once to resort to suture, an effort should always be made to secure union of the lips of the wound by the following means. The wound being thoroughly cleansed of blood clots, which would prevent union, the thighs should be brought together and kept in contact by a bandage placed around them at the knees. The patient should then be placed upon the side so as to cause the lochial discharge to flow through the superior vaginal commissure, and prevent its pouring over the raw surface. Opium should be given to produce constipation, the bladder be kept empty by use of the catheter, and, once or twice in every twenty-four hours, the patient should turn upon the back, in order that the vagina may be cautiously and gently syringed out with tepid water.

This plan should be pursued for ten or twelve days, in the hope that union may occur, though, unfortunately, in the great majority of instances, it will not be rewarded by success.

Time for Operation.—Upon this point authorities differ widely; some urging immediate action, some advising delay until the effects of parturition have entirely passed away, while others compromise the matter by giving preference to the plan of waiting a few days only. To the first class belong Baker Brown, Demarquay, Scanzoni, Simon, and others of equal weight. Scanzoni thus clearly points out the advantage of early interference: "The operation should be performed just after the delivery, because it is more likely that the bleeding lips of the wound will then unite, and because, vivification of the edges not being necessary, the procedure is simpler and less dangerous." The worst cases of the accident with which we meet generally follow instrumental or manual delivery, and when the discovery of its occurrence is made the patient will usually be in a profound anæsthetic sleep. Every operator should be prepared, under such circumstances, to attempt repair, for, if it succeeds, the patient will be saved much suffering, while failure will not in any wise depreciate her condition. I have in a number of instances resorted to immediate operation, and the result of my experience leads me

always to adopt it, unless the sphincter ani and recto-vaginal wall be implicated in the laceration to such an extent as to make the operation a serious and lengthy one, or to insure the passage of lochial discharge between the lips of the wound. Among those who are opposed to immediate interference are Roux and Velpeau; while Nélaton, Verneuil, and Maisonneuve advise delay for a few days, when all hemorrhage will have ceased and the edges of the wound be covered by granulations.[1]

Treatment of Cases which have cicatrized.—The operation which is now universally adopted in these cases, and which has received the name of perineorraphy, consists in vivification of the edges of the lips of the wound and their approximation by sutures. Although the accident for which this procedure is instituted was described by the ancients, no surgical means of cure were ever advised for it until the time of Ambrose Paré. He advised the suture, and was followed in its use by his pupil Guillemeau. Subsequently it was employed by Delamotte, Saucerotte, Trainel, Noel, and others. Dieffenbach employed it successfully, adding to the operation oblique lateral incisions involving the skin and areolar tissue, for the purpose of relieving tension upon the parts brought together by suture.

About the year 1832, Roux, of Paris, obtained the most brilliant results from the operation, and probably its elevation to the position of a reliable surgical procedure was due more to his achievements than to those of any other individual. He employed the quilled suture, and cured by it four out of the first five cases operated upon. Although such success was obtained in France at this period, we find English writers, as late as 1852 and 1853,[2] doubting the efficacy of sutures, and advising that assistance should be limited to aiding the efforts of nature. Of late years rapid advances have been made in the operation by Mr. Brown in England; Verneuil, Laugier, Demarquay, and others in France; Langenbeck in Germany; and Sims, Emmet, Bozeman, and Agnew in the United States.

The varieties of the operation now before the profession are too great to require enumeration. Operators differ chiefly in these respects: some cut the tissue of the perineum or the sphincter ani,

[1] Wieland and Dubrisay, French Trans. of Churchill on Dis. of Women.

[2] Baker Brown, Surgical Diseases of Women.

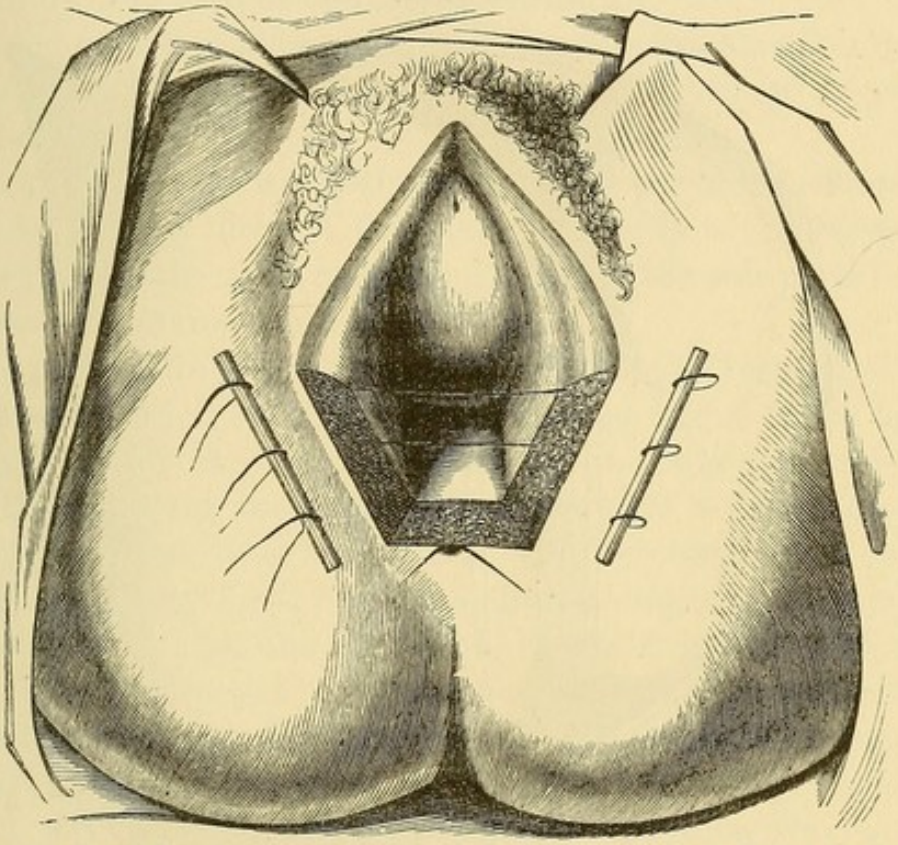
and employ the quilled suture, while others make no "liberating incisions," as the French surgeons style them, and employ the interrupted suture. As a type of the first class I shall describe the operation of Mr. Brown, and of the second that of Dr. Sims, explaining the omission of other methods by the statement that one of these will always succeed in effecting a cure when performed with the requisite skill.

Preparation of the Patient.—The general health being in proper condition, the bowels should be thoroughly evacuated a day or two before the operation by some mild cathartic, and the vagina thoroughly syringed out to remove secretions, and quiet local irritation. The patient, dressed for bed, should be placed upon a table before a window admitting a strong light, in the position for lithotomy, and put under the influence of an anæsthetic. Four assistants will be serviceable, although three would answer the purpose. One of these should administer the anæsthetic, one should hold the knees, and the third should attend to the duty of sponging blood from the wound.

Baker Brown's Operation.—The instruments required are a scalpel, a blunt-pointed, straight bistoury, a pair of long dissecting forceps, three large needles, several small ones, a tenaculum, pieces of gum-elastic catheter to act as quills, common hemp twine waxed, and sponges. All being in readiness, an assistant holds the sides of the fissure so as to secure tension, and the operator, by means of a bistoury, removes all the cicatricial tissue, first from one edge, and then from the other. This should be done so as not only to vivify all the cicatricial surface, but also the superficial layer of tissue above the cicatrix. After this the external sphincter of the anus is divided, with the skin and areolar tissue lying over it. The muscle is cut on both sides, about a quarter of an inch in front of its attachment to the os coccygis, by two incisions, carried outwards and backwards, as represented in Fig. 30. For this purpose a blunt-pointed bistoury, guided by the finger, is carried up the rectum for an inch and a quarter, and by it an incision of an inch in length is made, extending outward from the anus, between the coccyx and tuberosity of the ischium. The thighs are then approximated and the sutures introduced. The left edge being grasped between the thumb and fore-finger of the left hand, a strong needle, armed with a double thread, is inserted an inch external to the pared surface, and passed down-

wards and inwards so as to make its point come out at the bottom of the denuded surface. It is then passed through the opposite lip, and brought out through the skin, at the same distance from the edge of the wound. This suture is passed at the upper angle.

Fig 30.



Shows the denuded surfaces and the insertion of the quill suture before the parts are brought together, and also the division of the sphincter on each side of the coccyx. (Brown.)

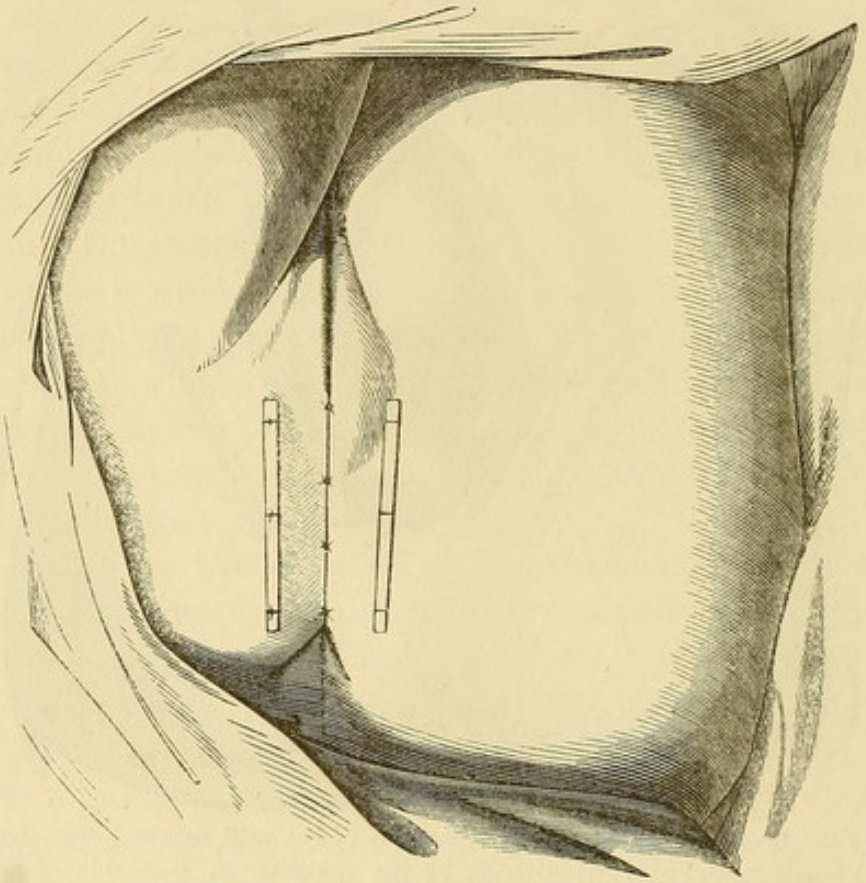
Another suture is then passed in the same manner at the middle, which should go as deep as the septum, and even pass through it. A third suture is then passed at the lower angle. Two bits of gum-elastic catheter are now placed, one on each side, the first within the loops of the suture, the other at the opposite extremities. The sutures are then tightened, the opposing lips adjusted, and the sutures tied.

From four to six silver sutures are then passed through the edges of the skin, and the operation is complete.

Mr. Brown advises that before the patient is removed the index finger of the right hand be passed into the rectum, and that of the left into the vagina, in order to ascertain that apposition is complete. The parts are then sponged, and a cold water dressing

applied and secured by a T bandage. The patient is kept in bed upon unstimulating but nutritious diet, the bowels constipated by opium, and the bladder frequently emptied by the catheter. The deep sutures should be removed in from three to six days, and

Fig. 31.



Shows the wound closed. (Brown.)

on about the eighth day the superficial ones may be withdrawn. During convalescence the vagina should be syringed out with warm water, or with a weak solution of chloride of soda, if offensive discharge exist. Constipation should be kept up by the use of opium for two or three weeks, and when alvine discharges do occur they should be encouraged, and rendered easy by enemata.

Should a perineo-vaginal or rectal fistula remain, Mr. Brown thinks highly of the actual cautery in its cure.

Sims's Operation.—The operation performed by Dr. Sims differs from that just described in many respects, most notably in silver sutures being employed, and no section to afford relaxation being practised, either upon skin and areolar tissue, after Dieffenbach's

plan, or upon the muscles of the part, after that of Horner, Copeland, Cooper, and Baker Brown.

The first operator who treated these cases by metallic sutures was Mettauer, of Virginia, who, in the *Edinburgh Med. and Surg. Journal* (vol. xix. p. 552), described several cases successfully treated by lead used as an interrupted suture.

I avail myself of a description of Sims's operation given by Dr. Emmet, and published in the *N. Y. Med. Journal* of December, 1865:—

"In the operation for closing a lacerated perineum, either partially or entirely through the sphincter ani, it is unnecessary to divide the muscle, or to make incisions into the soft parts for the purpose of relieving tension.

"As early as 1855 Dr. Sims, in the Wŏman's Hospital, simplified this operation by bringing the scarified edges of the laceration together by means of deep, interrupted silver sutures, and from this time the use of the quill suture, or a division of the sphincter ani, has been abandoned. Further experience demonstrated a necessity for the use of a short rectal tube for some ten or twelve days after the operation, that a free escape of flatus might be unobstructed. Where the laceration of the perineum has extended only to the sphincter, the rectal tube is not needed, and three interrupted sutures are generally sufficient; if more extensive, so as to involve the muscle, two in addition are required. The first suture passed should be the one nearest to the rectal mucous membrane, and should be made to follow the laceration entirely around, so as to bring together the sphincter. The second should also include the sphincter, and be passed in the recto-vaginal septum, just beyond the first one. The remaining sutures are introduced [as in the operation for a partial laceration of the perineum] through one labium about half an inch from the edge on one side, introduced from within outward into the other, and withdrawn at a point equally distant, so as to approximate perfectly apposite surfaces. If the laceration has extended up the recto-vaginal septum for some distance beyond the sphincter ani, the edges should be brought together down to the sphincter by interrupted silver sutures, at a distance of about five sutures to the inch. On introducing the first suture to clear the perineum, care must be taken that it is passed between the first and second sutures uniting the septum, and the next one in turn between the

second and third. Without this precaution an opening into the vagina will be produced just behind the sphincter, from the fact that, as one set of sutures is passed at a right angle to the other, on twisting those of the perineum tension would be exerted. This is a weak point, for if the tube is allowed to become obstructed, a small recto-vaginal opening will always result from the escape of flatus in this direction. I always scarify by means of scissors; it can be done rapidly, and with less hemorrhage. The knees should be kept tied together for ten days after the operation, and the urine drawn with care, so that none is allowed to escape over the surfaces brought in apposition.

"The sutures of the perineum are usually removed about the sixth day; those within the vagina must remain for two weeks or longer, until the parts are strong enough to admit of the introduction of a speculum. The bowels are to be kept constipated for two weeks, at least, in all cases where the sphincter is lacerated. When the bowels are acted on by either a purgative or warm mucilaginous injection, the success of the operation will greatly depend on the dexterity of the nurse in properly supporting the parts."

In his recent work upon Vesico-Vaginal Fistula,[1] Dr. Emmet declares that to avoid protrusion of the folded lips into the rectum he now employs a hollow, awl-shaped needle, with a handle. By this a larger amount of tissue can be taken into the grasp of the suture, and the operator is enabled to pass his wire thread simultaneously through both lips, which secures more perfect adaptation.

When the lower portion of the rectal wall is involved as well as the perineum, it must be closed before the latter. This may be done by an entirely separate operation, performed a fortnight before the other, or the two openings may be closed at one time. The rectal opening should be closed by vivification of its edges, and approximation by silver sutures, placed a quarter of an inch apart.

[1] Vesico-Vaginal Fistula. By Thomas Addis Emmet. Wm. Wood & Co., N. Y.

CHAPTER VI.

VAGINISMUS.

Definition.—This affection consists in a peculiar sensibility or hyperæsthesia in the nerves of the vaginal mucous membrane at the site of the hymen, which upon irritation produces spasmodic contraction in the sphincter vaginæ muscle.

Frequency.—Vaginismus is of frequent occurrence, and will often be met with in practice. It has received little notice heretofore, not because it is rare, but because the attention of practitioners has not been specially directed to it. Dr. Sims declares that during twenty-four months he met with it seventeen times, and during the past two years I have seen six well marked cases.

History.[1]—The fact that such a condition occurs and becomes a morbid state of considerable importance was known to Dupuytren, Roux, and Burns,[3] of Glasgow. They not only described it, but adopted an operative procedure which has since been revived, and is at present regarded as the most reliable method of cure. Their views did not apparently attract much attention, nor was their import really appreciated until, at a later period, they were insisted upon by Professors Simpson and Scanzoni. Between August, 1861, and October of the same year, it was described by Debout, Michon, and Huguier, and just afterwards by Marion Sims, who applied to it the appellation which I have adopted. By these authors incision, subcutaneous or through the mucous membrane, was recommended in imitation of earlier investigators, after less severe measures have failed in effecting a cure. Since the period last referred to, the affection has been allotted a space in the various systematic text-books which have appeared upon Gynecology.

Anatomy and Pathology.—The mouth of the vagina is closed by

[1] I am indebted to Dr. Parvin for some important corrections of statements made in first edition concerning this subject.

[2] Bul. Gén. de Thérap. Méd. et Chir , 1861.

[3] Simpson, Clin. Lect. Dis. of Women.

a muscle of elliptical shape called the sphincter vaginæ, which is analogous to the accelerator urinæ in the male.[1] This muscle is attached by its upper extremity to the corpora cavernosa and body of the clitoris, some of its fibres passing over that organ so as to compress the vena dorsalis when it is in the state of erection. Passing downwards so as partially to cover the plexus retiformis, a portion of its descending fibres decussate to the surrounding tissues, and some of them go down to unite with those of the sphincter ani, with which it forms a figure 8.

Certain morbid states produce so great a degree of irritability in the nerves supplying the vulva and lower part of the vagina, that upon contact with foreign bodies a spasm occurs in this muscle which constitutes the disease which now engages us. The attention of some has been chiefly fixed upon the nervous condition, the pudic nerve being, according to them, the seat of the difficulty, while others have especially regarded the resulting muscular spasm. It is curious to perceive how, from different standpoints, both parties were led to the same surgical resource.

Causes.—This affection bears to the vagina the same relation which blepharospasm does to the lids, or laryngismus to the larynx; and, like those affections, is not ordinarily a primary disorder, but one which results from some special local cause. It may arise from excessive nervous irritability affecting the whole system, as is often seen in hysterical women, or be produced by some local disorder of apparently insignificant character. Prof. Willard Parker[2] reports a case which was due to an irritable tubercle of the meatus not larger than a flaxseed, removal of which resulted in cure. In other words, it may be an idiopathic affection, or symptomatic only of some other disorder.

The recognized causes of the disease are:—

The hysterical diathesis;
Excoriations or fissures at the vulva;
Irritable tubercle of the meatus;
Chronic metritis or vaginitis;
Pustular or vesicular eruptions on the vulva;
Neuromata;[3]
Fissure of the anus.[4]

[1] Gray's Anatomy, p. 780.
[2] Bul. N. Y. Acad. Med., vol. i. p. 439.
[3] Simpson, Med. Times and Gaz., 1857, vol. i p. 336.
[4] H. Dewees.

Some of these produce it by direct irritation of the nerves of the vaginal mucous membrane; others, by creating a discharge which indirectly establishes the same condition.

Symptoms and Physical Signs.—The patient will generally complain of excessive pain upon sexual intercourse, the mere attempt at which will throw her into a state of nervous trepidation and apprehension. This and sterility will probably be all that will have attracted her attention, though in some cases a marked tendency to spasm will have been noticed upon sudden changes of position, or washing the genital fissure. One or more of these symptoms will call for a physical exploration, when the following facts will be recognized. As soon as the finger is brought into contact with the site of the hymen, the patient will probably spring from her place, complain of agonizing pain, and evince great nervous disturbance. Should the examination be persisted in, introduction of the finger will be found almost impossible, and if it be forced into the canal, a violent contraction of the sphincter will be perceived. If, instead of the finger, a camel's hair brush or a feather be employed, severe pain and contraction will follow even this application to the surface.

There is no other affection with which this can be confounded. All that it will be necessary to decide concerning it, will be whether it is an idiopathic or a symptomatic disorder.

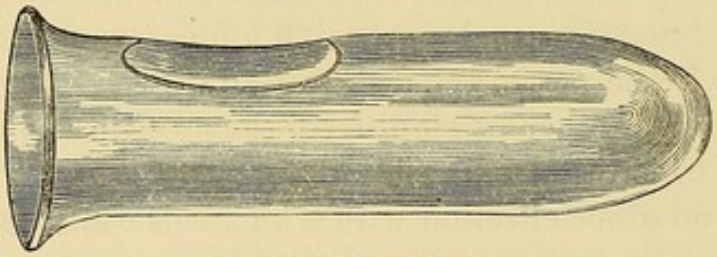
Course and Duration.—In its duration it is unlimited. Cases are recorded in which it lasted for twenty-five and thirty years, and unless relieved by art, it will probably, in its worst forms, become a permanent condition. In its less severe type, and more particularly when dependent upon some other diseased state, it may often be relieved by mild means, or pass away without treatment.

Prognosis.—"From personal experience," remarks Dr. Sims, "I can confidently assert that I know of no disease capable of producing so much unhappiness to both parties to the marriage contract, and I am happy to state that I know of no serious trouble that can be so easily, so safely, and so certainly cured."

Treatment.—Careful search should be made, before the adoption of treatment, for the cause of the affection. Should this be discovered, hope may be entertained that its removal will effect a cure. Should no cause be discovered, or its treatment not be followed by recovery, the general state of the patient should be

altered and improved by exercise, change of air and scene, vegetable and mineral tonics, sea bathing and cheerful society. Exercise on horseback has been especially advised, but rowing, bowling, walking, or any other which develops the system and improves the tone of the nervous organism, will probably answer as well. Local treatment calculated to soothe the excited vaginal nerves should then be resorted to. The free use of vaginal injections containing laudanum, creasote, or acetate of lead is sometimes productive of good. Dr. Peaslee speaks highly of an ointment composed of two grains of atropine to an ounce of lard. This alkaloid, or the extracts of opium, belladonna, hyoscyamus, or stramonium, may be incorporated in an ointment, and applied freely over the sensitive part. At the same time the glass tube, represented in Fig. 32, should be gently inserted into the vagina,

Fig. 32.



Sims's vaginal dilator.

and kept there for as many hours a day as practicable. Its presence will tend to benumb the nervous sensibility and produce a tolerance of foreign bodies. During this treatment the patient should live apart from her husband.

Should success not attend these therapeutic measures, the patient should be thoroughly anæsthetized and the ostium vaginæ stretched to its utmost capacity in the hope that forced dilatation may accomplish for muscular spasm here what it so commonly does for such a condition in the sphincter ani. In a patient whom I saw with Dr. J. S. Thebaud, of this city, dilatation, effected by the thumbs, accomplished a permanent cure.

Should these means fail, the operations of section of the sphincter vaginæ muscle, as recommended by Sims and others, or of the pudic nerve, as recommended by Burns and Simpson, offer themselves as procedures promising cure.

Sims's Operation.—The patient being put under the influence of ether, and placed on the back, upon a table, the remains of the

hymen are entirely excised by a pair of curved scissors. The slight hemorrhage resulting from this will soon cease under the application of a compress wet with ice water, or of a solution of the persulphate of iron.

The index and middle fingers of the left hand are then passed into the vagina, so as to put the fourchette on the stretch. By means of a scalpel a deep incision is then made on the right of the mesial line, terminating at the raphé of the perineum. A similar incision is then made on the other side, the two being united at the raphé, and extended to the perineal integument and through its upper border. Each of these incisions will extend from about half an inch above the upper border of the sphincter to the perineal raphé, thus passing across the muscle, and measuring nearly two inches. They should pass over the sphincter muscles, but not entirely through it, Dr. Sims[1] especially declaring that this is unnecessary.

After this, the vaginal dilator is placed in the canal, either immediately, or in about twenty-four hours, and worn for two hours in the morning, and three or four in the evening, according to the tolerance for it, which is manifested. Fig. 32 represents the glass vaginal dilator, which is three inches long, slightly conical, open at one end and closed at the other, and varying in size from an inch to an inch and a half in diameter. This instrument is kept in place by a T bandage, and should be worn for two or three weeks.

Dr. Emmet has altered Dr. Sims's method of performing the section, which he makes complete, so far as concerns the fibres of the sphincter vaginæ inosculating with the sphincter ani. Passing the index finger into the vagina, the patient lying in the lateral position, he elevates upon it the sphincter vaginæ, which feels like a cord rolling upon it. Then, by means of a pair of scissors, he clips the muscle upon both sides of the perineal junction, and the operation is complete.

Burns' Operation.—This operation is described by Simpson[2] in the following manner: The pudic nerve "is often preternaturally sensible, so as to cause great pain *in coitu* as well as at other times. It may be exposed by cutting through the skin

[1] Trans. N. Y. Acad. of Med., pp. 61 and 62.

[2] Dis. of Women.

and fascia, at the side of the labium and perineum; beginning on a line with the front of the vaginal orifice, and carrying the incision back for two inches. The nerve being blended with cellular substance is not easily seen in such an operation; but it may be divided by turning the blade of the knife and cutting through the vagina to its inner coat, but not injuring that. It may be more easily divided by cutting from the vagina. Slitting merely the orifice of the vagina will not do; we must carry the incision fully half an inch up from the orifice, and also divide the mucous membrane freely in a lateral direction."

Dr. Simpson has modified the operation of Burns by simply cutting the pudic nerve subcutaneously by a tenotomy knife. With regard to its efficiency I have no experience, but it is spoken of with confidence by those who have employed it. There is no reason why it should not accomplish what Sims's operation does, for in the latter the muscle is not cut, but the mucous membrane merely, so as to divide "the nerves of the part" as the author expresses it. The pudic nerve arises from the lower part of the sacral plexus, passes out of the pelvis through the great sacro-sciatic foramen, below the pyriformis muscle, and returns to it through the lesser. It then divides into the dorsal nerve of the clitoris and the perineal nerve.

The act of parturition would be very likely to remove this condition entirely, but unfortunately one of the most constant of the results of vaginismus is sterility. This arises from the fact that sexual intercourse is so painful that it is imperfectly performed, or, as is more commonly the case, all efforts at overcoming the obstacle to it cease, and the woman lives *absque marito*. Should this state of things be found to exist, the patient may be thoroughly anæsthetized, in the hope that complete connection, accomplished under these circumstances, may result in pregnancy.

For a number of interesting cases of this character the reader is referred to Dr. Sims's work upon uterine surgery.

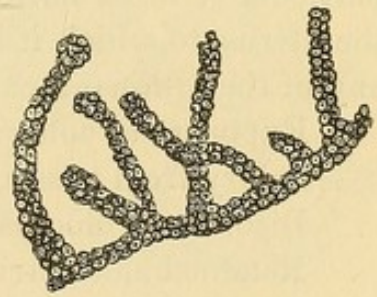
CHAPTER VII.

VAGINITIS.

Definition and Synonymes.—The mucous membrane lining the vagina is subject to inflammatory action, which receives the name of vaginitis. It is the same disease which by certain authors has been described under the titles of vaginal leucorrhœa, blennorrhœa, and blennorrhagia.

Normal Anatomy.—The vagina is a canal which extends from the vulva to the os uteri externum. Its general form has been aptly likened, by Dr. Savage,[1] to that which would be assumed by a flexible tube if shortened to nearly half its length by a cord passed from end to end through one of its sides. The ridge thus formed is called the anterior column of the vagina, and marks the vesico-vaginal septum. It is about two inches long, while that of the posterior wall, the posterior column, as it is called, is twice that length. The anterior column, or cord, which shortens the vagina, puckers its investing mucous membrane and throws it into folds or rugæ, which run transversely towards the posterior column. This mucous membrane is studded with papillæ, which are covered by pavement epithelium. The papillæ of the vagina, which were first fully described by Dr. Franz Kilian, were regarded by him as sensitive in function. He represents them as being threadlike and filiform, as shown in Fig. 33.

Fig. 33.



Filiform papillæ of the vagina. (Kilian.)

Much discussion has occurred among anatomists as to the presence of muciparous glands between the folds of the vaginal mucous membrane, some asserting and others as positively denying their

[1] On Female Pelvic Organs.

existence. The researches of Huschke, Jarjavay, Jamain, and other eminent investigators, enable us to accept their existence as an undoubted fact, though it is curious that Charles Robin[1] and Sappey[2] have been unable to discover them. The vagina may then be said to be lined by a mucous membrane which is covered by epithelium, and thrown into folds which are studded by projecting, filiform papillæ, between which lie numerous muciparous follicles.

Varieties.—Vaginitis assumes three forms, which differ so widely in their pathology, etiology, and symptoms, as to require separate investigation. They are denominated as follows:—

Simple vaginitis;
Specific vaginitis;
Granular vaginitis.

Simple Vaginitis.

Definition.—This variety of vaginitis consists in inflammation of the mucous membrane of the vaginal canal from some cause disconnected with gonorrhœal contagion.

Varieties.—It may exist in the acute or chronic form, either of which types may appear originally or be the result one of the other. The acute form may be excited by some special cause and rapidly pass into the chronic; or, originating as a low grade of inflammation, the disease may at any time take on the characters of virulence and acuity.

Causes.—In the great majority of instances this affection, more particularly in its chronic form, depends upon a discharge from the uterus, to which it is secondary. It may, however, arise from any of the following exciting influences:—

Exposure to cold and moisture;
Injury from pessaries or coition;
Disordered blood states, as in phthisis and the exanthemata;
Retained and putrifying secretions;
Chemical agents;
Parturition.

After matrimony the acute form is not unfrequently excited, and in prostitutes, whose occupation involves an abuse of sexual intercourse, it is quite common.

[1] Nysten's Dictionary. [2] Descriptive Anatomy.

A bit of sponge, or other substance which retains the natural secretions, left in the vagina until putrefaction occurs, will often induce the affection, and three of the most virulent cases that I have ever met were caused by contact of a solution of chromic acid with the vaginal walls in making an application to the uterus.

Symptoms.—Acute vaginitis manifests itself by the following symptoms:—

A sense of heat and burning in the vagina;
Aching and weight at the perineum;
Frequent desire for micturition;
Profuse purulent leucorrhœa of offensive character;
Violent pelvic pain and throbbing;
Excoriation of the parts around the vulva.

In the chronic form the disease shows the same symptoms, though with much less severity. In very mild cases, only a slight itching or burning sensation is experienced, with discharge of leucorrhœal matter.

Physical Signs.—When the inflammation is acute the labia are found swollen and tense, the mucous membrane of the vaginal canal red and covered with pus, and the animal heat very much increased. Introduction of the finger produces great pain, and often cannot be tolerated. For a period varying from fifteen to thirty hours after the inception of the disease, the natural secretion of the part is checked; then there pours forth freely pus of acrid and offensive character, which, in a week or ten days, is replaced by muco-purulent material. This discharge is found to consist of liquor puris, large numbers of epithelial cells, pus, blood-globules, and an infusorial animalcule called the trichomonas vaginalis by M. Donné, who first described it. By some the last has been regarded as ciliated epithelium separated from the uterus, but it is probably an animalcule which exists in vaginal mucus of unhealthy character. M. Donné at first regarded

Fig. 34.



Epithelium in all stages of development, in simple vaginitis. 220 diameters. (T. Smith.)

it as characteristic of specific vaginitis, but subsequently renounced the view.

Prognosis.—In its acute form it usually runs its course in about two weeks. In the chronic form it lasts for an indefinite time, often subsiding into ordinary vaginal leucorrhœa, or rather into a state of which this is the only prominent symptom.

Differentiation.—Simple vaginitis may be confounded with—

Gonorrhœa;
Endometritis,
Pelvic abscess;
Cervical ulceration.

From the first the differentiation is always difficult and frequently impossible. The means by which it may sometimes be accomplished will be mentioned in the article relating to Specific Vaginitis. From the three remaining affections it is readily distinguishable by the speculum and vaginal touch. An error will be committed only when the practitioner is not alive to the possibility of its occurrence, and draws his conclusions from insufficient data. I have seen two cases of profuse and obstinate vaginal discharge regarded as the result of vaginitis, which were in reality produced by pelvic abscesses that emptied their contents into the upper part of the canal. An element in such cases calculated to mislead a superficial examiner is the fact that vaginitis does really exist to a limited extent as a result of the purulent flow from the abscess. This remark likewise holds true in reference to endometritis and ulceration.

Complications.—Vaginitis sometimes produces violent urethritis, and less frequently results in endometritis, Fallopian salpingitis, and pelvic peritonitis.

Specific Vaginitis, or Gonorrhœa.

Definition and Synonymes.—This variety of the affection consists in inflammation of the vulva, vagina, and urethra, arising from a specific contagion which is transmitted by a yellow, purulent discharge.

Pathology.—The purulent material which is the contagious element, after remaining for some time in contact with the vaginal walls, excites in their investing mucous membrane an active hyperæmia which results in heat, swelling, pain, and an ichorous

and abundant purulent secretion. This inflammation may be simulated by simple acute vaginitis, but its most characteristic features are usually excited by the contagious influence just alluded to. The disease may affect all the localities above mentioned at the same time, but very often it is limited to the upper part of the vagina, to the vulva, or to the urethra. In some cases it is for a length of time concealed in the vaginal cul-de-sac, no other part of the vagina being affected. This fact explains, says Alphonse Guérin,[1] how women apparently healthy transmit gonorrhœa.

Causes.—As there is but one cause for scarlet fever, for measles, and for variola, namely, absorption of a specific poison or contagious material, so is there but one cause for gonorrhœa. It is true that simple acute vaginitis may simulate gonorrhœa so closely that the most experienced observer will be foiled in diagnosis, but this fact does not prove the diseases identical. The poison of gonorrhœa produces inflammatory results as a certain consequence; the causes of acute vaginitis produce them as an accident which probably in a different state of the patient's system would not have occurred.[2]

Symptoms.—The symptoms of this variety of vaginitis differ very little, indeed in many cases not at all, from those of the simple acute form. They may be thus enumerated:—

Heat and burning in the vagina;
Aching and sense of weight at the perineum;
Frequent desire for micturition;
Scalding in the passage of urine;
Profuse purulent leucorrhœa of offensive character;
Violent pelvic pain and throbbing;
Excoriation of the parts around the vulva.

Physical Signs.—The vulva, vagina, and urethra will be found swollen, tense, red, and hot. In the beginning they are unnaturally dry, but very soon a profuse secretion bathes them with a creamy pus, sometimes streaked with blood. Should the affection have exerted its influence chiefly upon the vulva, pruritus, exco-

[1] Maladies des Organes Génitaux, p. 285.

[2] This view is denied by many of the best authorities, who regard gonorrhœa as having nothing specific about its nature. At the same time that I have no wish to ignore the opinion with which mine conflicts, I have preferred to give my own impressions without discussing the matter.

riation, and an increase of sexual appetite will be observed. Should the urethra be chiefly or solely diseased, instances of which are recorded by Ricord and Cullerier, the most violent scalding upon the passage of urine will especially annoy the patient.

Differentiation.—It will be seen, from what has been already stated, that the differentiation of this disease from simple acute vaginitis must be extremely difficult. In many cases it is impossible, for there are no signs which can be regarded as positively conclusive. The trichomonas vaginalis, once supposed by Donné to be pathognomonic of specific vaginitis, is now known to exist in the pus of that which is simple; and urethritis, formerly viewed as diagnostic by many, is sometimes a complication of the simple form and is sometimes absent in the specific.

The following are the symptoms which should lead us strongly to suspect the specific nature of a case:—

Great virulence and acuity in development;

Development in a woman previously free from vaginal discharges;

Marked urethral complication;

Copious purulent discharge;

Transmission to the male from coition.

Although it is true that in many cases these symptoms will render us certain in our conclusions, in many others they will exist in cases certainly of non-specific character. I have on two occasions seen them all attend cases of vaginitis, excited by accidental contact of chromic acid with the vaginal walls.

Course, Duration, and Termination.—The duration of the disease will depend in great degree upon the character of the treatment adopted. Under proper management even a severe case may be cured in from two to three weeks, but if neglected, it may continue for months and perhaps years. The morbid action passing up into the uterus may exist as an endometritis long after the vaginal trouble has disappeared; or it may pass into the bladder and excite cystitis; or down their narrow ducts into the vulvo-vaginal glands.

Complications.—The complications of gonorrhœa in the female are numerous and important. The disorder sometimes becomes an exceedingly grave one, and, in some instances, destroys life. It may induce the following results:—

Bubo or vulvar abscess;
Cystitis;
Inflammation of vulvo-vaginal glands;
Endometritis;
Fallopian salpingitis;
Pelvic peritonitis.

Mr. Salmon,[1] who first drew attention to inflammation of the vulvo-vaginal glands as a result of the disease which we are considering, declares that it is quite common.

The passage of the disordered action into the uterus, through the tubes, and into the peritoneum, is the most dangerous of all its consequences, and produces great risk to life, from the pelvic peritonitis which it excites.

Granular Vaginitis.

Definition and Synonymes.—This variety of vaginitis was first described by Ricord, under the name of Psorolytrie. In 1844, M. Deville,[2] a pupil of Ricord, described it fully, and it was subsequently treated of by Blatin, Guérin, and others, under the names of papular, glandular, and granular vaginitis.

Pathology.—By these writers it was regarded as an hypertrophy of the muciparous follicles, lying imbedded between the rugæ of the vagina. This hypertrophy it was thought was generally the result of pregnancy, though it was admitted that it might arise from simple or specific vaginitis. Many recent writers deny the existence of this variety of vaginitis, and view it only as an hypertrophy of vaginal papillæ, the result of the forms of the affection already mentioned. Thus Dr. Bumstead,[3] in speaking of granulations found in the vagina as a result of vaginitis, says, "They have been erroneously regarded by Dr. Deville as peculiar to the vaginitis of pregnant women." Scanzoni[4] and West[5] both deny its existence, and upon the same ground, viz., the fact that Mandl and Kölliker have discovered very few mucous follicles in the vaginal mucous membrane. When, however, in opposition to the negative fact that these excellent observers, supported by Robin and Sappey, *have not* discovered these glands, is arrayed

[1] Bumstead on Venereal, p. 172.
[2] Archiv. de Méd., 4th series, t. v.
[3] Op. cit.
[4] Diseases of Females, Am. ed., p. 529.
[5] Diseases of Women, Eng. ed., p. 640.

the positive fact that Huschke, Jamain, Richet, Becquerel, Guérin, and others *have* done so, the grounds for denial must be admitted to be insufficient. Even if such evidence of the propriety of admitting this variety of vaginitis did not exist, clinical research would corroborate the truthfulness of the deductions of M. Deville. The disease is characterized by hemispherical granulations, about as large as half a millet-seed, scattered thickly over the mucous membrane of the vagina and over the cervix uteri.

Causes.—The glandular hypertrophy which gives to the disease its characteristic features and name, generally results directly from pregnancy, though it may be produced by either simple or specific vaginitis. Some women in successive pregnancies suffer from it.

Symptoms.—It demonstrates its presence by the symptoms already recorded as characteristic of simple and specific vaginitis. With these, pruritus vulvæ and a lichenous eruption about the pubes are apt to appear. As parturition comes on and puts an end to pregnancy it usually disappears, very often without any treatment whatever.

Treatment of Vaginitis.—The treatment of the various forms of this disease is so similar that it may be described under one head, modifications being suggested for those cases which have assumed a subacute or chronic aspect. If the case be one of acute character, the patient should be kept perfectly quiet in bed, and locomotion and sexual intercourse strictly interdicted. Pain should be relieved by opiate or other anodyne suppositories placed in the rectum, and febrile action prevented or combated by mild, unstimulating diet and refrigerants. Every fifth or sixth hour the patient, placing under the buttocks a bed-pan upon which she lies, and between the thighs a bucket of warm water containing boiled starch, infusion of linseed, or infusion of poppies to render it soothing, should, by means of a syringe with continuous jet, or an irrigator, throw a steady stream against the cervix uteri for fifteen or twenty minutes, or even for a longer time. The methods most appropriate for syringing the vagina are fully described in chapter fifteen, and to it the reader is referred for details.

After the severity of the attack has been subdued by these means, the acetate of lead or sulphate of zinc, with tr. of opium, may be added to the water in small amount, not more than a drachm of the mineral preparations being dissolved in a gallon

of fluid. As soon as the signs of acute inflammation have disappeared, the sulphate of alum, persulphate of iron, tannin, or infusion of oak bark may be employed to render the fluid injected more decidedly astringent. At the same time laxatives should be administered, and ardor urinæ relieved by the use of soda, potash, or other alkaline diuretics. Should inflammatory action run very high and much pain be experienced, benefit may be obtained by the application of leeches to the perineum, but this will rarely be found necessary.

When the acute form shows a tendency to become subacute or chronic, the speculum of Sims should be cautiously introduced, the whole vaginal canal painted over with a solution of nitrate of silver, one drachm of the salt to one ounce of water, and a roll of cotton, saturated with glycerine, placed against the cervix. The cotton saturated with this or some anodyne substance may be renewed daily with advantage, but the painting with the caustic solution should not be frequently repeated. After free vaginal injection, suppositories composed of butter of cacao or gelatine and gum tragacanth, with persulphate of iron, alum, copper, zinc, or opium, may, by means of the suppository tube represented by Fig. 35, be placed at intervals in the upper part of

Fig. 35.



Hard rubber tube with piston, for placing medicated cotton or suppositories in the vagina.

the vagina. The general state of the patient should be carefully watched, and if tonic or chalybeate treatment be indicated, it should at once be resorted to.

CHAPTER VIII.

ATRESIA VAGINÆ.

Definition and Synonymes.—The term atresia, derived from α, privative and τραω, "I perforate," signifies an imperforate condition, and should in its strict import be limited to complete closure of an aperture or canal, but custom sanctions its application to any obliteration or occlusion which is so extensive as to remove the case from the class of strictures.

The genital canal of the female may be imperforate at the vulva, in the vagina, or in the canal of the uterus itself. In the present essay it is proposed to treat only of those forms which affect the vagina and receive the appellation which serves as the caption of this chapter.

History.—Hippocrates[1] refers to this condition as a result of labor; Aristotle speaks of the accidental and congenital varieties; Celsus devotes a chapter to it, and it claims attention, as we come down to subsequent times from Aëtius, Avicenna, Lanfranc, Wierus, Ruysch, Mauriceau, and Roonhuysen. Heister and Boyer advanced our knowledge of it, and still more lately Amussat, in 1835, operated for its cure with greater boldness than his predecessors had ventured to do.

Pathology.—As a result of injury from mechanical or chemical agencies, a vagina once fully developed may close from adhesion of its walls, its calibre may be diminished by absolute removal of its component structures in consequence of ulceration or sloughing, or the other parts of the female genital system may go on to full development while this is arrested in its growth and remains a fibrous cord rather than a distensible canal.

Varieties.—It may be either congenital or accidental; and it may likewise be partial or complete. In a case of stillicidium mensium,[2] presenting itself during the last winter at the clinique

[1] Puesch De l'Atrésie des Voies Génitales de la Femme. Paris, 1864.

[2] This term is employed by Aëtius, Tetrab iv. p. 990.

of the College of Physicians and Surgeons, I found the vagina apparently completely closed at its middle, yet permitting a slight flow of menstrual blood. Upon careful examination a small opening, admitting only a probe, was discovered, leading into a sac between the vaginal constriction and the neck of the uterus, which contained several ounces of thick, tenacious blood.

If the atresia be congenital, the whole canal will probably be found obliterated; but this is rare. Generally the inferior, middle, or upper part is the seat of stricture.

Causes.—The following causes may be enumerated as productive of it:—

Arrest of development;
Prolonged and difficult labor;
Chemical agents locally applied;
Mechanical agencies;
Sloughing, the result of impaired vitality;
Syphilitic or other extensive ulcerations.

One case which has come under my observation resulted from syphilis, another from prolonged labor, and another from the accidental passage of a sharp bit of wood up the vagina. Among the causes of sloughing from impaired vital force should be especially mentioned the continued and eruptive fevers, typhus fever, scarlatina, variola, &c.; and cholera as a cause of the accident is referred to by M. Courty.[1] Dr. Trask, of Astoria, N. Y., has written an excellent article upon this subject, his conclusions being based upon thirty-six cases, of which fifteen were due to prolonged labor.

Symptoms.—The disorder will demonstrate its existence only by incapacitating the vaginal canal for its important functions, copulation and transmission of menstrual blood. Should it occur in one too young or too old to require such functions from the vagina, no suspicion will be aroused as to its existence. The notice of the practitioner will generally be called to the patient by amenorrhœa or by an inability to perform the act of coition. Should the menstrual hemorrhage have taken place, a large amount of blood will generally be found confined above the constricted part of the canal, and violent uterine contractions will have demonstrated the efforts which the uterus has made to expel the accumulation. Besides these, no other rational signs will show themselves, but they will

[1] Mal. de l'Utérus, p. 369.

be sufficient to urge upon the attendant the necessity of a physical exploration.

Physical Signs.—The patient being placed upon the back, and the vaginal touch attempted, entrance of the finger into and up the canal will be found to be impossible. A little investigation will prove that this is not due to vaginismus, imperforate hymen, or adhesion of the labia majora, and the rectal touch will usually show the vagina running up the pelvic cavity as a fibrous cord.

Results.—From the mere obliteration of the vagina there is no immediate or direct derangement. But in certain cases where menstrual blood is poured out by the vessels of the uterine mucous membrane, and is accumulated at each monthly epoch in the portion of the canal above the stricture, or in the uterus, which has been dilated to receive it, rupture of this organ or of the Fallopian tubes may occur, reflux through these tubes into the peritoneum may take place and pelvic hæmatocele be the consequence; or the retention of the menstrual flow may produce all those nervous and cerebral symptoms so characteristic of such an occurrence.

Prognosis.—The prognosis of these cases as regards the possibility of removal of the abnormal state, will depend upon the extent and completeness of the obliteration, and destruction of tissue. The smaller the amount of vaginal tissue found by rectal touch and examination by a sound in the bladder, to exist, and the more complete and extensive the adhesion of the vaginal walls, the more closely will the case resemble one of entire absence of the vagina.

Differentiation.—Before any surgical interference is established for the relief of atresia, it should be differentiated from absence of the vagina. The latter very rarely, if ever, Scanzoni[1] says never, exists without simultaneous absence of the uterus and rudimentary development of some of the external organs of generation. If an obliterated vagina be present, it may be generally recognized as a hard, fibrous cord, by one finger in the rectum and a sound in the bladder. Sometimes a short cul-de-sac will be found at the vulvar extremity, and another at the uterine, which are united by a cord of fibrous character.

Should deformity of the external genitals exist, the uterus not

[1] Diseases of Females, Amer. ed., p. 478.

be discoverable, and no signs of distress at menstrual epochs show themselves, it may be concluded that the case is one of absence of the vagina, and not of complete atresia. But, thanks to the boldness of Amussat, even absence of the vagina does not preclude the possibility of establishing an artificial route. The importance of the differentiation consists in the fact that the surgeon should in such a case be doubly cautious and circumspect in his efforts, and guarded in his prognosis.

Treatment.—The sudden evacuation of menstrual blood, which has been for a long time imprisoned in the uterus and vagina, is always a procedure attended by danger. Even where the obstruction has been only an obturator hymen, such an operation has been followed by endometritis, peritonitis, and death. The danger is probably dependent upon the fact that the imprisoned fluid distends the uterus and Fallopian tubes, and renders them so sensitive that the admission of air produces a septic endometritis, which in its course and termination resembles closely the most common form of puerperal fever. Such accumulations should not be evacuated, therefore, without great caution, and it is always well for the operator to announce to the patient, or her friends, the fact that dangerous consequences may result.

Menstrual blood thus retained may be removed through the vagina, bladder, or rectum, by three operations:—

1st. Puncture by a large trocar and canula;

2d. Puncture by a small trocar and use of tents;

3d. Incision by knife or scissors.

Should the occluding space be limited in extent, a full supply of tissue exist on both rectal and vesical aspects, and a volume of menstrual blood be imprisoned above, a trocar and canula may be plunged through the obturator tissue or the wall of the rectum and the fluid evacuated. In case it be thought best to effect the discharge more gradually, and if doubt be entertained as to the safety of passing a large instrument, which may require for its passage more tissue than the case presents, a small trocar or exploring needle may be employed, and the canal created by it dilated by systematic use of tents of sponge or sea tangle. In a case which I recently saw with Profs. I. E. Taylor, Hamilton, and Peaslee, this plan succeeded most perfectly in the hands of the first-named gentleman. Should incision be deemed necessary, the patient, thoroughly anæsthetized, and having had the bladder

and rectum emptied, should be placed upon the back upon a table, in the position adopted in operating for stone. By means of a scalpel or pair of curved scissors, conducted up to the point of obliteration upon one or two fingers, the tissue should then be very cautiously cut, and the finger introduced into the opening made in the mucous membrane. By this a little force should be employed in order to separate, if possible, the adhering surfaces, or tear up a new tract. Then, one finger being kept in the rectum, and a sound in the bladder, cautious and gradual dissection of the canal should be practised, great care being observed to avoid opening into the rectum posteriorly, the bladder anteriorly, and the peritoneum above. Dr. Emmet, whose experience in this class of cases has been extensive, declares that if the new tract be created by incisions by scissors and tearing of tissue by the fingers, subsequent contraction and atresia are much less likely to occur. According to his experience incisions made by the knife granulate and undergo cicatricial contraction with much greater rapidity. In 1832 Amussat advocated forcible pressure continued until the parts were softened and gave way, and when fluctuation was discovered, the use of a trocar or knife for evacuation of the fluid. Dr. Graily Hewitt asserts that he rejected the use of the knife, and effected laceration of the tissues by tearing by the finger. Dupuytren followed a mixed method, performing the operation partly by cutting and partly by tearing the textures. Bernutz,[1] who believes that the admission of air into a uterus previously closed to its entrance, causes contraction, which forces imprisoned blood into the peritoneum, advises, for the avoidance of this accident the following plan. He proposes to operate in from eight to ten days after menstruation, when the calm which succeeds it is well established, and at the same time at a period distant from the next epoch. In place of a large incision, he proposes puncture by a very small trocar guarded by gold-beaters' skin. In this way gradual discharge is accomplished, and air excluded. He does not leave the trocar in place, but prefers subsequent puncture, if necessary. The fatal termination of four cases which he reports has led to the adoption of these precautions.

After evacuation of all the retained blood, and diminution of the size of the distended uterus, he recommends the practice "to

[1] Clin. Med. sur les Mal. des Femmes, vol. i. p. 303.

make sure of the permanent freedom of the excreting channel by as extensive incision of the obturator membrane as is practicable, and the employment of dilatation."

However the operation be performed, there is always great danger of relapse, and unless special means be adopted for maintaining the perviousness of the canal, it will invariably occur. To prevent such a result, a plug of glass, such as represented by Fig. 32, should be introduced into the vagina, secured by a T bandage, and worn for weeks. After this it should be kept in place at night for many months. Where the entire canal has been obliterated even these efforts may fail and closure occur above, which gradually advances to the ostium vaginæ.

If no menstrual blood has been imprisoned above the strictured portion of the vagina, the canal should be kept scrupulously clean by injections of tepid water practised twice a day. If the uterus and tubes have been distended by retained fluid, the cavity of the former should, just after the operation, be carefully washed out with tepid water very slightly impregnated with carbolic acid or Labarraque's solution of soda. The patient should then be kept as quiet as possible in the recumbent posture, and under the full influence of opium.

The period at which operation should be resorted to is a subject of importance. Velpeau advocates operating in infancy, but Puesch, Boyer, and others regard the age of puberty and approach of menstruation as a more appropriate time. Should the menopause have arrived, no operation will be called for.

It should not be forgotten that delay in interference is often very disastrous during the period of menstrual activity, for lives have, in numerous instances, been destroyed by rupture of the Fallopian tubes, and even of the uterus itself, as seen by Puesch. This observer drew his conclusions from 258 cases of atresia, in 18 of which rupture of the Fallopian tubes from distension by menstrual blood occurred. In one instance of atresia I saw an hæmatocele the size of an infant's head, result from regurgitation of blood through the tubes into the peritoneal cavity. It is highly probable that the mental emotion of the patient, and her struggles during the operation, may account for the entrance of blood into the peritoneum as noted by Bernutz. Hence, every effort should be made to avoid these, and care should be taken not to allow of pressure upon the uterus in examination, or in restraining the patient.

CHAPTER IX.

PROLAPSUS VAGINÆ AND VAGINAL HERNIÆ.

Prolapsus Vaginæ.

Definition and Synonymes.—The mechanism by which the pelvic organs of the female are kept in their proper positions and relations to each other offers, in its simplicity and perfectness, an excellent example of that adaptation of means to an end which is so often repeated in the animal economy. The uterus is so sustained that when necessity requires it, not only in pregnancy but under a number of other circumstances, it may rise or fall, or tilt backwards or forwards, while the rectum, bladder, and lowest layer of small intestines are kept in place and allowed to distend and empty themselves without material change of relation.

The three organs which are mainly instrumental in this result are the vagina, the peritoneum, and the pelvic areolar tissue. The first of these performs an important part. By it the uterus and super-imposed layer of small intestines are to a great extent supported, the bladder is prevented from falling backwards when in a state of repletion, and the anterior wall of the rectum from undergoing displacement forwards.

When the tone of the walls of the vagina is impaired and they pouch into its own canal so as to fall downwards towards the vulva, the condition is called prolapsus. As, however, loss of the support which the vagina previously gave usually results in descent of the uterus, small intestines, bladder, or anterior wall of the rectum, it is often included under the names of prolapsus uteri, cystocele, enterocele, or rectocele. As considerable diversity of opinion exists concerning the nature of prolapsus vaginæ, it is necessary for us, before proceeding, to comprehend its definition with perfect clearness. By some it is maintained that hernia of neighboring viscera into the vagina should not be included under the head of prolapsus, which, as Colombat declares, is an "inversion of the internal lining membrane, caused by infiltration of

the cellular texture that unites the mucous to the subjacent membranes." By others it is believed that true prolapse is impossible without simultaneous displacement of one or more of the surrounding pelvic organs. All admit, of course, that in such an exuberant development or hypertrophy as that which occurs during pregnancy, a portion of the canal may be forced out of the vulva, but this is not what is ordinarily meant by the term prolapsus vaginæ. Dr. Savage[1] expresses himself thus upon the point: "Prolapse of the vagina alone, or prolapse of the vaginal mucous membrane alone, are two affections which, anatomically considered, would seem impossible." The text-books, however, mention both. Noel mentions a case of this kind where the prolapse reached down to the knees! It is an important question whether there can be prolapse of the vagina without vagino-rectocele, vagino-cystocele, vaginal hernia of intestine forcing down the vaginal cul-de-sac, or uterine prolapse. When the vagina has lost its elasticity by excessive and frequent distension, the vaginal canal is often occupied by a collocation of its own folds, which may form a considerable projection at the vulva; but this does not constitute true prolapse of the vagina.

Upon the whole, it would be unsafe to look upon any vaginal prolapse as unconnected with one or other of the above-mentioned affections, and it would be most unjustifiable to treat it as a prolapse of mere mucous membrane.

The anterior or upper wall of the vagina is closely bound to the base of the bladder and front of the cervix uteri, and by means of the utero-sacral ligaments it is indirectly attached to the sacrum. This wall aids powerfully in support of the uterus, bladder, and small intestines. The posterior wall is not so firmly bound to the rectum, though the adhesion at the extremity of the utero-rectal pouch of peritoneum is quite strong. At the vulva the vagina is fixed by the deep perineal fascia and closed by the sphincter vaginæ muscle. These anatomical arrangements account for the fact that prolapse of the vagina without simultaneous displacement of one or more of its surrounding viscera is exceedingly rare, and that when it does occur as a distinct disease it is very generally found to affect only the posterior wall.

Pathology.—Any influence which impairs the natural tonicity

[1] Female Pelvic Organs.

and strength of the vaginal canal, renders it abnormally voluminous and lax, or destroys its lower buttress or support, will tend to induce the affection. As pregnancy and parturition combine most, and sometimes all, of these, they are generally found to be predisposing, and very frequently exciting circumstances. The development of the vagina, and increased weight of the uterus dependent upon the former, and the distension of the canal and stretching of the sphincter incident to the latter, all unite in bringing about prolapsus. The affection is very rare, except in those who have borne children, although it may occur. Sir Astley Cooper met with it in a girl, aged seventeen, who was admitted into Guy's Hospital, for supposed prolapsus uteri, and Prof. Meigs[1] mentions that Dr. Mütter, of Philadelphia, saw it occur in a child six months old in consequence of a convulsion.

Causes.—From what has just been said the following causes will naturally suggest themselves as those most likely to produce this displacement:—

Violent efforts of the abdominal muscles;
Repeated parturition;
Excessive weight at the uterine extremity of the vagina;
Senile atrophy of vaginal walls;
Rupture of perineum;
Distension by pessaries, or tumors;
Long-continued vaginitis.

It is evident that these causes act either by debilitating the power of the vaginal walls by mere mechanical distension, by specifically robbing them of their tonicity, or by removing the buttress against which the canal rests at the vulva.

Varieties.—The displacement may be of two forms, sudden and gradual. The power of the canal may be overcome by a violent effort, a fit of coughing, uterine or abdominal contractions, or similar acts, which, with great suddenness, force the contents of the abdomen down upon the pelvic viscera. This occurrence, which is very rare, is generally accompanied by sudden descent of the uterus, or follows parturition. The ordinary form of the affection is that in which by the slow and steady action of one or more of the causes enumerated, the resistance of the vagina is gradually overcome, and little by little a fold is forced downwards towards

[1] Translation of Colombat.

and through the vulva. The first variety is the result of a few minutes' effort; the second, that of months, or even years of morbid action. Prolapse of one wall, partial prolapsus, as it has been styled, is often lost sight of in view of the hernia of the bladder, rectum, or small intestines, which accompanies it. Hence cystocele, rectocele, and enterocele may be regarded also as varieties, although, strictly speaking, they are complications of the affection.

Course, Duration, and Termination.—A sudden attack of prolapsus being overcome by proper means, and the patient kept quiet, may disappear, and not return; but in that variety which occurs gradually there is no limit to the disease. Generally, the physician is not called until it has existed for a long time and become complete. Fortunately, it has no serious results, except the occurrence of the herniæ just alluded to, and these prove only annoying, not dangerous to life.

Prognosis.—The prognosis as to cure will depend upon the degree and duration of the malady. It is always, whatever be its extent, relievable by surgical means, but often proves incurable by those of medical character.

Symptoms.—Should displacement of the vagina exist alone, that is without creating hernia of surrounding organs, the patient will complain of a sense of discomfort in the vagina, with a tendency to bearing down, as if to expel some foreign body; a feeling of heat, fulness, and throbbing at the vulva; a certain amount of pelvic uneasiness in walking, or making any muscular effort, and a general tendency to prostration, if the condition be one of aggravated character. Physical exploration will reveal the presence of a tumor between the labia, which touch will demonstrate to contain no liquid, and yet not to be solid in its nature. Sometimes the mucous membrane covering it is excoriated, ulcerated, and purple in color; at others it will be smooth, shining, tough, and covered by pavement epithelium. A simple vaginal prolapse of any extent is, as has been stated, quite rare. When it does occur it generally affects the posterior wall, but prolapse, accompanied by hernia, is more commonly found to affect the anterior wall, cystocele existing. Should the case be complicated by vesical or rectal prolapse, the symptoms just enumerated will present themselves, with the addition of others dependent upon disturbance of the functions of the part which forms the hernia. In one

case the concomitant symptoms will point towards the bladder; in another, the rectum, and, in very rare instances, the small intestines.

As the treatment of prolapsus vaginæ is, with slight modifications, the same for uncomplicated and complicated cases, it will be considered after the subject of vaginal herniæ has been discussed.

Vaginal Herniæ.

Cystocele.

Cystocele, or vesico-vaginal hernia, consists of descent of the bladder towards the vulva, so as to impinge upon the vaginal canal. When the anterior wall of the vagina, which is closely adherent to the bladder, the base of which it sustains, ceases to afford the required resistance, the bladder descends and forms a small pouch in the vagina. This is at first very small, but gradually it increases, until at last it forms a decided tumor, which hangs between the labia majora. The pouch thus created becomes filled with urine, which, in the ordinary act of micturition, cannot be evacuated, from its being contained in a species of diverticulum. This undergoes decomposition, free ammonia is formed, and cystitis or vesical catarrh is established, which annoys the patient by pain, heat, vesical tenesmus, and scalding in urination. Should any doubt exist as to the character of the tumor felt in the vagina, a curved sound or catheter may be passed into it for the settlement of the question.

It is an interesting question whether cystocele is ever the cause instead of the result of prolapse of the vagina. It is probable that it may be so in very rare cases, though such a connection between the two affections must be uncommon, since the former seldom occurs except in women who have borne children, and thus been exposed to influences which tend to diminish vaginal resistance. Scanzoni[1] is convinced that the vesical prolapse is sometimes primary, and due to irregular spasmodic contraction of the fibres of the body of the bladder while the neck remains firm. This forces the urine to the fundus, which dilates and undergoes displacement.

[1] Op. cit., p. 497.

Rectocele.

Rectocele, or recto-vaginal hernia, occurs in a manner similar to that by which the bladder descends. The posterior wall of the vagina ceasing to give proper support to the anterior wall of the rectum, this forms a pouch which soon fills with fecal matters. The feces becoming hard, and, in consequence, irritating, create mucous inflammation and discharge, with tenesmus, obstinate constipation, and hæmorrhoids. The tumor thus formed will sometimes equal in size a man's fist, and protruding over the perineum give some difficulty in diagnosis from its size and solidity. This difficulty will at once disappear upon rectal exploration and the use of an enema of ox gall and warm water. In one instance I saw a patient confined to bed for three or four months from one of these saccular accumulations of feces under the supposition that cellulitis existed, which by effused lymph had completely blocked up the pelvis. It may be supposed that such an error will rarely occur, yet the case which I have just mentioned occurred to a practitioner of great experience and ability.

Enterocele.

Enterocele, or entero-vaginal hernia, consists in descent of a portion of the small intestines into the pelvis, so as to encroach upon the vaginal canal. Such a descent usually occurs in this manner: a loop of intestine resting in Douglas's cul-de-sac stretches this serous prolongation, and, advancing between the rectum and vagina, pushes the posterior wall of the latter before it so as to form a tumor at the vulva. In a similar manner it is stated that the intestine may advance between the bladder and ut·rus and depress the anterior vaginal wall, but this must be r: .e, as authors of extensive experience assert that they have never me with it.

Enterocele is not an accident likely to produce evil results unless it occur during labor, when strangulation may take place. Even at this time such a complication is very rare, for the free passage afforded the displaced intestine back to the abdomen will almost always preclude this difficulty. Dr. Meigs[1] relates a case occurring during labor, in which the progress of the parturient

[1] Notes to Colombat, p. 211.

process was checked by a large mass of intestines until he succeeded in reducing the hernia. He says, with reason, that in such a case strangulation or contusion was to have been feared.

One very momentous aspect in which these herniæ must be viewed is in relation to puncture of vaginal tumors, occurring during labor, for ascertaining their contents. No such explorative means should be resorted to without careful differentiation of vaginal herniæ of all descriptions, and especially of that of which we have last spoken. The peculiar sensation to the touch, of a tumor filled with air, a resonant sound upon percussion, the detection of peristaltic movements, and careful exclusion of all other forms of tumor which might appear under the circumstances, will serve to avoid error. When, however, it is borne in mind that vaginal tumors are very near the inflated intestines and that they often yield to the touch an airy sensation, it will be appreciated that great caution is necessary in arriving at a diagnosis. In a case which I have recently attended with Dr. Abram Dubois, of this city, a cyst the size of a walnut existed just below the neck of the uterus, and had many of the features of a knot of intestine. I was persuaded that it was a vaginal cyst, punctured and evacuated a mass of gelatinous matter which resulted in cure of the growth.

Treatment of Prolapsus Vaginæ and its Complications.—Should the accident have occurred suddenly, reduction should at once be accomplished, and the recurrence of the displacement prevented by appropriate means. The bladder and rectum being evacuated, the patient should be placed in the knee-elbow position, and, the fingers being well oiled, steady pressure should be exerted in coincidence with the axis of the inferior strait, until the prolapsed part is returned to its place. In the case of enterocele already referred to as treated by Prof. Meigs, the patient was placed upon the left side, and taxis being practised, the mass suddenly slipped above the superior strait, into which the next uterine contraction forced the child's head. To prevent a relapse the pelvis should be elevated, the patient kept perfectly quiet, tenesmus, if present, relieved by the use of opium, and the vagina constricted by astringent injections.

But sudden cases of vaginal prolapse and hernia are very rarely met with. It is usually those which have slowly and gradually established themselves that we are called upon to treat, and these

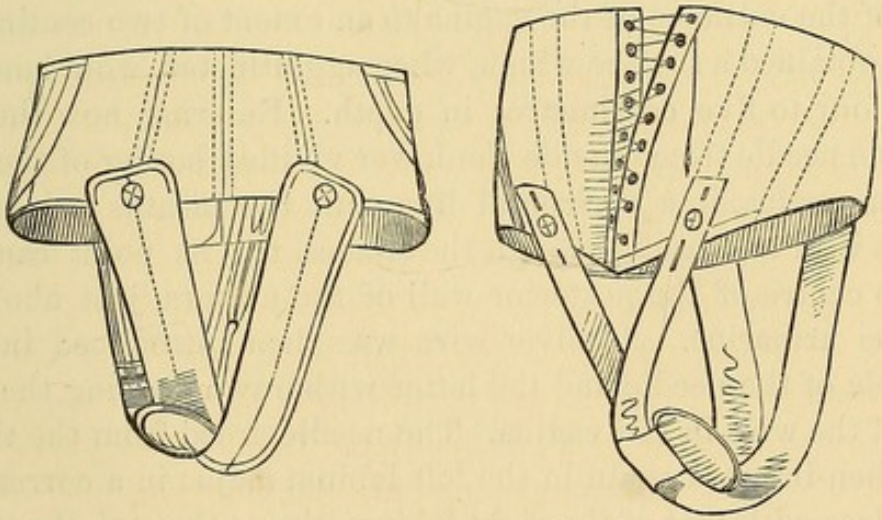
are always obstinate and rebellious. The means at our command for overcoming such cases are the following:—

1st. Local astringents and tonics;
2d. Supplementary support;
3d. Surgical procedures.

The first of these may be effectual in slight cases, but in those of graver character they will very generally prove insufficient. The tone and strength of the vagina may be temporarily restored by the use of injections of large amounts of cold water medicated with tannin, alum, iron, or zinc, employed night and morning. The patient should be sent during the summer to a watering place, where sea-bathing and injections of sea-water into the vagina may be employed. A very excellent result will also sometimes follow the use of vaginal suppositories containing one of the astringents mentioned.

Supplementary Support may be effected by an abdominal supporter, with perineal band, and by the use of a properly constructed pessary, such, for example, as the double lever of Hodge, the ring of Meigs, or the stem of Cutter.

Fig. 36.



Abdominal supporters. (Brown.)

In some instances the air pessary of Gariel will be found to be very useful, more especially where the bladder or rectum participates in the prolapse. But this must necessarily be only palliative in its results, since while it relieves the immediate consequences of want of power in the canal, it increases the existing weakness by continued distension.

Surgical Procedures.—Of these there are three which may prove effectual. If a ruptured perineum seem to produce the want of support, the operation of perineorrhaphy may be all that will be necessary. This is described on page 118. In a certain number of cases where the vaginal displacement has not resulted in prolapse of the uterus, and where from the advanced age of the patient patency of the vagina is no longer necessary, union of the labia majora for the lower three quarters of their extent may fulfil the indication. This operation, inaugurated by Vidal de Cassis and subsequently essayed by many others throughout Europe, consists in paring the edges of the labia majora, removing the labia minora, and uniting the vivified surfaces by silver sutures. I cannot lay the steps more clearly before the reader than by giving the account of a successful case by Dr. Schuppert, of N. O. His operation was performed for complete closure of the vulva, and extended higher up than would be necessary in the case we are supposing.

"The woman was placed on her knees, whilst her abdomen, chest, and head were supported by pillows. In paring the inner part of the labia majora, removing the nymphæ to a level with the denuded surface of the labia majora, and vivifying a circular part of the entrance of the vagina to an extent of two centimetres, I had obtained a surface which, when agglutinated, would measure from four to five centimetres in depth. Entering now the long flexible needle from outside the lower vivified border of the right labium majus, in a horizontal line with the meatus urinarius, I thrust it in and back through the tissues, till its point came out in the centre of the posterior wall of the urethra, just above the meatus urinarius. A silver wire was then introduced into the eyehole of the needle and the latter withdrawn, leaving the other end of the wire in the vagina. The needle, freed from the thread, was then inserted again in the left labium majus in a corresponding place with that of the right labium, thrust through the tissues, and brought out at the same point where the wire was hanging out of the urethral wall. This end of the wire was now carried through the eyehole of the needle. In withdrawing the latter, I had formed a loop which, when tightened, would include a depth of at least four centimetres. Three sutures were in this manner applied, each of them going through the posterior wall of the urethra. The other four sutures were placed at proper distances,

reaching on each side above the denuded surface of the vagina. All the sutures were then secured outside the labia majora, over broad leaden clamps, by perforated shot."

But if prolapsus uteri have occurred, or even a marked degree of vesical or rectal displacement, the operation of elytrorrhaphy, or diminishing the calibre of the vagina, is the only procedure upon which reliance can be placed. This operation will be fully described in connection with prolapsus uteri.

CHAPTER X.

FISTULÆ OF THE FEMALE GENITAL ORGANS.

Definition.—As a result of certain traumatic and morbid processes, the continuity of the vaginal and uterine walls may be destroyed and communication established with adjacent viscera. To the tracts or passages thus opened, the name of fistulæ has been given.

Varieties.—These communications connect the vagina with some viscus in immediate proximity, for the natural outlet of which they act vicariously, or with some neighboring part, as the peritoneum, the vulva, or the pelvic areolar tissue. Their varieties have received the following descriptive appellations:—

Urinary Fistulæ.

Vesico-vaginal fistula;
Urethro-vaginal fistula;
Vesico-utero-vaginal fistula;
Vesico-uterine fistula.

Fecal Fistulæ.

Recto-vaginal fistula;
Entero-vaginal fistula;
Recto-labial fistula.

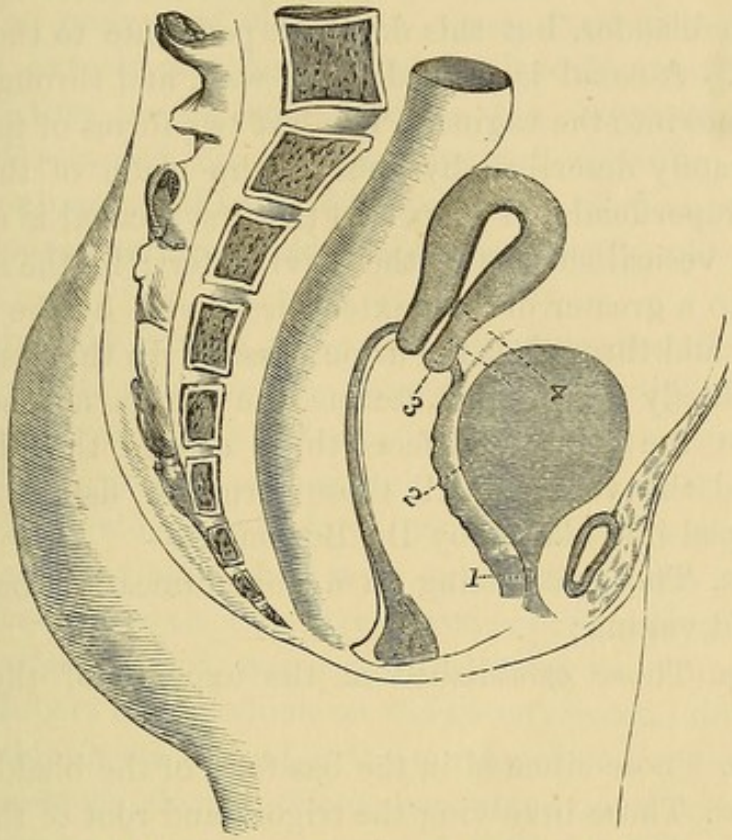
Simple Vaginal Fistulæ.

Peritoneo-vaginal fistula;
Perineo-vaginal fistula;
Blind vaginal fistula.

Urinary Fistulæ.

Urinary fistulæ may occur on any part of the anterior surface of the genital canal intervening between the vulva and fundus uteri. Fig. 37 displays the points at which they are usually observed.

Fig. 37.



Varieties of vesical fistulæ: 1. Urethro-vaginal fistula; 2. Vesico-vaginal fistula; 3. Vesico-utero-vaginal fistula; 4. Vesico-uterine fistula.

Vesico-Vaginal Fistula (2) is a communication between the bladder and vagina, either at the trigone or the bas-fond, which may involve only enough tissue to admit a small probe, or entirely destroy the vesico-vaginal wall. Such an opening may be oval, angular, elliptical or linear in shape, and its borders may be thick or thin, soft or indurated, rough or smooth, pale or vascular.

Urethro-Vaginal Fistula (1) resembles that just mentioned, except in the fact that the destruction of tissue which has produced it involves the wall of the urethra, and not that of the bladder.

Vesico-Uterine Fistulæ (4) are those in which there is a direct communication between the bladder and uterus above the point of vaginal attachment. The vagina is consequently not involved, and the urine passing into the uterus escapes at the os.

Vesico-Utero-Vaginal Fistulæ (3) are those in the production of which a lesion occurs in both uterus and vagina, as is imper-

fectly shown by (3). At the vaginal junction there is a perforation of the bladder, but this does not penetrate to the cavity of the uterus. A canal is created in its wall, and through this the urine escapes into the vagina. The last two forms of fistulæ were first accurately described by Jobert, who made of the last, two varieties, superficial and deep. In the first a canal is channelled out on the vesical surface of the cervix uteri; in the second, the cervix is to a greater or less extent destroyed by the process of sloughing, and through it the urine passes. In the first form the lesion is chiefly vesical and uterine, the vagina not being much injured; in the other it affects three organs, the bladder, the uterus, and the vagina. All these forms of fistulæ have thus been grouped into classes by Dr. Bozeman:—

1st Class. Those consisting in a communication between the urethra and vagina;

2d Class. Those established at the expense of the trigonus vesicalis;

3d Class. Those situated in the bas-fond of the bladder;

4th Class. Those involving the trigone and root of the urethra, the trigone and bas-fond, or all three of these parts together;

5th Class. Those implicating the cervix uteri.

In some cases, however, multiple fistulæ exist, and no special classification can be made.

Causes.—Any influence which is capable of destroying the continuity of the vaginal walls, either by mechanical, chemical, or vital action, would of course give rise to this condition. Those which are found in actual practice to have proved most commonly efficient, are the following:—

1st. Prolonged or very severe pressure;

2d. Direct injury;

3d. Ulceration or abscess.

Pressure, which is more frequently a cause than any of the others mentioned, is generally produced by the child's head remaining too long in the pelvis during labor. This is beyond all doubt the most prolific source of the accident, though it may also attend a rapid labor in which the vagina has been pressed against some point of the pelvis with great violence. Such pressure produces sloughing of the part of the vagina receiving it, and at that

spot a deficiency of tissue in future exists, which constitutes a fistula. The process of sloughing occurs from pressure of the fœtal head, exactly as a bedsore takes place in one who lies for too long a time in the same position, the sequence being, disturbed and retarded circulation, impaired nutrition, and local death. Or a puerperal vaginitis may be established, which runs a violent course, and may end in sloughing at the end of several weeks.

An involuntary flow of urine usually announces the existence of a fistula within three or four days after delivery, though when it is the result of injury inflicted by instruments employed in delivery, it may occur immediately. On the other hand, the separation of the slough, which will entail deficiency of tissue and its results, may not take place until much later, when perhaps all fears are allayed, and the case is regarded as progressing favorably. Jean Louis Petit records one case developing its symptoms after a month; Jobert one in which on the twenty-second day after delivery the slough was found at the mouth of the vagina; Adler, of Iowa, one in which after twenty-nine days the slough was only partially separated; and Agnew, of Philadelphia, another, in which it occurred on the twenty-first day.

Other agencies which may act in the same manner, but which have been rarely noticed, are pessaries, stones in the bladder, fecal accumulation, &c.

Direct injury may produce the accident by contusing or lacerating the vaginal walls, as may occur during delivery by the forceps or craniotomy. That these operations when carelessly or unskilfully performed may produce a fistula, no one will pretend to deny, but there can, with the evidence now recorded, be no doubt that they have often been credited with unfortunate results which were in reality due to tardiness in their employment. Very often, where a labor has been allowed to be prolonged in the second stage until the vitality of certain points in the vagina has become irremediably impaired, and the process of sloughing been already inaugurated, delivery by forceps or craniotomy has been regarded as producing fistula. Under such circumstances the real morbid agency, prolonged and violent pressure, is lost sight of, and the more palpable agents, the instruments employed, are viewed as the source of the accident. The truth with reference to this point should be well understood by every practitioner, for

unless it be so, an incompetent person may shield himself from merited blame by casting censure upon a consulting physician by whose efforts the lives of both mother and child have been saved, or a skilful operator may suffer unjustly in a suit for mal-practice.

In a report upon this subject by Mr. I. Baker Brown[1] to the Obstetrical Society of London, in 1863, the following statements are made: "With regard to the causes of vesico-vaginal fistula, of the 58 cases admitted into the London Surgical Home, 47 were over 24 hours in labor, and 39 were as much as 36 hours or more; 7 were two days; 16 were three days; 3 were four days; 2 were five days; 2 six days; and 1 seven days.

"In the whole number of cases instruments were used in 29, exactly one half, and in 4 only of these was the labor less than twenty-four hours, and with seven exceptions the patient had been thirty-six hours or more in labor before instruments were used.

"Of the 58 cases, in 24 only the injury happened at the first labor; in 7 at the second; in 5 at the third; in 4 at the fourth; in 6 at the fifth; in 2 at the sixth; in 5 at the eighth; in 1 at the ninth; 1 at the thirteenth; 1 at the fifteenth; and 2 not mentioned."

"From the foregoing statistics it is evident that the cause of the lesion is protracted labor, and not the use of instruments or deformity of the pelvis."

"As a necessary deduction from what has been stated, it follows that vesico-vaginal fistula would scarcely if ever occur, if a labor were not allowed to become protracted; and this is a point for the careful consideration of practitioners in midwifery." The experience of Drs. Sims,[2] Emmet, and Bozeman[3] is confirmatory of that of Mr. Brown, and as the opportunities for observation enjoyed by these four practitioners have probably been as extensive as those of any living authorities, their evidence may be regarded as conclusive.

Ulceration or Abscess.—The vaginal walls may be eaten through by cancerous, syphilitic, or phagedenic ulcers, or a communication

[1] Obstet. Trans., vol. v. p. 23.

[2] Gardner's Notes to Scanzoni, p. 503.

[3] Agnew, Vesico-Vaginal Fistula.

may be established by an abscess opening into the vagina and into a neighboring viscus or part. In one case I found, in the autopsy of a woman who had died from a profuse diarrhœa, in which the feces had passed by the vagina, a communication created by abscess between the caput coli and that canal.

Cancerous disease often destroys the vesico-vaginal septum, but as these fistulæ are irremediable, and attend upon a rapidly fatal disorder, they attract little attention in themselves. Lastly, certain diseases producing deficiency of nutrition, as, for example, the continued fevers, may cause sloughing of the vaginal walls or phagedenic ulceration.

Symptoms.—The prominent symptoms and signs of urinary fistulæ may be grouped under three heads: first, those furnished by a characteristic discharge; second, those arising from the irritant action of such discharge upon the part over which it flows; and third, those afforded by physical examination.

Sometimes the escape of urine is so excessive as to preclude the necessity of a discharge *per vias naturales;* at others the excretion is partly evacuated by the natural and partly by the vicarious outlet. This symptom shows at times eccentric variations. When the fistula is seated in the urethra the bladder may be distended without loss, which may take place into the vagina during micturition. Sometimes while in the horizontal posture the escape will cease, the anterior vesical wall being pressed by the intestines against the bas-fond so as to close the opening, and in other cases, where the fistula is above the orifice of the ureters, the flow will take place while the patient lies, and cease when she stands.

The passage of excrementitious material through a canal and over a tissue not intended by nature to tolerate it, produces inflammatory action, pruritus, eruptions and excessive irritability. In urinary fistulæ the vulva and thighs are usually red, excoriated, and covered by a vesicular eruption. The vagina is sometimes covered by urinary concretions, and from the patient's body emanates a highly offensive odor, which, to one accustomed to seeing the condition, is often sufficient for purposes of diagnosis.

The general health of the patient is very likely in time to give way, and hysteria, chlorosis and graver disorders often show themselves.

PHYSICAL SIGNS.—If the fistulous orifice be a large one, even a superficial examination by touch, the patient lying upon her back, will generally serve to reveal the nature and extent of the lesion. It is different, however, with very small fistulæ, which will sometimes elude the most careful investigation. For their detection Sims's speculum should be employed, and in many cases it will be found advisable to place the woman in the knee-elbow position, instead of that on the side, before its introduction, and to have the buttocks and labia pulled apart by the hands of assistants. Even this method is not effectual in revealing the difficulty if the opening be very minute. Under these circumstances the bladder should be injected with water and its escape into the vagina carefully watched for. Sometimes, by this means, a capillary opening just at the junction of the vagina and cervix will be detected. Kiwisch, Meyer, Veit, and others have used for this purpose water colored with substances which will impart a bright tinge to it. Infusions of cochineal, madder, or indigo may be thus employed. The opening being once detected, the probe and finger will readily reveal the course, extent, and terminus of the tract.

COMPLICATIONS.—The complications which these fistulæ develop are vaginitis, vulvitis, stricture of urethra and vagina, and sometimes endo-metritis and peri-uterine inflammation. The most constant and important of these is the formation of bands, which contract the vagina, and which often require severance before operative procedure can be practised.

PROGNOSIS.—Previous to the year 1852 the prognosis of all cases in which the orifice acted as a vicarious outlet, for example, vesico-vaginal, recto-vaginal, and vesico-utero-vaginal fistulæ, was eminently unfavorable, for they very rarely undergo spontaneous recovery, and the means of cure at our command up to that time were uncertain and full of discouragement. In 1860 Dr. Sims[1] stated, "Of 261 cases of vaginal fistula (vesical and rectal) 216 have been permanently cured by the silver wire suture; 36 are curable and 9 incurable. Every case is curable when the operation is practicable, provided there is no constitutional vice to

[1] Gardner's Notes to Scanzoni, p. 515.

interfere with the powers of union. Success is the rule, failure the exception."

The enlarged experience of the profession has fully corroborated these assertions, made seven years ago, and it may now be accepted as a true statement as to the prognosis of all fistulæ of the female genital organs except cases of vesico-uterine fistula, in which the point of rupture is out of reach of surgical interference.

HISTORY.—The history of this subject dates back only to the sixteenth century, when attention was called to it and a plan of treatment proposed by Ambrose Paré. Before the discovery of the forceps the accident must have been one of very frequent occurrence, for then powerless labor was not under the control of the obstetrician, except by resort to a set of badly-constructed instruments for craniotomy, which in themselves presented serious dangers of laceration. The symptoms which mark its existence are so palpable and distressing that it does not require a physician to diagnosticate it, and no case of any gravity could have escaped notice. And yet, curious to relate, there are few diseases to which woman is liable, which have received so little notice at the hands of the ancients. Even pelvic cellulitis and other affections which have but lately attracted attention from the physicians of our day are distinctly spoken of by the writers of the Greek school; but this one, so annoying, so destructive of happiness, and so urgent in its demands for relief, has received scarcely any mention. It is true that Hippocrates makes some slight allusion to involuntary discharge of urine following difficult labors, but his remarks upon the condition are meagre and unimportant.

I do not claim to have made a full examination of the writings of the Greeks and Romans with reference to the subject, but base the statement which I have advanced chiefly upon the fact that the two great compilers of their period, Aëtius and Paulus Ægineta, make no mention of it. The work of Aëtius upon diseases of women (Tetrabiblos IV.) is made up of quotations from Soranus, Aspasia, Galen, Philumenus, Archigenes, Leonidas, Rufus, Philagrius, Asclepiades, in fact of all worthy of note whose writings were stored in the Alexandrian Library, which was the seat of his labors. By none of these is mention made of the affection. The works of Paul of Ægina, enriched as they have been by the

copious notes of Dr. Adams, their translator, are equally silent; and the researches of those who have examined the writings of the Arabians furnish no discovery of any description of it at their hands. At any rate, it is quite certain that no contributions to the treatment of the difficulty were made by the writers of the Greek, Roman, or Arabian schools.

Beginning at the seventeenth century, I will allude only to those who have made some advance in treatment, and not endeavor to record the names of all who have reported cures, or advised procedures which have not been of subsequent utility.

Before proceeding with the historical sketch which ensues I would draw the attention of the reader to two interesting facts which it will demonstrate. It will be seen that for centuries steady, persevering, and systematic efforts have been made to render this revolting malady curable, and that, as has so often been the case in other great discoveries, the minds of several investigators pursued the same course until at last success was reached. After a discovery has been made it is always easy to point out the elements upon which it rests for its success, and even to follow the process of reasoning by which each in turn was supplied. There can be no question that the three elements necessary for successful treatment of the lesion which we are considering, were:—

1st. A means for exposing the fistula to view and manipulation;

2d. A suture which would remain in place without causing inflammation;

3d. A means of disposing of the urine during the process of cure.

From the time that Paré suggested a plan of treatment, it will be noticed that surgeons brought these three means of cure to their aid. But they employed them separately, some using one of them, some another, and others still combining two. It was not, however, till the time of Gosset, in 1834, that the three were combined by the same operator.

In 1570 Ambrose Paré proposed the closure of vesico-vaginal fistulæ by a retinaculum. In 1660 Roonhuysen, of Amsterdam, used a speculum, through which he pared the edges of fistulæ, and united them by a needle. In 1720 Vœlter, of Wurtemburg, advised a needle, needle-holder, suture by silk or hemp, and a

catheter. In 1804 Desault used a vaginal plug and catheter in the bladder. In 1812 Naegele, of Wurtemberg, scarified the edges by scissors, used needles to approximate them, and employed the interrupted suture. In 1817 Schreger, of Germany, placed the patient on the abdomen, scarified and used interrupted suture. In 1825 Lallemand, of France, applied nitrate of silver to the edges of the fistula, and approximated them by a "sonde érigne" passed through the bladder, and, of fifteen cases, cured four. In 1829 Roux, of France, tried twisted suture with metallic bars and ordinary thread. In 1834 Gosset, of London, combined the knee-elbow position, levator perinei speculum, metallic sutures, and catheter permanently kept in the bladder. In 1836 Beaumont[1] employed the quilled or clamp suture. In 1837 Jobert de Lamballe resorted to autoplasty, transplanting a piece from the labia, buttocks, or thighs. In 1838 Wutzer, of Bonn, placed his patients on the abdomen, pared the edges of the fistula, and approximated them by insect needles and figure of 8 suture. To expose the fistula the perineum was held up by a hook and the labia drawn aside by assistants. In 1839 and 1840 Hayward, of Boston, U. S., reported three cases cured by vivifying the edges and closing with silk suture. This surgeon introduced a notable improvement, and aided in the final success by vivifying not only the borders of the fistula but the neighboring vaginal surfaces. In 1844 Chelius[2] placed his patients in the knee-elbow position. In 1846 Metzler[3], of Prague, employed the levator perinei speculum, perforated balls the size of shot, the knee-elbow position, gilded needles, and a permanent catheter. In 1847, Mettauer, of Virginia, employed the catheter and leaden sutures with such success that he was led to make the following statement: "I am decidedly of the opinion that every case of vesico-vaginal fistula can be cured, and my success justifies the opinion." In 1852, Jobert de Lamballe adopted his method styled "réunion autoplastique par glissement," which consisted in giving sufficient vaginal tissue for union, by cutting transversely through the vagina, at its junction with the uterus, in a line with the fistula. In 1852, Marion Sims,[4] of the United States, combined the three essentials for success, the speculum, the suture, and the catheter, and placed the operation at the disposal of the profession.

[1] Med. Gaz., Dec. 3d, 1836, p. 355.
[2] Agnew, op. cit., p. 15.
[3] Schuppert on Ves.-Vag. Fistula, p. 41.
[4] Amer. Journ. Med. Sci., 1852.

The discoveries to which he laid special claim were these:—

1st. A method by which the vagina could be distended and explored;

2d. A suture not liable to excite inflammation or ulceration;

3d. A method of keeping the bladder empty during the process of cure.

From a study of the literature of this subject it is made as evident as written testimony can make any history of the past, that not only did several investigators combine two of these elements of success in their operations, but that two, Gosset, in England, and twelve years afterwards Metzler, in Germany, absolutely combined all three. It is also made equally evident that they either failed to recognize the importance of what they had attained, or did not impress its value upon others, so that humanity could profit by it. Dr. Gosset's procedure is thus described in his own words in the first volume of the *London Lancet*, page 346.

"Having placed the patient resting upon her knees and elbows upon a firm table of convenient height covered with a folded blanket, the external parts were separated as much as possible by a couple of assistants, so as to bring the fistula, which was immediately above the neck of the bladder, into view. I seized with a hook the upper part of the thickened edge of the bladder which surrounded the opening, and proceeded with a spear-shaped knife to remove an elliptical portion, which included the whole of the callous lip surrounding the fistula, the long angle of the ellipsis being transversely. This was readily effected; but, in consequence of the very contracted state of the parts, the next steps of the operation were with difficulty executed; and I should not have succeeded in passing the sutures, had I not used needles very much curved, and a needle holder, which I could disengage at pleasure, the needles being withdrawn with a pair of dissecting forceps after the holder was removed. In this way three sutures were passed; and afterwards, by twisting the wire, the incised edges were brought into contact and retained in complete apposition until they had firmly united. One of the sutures was removed at the end of the ninth day, the second at the end of the twelfth day, and the third was allowed to remain until three weeks had elapsed. After the operation the patient was put to bed and desired to lie on her face, an elastic gum catheter,

having a bladder secured to its extremity for the reception of the urine, having been introduced and retained by means of tapes. She had not the slightest discharge of urine through the vagina after the operation, which completely succeeded in restoring the healthy functions of the part. The advantages of the gilt wire suture are these: it excites but little irritation, and does not appear to induce ulceration with the same rapidity as silk or any other material with which I am acquainted; indeed, it produces scarcely any such effect, except when the parts brought together are much stretched. You can, therefore, keep the edges of a wound in close contact for an indefinite length of time, by which the chances of union are greatly increased. I have used it now in very many operations, as after extirpation of the breasts, tumors of various kinds, and for bringing the lips together after the removal of a cancerous growth, in all of which cases it answered extremely well."

The method of Metzler was published in the Prague *Viertel Jahresschrift* for 1846, under the title of "Pathology and Treatment of Urinary and Vesico-Vaginal Fistulas, with a method of treatment easily executed and completely successful." I transcribe his article from the brochure of Dr. Schuppert already alluded to.

"To perform the operation successfully, it is of much importance to have—1st, a speculum, serving as a dilator of the vagina. Such an instrument consists of a grooved conical blade, five and a half inches long, three inches wide at the anterior part, one-half of an inch wide at the posterior. The end of the speculum is bent under at a right angle, and protected with wood for the handle. The instrument is best when made of silver, and polished to reflect the light on the parts to be operated upon. 2d, an apparatus consisting of perforated clamps, gilded needles, and an instrument called 'Rosenkranzwerkzeng,' consisting of perforated balls of the size of large shot, by which the clamps are held in contact. After the patient is placed on her knees and elbows, the dilator is introduced into the vagina and given to an assistant, who in holding it presses it against the rectum. The edges of the fistula are then pared off, which may be accomplished with curved scissors. One line and a half from the mucous membrane of the vagina and half a line from the edge of the bladder have to be cut off; the needles are then applied, and the wound held in co-

aptation by the clamps; a female catheter is introduced into the bladder by the urethra, and the catheter fastened by a T bandage."

From what has been said thus far it would appear that Dr. Sims was forestalled in all the details of the discovery by which he has rendered vaginal fistulæ curable. To a certain extent this is unquestionably true, but only as regards the theory of the matter. Before his publications the unfortunate women whose lives were rendered miserable by fistulæ through the vaginal wall were virtually almost as hopelessly affected as they were before Gosset and Metzler appeared in the field.

Velpeau,[1] in 1839, thus speaks of cure of these fistulæ: "To abrade the borders of an opening, when we do not know where to grasp them; to shut it up by means of needles or thread, when we have no point apparently to secure them; to act upon a movable partition placed between two cavities, hidden from our sight, and upon which we can scarcely find any purchase, seems to be calculated to have no other result than to cause unnecessary suffering to the patient." Vidal de Cassis[2] says: "I do not believe that there exists in the science of surgery a well authenticated complete cure of vesico-vaginal fistula." Malgaigne,[3] in 1854, says: "But the truly rational method, that which at present offers the greatest facility and efficacy, and the only one which should be applied in all cases of fistula of large size, is the suture by the procedure of Jobert."

This was the real state of science with reference to this *opprobrium chirurgiæ* when Marion Sims, by combining and utilizing the three essentials for success, gained it, and rendered the operation practicable for all surgeons. It must not be supposed that he availed himself of the results obtained by his predecessors. All that he attained was arrived at by hard and original labor. Indeed, no one can read his address upon "Silver Sutures in Surgery," delivered before the New York Academy of Medicine, in 1857, without being struck by his want of familiarity with the antecedent literature of the subject of his discourse.

Since the first publication of Sims's method, numerous modifications of it have been put into practice both in this country and Europe, and Dr. Sims himself has altered his plan of operating

[1] Operative Surgery.

[2] Pathologie Externe.

[3] Manuel de Méd. Opérat.

very much. The principle which he demonstrated is, however, the same, and the modifications of the operation all act in developing it.

Means for Obtaining a Natural Cure.—Within a few days after delivery the obstetrician is generally made aware of the existence of vesico-vaginal fistula by a steady and involuntary dripping of urine. As soon as this is evident a Sims's stationary catheter should be placed in the bladder, the vagina frequently syringed out with warm water to lessen inflammatory action, and the patient kept perfectly quiet in order that a repair of the injury may be accomplished by the efforts of nature. This is all that can be done at this time, for it is too early to resort to suture, and the lochial discharge would be interfered with by a tampon intended to aid in the cure. The operation by suture should not be undertaken before the immediate results of parturition have passed off and the fistula has assumed a permanent size and character.

Treatment.

The methods at our command for curing, or at least obviating the inconveniences due to fistulæ of the female urinary apparatus, are—

1st. Cauterization;
2d. Suture;
3d. Elytroplasty;
4th. Occlusion of the vagina or uterus.

Cauterization.

This once favorite method of treating all varieties of these fistulæ has now almost entirely fallen unto disuse under the influence of improved methods by suture. Malgaigne probably gives this means its proper place when he declares that it should be employed only in those cases where the fistula is scarcely perceptible. Even in such cases Sims's operation is far preferable, and cauterization should be employed only where some special circumstance, such as want of skill or of the proper instruments, forces the operator to resort to it. The performance of it is very simple. Sims's speculum being passed so as to expose the fistulous spot,

its borders should be thoroughly touched with a pointed stick of nitrate of silver or the actual cautery. This should not be repeated before the slough created has separated, and an opportunity been allowed for granulation to fill up the opening.

To check the flow of urine through the fistulous orifice and support the vaginal and vesical walls during the process of granulation, a small tampon of cotton, a Gariel's air pessary, or a glass vaginal plug, like that delineated at Fig. 32, should be kept in the vagina, and, to prevent distension of the bladder, a Sims's catheter should be permanently retained.

Suture.

Preparation of the Patient.—No operation in surgery more urgently demands a good constitutional condition, as an element of success than this. Should the patient's health not be good, and her blood-state be abnormal, a visit to the country, exercise, and fresh air, with vegetable and mineral tonics, will do a great deal towards avoidance of failure. At the same time the vagina should be regularly syringed with warm water to overcome local inflammation, and insure cleanliness. Should the disorder which caused the destruction of the vaginal wall have produced as a complication cicatricial bands in the canal, these should be cut, from time to time, and allowed to heal over a glass vaginal plug, and if contraction have taken place in the urethra, it should be overcome by bougies. Before the time of the operation the bowels should be thoroughly emptied by a cathartic, and on the day of its performance very little food should be taken, for fear that the long-continued use of an anæsthetic might produce vomiting, which would tear out the sutures.

Sims's Operation.—This operation may be divided into three parts:—

1st. Paring the edges of the fistula;
2d. Passing sutures through them;
3d. Approximating them and securing the sutures.

The patient being placed upon a table two and a half by four feet, which is covered by folded blankets, is brought under the influence of an anæsthetic, and placed in the following position. She is made to lie on the left side, with the thighs bent at about

right angles with the pelvis, the right a little more flexed than the left. The left arm is placed behind her back, and the chest brought flat down upon the table so that the sternum may touch it. The assistant who is to hold the speculum, which is now introduced, does so with the right hand, while with the left she elevates the right side of the nates. The table should be so arranged that a bright and steady light may fall into the vagina, which being now fully distended, will be seen throughout its extent, except where it is obscured by the speculum.

The operator having near him all the instruments, &c. which he will require, places his assistants thus: one holds the speculum, another administers the anæsthetic, and a third stands ready at his right hand to remove the blood accumulating in the vagina, by means of sponges, in the sponge-holders, Fig. 42, which are rapidly washed in a basin of water that stands by his side, to be used again. A fourth assistant, if attainable, may be well employed in handing the instruments as they are required. All being ready, he now proceeds with the first step of the operation.

Paring the Edges of the Fistula.—The edge of the fistula at the point which is deemed most difficult of access and manipulation, is caught by the tenaculum and held up. Then, with a pair of long-handled scissors, Fig. 38, or a knife, Fig. 39, a strip is cut, extending from the mucous membrane of the bladder to that of the vagina, care being taken not to wound the former.

Fig. 38.



Long-handled scissors.

Fig. 39.

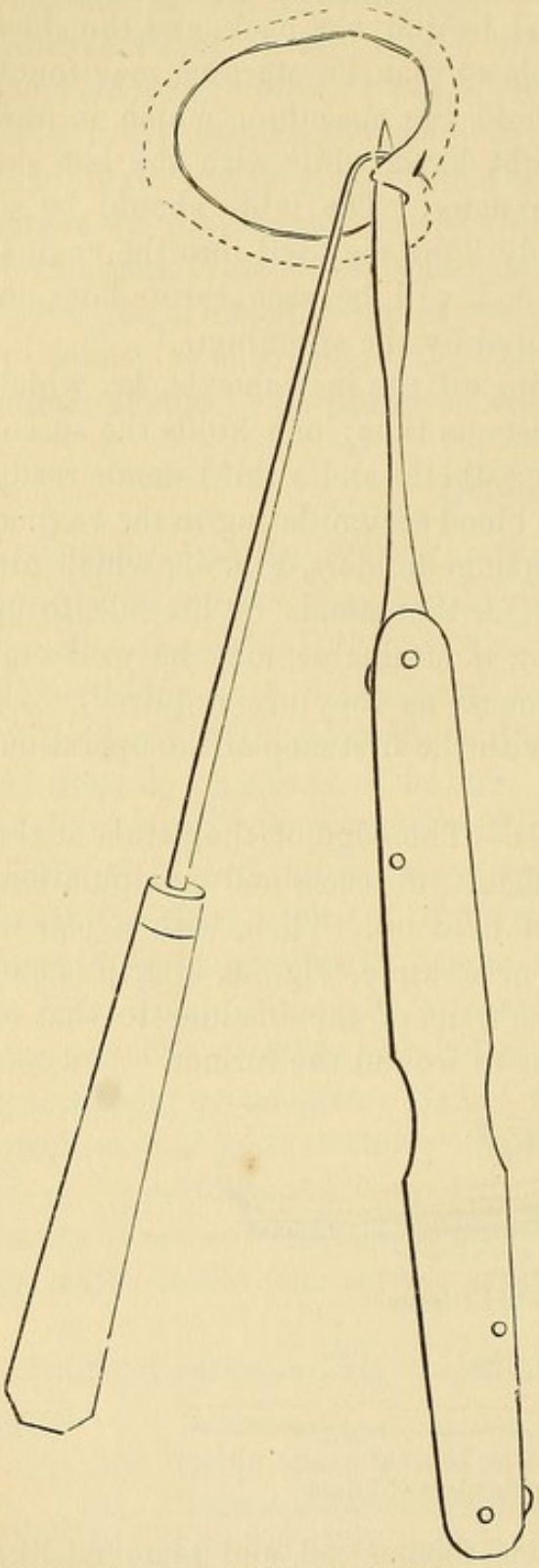


Bistoury for paring edges of fistula.

Another portion of the edge is then seized, and removed like the first. The wound thus left should be one bevelled from the vesical surface outwards, and great care should be observed to remove the entire border, for upon this success depends.

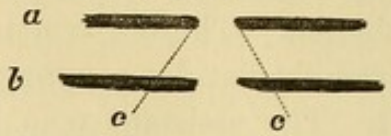
It is of great moment that sufficient tissue should be removed,

Fig. 40.



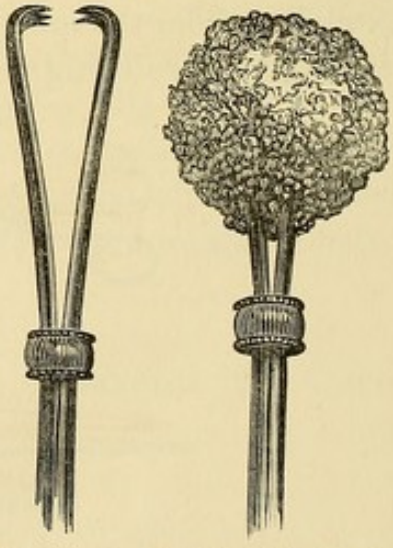
Paring the edges. (Wieland and Dubrisay.)

Fig. 41.



Showing bevelling of edges. *a*, vesical border; *b*, vaginal border; *c c*, incision.

Fig. 42.



Sims's sponge-holder with handle nine inches long. (Sims.)

and that the amount taken on the vaginal surface should be greater than that near the vesical. Prof. Simpson[1] makes this

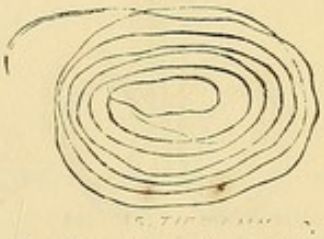
[1] Diseases of Women.

point very clear by the following language: "Enter the point of your knife into the vaginal mucous membrane at some distance from the fistula; then transfix with your knife the edge of the fistula to the extent you intend to remove it, and, bringing it out at the vesical border, carry it right and left fairly round the opening, so as, if possible, to bring out a complete circle of tissue."

The tissue, from the edge of the fistula to the point of vaginal section, should measure at least four lines, one-third of an inch, while above, it should just touch the vesical border, not wounding its mucous membrane. This is made evident by Fig. 41. During this part of the operation the sponges, held in long-handled sponge-holders, will have to be freely resorted to, but the bleeding generally soon ceases, and the operator may proceed to the second step.

Passing the Sutures.—The sutures are passed by means of slightly curved needles held in a pair of strong forceps, Fig. 44, made for the purpose. In some cases the metallic thread, made of annealed silver, which is employed, may be passed at once, but usually silk threads are first passed, and then the silver sutures are attached and drawn through. Mr. Stohlman has recently adopted a very ingenious method for avoiding the necessity of threading the needle, and thus having a piece of silver wire folded over so as to interfere with its passage through the tissues. He drills a hole for a short distance up the shank of the needle, the walls of which are made to act as a female screw. Into this the wire is passed by turning it; the threads in the wall of the canal cut into the soft wire, and it is held firmly in place. Fig. 43 represents a needle of this kind with a roll of silver wire attached. The needle, held in the grasp of the needle-holder, should be passed at the angle of the wound which is most difficult of access, half an inch from the edge of the incision, and brought out at the vesical surface, but not involving its mucous lining. Fig. 45 represents the points of entrance and exit of the needle.

Fig. 43.

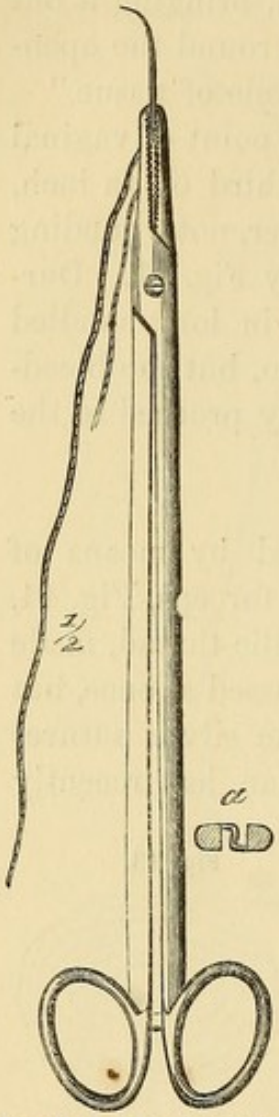


Stohlman's needle with wire attached.

The point of the needle having passed out, it is engaged by the small, blunt hook, Fig. 51, until it can be seized and drawn

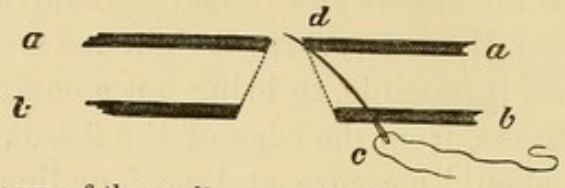
through by the needle forceps, Fig. 47. Then it is plunged into the other lip and drawn out half an inch from the edge of the

Fig. 44.



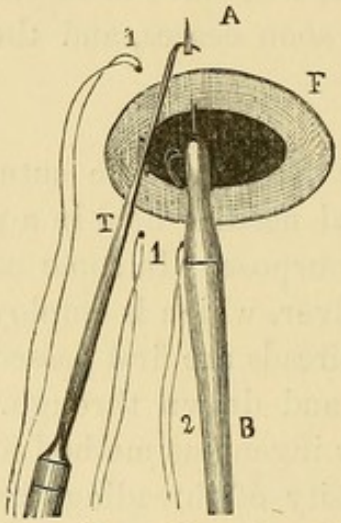
Needle held in forceps.

Fig. 45.



Course of the needle. *a*, vesical border; *b*. vaginal border; *c*, point of entrance of needle; *d*, point of exit of needle.

Fig. 46.



Passing the needle. (Wieland and Dubrisay.)

Fig. 47.



Forceps for drawing needle.

incision. The ends of the silk suture are now given into the charge of the assistant holding the speculum, and another is passed in the same way at the distance of one-sixth of an inch, from the first. In this way a sufficient number is passed to close the fistula, Fig. 48.

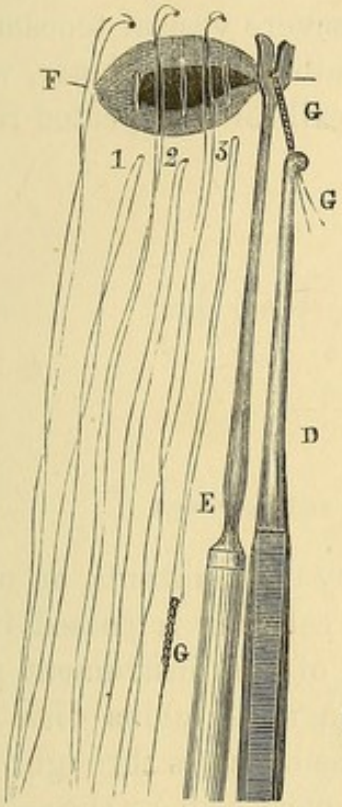
During this procedure the edge of the fistula is to be fixed by the tenaculum, and should firm, opposing force be needed to make the needles pass, it may be given by that instrument.

When the needle is seized by the forceps and pulled so as to make the thread follow it, some opposing force is needed, or the thread might cut through the tissues. This force is offered in the

species of fork represented in Fig. 50, which is put as a fulcrum under the thread at its point of exit, and made to sustain and draw it through.

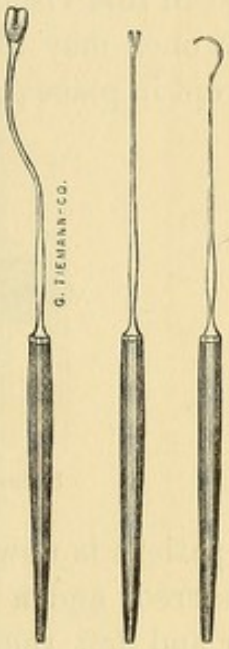
A bit of silver wire about twelve inches long is attached, by

Fig. 48.



Twisting the sutures.

Figs. 49. 50. 51.



Fulcrum for supporting wire while it is twisted. Fork with blunt points to aid the passage of sutures. Hook for engaging needle.

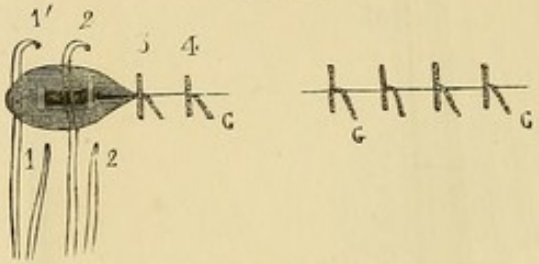
bending its extremity, to the first silk suture, and by the use of the fork just mentioned, the silk thread is drawn through so as to make the silver replace it. The silk is then cut off, the silver suture put aside, and the operator proceeds to replace each silk thread in the same way. This being accomplished, the instruments are now changed in order to effect the twisting of the sutures.

The ends of the silver sutures being drawn together by the fingers, and the edges of the wound carefully approximated, each thread is slightly twisted so as to keep the whole in apposition. Then the ends of the first suture are seized in the bite of the forceps, Fig. 47, slipped into the fulcrum, Fig. 49, and torsion is made so as to close the wound completely at this point. In this way the sutures are, one after the other, twisted, care being taken not to carry the torsion so far as to strangulate the tissues

engaged in the constricting loop. Each suture is now clipped by a pair of scissors, about half an inch from the edge of the fistula, and by means of forceps pressed flat against the vaginal wall so as not to wound the opposite surface.

The bladder should then be syringed out to remove all blood which may have accumulated there; for if a large clot should be retained in this viscus, it may cause severe vesical tenesmus, and smaller ones may block up the mouth of the catheter, which is to be kept in place permanently, and call for its repeated removal.

Fig. 52.



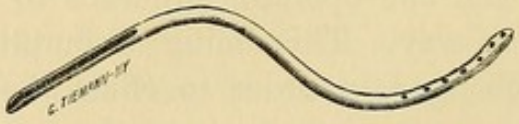
Sutures twisted. (Wieland and Dubrisay.)

The patient is now placed in bed by the assistants, an opiate is administered, and a Sims's sigmoid catheter is passed into the bladder and left there. The mouth of this instrument projects beyond the vulva, so that under it a small china dish may be placed, which will receive the urine as it passes through.

The catheter should be examined every two or three hours to be certain of its perviousness, and to remove the urine which collects in the receptacle placed under it.

Once in every twenty-four hours the vagina should be syringed

Fig. 53.

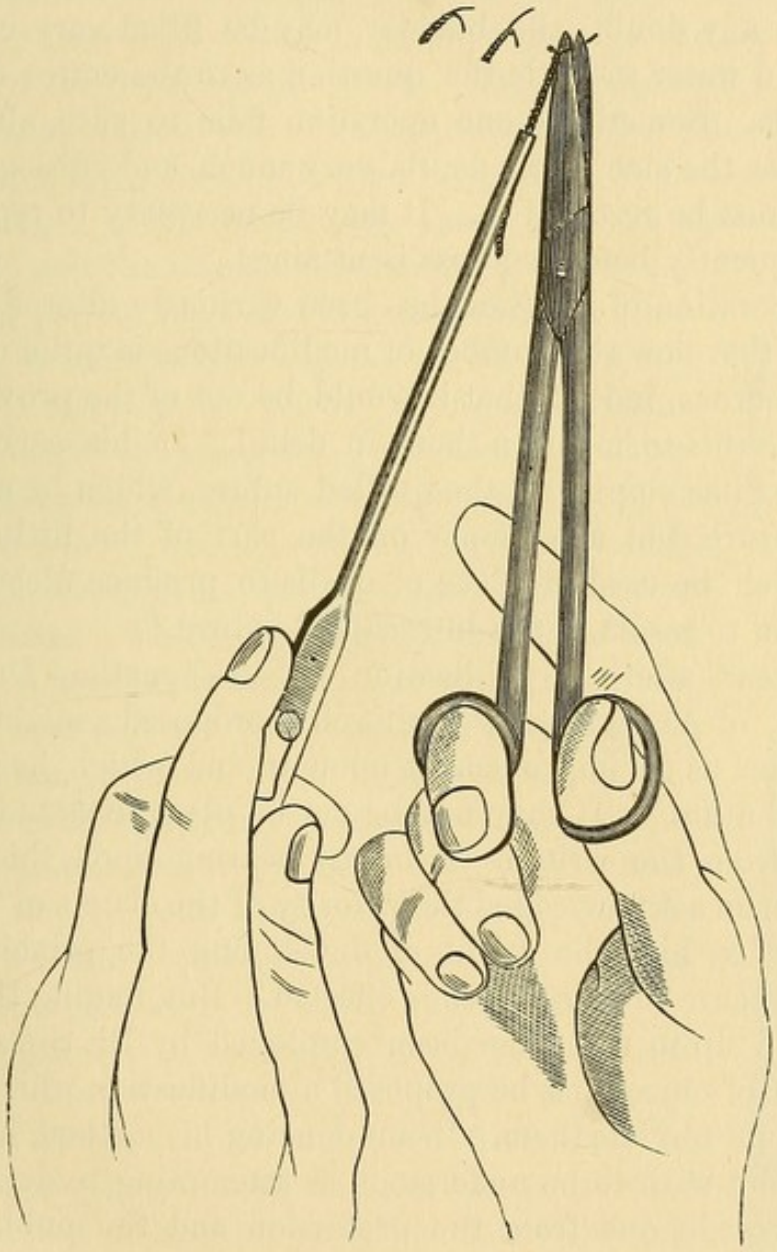


Sims's sigmoid catheter.

out with tepid water, or with this and white castile soap, or any similar detergent; but the bladder requires no further washing than that mentioned, except in cases of vesical tenesmus. The bowels should be kept constipated by opium. The diet should be governed by the same rules which guide us in the management of patients under other surgical operations. It should be nutritious and unstimulating.

In from eight to fourteen days the sutures should be removed. Dr. Sims declares that "it is unnecessary to allow the wires to remain longer than the eighth day;" but others, calculating upon the innocuousness of metallic substances in the tissues, have left them longer. In two of Dr. Schuppert's cases a leaking was detected when the bladder was injected on the sixth and

Fig. 54.



Removal of the sutures. (Sims.)

seventh days, which had disappeared entirely on the twelfth, when the sutures were removed and the cure was found complete.

To accomplish the removal of the sutures, the twisted end of

one of them should be seized by a pair of forceps and drawn upon gently until the edge of the loop emerges from the tissues in which it has been imbedded. Then the blade of a pair of scissors should be inserted into the loop and one side cut, after which a little traction will remove the suture.

An examination may then, with great caution, be instituted to ascertain whether success or failure has attended the operation. A visual examination will generally determine this. Should there be any doubt, the bladder may be filled very cautiously with tepid water to settle the question as to the entire closure of the fistula. Sometimes one operation fails to cure, although it diminishes the size of the fistula very much, and subsequent operations must be resorted to. It may be necessary to repeat these very frequently before success is attained.

The operation of Dr. Sims has been variously altered in all its steps, so that now the number of modifications is quite numerous —so numerous, indeed, that it would be out of the province of a work like this to mention them in detail. In his earlier operations Dr. Sims employed the quilled suture, which he called the clamp suture, but a tendency on the part of the little metallic bars, which he used in place of quills to produce ulceration, induced him to resort to the interrupted suture.

Four years after the publication of Sims's method Dr. Nathan Bozeman, of Alabama, now of this city, proposed a method which he regarded as an improvement upon it, and which he syled the "button suture." It may not be out of place to state here that, judging from the written testimony bearing upon this subject, Dr. Bozeman acknowledged the priority of the claims of Dr. Sims, and accorded him the credit of developing the principle upon which the cure in these cases is effected. But finding the clamp, which had up to that time been employed by Dr. Sims, open to a number of objections, he proposed a modification which he supposed would obviate them. In announcing his method, he says:—

"I do not wish to be understood as attempting to detract from the great credit due from the profession and the public to Dr. Sims for his untiring perseverance in bringing his method to its present high state of perfection. I consider that this gentleman is fully entitled to more than all the praise that has been bestowed

[1] Louisville Review, January, 1856.

upon him both in America and Europe. To the honor of his professional brethren in this country it may be stated that no one has been found who has not gladly accorded to him the high distinction that he at present occupies."

Bozeman's Operation.—"The edges of the fistule having been pared, the wire sutures are to be lodged in their respective places in the usual way, by attaching them to the ends of silk ligatures previously carried by means of a needle through the septum from one side of the fistule to the other. But in connection with this step of the operation, there is some difference between Dr. Sims's procedure and my own. In the first place I do not usually take so firm a hold of the tissues, the space between the entrance of the needle and the edge of the fistule rarely if ever exceeding half an inch, and it matters not whether the parts be indurated or not, the wire is not likely to cut out very soon. Secondly, it is not necessary to observe the same scrupulous care in entering and bringing out the sutures upon an exact line with each other; for, as will be hereafter understood, each one is in its action entirely independent of the others. Thirdly, instead of being obliged always to place the sutures parallel with each other, I have it in my power, if the peculiar nature of the case indicate, to insert them in any direction, and am thus enabled to bring within the sphere of successful treatment a large class of cases, which, owing to the irregular shape of the fistule, and the scarcity of tissue not admitting of extensive paring, cannot be subjected to the clamp suture.

Fig. 55.

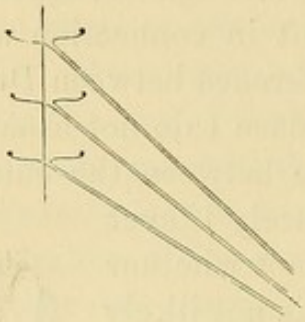


Bozeman's suture adjuster.

"The next step in the operation is to draw the raw edges closely in contact by bringing the opposite ends of each wire together. This may be readily accomplished with an instrument which I have invented for the purpose, and call the *suture adjuster*. It consists simply of a steel rod, fixed in an ordinary handle, its distal extremity flattened, perforated, and raised upon one side into a kind of knob, as represented by Fig. 55. The opposite ends of each suture are to be passed through the

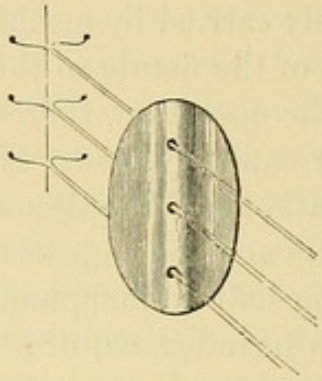
aperture in the end of the adjuster from the convex toward the flat surface, and while the former are held firmly between the forefinger and thumb of the left hand, the latter is carefully slipped down upon the wires until it comes closely in contact with the tissues. In this way the edges of the fistule are gently forced together, and, for the time being, the stiffness of the wire

Fig. 56.



Sutures adjusted.

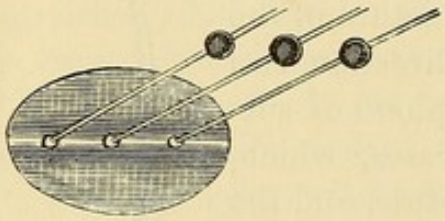
Fig. 57.



Button being passed.

prevents their separation. Should it be found, however, that accurate coaptation does not take place, owing to the imperfect manner in which the edges have been pared, the sutures may be readily loosened, and the defect remedied without the necessity of withdrawing the wires. The appearance of the parts after all the sutures have been adjusted is faithfully represented in Fig. 56.

Fig. 58.



Passing the shot.

"A button of suitable shape and size having been previously provided, is now to be placed upon the wires (Fig. 57), its concave surface corresponding to the vesico-vaginal septum, and carried down in contact with the septum. The wires being again held in the left hand, the button should be pressed gently against and adapted to the surface of the parts (Fig. 57). This may be accomplished by an instrument which I call the *button adjuster*, consisting of a stiff iron rod, bent at a right angle within half an inch of its distal extremity, and inserted into an ordinary wooden handle.

"The shot are to be now passed down over the approximated ends of each suture to the convex surface of the button, and here

each one is to be successively grasped with a pair of strong forceps, and held against the button, while contraction is made upon the corresponding suture, in order to bring the vaginal surface of the septum in close contact with the concave surface of the button, and insure close coaptation of the edges of the fistule. This having been accomplished, sufficient force is exerted upon the forceps to compress the shot and thus prevent its slipping. The operation is then concluded by clipping off the wires close to the shot."

The advantages claimed by the inventor for this method are the following:—

1st. It exerts a controlling influence in bringing the edges into apposition, and preventing inversion and eversion.

2d. It gives steadiness and support to the edges of the fistula.

3d. It protects the lips of the wound from contact with the secretions.

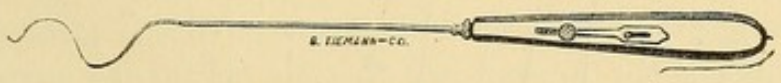
Dr. Bozeman operates with the patients in the knee-elbow position, and not on the side.

This operation, like that of Dr. Sims, has been variously altered. Shields or splints of other forms have been substituted by Simpson, Baker Brown, Agnew, Battey, and others; but as no new principle or special advantage is developed by them, further mention would be superfluous.

Dr. Startin and M. Matthieu, of Paris, have invented hollow needles, through which the silver threads can be passed without first passing those of silk. Needles, straight and curved, with long handles, are likewise employed by some.

A very ingenious and simple needle, made by Messrs. Tiemann & Co., is represented by Fig. 59. By a sliding nut in the handle the metal suture is easily pushed through the hollow needle so as to facilitate its passage very materially.

Fig. 59.



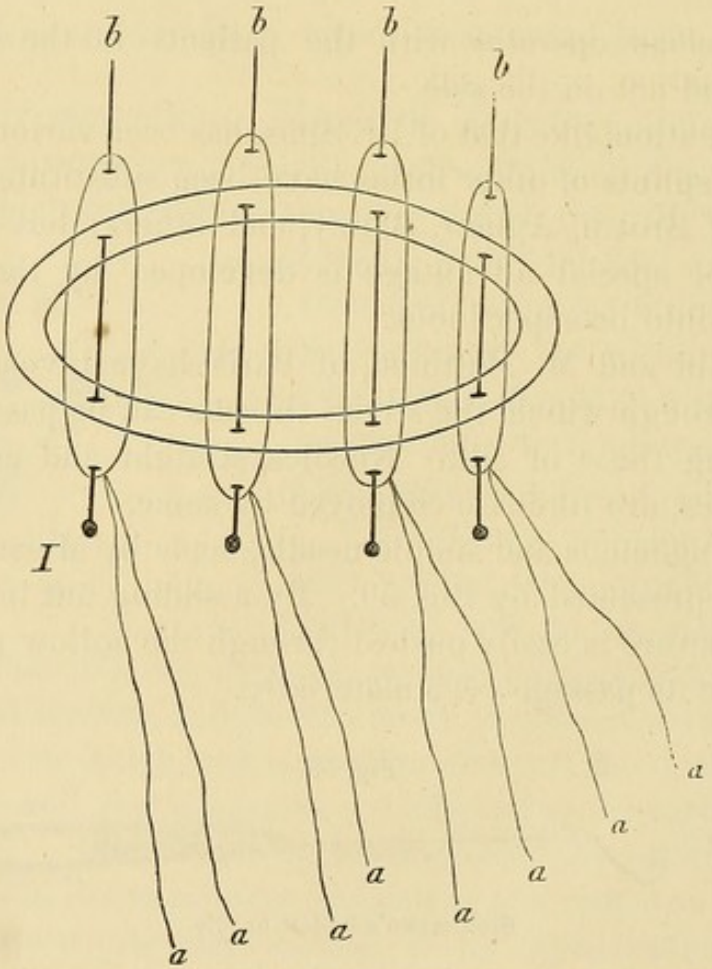
Stohlmann's hollow needle.

It will be remembered that the historical sketch given of this operation records the repeated use of pins, with figure of 8 sutures surrounding them, for closing fistulæ, and that as late as 1848

Metzler, of Prague, employed them with good results. They are, however, not generally resorted to, and for that reason I, with the greater pleasure, describe the ingenious procedure of Dr. Mastin, of Mobile.

Mastin's Operation.—The lips of the fistula being pared in the ordinary manner, Carlsbad suture pins are held in a needle-holder and passed through both lips. Then a long silver wire is passed as a noose over both ends, and twisted by a Startin's or Coghill's twister, the points of the pins are cut off and a sponge placed in the vagina to support the sutured part. This is daily removed and the vagina syringed out. In removing the pins the head of each is seized by a pair of forceps, the pin is withdrawn, and the wire drops into the vagina. One great advantage claimed for the

Fig. 60.

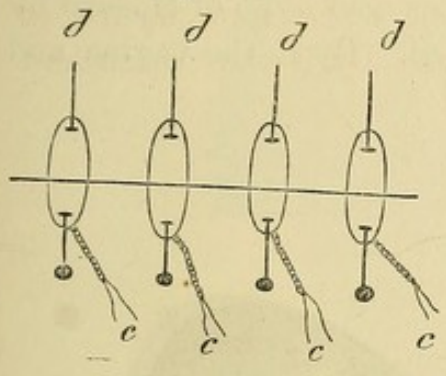


Mastin's operation: *a a a*, wire threads surrounding *b b b*, pins in position.

process by Dr. Mastin is this: if a leak be discovered, no new operation is necessary; a tenotome is inserted, by twisting which

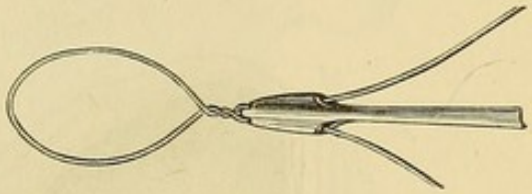
the lips at the point of imperfect union are vivified, and an additional pin is passed through so as to bring them into apposition. The plan certainly recommends itself for simplicity, and since it has uniformly succeeded in the hands of its inventor deserves trial. Figs. 60 and 61 show the steps of the operation very clearly.

Fig. 61.



Wounds closed: *c c c*, threads twisted so as to close the fistula; and *d d d*, pins cut short.

Fig. 62.



Coghill's twister employed in the operation.

Elytroplasty.—This operation was published to the profession by Jobert de Lamballe,[1] in 1834, and was subsequently altered and improved by Velpeau, Gerdy, and Leroy d'Etiolles. It consists in dissecting a flap from one buttock (Jobert), or the posterior wall of the vagina (Velpeau and Leroy), and fixing it by sutures into the orifice of the fistula, the borders of which have been previously pared. It resembles the operations of rhinoplasty performed upon the face, but is unfortunately even more difficult than they, and calls for such great manual dexterity as to preclude its frequent adoption. Velpeau, by making two parallel, longitudinal incisions in the vagina, dissected up the intervening tissue and stitched it to the edges of the fistula.

Leroy prolonged these incisions to the vulva, dissected up the intervening flap, and, rolling this upon itself, applied its under or bleeding surface against the fistula.

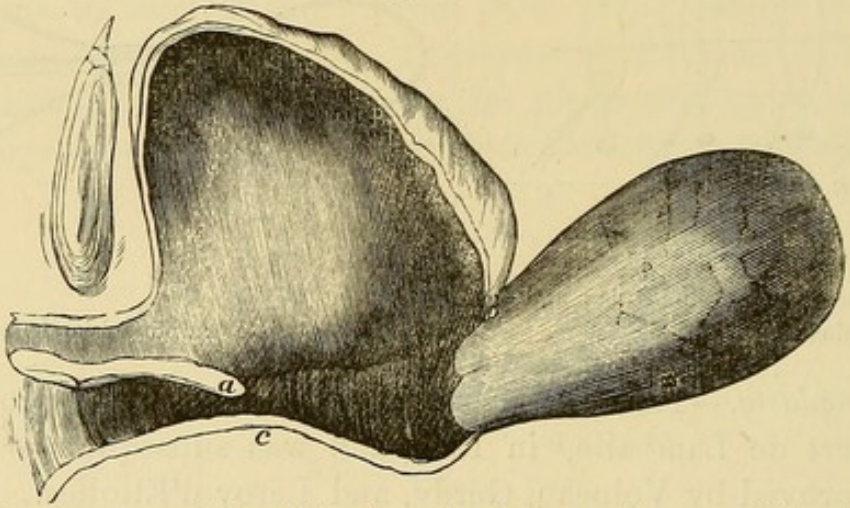
Elytroplasty is still resorted to sometimes where great destruction of tissue has taken place at the base of the bladder, but the difficulties and uncertainties attending it, together with the fact that more simple and efficient methods for dealing with this class of cases are at command, have rendered a resort to it very rare.

[1] Bull. de l'Acad. de Méd. de Paris, t. ii. p. 145.

Closure of the Vagina.

This procedure is resorted to in despair of accomplishing the cure of the fistula, and in the hope of relieving the patient from the intolerable annoyance attendant upon an involuntary and constant discharge of urine. It is proposed only for those cases in which, from extensive destruction of tissue, no hope of closure by suture or elytroplasty can be entertained. By it the vagina and

Fig. 63.



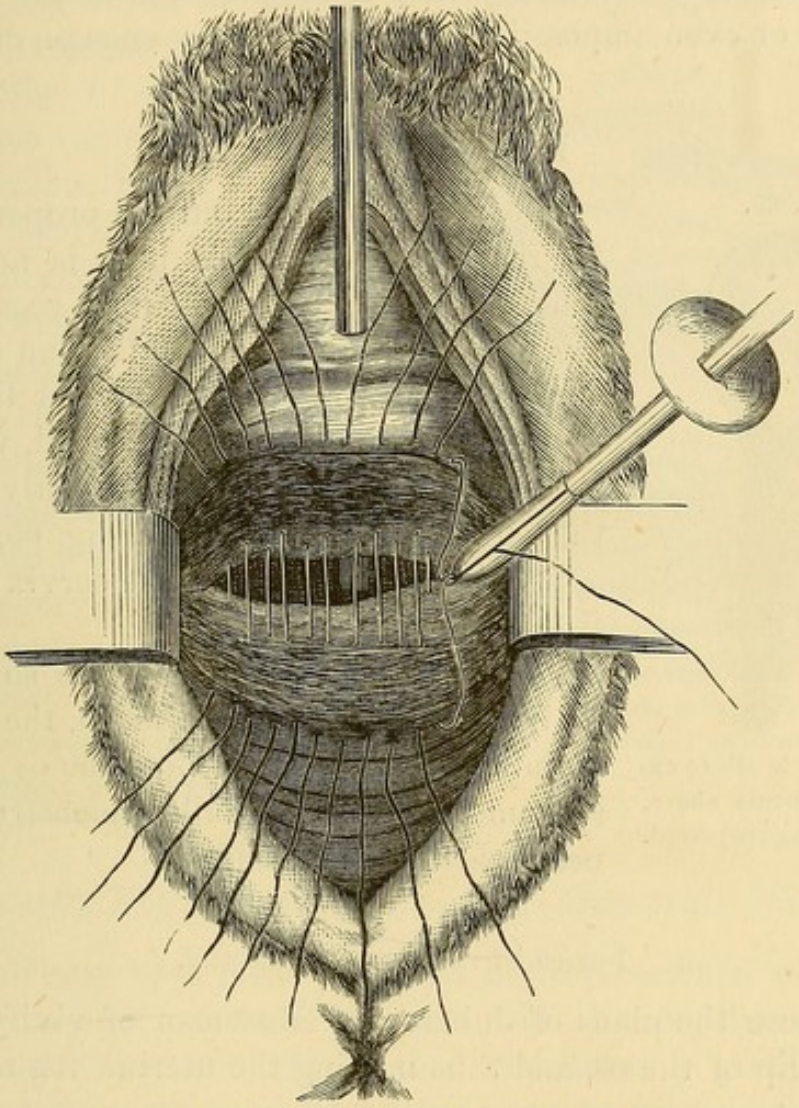
Example of a case requiring obliteration of vagina; *a* and *c* were united. (Sims.)

bladder are rendered a common receptacle for urine and menstrual blood, the only advantage gained consisting in the fact that they may be retained and discharged at volition through the urethra which remains open. Closure of the vagina may be accomplished by two operations, episiorrhaphy and obliteration of the canal. Neither of these, however, can be regarded as reliable or efficient methods, since they involve the necessity of the urine being retained in the vaginal canal, which is injured by its presence.

The first consists in paring the inner surfaces of the labia majora and uniting them by suture so as to cause their complete adhesion. The operation is exceedingly simple in its steps, but a very minute opening almost invariably remains just under the meatus through which a little urine exudes. This very nearly invalidates the success of the method, for even a slight escape renders the patient uncomfortable.

The second consists in paring, not the labia, but the lower ex-

Fig. 64.



Obliteration of the vagina. (Wieland and Dubrisay.)

tremity of the vaginal walls. Strips of mucous membrane being thus taken away, the bleeding surfaces are brought in contact by suture, and the bladder kept empty by a catheter until union has occurred. Dr. Bozeman, of this city, was the first to perform a modification of this method, which Simon, of Rostock, subsequently adopting styled "cross obliteration." It consists in bringing the remains of the vesico-vaginal wall, which has been nearly destroyed by sloughing, into union with the posterior vaginal wall, so that the vaginal orifice is closed transversely.

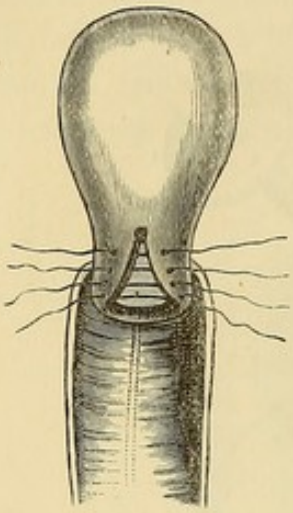
Urinary Fistulæ Requiring Special Treatment.

In the great majority of instances no other plan of treatment than the suture is ever thought of. There are, however, some

cases of urinary fistulæ in which the application of the suture is difficult, or even impossible. These will now engage our attention.

Vesico-uterine Fistulæ.

Fig. 65.



The cervix is slit to expose the fistula above, and sutures are passed.

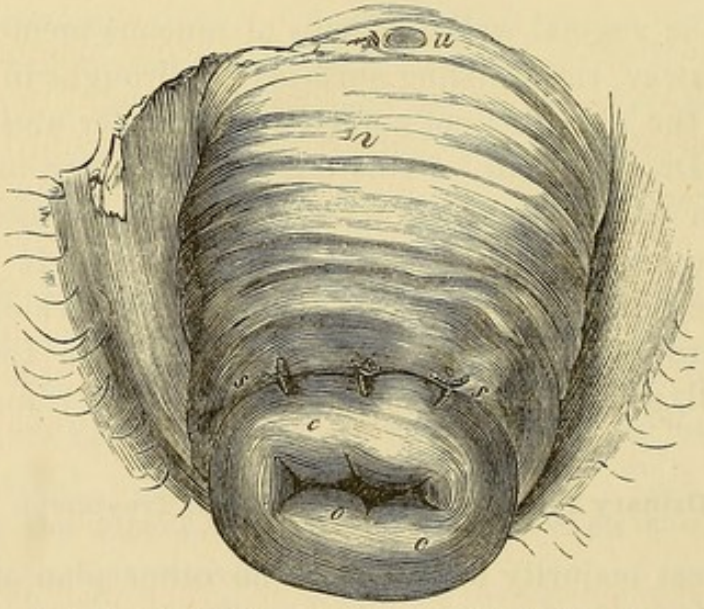
Jobert first pointed out the proper method for reaching these. His plan is not at present employed, but that now regarded as most reliable is only a modification of it. It consists in slitting up the anterior lip of the uterus until the fistula is reached, vivifying its edges and passing sutures directly through the cervix, as represented in Fig. 65, so as to approximate the walls of the cervix and the lips of the fistula.

In case the fistulous orifice be so high as to be considered beyond reach, the only remaining resource is to close the os uteri externum by suture, and allow menstruation to occur through the bladder.

Vesico-utero-vaginal Fistulæ.

For these the plans of Jobert and Bozeman of vivifying the anterior lip of the os, and thus making the uterine tissue subser-

Fig. 66.

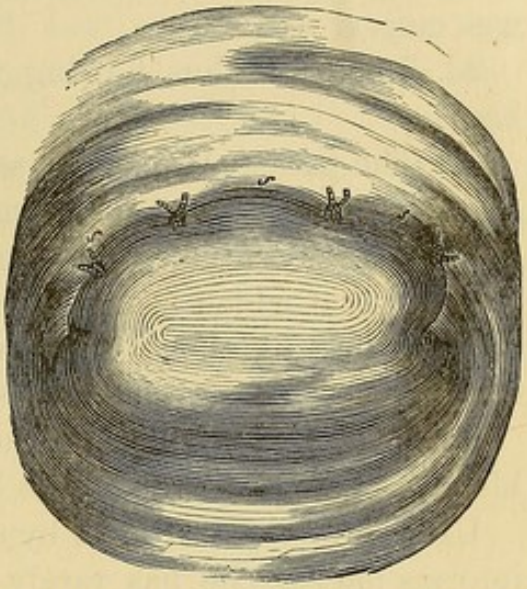


Anterior lip of fistula united to anterior lip of cervix.

vient to closure of the fistula, are peculiarly applicable. The operation, represented at Fig. 66, is similar to that for ordinary vesico-vaginal fistula, the only difference being that one lip of the fistula is made of the vivified cervix uteri.

In case the anterior lip of the uterine neck be so completely destroyed that it cannot furnish the requisite tissue for this purpose, the vagina may be united to the posterior lip so as to throw the cervix into the bladder. Menstruation will afterwards occur into that viscus, and the blood thus accumulating be discharged with the urine.

Fig. 67.



Anterior lip of fistula united to posterior lip of cervix. (Wieland and Dubrisay.)

Fistulæ with Extensive Destruction of the Base of the Bladder.

It has already been mentioned that elytroplasty and occlusion of the vagina offer resources in these cases, but neither of these operations is likely to produce good results as a general rule. To Dr. Bozeman we are indebted for a much more reliable procedure, which consists in daily dragging the uterus down for weeks before the operation by means of a pair of forceps by which the neck is seized. By this means the uterus is made to approximate the vulva. Then one lip of the cervix, being vivified, is brought into contact with the extremity of the remains of the vesico-vaginal septum and firmly united with it by suture.

In addition to the varieties of urinary fistulæ mentioned here, certain rare instances of union between the ureters and vagina or uterus have been recorded. A case of what is styled uretero-uterine fistula may be found detailed in the *Dictionnaire de Médecine*, vol. xxx., by the pen of M. Berard. It is not only interesting in itself, but as displaying the logical process of reasoning by which the diagnosis was made is worthy of special mention. Regarding it at first as a vesico-uterine fistula, from the fact that urine was

discharged from the uterus, he arrived at a different diagnosis from these facts:—

1st. The urine flowed steadily from the cervix when the bladder was empty.

2d. The urine thus flowing was limpid, unlike that from the bladder.

3d. The patient being kept seated over a vessel for two hours, so as to preserve all the urine flowing per vaginam, a catheter was passed into the bladder and the amount removed exactly equalled that which had escaped vicariously.

4th. Injecting the bladder with fluid colored by indigo, the urine passing per vaginam remained limpid.

5th. A sound being passed into the uterus and another into the bladder, their points could not be brought into contact.

Uretero-uterine fistula is by no means common. Dr. Bozeman informs me that he has rarely seen it, and not one instance is mentioned by Dr. Emmet in his recent work upon Fistulæ.

An interesting instance of union between the ureter and vagina, uretero-vaginal fistula, is detailed by M. Robert,[1] of Paris, as the condition remaining after an operation by Dr. Bozeman at the Hôtel Dieu. The following is his description of the case:—

"The vagina then being dilated by means of a speculum we explored this canal. The milk injected in the bladder neither escaped into the vagina nor by the urethra. After prolonging the examination, however, we saw now and then a drop of clear urine escape from the vesico-vaginal wall at the point precisely where Dr. Bozeman had encountered the right ureter, and which he endeavored to avoid with the suture. This examination, therefore, demonstrates in a positive manner: 1st. That the vesico-vaginal perforation is obliterated, since the milk contained in the bladder does not escape into the vagina. 2d. That the urine which wets the vagina from time to time is turned directly into the canal by the ureter, which was implicated by the suture notwithstanding the efforts of the surgeon to prevent it. We would

[1] Bozeman on Fistulæ, N. O. Med. and Surg. Journal, March and May, 1860. Dr. Bozeman clearly recognizes this form of fistula as a result of the ordinary operation for the vesico-vaginal variety, explains the method of its occurrence, and describes his "usual plan for overcoming this obstacle," when he has reason to fear its occurrence from cutting of the ureter.

remark that the dribbling of the urine from the right ureter into the vagina is limited to a few drops, because of the compression that the cicatrix exerts over the former, which is found to be considerably diminished in size. 3d. Lastly, and this is the main fact, that the opening in the vesico-vaginal wall being four centimetres in diameter, has been completely obliterated by the simple suture without having recourse to incisions to permit locomotion of the tissues, and notwithstanding too the presence of the ureter between the edges of the fistule."

CHAPTER XI.

FECAL FISTULÆ.

Definition.—These fistulæ, which are much less frequently met with than the urinary, consist in communications established between the vagina or vulva and some part of the intestinal tract.

Varieties.—They may be recto-vaginal, entero-vaginal, or recto-labial; the first being the most common, and the second the rarest of the varieties.

Causes.—The causes which produce them are almost identical with those which result in urinary fistulæ, viz:—

Prolonged pressure;
Direct injury;
Ulceration or abscess.

The first of these may produce them, as it does those occurring on the anterior vaginal wall, by creating an intense inflammation which results in sloughing, or the intensity of the pressure may be so great as rapidly to destroy the vitality of the part. Such pressure is most frequently the result of difficult parturition, but in rare cases it may arise from badly-fitting pessaries or scybalous masses in the rectum.

Direct injury by instruments used in delivery, or others employed for removal of impacted feces, may evidently produce them.

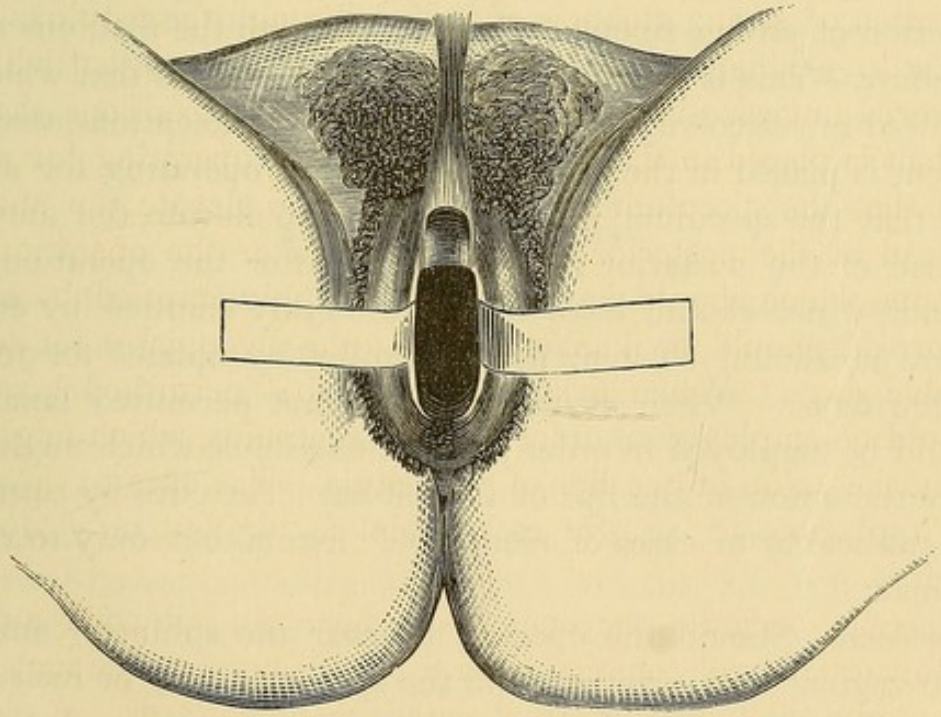
Ulceration or Abscess.—These pathological conditions much more frequently produce this than the urinary form of fistula. For the recto-vaginal variety stricture of the rectum is a fruitful source, the stricture producing a retention of fecal matters which excites ulceration that may extend to the vaginal canal. An abscess between the vagina and rectum may cause a communication between the two, or burrowing towards one labium may open there and connect this part by a tract with the rectum. In the same manner a purulent collection has been known to make a junction between the caput coli and vagina. Lastly, syphilitic

and cancerous ulceration may open a channel between the intestinal and vaginal canals.

Symptoms.—The most prominent, often the only symptom which will attract the patient's attention, will be a discharge of offensive gas or fecal matter by the vagina. The amount which escapes will of course be governed by the size of the fistula, but the annoyance dependent upon the accident will not be so, for even the smallest quantity will be sufficient to render the patient utterly wretched by the offensive odor to which it gives rise.

Physical Signs.—The patient being placed upon the back, the touch should be practised upon all the surface of the vagina. If the fistula be one of any magnitude, this will at once discover it. If not, careful exploration by the speculum will almost always do so. Sims's speculum should be introduced under the symphysis so as to lift the anterior wall of the vagina while the lateral walls are held aside by spatulæ. Should visual exploration not reveal

Fig. 68.



Examination for fecal fistulæ. (Wieland and Dubrisay.)

the opening, the rectum may be filled with tepid water colored with cochineal or indigo, and its escape carefully watched for.

Prognosis.—Fecal fistulæ are more likely to be spontaneously recovered from than those of urinary character, from the fact that they give passage to gaseous and semifluid excretions, and not to

an irritating fluid which is constantly dribbling away and keeping the fistulous walls from uniting. But even these are rarely recovered from unless surgical aid be brought to their relief.

Treatment.—Recto-vaginal and recto-labial fistulæ may be treated by the following methods;—

Cauterization;
Suture;
Incision;
Ligature.

Cauterization may be effected by one of the strong mineral acids, nitrate of silver or the actual cautery. If the fistula be direct, any one of these may be employed. If it be indirect, touching with a probe, the point of which has been covered by a coating of nitrate of silver by dipping it in that substance when in a state of fusion, will be the most appropriate plan. After cauterization the rectum should be kept perfectly quiet by opiates, and a glass plug should be worn in the vagina. In cases of recto-labial fistulæ, Prof. Simpson speaks in high terms of the injection of strong tincture of iodine through the fistulous tract.

Suture.—This is practised upon the same plan as that which is followed in vesico-vaginal fistulæ, with these exceptions, that the patient is placed in the position adopted in operating for stone, and that the speculum is so inserted as to elevate the anterior instead of the posterior vaginal wall. After the operation, the rectum, which should have been thoroughly emptied by enema before it, should be kept perfectly quiet by opiates for ten or twelve days. When evacuations are first permitted laxatives should be employed in order to avoid tenesmus, which might destroy the union of the lips of the fistula. The cure by suture is not applicable to cases of recto-labial fistula, but only to recto-vaginal.

Incision.—Should the opening be near the sphincter ani, the recto-vaginal wall together with the sphincter may be incised so as to unite the two canals from the fistula downwards. A pledget of lint is then placed in the wound, which will heal from its deepest portion. Prof. I. E. Taylor, of this city, has recently reported 40 cases, of which 36 or 37 were cured by a method for which he credits Dr. Rhea Barton, of Philadelphia, and which he thus describes: "The treatment consists in *full and complete division of the whole sphincter ani, laterally*, either by the use of the specu-

lum ani, or simply by the finger introduced, and dividing the sphincter from within outwards, which I much prefer. The sphincter ani is divided on the side (the left being the most frequent), where the external orifice is found. If the fistula is double, then divide the sphincter ani on both sides *laterally*. In all the cases operated upon the sphincter ani has closed up well and remained perfectly natural. The fistula externally, either in the vagina or on the labia, is not *touched, either by caustics* or *suture*. The rule which guides the surgeon at the present day, as proposed by Brodie, Syme, Curling, and Quain, where the internal opening in fistula in ano is high up, is not to disturb or touch it, but let it alone. Experience has taught that the internal opening in the case of fistula in ano, though two to three inches high up, will close, after the sphincter ani only is divided through to the external orifice, and so it is with recto-vaginal and labial fistulæ of the nature I refer to."

Ligature.—This method consists in the passage of a silk thread, by means of a bent probe, through the fistula, so as to embrace the recto-vaginal septum between the fistula and the perineum. A silver ligature being then attached to one of its ends, is drawn into place by it and tightened every day until it cuts its way out.

Entero-Vaginal Fistulæ.

Entero-Vaginal Fistula, which consists in a fistulous tract between part of the intestinal canal above the rectum, and the vagina, is rare, and when existing should be looked upon as an artificial anus, the closure of which would be attended by danger. If the opening is direct and there be no tract leading from one canal to the other, this would not be the case, but if a tract exists, the closure of its vaginal extremity would probably result in abscess excited by fecal matters passing out of the intestine.

Simple Vaginal Fistulæ.

Definition.—Under this head is grouped those forms of fistulous connection with the vagina which do not act as vicarious outlets for any neighboring organ, as, for example, peritoneo-vaginal, perineo-vaginal, and blind fistulæ.

Peritoneo-vaginal Fistula has been rarely met with. When it

does occur it is attended by danger of descent of the intestine into the vagina, and entrance of fluids and air into the peritoneal cavity. One reason for its rarity is probably the fact that no excrementitious substance passing through it, it very generally disappears without becoming chronic. Should it not do so, no annoyance would arise from its existence, and it would be susceptible of immediate cure by suture.

Perineo-vaginal Fistula may result from partial closure of a ruptured perineum leaving a small orifice near the sphincter ani, or from penetration of the presenting part of the fœtus through the perineum. It would be readily cured by incision, ligature, cauterization, or injection, after the plan just pointed out in connection with fecal fistulæ.

Blind vaginal Fistulæ are those which lead to a purulent collection in some part of the pelvis. They will be fully treated of when considering pelvic abscesses, and nothing need be said of them here further than to recapitulate the principles upon which their treatment rests: 1st, dilatation of the fistulous tract by tents or incision; 2d, exerting an alterative action on the walls of the abscess by iodine, iron, nitrate of silver, water, &c. &c.

CHAPTER XII.

GENERAL REMARKS UPON INFLAMMATION OF THE UTERUS.

Importance.—He who desires to become conversant with the diseases peculiar to women, to fully comprehend their pathology, and to be successful in their treatment, will do well to make the thorough understanding of inflammation of the non-pregnant uterus the basis of his education in this department of medicine. It is true that many diseased states of the pelvic viscera of the female are due to other causes, but it is not less true that the majority either take their rise in this, or in their progress become complicated by it, so that it forces itself constantly upon the notice of the Gynecologist as the keystone of the arch upon which rest his knowledge and usefulness. These facts were, to a certain extent, recognized by the physicians of the Grecian and Roman schools, but, judging from those of their works which have reached us, their appreciation of them did not compare in thoroughness with that of our century. After the revival of letters, the importance of the pathological view which gave to metritis such prominence and moment was almost entirely lost sight of until the beginning of the nineteenth century, when Récamier and Lisfranc reinstated it. It has been already stated that to Dr. J. H. Bennet we owe its dissemination not only in his own country but throughout America.

A great diversity of opinion exists as to the pathological importance and the frequency of chronic metritis. The most experienced and eminent men of the medical profession in our day are at variance concerning these points, and discussions, into which great acrimony has been allowed to enter, have been and are now being indulged in. In reference to this subject I shall make no exception to the rule which I have laid down for myself in this work, to avoid as much as possible the consideration of unsettled and debatable questions, but I cannot avoid a few remarks upon it. A great deal of the existing diver-

sity appears to me to be due to a misunderstanding of what is meant by the term inflammation, a term employed with too much latitude and not limited by a sufficiently succinct and comprehensive definition. By many it was, and, I think, is supposed to signify an increase in the vital processes; an exaltation of function; a rapidity and excess of life. To no such condition would I apply it in these pages. On the contrary, I adopt the view of those who look upon it as an arrest of function; an interference with vital action; a checking of physiological processes, which, if carried far enough, invariably results in abnormal development or local death.

Inflammation of the uterus, as of every other organ or part, consists in congestion which results in change of secretion, an alteration of nutrition, and sometimes a development of exuberant, homologous tissue. It matters not whether this action be acute or chronic in its course, the characteristics of its existence are always those just mentioned as pathological evidences, while pain, increase of animal heat, and swelling constitute its rational symptoms. Should mere blood stasis exist, unaccompanied by the circumstances mentioned, congestion is the name applied to the condition; while, if excessive generation of homologous tissue occur without appreciable congestion, alteration of secretion, &c., the term hypertrophy conveys the idea of excessive development uncomplicated by inflammatory action.

Unquestionably, the greatest advances which have been made of late years in the elucidation of the processes of inflammation have been effected by the German school. By the labors of Virchow, Recklinhausen, Cohnheim, Schultze, and others, much light has lately been thrown upon it, and I now propose to lay some of their views before the reader.

Virchow[1] has established a group of connective tissues which comprises the fibrous, the mucous, the adipose, the elastic, the cartilaginous, and the bony. The component parts of these are cells which vary in shape and contents, and intercellular substance which has been proved by Recklinhausen to be perforated by little canals which convey nutritious juices. The walls of the bloodvessels, arteries, veins, and capillaries, as proved by Oedmansson, have between their epithelial investments apertures or

[1] See Neftel's interesting *résumé*, N. Y. Med. Record, p. 223 et seq.

stomata which, by vascular distension, become opened and allow of more easy escape of the contents of the vessels. An interference in the functions of circulation, secretion, and nutrition occurs in these parts as a result of, and really may be said to constitute the first stage of, inflammation, which consists in congestion and distension of the canals just mentioned, and a stasis or arrest of the elements of the blood. Such an interference sometimes results from local influences, hence the trite maxim of our forefathers, "ubi irritatio ibi fluxus;" sometimes the nerves governing capillary circulation, nutrition, and secretion are disturbed by an influence reflected from some central cause; again, vascular derangement occurs without connection with the nervous system. "It is certainly true, as maintained by Virchow," says Brown-Séquard,[1] "that nutrition and secretion, normal and abnormal, can be carried on without the intervention of the nervous system; but this does not at all prove that that system cannot interfere, for good or for evil, in nutrition and secretion in the various tissues and organs. For instance, there is no doubt whatever that an inflammation, followed or not by suppuration and ulceration, can take place without any intervention of the nervous system; but there is no doubt, also, that the same morbid processes, not only can be, but very frequently are, produced by a nervous agency."

Whatever be the pathological condition resulting in impairment of capillary circulation and coincident disorder in nutrition and secretion, Cohnheim[2] has demonstrated, by vivisection, the following steps in inflammation. First, the arterioles begin to dilate and become tortuous, and soon the venules do likewise; this is followed by retardation of the circulation and aggregation of the white corpuscles on the walls of the vessels. This retardation, dependent as it is on want of tone, almost paralysis, in the muscular coat of the vessels, distends these still more fully, opens their stomata, and through these ooze the plastic elements of the blood,[3] an amorphous fibrinous matter, and also pass many of

[1] Diagnosis and Treatment of Functional Nervous Affections, p. 21.

[2] Revelations on Inflammation, &c., by M. Cohnheim, London Lancet and Med. Times and Gazette.

[3] The passage of fibrin from the vessels is denied by Virchow, who declares that all fibrin found outside the blood is "a local production." But this subject is one requiring too much space to admit of treatment here.

the white and a few of the red corpuscles of the blood. The white corpuscles soon pass out in great numbers and become pus cells.

All this, even when the type of the action is acute, belongs to want or depreciation and not to increase or excess of vitality. When the process is of acute type, suppuration soon occurs, and disintegration of plastic effusion is at an early period followed by discharge; or the semi-paralyzed vessels recover their tone, the stagnant circulation is restored to a healthy state, and the effused materials either become organized or are absorbed.

But neither one of these terminations may occur. Instead of them the vessels may remain for an indefinite time varicose or distended, an abnormal supply of nutritive material may be furnished to the cellular and intercellular substances, and proliferation or excessive growth of connective tissue be the result.

Such a pathological process as that which I have just described is that which, in my opinion, constitutes the disease which we designate chronic metritis. The affection, although sometimes arising from mechanical conditions, which result in arrest of circulation, is more frequently due to some peripheric or central cause which produces a loss of power in the vaso-motor, incito-secretory, and incito-nutritive nerves. This, however, only accounts for the inception of the difficulty. Very soon varicose vessels, distended intercellular ducts, and effused blood elements offer themselves as parts of the condition, and as complications which prevent return to a normal state.

As will be stated elsewhere, acute parenchymatous inflammation of the uterus is an extremely rare affection, so rare indeed that some authors have denied its occurrence. So also have many refused to accord the name of chronic inflammation to that which I have described. Kiwisch treats of it as "infarctus;" Klob as "Diffuse growth of connective tissue," while many others style it "congestion." I do not contend for a name. Every Gynecologist must very often have met with the condition which I have described and called chronic metritis. So long as each remembers the fact that the process presents nothing in its nature which is acute, and that antiphlogistic means are not necessarily called for in its management, no evil will result from our uncertainty as to nomenclature. Klob objects to the use of the term "infarctus," and also to that of "chronic inflammation,"

and looks upon the diffuse growth of connective tissue, with its consequent uterine enlargement, as the result of habitual hyperæmia. It is to this "habitual hyperæmia," when accompanied as it usually is by altered secretion, derangement of function, pain and excessive development, that I prefer to apply the name of chronic metritis.

Some of those who are most opposed to viewing this condition as chronic inflammation have invoked, as proof of its not being so, the fact that harsh treatment is employed, unlike that which is resorted to in inflammation elsewhere. No one denies an inflammatory character to orchitis, yet at an early period of the disease firm pressure is employed in its subjugation. No one views granular lids as an affection free from inflammation, yet even solid lumps of sulphate of copper are rubbed over them. No one asserts that the granulating surface of an old ulcer of the leg is not kept up by inflammation, yet we cauterize this, and exert great pressure upon it by compressed sponge, plates of tea lead, adhesive plaster and bandages. Even the first stage of a furuncle may be aborted by firm and constant pressure from a disk of compressed sponge and a well-adjusted bandage, yet all view this affection as the perfect type of a phlegmon.

Parts Affected.—The parts of the uterus which may be affected by inflammation are, first, the mucous lining, and second, the parenchyma. The morbid action may limit itself to either one of these, though it rarely does so strictly, one usually, to a greater or less extent, complicating the other. But not only may the disease limit itself to one or other of these tissues; it very generally confines itself to one portion of the affected organ, the neck or the body being the part forming its habitat.

A transverse section of the uterus passing through the os internum divides the organ into two distinct parts, which are dissimilar not only in anatomical but in physiological and pathological peculiarities. This makes a separate consideration of the diseases of the two parts, and an appropriate nomenclature necessary both for convenience and for facility of comprehension. If the mucous lining of the organ be diseased, the term endometritis has been applied to the condition, and if the parenchyma be the site of the morbid process, that of parenchymatous metritis, or simply metritis, designates it. But each of these forms must be divided into two others, according to the portion of the uterus

affected, and the varieties of metritis may be clearly expressed in the following manner:—

Varieties of uterine inflammation.

Endometritis	General; Cervical; Corporeal.
Metritis	General; Cervical; Corporeal.

Some important facts connected with the varieties of metritis may be thus stated in propositions:—

1st. The cervix is much more frequently affected by inflammation than the body of the uterus. This was first insisted upon by Dr. Bennet, and its substantiation constitutes the marked feature of his work on the uterus.

2d. Metritis, whether cervical or corporeal, is generally the result of parturition or abortion.

3d. Cervical metritis, which is very common in matrons and multiparæ, is rare in nulliparæ, and extremely rare in virgins.

4th. The form of uterine inflammation most commonly met with in virgins and nulliparæ is corporeal endometritis. This view, of the truth of which I have long felt satisfied, I regarded as original, until I met with it clearly and fully stated in the works of Nonat and Aran.

5th. In their acute forms both the mucous and parenchymatous varieties are apt to invade the whole of the structure first affected, but in their chronic forms this is not so. The body or the neck may be alone affected for years; in the one case the morbid process not coming down below the os internum, and in the other not ascending above it.

Prognosis in Uterine Affections.—There is no organ of the body the inflammatory diseases of which offer greater difficulties in prognosis than those of the uterus. So much depends upon the habits of the patient, the injurious influences to which she is exposed, and the faithfulness with which she follows out the directions of the physician, that often very little can be predicted, very little promised with any certainty. The error into which the incautious practitioner is most likely to fall is that of predicting a cure at too early a period, and fixing some definite time for its accomplishment. The patient may declare that she and her

friends will be satisfied even if the limit be fixed not by months but by years, nevertheless she is desirous of knowing *when* she may confidently expect a cure. The answer to this question, not in the lesser interest of the practitioner, but in the greater one of the patient, must often be that no such time can possibly be determined upon. In some cases it becomes necessary to state further that not only is the time but the certainty of complete cure doubtful; that local treatment will cause pain, may result in danger, and may absolutely aggravate the existing symptoms.

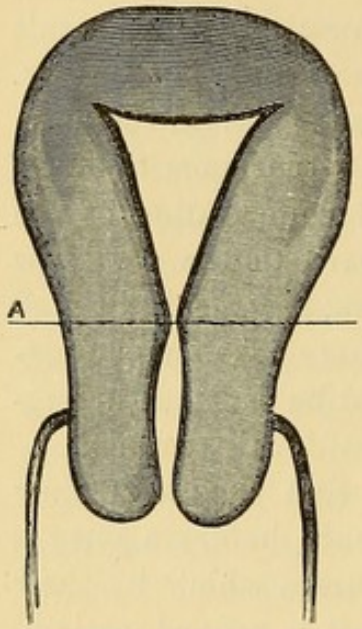
Another point which influences prognosis is this: in the management of uterine diseases it is of primary importance that the practitioner should enlist the interest and co-operation of his patient. Should she be apathetic with regard to the result, or even having begun treatment with enthusiasm, become disaffected from any cause, his duties will probably prove irksome, annoying, and fruitless. For this reason he should be cautious in urging with too great earnestness the adoption of local treatment.

In view of this and the additional fact that treatment may extend over months, and perhaps occupy years, before a cure is effected, the physician should avoid all resources which by their uncleanliness or disagreeableness may disgust a refined patient, or make her rather willing to bear her disease than the means adopted for its cure. If such means will be very likely to give relief, they should of course be employed; but if, as is the case with many of them, their efficacy is extremely doubtful, they should not be insisted upon. For example, if a lively, fastidious lady were called upon, for the relief of an endometritis which is not in itself very annoying, to forego society and spend most of her time in bed; to fill the vagina daily with a semi-solid mass of powdered linseed after the method of Melier; to rub mercurial ointment over the hypogastrium, and have a weekly application of leeches around the anus, she would probably in time get tired of the treatment, and lapse into the very state of apathy to which I have alluded.

There is one class of cases in dealing with which I should especially recommend that perfect frankness be observed. It may be represented by a patient who has been persuaded by husband, mother, or friends, contrary to her wishes, to submit to treatment. She utterly repels the course to be adopted, is sure that it will do her no good, is unwilling to fulfil the directions

left her for daily guidance, but yields, under the assurance of her advisers that the treatment will be free from discomfort, give no pain, and will surely cure her in a few weeks. The physician, for the sake both of his patient and himself, should avoid joining in this deception. Stating the facts fully to her, telling her of the danger which neglect will involve, and of her duty under the circumstances, he should appeal to her reason, and decline to take charge of her case until she really desires his services.

Fig. 69.



A represents the dividing line between body and cervix.

There is a general rule which I have kept before me as a guide to prognosis, and which has so rarely failed me that I urge it upon the attention of the reader. If the disease affect that part of the uterus below a line running across it at the junction of the neck and the body, it matters not how grave the affection, either of mucous or parenchymatous tissue, if it be not of malignant type, a prospect of cure may be held out. Should the morbid action exist above this line, even if it present no features of special gravity, the physician should be cautious in his promises of cure, and fix no limit as to time. It is true that recent cases, and sometimes even old ones, of corporeal endometritis and metritis may be cured; but in those which are recent, cure is always very difficult, and in those which are chronic often impossible.

Reasons for the Frequency of Failure in the Treatment of Uterine Diseases.—That some uterine affections of non-malignant type are incurable cannot be denied; but even putting these out of consideration, the fact is notorious that the local treatment of these diseases is not as successful in its results as we could wish. I now propose an investigation into the causes of this want of success. It appears to me that the most apparent and most constant of them may thus be summed up:—

Imperfect diagnosis;
Erroneous prognosis;
Inefficient or inappropriate therapeutics;
Inattention to general management.

Imperfect Diagnosis.—It is not rare to meet with instances in which physicians have, for months, treated cases of uterine disease concerning the nature of which they not only did not have a correct theory, but had no theory at all. Under these circumstances the most general practice is to pass, about once a week, a solid stick of nitrate of silver up to the os internum, not to cure cervical endometritis, for that has never been suspected, but to do the best one can in the way of treatment, when he does not know the nature of the disease which he treats. I have no inclination to attribute this to any intentional laxity of morale, but rather to indecision and aversion to creating a disagreeable issue with the patient. It is, however, impossible to deny the fact that such a course will sometimes be pursued by those who in the case of a diseased eye, or inflamed knee-joint would not hesitate to confess, with the utmost frankness, their uncertainty and need of assistance. With uterine as with all other diseases the diagnosis must be properly made before treatment can prove curative.

Erroneous Prognosis.—Even if the diagnosis and treatment be correct, an erroneous prognosis as to time of cure may so sap the confidence of the patient as to send her to other counsel. And now she may run the gauntlet of theories and therapeutics. Her first attendant having recognized corporeal metritis with resulting displacement, the second may treat the displacement alone, as the origin of her symptoms. Passing into the hands of a third, she may be told that to check her profuse leucorrhœa would be to cure her disease, which the fourth might contradict, with the assertion that the uterine disorder was only a complication of ovaritis, which was the fountain of all her difficulties.

Inefficient or Inappropriate Therapeutics may cause failure in cure even when a proper diagnosis and prognosis have been made. At times a too gentle course of local alteratives may be persevered in when disease of the parenchyma demands more vigorous caustics. At others it is necessary to carry the caustics up into the cavity of the body, and not of the neck alone; and at others still, to perform a trifling surgical operation to remove a difficulty which, unless removed, may keep up the disease indefinitely.

The best results in the management of these affections will not follow a direct resort to treatment of the most prominent existing disease, but will very often be obtained by removal of its cause, or the alleviation of its complications. Let me make my mean-

ing clear by some examples. The physician examines and finds metritis or endometritis to exist with its usual symptoms, leucorrhœa, pain, menstrual disorders, &c. This affection may be the result of an antecedent displacement. If it be so, replacing and retaining in position the displaced organ, should be the first step in treatment, as it was the first step in diseased action. *Causa non sublata tollitur non effectus* is as true as the converse proposition. Again, a patient has menorrhagia and prolonged menstruation with a long, contracted cervix uteri. Obstruction to the ready escape of menstrual blood often so alters the lining membrane of the body of the uterus as to create these disorders. If the physician treat the symptom, he will surely fail in curing it, while success will attend his efforts if he removes the obstruction which prevents the uterus from emptying itself.

So also with the complications which are excited by uterine disorders. A patient is affected by cervical endometritis that in time produces cervical metritis, which by increasing uterine weight displaces the uterus. That organ lying upon the floor of the pelvis is injured by locomotion and coition, its lower segment is bathed in purulent leucorrhœa, and great pelvic pain annoys and harasses the patient. If the practitioner expect to cure her, let him at the same time that he treats the primary disease, the metritis, relieve a set of complications which, unless removed, will cause repeated relapses as often as he approaches the accomplishment of his end.

One more example may be cited before concluding these remarks. A displacement of the uterus exists, and the practitioner knows that it has been due to one of two influences, either increase of uterine weight, or loss of uterine support. Which was primary he cannot determine, for at the time of his examination both exist. To effect a cure it would be the part of wisdom not to limit treatment to one, but simultaneously to treat both by giving artificial support, and diminishing uterine weight. Without being able to say which is the original disease and which the complication, he should endeavor to relieve both at the same time.

Inattention to General Management and Hygiene.—The statement which we often meet with, that the majority of the cases of uterine disease require no local treatment whatever, is a fallacy, based upon strong prejudice against one of the most important modern improvements in medicine, or upon want of experience in such

cases. But too much stress cannot be laid upon the advantages to be derived from constitutional treatment and the general management of these cases. We too often fail to insist upon rest, cessation of marital intercourse, quietude after applications to the uterus, and other points, a neglect of which may exert a powerful influence for evil, and frustrate the effects of all that is done by local means.

Astruc begins his directions for treating uterine ulcers by advising—

"To charge the patient to abstain from all kinds of exercise and to keep constantly laid down on a long seat."

"It is for the same reason fit, in the case of a married woman, that she should lie separately from her husband."

"They should for the same reason guard against all the passions of the mind that may agitate it, as grief, uneasiness, and anger, &c."

This advice, given over a century ago, is often neglected to-day, and too much reliance placed upon local means, and upon them alone. Every one who has had experience in the treatment of these disorders must have been struck with surprise at the wonderful improvement exerted upon cases, which have long resisted local means, by a sea-voyage, a visit to a watering-place, a course of sea-bathing, or a few months passed in the country. Not only is this improvement manifest in the general state of the patient; it shows itself locally, also, and in some cases complete recovery may be thus attained. The same fact is equally noticeable in old ulcers of the leg; local means, the efficacy of which in such cases, no one doubts, having failed in producing good results, entire recovery is effected by means, such as those alluded to, which act upon the constitution.

It should not be forgotten by the Gynecologist that chronic local inflammation is often caused by a general depreciation of the system. In some cases the lungs undergo chronic pneumonic consolidation, which often goes on to phthisis; in others, chronic corneitis or granular lids occur; while, in others still, cervical endometritis marks the altered constitutional condition. When such a result takes place, the two states continue to react one on the other. The depraved system increases the local disorder to which it has given rise, and the irritation, kept up by the latter, aggravates the degree of the former. This being true, it would evi-

dently be irrational to treat one of the two existing pathological conditions without having due regard to the other. Some cases of metritis, however, more especially those forms which affect the parenchyma, occur in women who are apparently in good health, and are usually the consequences of parturition or abortion. But cervical, and even corporeal endometritis, the latter of which may go on to granular degeneration, will generally be found to have engrafted themselves upon a depreciated system.

The following case is illustrative of this view. Dr. Alfred E. M. Purdy brought to my office, for examination, a patient who had two uteri and two distinct vaginæ. As I proceeded to examine, he stated that the right uterus was affected by granular ulceration. I discovered, however, that both were thus diseased. Dr. Purdy had not examined for some weeks, and, during this period, the general state which had produced disease in one uterus had effected the same change in the other. It may with justice be objected that both may have been produced by a local cause. None such could be discovered, the patient having been exposed to no local influences which had not existed for years previously.

CHAPTER XIII.

ACUTE ENDOMETRITIS.

Synonymes.—Acute uterine leucorrhœa, acute uterine catarrh, acute internal metritis.

Frequency.—Acute inflammation of the lining membrane of the uterus is a condition which occurs quite frequently. Often running a rapid course, however, and ending in recovery or chronic disease, it passes unrecognized in many cases. In this way I would explain many of the cases of suppressio mensium and congestive dysmenorrhœa, which we so often find ending in chronic disease. And thus also would I account for the profuse and painful attacks of leucorrhœa occurring with exanthematous fevers, and lasting for a length of time after they have passed off. It is very generally stated that acute metritis is seldom met with except as a sequel of parturition, and I agree in the statement as applying to parenchymatous inflammation, but it is incorrect as regards endometritis, which often proves the source of sudden menstrual disorder and the cause of violent leucorrhœa.

Varieties.—The morbid process may affect the lining membrane of the cervix or of the body alone, or it may attack the whole uterine mucous tract, its selection of site being governed by its cause. Thus, that form which immediately follows parturition or abortion or results from gonorrhœa, is likely either to affect the whole mucous tract or the cervical canal alone; while that which is due to sudden checking of the menstrual flow is generally confined to the body.

Causes.—The causes of acute endometritis are as follows:—

Direct injuries;
Acute vaginitis;
Certain constitutional diseases;
Interference with the menstrual flow;
Parturition;
Evacuation of retained menstrual blood.

Examples of direct injuries which may produce acute endometritis are the introduction of the uterine sound or the intrauterine pessary, the employment of tents or the application of chemical irritants.

Specific vaginitis or gonorrhœa will sometimes pass up into the cervix and body of the uterus, and out through the Fallopian tubes, creating pelvic peritonitis of most violent character. Even simple vaginitis, when of very severe form, may do so, though this is by no means common.

The peculiar blood state, attending upon and forming an element of measles, scarlatina, variola, and roseola, and its influence on all the mucous linings of the body, will sometimes result in general endometritis, and the hæmic condition resulting from phthsis not rarely does so.

Exposure to cold and moisture, great mental anxiety, or any other influence which suddenly checks the menstrual flow, very frequently produces this disease. At the moment of exposure what is termed suppressio mensium, or congestive dysmenorrhœa, may take place, and from that time endometritis exists. When we consider that such a sudden check of menstruation will sometimes result in hæmatocele of fatal character, it is certainly not to be wondered at that it may likewise produce the disease of which we are speaking.

Parturition of normal type is a well known cause of general endometritis. In some cases it may, however, produce cervical disease alone, the body being unaffected. It is much more frequent after unnatural deliveries, or where the parturient act has been frequently repeated, or has occurred in one who previously suffered from chronic endometritis.

It is a well known fact that when menstrual blood is retained for a long time in utero by an obstruction in the vagina or at its mouth, by an imperforate hymen, for example, the severance of the occluding medium and admission of air will often result in endometritis of dangerous and even fatal character. Such cases appear to resemble very closely the septic endometritis which occurs after parturition, and constitutes the first step towards puerperal fever.

Symptoms.—The disease demonstrates its presence in the non-pregnant uterus without any very violent symptoms.

Ordinarily the patient complains of pain, weight, and dragging

in the pelvis; pain in the back, groins, and thighs; and vesical and rectal tenesmus. After three or four days there is usually a discharge of a viscid liquid which rapidly becomes creamy, purulent, and perhaps bloody; tympanites and sensitiveness upon pressure, and uterine tenesmus or "bearing-down pains."

Physical Signs.—An examination by touch reveals the vagina hot and dry or covered by the discharge noted above. The os uteri is found gaping, the cervix swollen and very sensitive to pressure, the body slightly enlarged, and the whole organ lower than its normal position in the pelvis. Through the speculum the cervix is found to look swollen, œdematous, and red, and from the pouting os pours forth either a clear, albuminous looking fluid, muco-pus, or long tenacious shreds of cervical mucus. The probe, if used at all, should be employed with great caution. It will discover great sensitiveness throughout the uterine cavity, and the slightest touch upon the fundus will cause a few drops of blood to flow. Indeed, so great is the engorgement that the speculum will often cause blood to flow from the cervix.

Differentiation.—The only diseases with which this would with any probability be confounded, are pelvic cellulitis, peritonitis, and acute vaginitis. Physical exploration would so easily settle the point that it requires no further consideration.

Pathology.—In its first stage acute endometritis consists in an intense and active hyperæmia of the mucous lining of the uterus, which is red, swollen, œdematous, and softened. Its surface is spotted, Scanzoni declares, from congestion of a capillary network around the mouths of the utricular follicles. When the second stage has set in, the cavity of the uterus is found to contain an excess of mucous or creamy looking pus which may be more or less mingled with blood. If the cervix be involved in this inflammatory engorgement, the mucous membrane of the vaginal portion of the cervix participates markedly, as an examination by the speculum will prove.

In the mucus just described the microscope reveals the presence of thousands of cells and sometimes entire casts of the utricular follicles.

Complications.—The complications of the disease are urethritis, cystitis, vaginitis, salpingitis, and sometimes pelvic peritonitis.

Course, Duration, and Termination.—Acute endometritis, when occurring in the non-pregnant state, may, without treatment even, go on to recovery, generally lasting from a month to six weeks,

and perhaps passing through its whole course without its existence having been ascertained. It sometimes ends in the chronic form of mucous inflammation or even in metritis, the superficial layers of the subjacent parenchyma becoming affected. Indeed, I doubt very much if any case of severe endometritis runs its course without being to a greater or less extent complicated by a slight degree of metritis. As already stated the disease may end in chronic endometritis or in recovery. It may, likewise, end in death; inflammatory action spreading along the Fallopian tubes and causing salpingitis, which, by resulting in free purulent discharge into the peritoneum, may establish inflammation there.

Prognosis.—In spite of all these possibilities the prognosis is always favorable if the patient take ordinary care of herself and yield to a judicious plan of treatment.

Treatment.—The diagnosis having been clearly made, treatment should be at once established. Complete rest of mind and body should be regarded as essential points, the woman being kept quiet in bed. A few ounces of blood may be taken from the cervix or perineum by leeches, at intervals of three or four days, should there be severe pelvic pains, the patient be plethoric, or suppressio mensium be present; and twice or three times every day a stream of water, at a temperature of 100° Fahr., should be thrown, by means of a syringe with continuous jet, against the cervix. The bowels should be regulated by saline cathartics, unless diarrhœa exist, and all beverages likely to irritate the bladder be avoided, as, for example, alcoholic stimulants and strong coffee and tea. Warm fomentations should be applied to the hypogastrium, and, should pain exist, anodynes should be administered by the rectum or vagina. Of the two channels I prefer the former, though in some cases great relief may be obtained from a suppository of opium or belladonna applied directly against or within the cervix. After the severity of the attack has been subdued and examination by the speculum becomes to a certain extent painless, the vaginal portion of the cervix and the whole cervical canal should, if this be the part of the organ chiefly affected, be painted over with a solution of nitrate of silver, about one scruple to the ounce of water, and this may be repeated twice a week with advantage.

Under this plan of treatment the patient should be kept until recovery, or until we are admonished by time that the disease has passed into its chronic form and requires different remedies.

CHAPTER XIV.

ACUTE METRITIS.

Definition and Synonymes.—By this term is designated acute inflammation of the parenchyma of the womb, in contradistinction to that of its investing membrane. As already stated, neither disease ever occurs and runs its usual course without, at least to a limited extent, producing the other. In treating of them after the plan here adopted it is intended to convey the idea that, in certain cases, one or other structure is the main point of attack, and disease of the adjoining tissue only a complication.

Frequency.—With reference to its frequency many conflicting statements will be found. This arises partly from the fact that some have written of the affection without making any distinction between the forms occurring in the puerperal and non-puerperal states, while others have confined their remarks, as is here done, to diseases of the latter condition; partly from endometritis, active congestion from suppressio mensium, and pelvic cellulitis having been mistaken for metritis; and in great part from the difficulty of gaining post-mortem evidence, the disease generally being recovered from. My own experience leads me to regard it as of extremely rare occurrence, since I have met with it but twice in a practice which has afforded abundant opportunities of seeing uterine disease. One of these cases resulted from slitting one wall of the cervix uteri up to the vaginal junction, and the other from the use of a badly fitting pessary. I have, however, seen numbers of cases which were regarded by others as of this character, and quite a number which I viewed as such until enlightened by post-mortem or other evidence. Rokitansky declares that, "in acute inflammation of this organ, generally the lining membrane of the uterus is affected primarily, and that this is scarcely ever the case with the uterine tissue, as far as can be demonstrated by the pathological anatomist, with the exception

of the reaction following traumatic influences, especially of the vaginal portion."

In his recent work Klob[1] takes still stronger ground as to the existence of uncomplicated metritis, and asserts that never having met with an instance of the disease, he is forced to describe it upon the authority of others.

Some practitioners are prone to regard every case of inflammatory action in the pelvis, accompanied by great tenderness over the uterus, as metritis. Such cases are much more frequently due to pelvic cellulitis or peritonitis, which are by no means rare affections, or to active congestion, caused by suppression of the menses or excessive coition. After parturition, either at term or premature, true metritis does occur not unfrequently, but this variety does not concern our present investigation. As regards that form which we are considering I feel convinced that if the experienced practitioner will put aside his preconceived views and interrogate the results of his observation, he will find, if he has had his attention aroused to the frequency of the diseases which simulate it, that he has met with this affection very rarely. Let it be borne in mind that as a complication of endometritis there is sufficient inflammation of the parenchyma to produce enlargement, puffiness, and sensitiveness, and that a differentiation of the affections, to be reliable, must be made with care.

Varieties.—No varieties of acute metritis can be based upon the part of the organ attacked, for it is confined to no special portion, but affects the entire parenchyma from the cervix to the fundus. A distinction should, however, be made between the puerperal and non-puerperal forms, on account of their dissimilarity in frequency, severity of symptoms, prognosis, and terminations.

Causes.—The chief causes for the disease in the non-pregnant uterus are:—

1st. Mechanical injuries—from operations on the uterus, vagina, or bladder; excessive or intemperate cohabitation about the menstrual epoch; the use of intra-uterine or vaginal pessaries; dilatation of the cervix by tents; the careless use of the uterine sound, or attempts at removal of growths from the body of the uterus.

2d. Sudden suppression of the menstrual flow from any cause.

[1] Op. cit., p. 227.

3d. Endometritis, whether its cause be vaginitis, specific or simple, or any other of those mentioned in the last chapter.

4th. Morbid growths in the parenchyma of the uterus, whether cancerous or fibroid.

Symptoms.—It is generally stated that the disease announces its invasion by a chill. In the cases which I have seen this has not been the fact, and should an attack be thus ushered in, I should strongly suspect cellulitis or pelvic peritonitis. In the beginning, violent pelvic pain, accompanied by vesical, rectal, and uterine tenesmus, comes on, sometimes with nausea, vomiting, and diarrhœa. The pain soon becomes agonizing, extends down the thighs, and is very much increased by the passage of feces through the rectum. Should the complication of endometritis be present in any marked degree, a glairy, tenacious and gummy flow will appear, which rapidly becomes purulent and creamy. Should it not exist, no vaginal discharge will take place, unless the disease occur during menstruation, when menorrhagia may show itself. All these symptoms will merely lead us to suspect the existence of metritis. The complete diagnosis will depend upon physical signs for its establishment.

Physical Signs.—When pressure is made over the uterus great sensitiveness is found to exist. The finger introduced into the vagina discovers the organ lower than its normal position in the pelvis, the cervix enlarged and swollen, and the os dilated, and pressure upon the cervix gives great pain, as it does also when practised against the body in the fornix vaginæ. This last symptom is still more clearly developed by rectal touch and conjoined manipulation, which generally detect the body of the uterus pressing back upon the bowel. The passage of a speculum will generally be attended by some pain, but it may, if necessary, be employed. Should it be introduced, the cervix uteri will be seen to be swollen and the os gaping. The vagina will be hot and dry, unless bathed with purulent material discharged in consequence of endometritis.

Differentiation.—The disease must be differentiated from peritonitis, cellulitis, endometritis and active congestion. From the first two it will be known by mobility of the uterus, which would be fixed if they existed; by sensitiveness being confined to the uterus, and not existing over the pelvis, and by enlargement and tenderness of the os and cervix. If the case be one

of endometritis, it will be known by the fact that the uterus will not be found markedly enlarged, nor so exquisitely sensitive upon pressure; the constitutional signs will not be so grave, and there will be the peculiar discharges marking this disease. From active congestion of violent character in its early stages, I know of no means of differentiation. The diagnosis must be determined by the subsequent progress of the case.

Pathology.—The first stage of acute metritis is one of active congestion. The bloodvessels of the parenchyma become distended, press upon the intervening nerves, and produce enlargement of the uterus and pain. A blood stasis exists similar to that constituting the first stage of inflammation in other organs of the body. This is soon succeeded by the second stage, which consists in the exudation of organizable lymph, which being poured out into the interspaces of the muscular fibre rapidly becomes organized, thickening the walls of the uterus and often indirectly producing displacement. The excessive amount of nutritive materials furnished to the tissues results in a proliferation or abnormal growth of their component parts. It is very rare for suppuration to occur and abscesses to form subsequent to this as a third stage, though in a few exceptional cases such a result has taken place. Cases of this character are recorded by Depaul, Scanzoni, Reinmann, and Bird.

Complications.—It may be complicated by inflammation of any of the tissues most proximate to it. Peri-uterine cellulitis, peritonitis, endometritis, cystitis, or rectitis, sometimes occurs.

Course, Duration, and Termination.—Its course is not lengthy, recovery or a passage of the affection into the chronic form being generally arrived at in a fortnight or three weeks. It may end in one of three ways: by resolution, formation of abscess, or passage into chronic metritis. The occurrence of the last termination is denied by Klob.

Treatment.—As soon as the disease has been recognized the patient should be placed upon her back in bed and not allowed to leave it or to sit up upon any pretext, not even for evacuation of the bladder or rectum. Perfect rest should be insisted upon as an important element in the curative process. Warm poultices of flaxseed or corn meal should be laid over the hypogastrium, or, instead of these, towels wrung out of hot water and covered by oil-silk may be used. Should these be inconvenient on account

of weight, the artificial poultice called spongio-piline, which consists of a thick layer of wool and sponge woven together and covered by a thin layer of India rubber, may be made to replace them. A speculum should then be passed with great care, the os uteri plugged by a morsel of cotton, and a sufficient number of leeches applied to the cervix to abstract the amount of blood deemed advisable in the special case, or instead of this leeches should be applied to the perineum. Pain should be relieved by opiates administered either by the mouth or rectum, or a suppository of three grains of opium or one grain of extract of belladonna may be deposited just within the cervix uteri.

Under this treatment, combined with restriction to mild unstimulating diet, the disorder will generally subside very rapidly, but great care should be exercised with reference to allowing the patient to resume her usual avocations, for carelessness in this respect may result in her becoming a sufferer from chronic metritis. For the purpose of preventing this, sexual intercourse, severe exercise, exposure during menstruation, &c., should be carefully avoided for some time after the apparent termination of the existing affection.

The practitioner should daily watch for the spread of inflammatory action to the pelvic areolar tissue. Should it be detected, a blister should at once be applied over the hypogastrium, preceded, if it be thought advisable, by a few leeches. It may be objected to this plan that a blister should not be applied during the existence of acute inflammation. I have never seen one used under these circumstances aggravate the symptoms and frequently noticed an amelioration from its employment.

CHAPTER XV.

CHRONIC CERVICAL ENDOMETRITIS.

When inflammation of acute character affects the uterus it has a marked tendency to invade the entire organ, and to involve both cervix and body, but with chronic inflammation this is not the case. Being of a lower grade of intensity, it more strictly confines itself to one tissue, either mucous or parenchymatous, and limits itself to the body or cervix. Such limitation is neither universal nor absolute, sometimes adjoining parts being more or less implicated and at others the entire organ being simultaneously and equally involved.

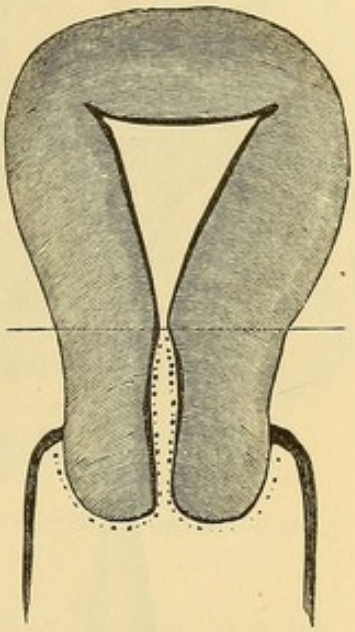
Although it might be more in accordance with literary propriety and taste to describe, first, inflammation of the mucous membrane of the body and cervix, and then that of the parenchyma, it will prove more useful for the student whose familiarity with the subject is not great, to speak first of the diseases affecting the lower segment of the organ, and subsequently, of those of the upper. Beginning, then, with inflammation of the mucous membrane, and subsequently taking up that of the parenchyma, we will study the morbid states of that portion of the uterus existing between the os externum and os internum, and having accomplished this, we will proceed to investigate those of the body of the organ.

Definition.—By the term chronic cervical endometritis is meant chronic inflammation of the mucous membrane, extending from the os internum through the os externum and over the vaginal portion of the cervix uteri, as represented by the dotted lines in Fig. 70.

Between inflammation affecting the vaginal surface of the cervix and that occurring within the canal there are many points of difference; so marked are they, indeed, that M. Nonat has been induced to make two varieties of the affection. The disease may

be, and commonly is, confined to one of these parts. When it occurs on the vaginal face of the cervix, friction and other influences often produce granular or cystic degeneration; and parenchymatous inflammation is more likely to occur from the same causes. In spite of this I deem it best to define the disease as I have done above, relying for completeness of description upon a subsequent chapter devoted to what is commonly termed ulceration of the os uteri.

Fig. 70.



The dots represent the site of chronic cervical endometritis.

Frequency.—Of all diseases of the genital system of the female this is without doubt the most frequent, and although not in itself a malady of dangerous character may prove the starting point for some of the most serious and rebellious of uterine disorders. Exposed as the cervix uteri is to injury during coition, laceration from parturition and irritation from walking, riding and lifting, it is not surprising that its complicated investment should frequently become the seat of disease.

Synonymes.—It has been described under the names of cervical catarrh, cervical leucorrhœa, and endo-cervicitis.

Normal Anatomy of the Cervical Mucous Membrane.—The cavity of the cervix uteri is a fusiform canal, measuring about one inch and a quarter, beginning at the os internum above and ending at the os externum below.

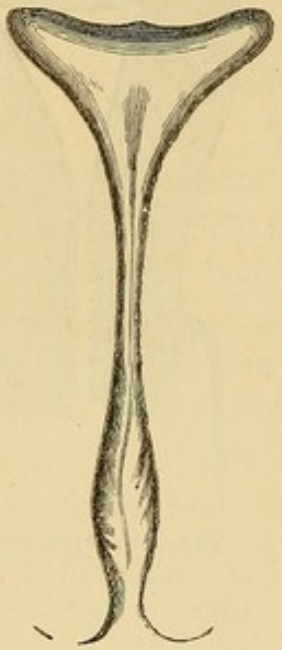
Dr. H. Bennet lays great stress upon the fact that the division of the uterus into two cavities, accomplished by the os internum, is very complete. He objects to the diagram of Dr. Quain, given in Fig. 71, and offers the representation in Fig. 72 as more correct.

The internal os in the virgin uterus is represented by Dr. Bennet's diagram, while that of Dr. Quain more faithfully represents that of the multiparous organ. The fact pointed out by Dr. Bennet attracted the attention of the ancients.[1] "Many of the ancient authorities describe the uterus as consisting of two cavi-

[1] Theophilus, Com. on Hippocrates, Aph. ii. p. 469, Ed. Dietz.

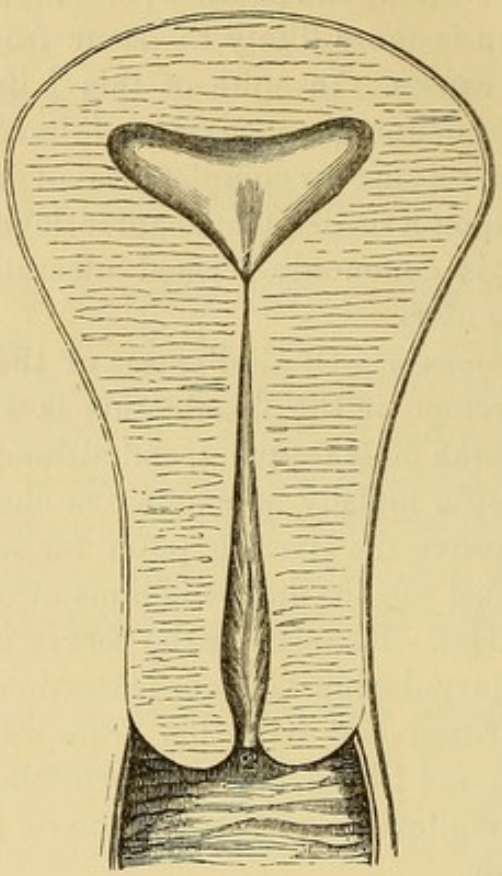
ties separated from one another by a membrane." On the anterior and posterior walls of the cervix are ridges, from which folds

Fig. 71.



Dr. Quain's representation of the cavities of body and cervix. (Quain.)

Fig. 72.



Dr. Bennet's representation of uterine and cervical cavities. (Bennet.)

are given off which are arranged with regularity, and run obliquely upwards and outwards, to end in other indistinct lines on the sides of the canal. (Fig. 73.) This arrangement of mucous membrane has received the name of arbor vitæ.

Between these folds numerous mucous glands are seen, which are called the glands of Naboth. Dr. Tyler Smith[1] estimates that a well developed virgin cervix probably contains at least ten thousand of these follicles. The mucous membrane forming these folds or rugæ is covered over by cylindrical and ciliated epithelium and studded by villi, which are found in considerable numbers upon the larger rugæ and other parts of the mucous membrane. (Fig. 74.)

[1] On Leucorrhœa, Am. ed., p. 38.

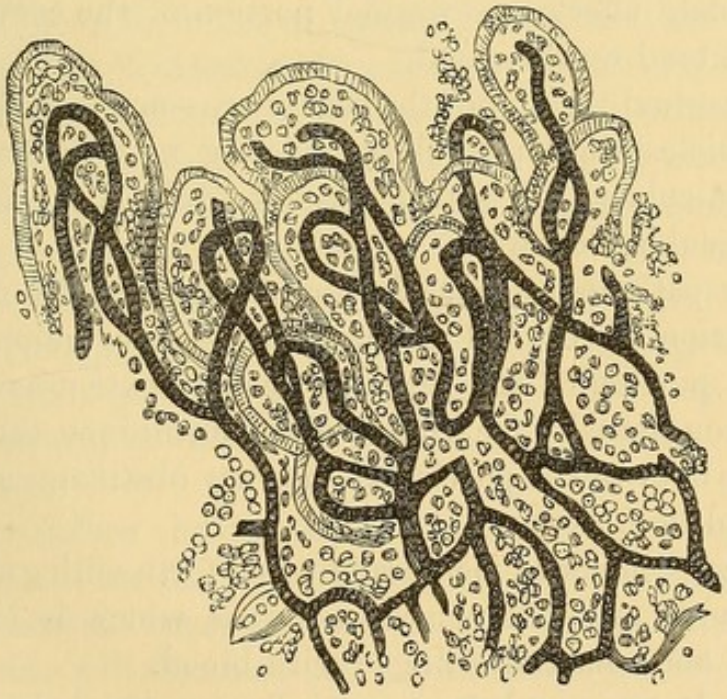
Fig 73.



One of the four longitudinal columns of rugæ from the virgin cervix. Nine diameters. (T. Smith.)

The natural secretion of the cervical canal has been shown by M. Donné to be alkaline, unlike that of the vagina, which is acid.

Fig. 74.



Villi of canal of the cervix uteri, covered by cylindrical epithelium and containing looped bloodvessels. One hundred diameters. (T. Smith.)

Pathology.—Cervical endometritis consists in inflammation of all this structure and consequent alteration of its condition. The

glands of Naboth are especially involved in the morbid action, the disease chiefly consisting in glandular inflammation. The glairy mucus which is secreted in large amount as one of its symptoms is the characteristic discharge of these structures. Looked at with a strong glass in post-mortem examinations, they are seen enlarged and elevated, and, according to Aran,[1] their mouths may be seen very much dilated. But the affection does not confine itself to these follicles for a long time. Very soon the villi or papillæ, especially those on the vaginal face of the cervix become diseased. At first there is a loss of the normal supply of epithelium which produces a slight and very superficial abrasion. This becomes in time more distinct and marked, from destruction of the villi themselves over spaces of greater or less extent. If this process of destruction should go on and affect the deeper tissue, a true ulcer would be formed, and no one would ever have denied the name of ulceration to the existing condition, but it does not thus progress. In time an hypertrophy occurs in the villi, which increase in size, project like so many hairs from the surface, and give to the os and cervix an appearance which has caused the term granular degeneration to be applied to it. This state affects the vaginal portion of the cervix chiefly, but may extend up the canal.

On the vaginal portion of the cervix are sometimes found muciparous follicles similar to those existing in the cervical canal. These often enlarge, fill with honey-like fluid, and, bursting, give rise to follicular ulceration.

Another pathological state, which is occasionally met with as a complication of cervical endometritis, is an eversion of the os and lower portion of the canal to such an extent as to keep up inflammation there by the friction of the membrane, thus exposed, against the floor of the pelvis. Some very obstinate cases are due to this condition.

The diseased mucous membrane pours forth with great activity large amounts of thick tenacious mucus, which is loaded with epithelium and sometimes tinged with blood.

Causes.—It may result from any influence which does mechanical injury to the os and cervix—as displacement of the uterus so that locomotion or muscular effort may force it against the pelvic

[1] Mal. de l'Utérus, p. 423.

walls, excessive coition, the use of pessaries, the parturient process, and efforts at preventing conception or producing abortion; anything specifically exciting inflammation—as exposure to cold and moisture particularly during menstruation, or simple or specific vaginitis; constriction of the canal, resulting in the formation of clots in the menstrual blood which at intervals during menstruation are forced out by contractions of the uterus; the existence of small polypi in the cervix; fissures or slits in the lower portion of the canal. Many other causes might be enumerated, but these are the most common.

Symptoms.—Cervical endometritis may exist for a length of time without presenting any symptoms of sufficient gravity to warn the patient of its presence. Even a leucorrhœa, which is somewhat abundant, often fails to attract her attention. The answer to a question as to its existence will often be a negative one in cases in which the practitioner will, by the speculum, discover a considerable amount in the vagina. In the great majority of cases the disease will soon announce its existence by some or all of the following signs. The first symptom which will attract attention will probably be dragging sensations about the pelvis. These will soon be followed by pain in the back and loins, which will be very much increased by exercise or muscular effort. Then a more or less profuse leucorrhœa will be noticed, the discharge as it issues from the vulva resembling boiled starch or thick gum-water and often irritating the vulva and vagina to such an extent as to produce inflammation in them. Menstrual disorders will now show themselves. The discharge will be either too scanty or too profuse, too frequent or too infrequent, and to a certain extent painful, although decided dysmenorrhœa from diseases strictly confined to the cervical mucous membrane is not common.

Usually before the disease has existed for a long period the constitution of the patient will show signs of becoming implicated. She will become nervous, irascible, moody, and often hysterical. Her appetite will diminish and digestion grow feeble, so that impoverished blood will soon be observed as a result of impaired nutrition. With some or all of these signs of the existing disorder the patient may continue for a length of time without suffering from others of more annoying or graver character. Complications may, however, rapidly develop themselves; cystitis, cervical

metritis, and corporeal endometritis coming on and proving exceedingly troublesome. At times pain during sexual intercourse constitutes a prominent sign of cervical disease, but it belongs rather to cervical metritis than to endometritis, the former having added itself as a complication to the latter and thus produced the symptom. Sometimes nausea, and even vomiting, present themselves as symptoms, and these, together with the digestive disorder before mentioned, produce so great a deterioration in the nutrition of the patient as to result in emaciation, excessive paleness, and loss of muscular power and capacity for endurance.

Although these symptoms are enough to make us confident of the existence of uterine disorder, they by no means furnish reliable grounds for a positive diagnosis. This can be arrived at only by physical exploration.

Physical Signs.—The patient being placed upon her back, and the finger of the examiner introduced into the vagina, the os uteri will probably be found in its usual position in the pelvis, for the weight of the uterus is not increased, the parenchyma not being involved. The os may be somewhat enlarged and its lips slightly puffed, or it may be roughened on account of granular degeneration of its papillary structure. Sometimes, however, severe cervical endometritis may exist without any enlargement of the os, or any trace of abrasion or granular degeneration. If the finger be now placed under the cervix and that part raised by it, pain will be complained of, though not to any great extent. This will be most marked near the os internum. No other affirmative sign can be elicited by this means, and the speculum should then be used. By this the os will be found to be in the condition recognized by touch, and from it will be seen to exude a long string of tough, tenacious mucus which will closely resemble the white of egg. If entangled by a small mass of cotton attached to the end of a whalebone rod, it will be found so viscid and resisting that it cannot be drawn from the canal. It will resist even a stream of water thrown with some force upon it, and very often is removed only after several efforts by this or other means. The cervix will usually be found not to be enlarged. Its tissue may present a swollen, puffed appearance, or be intensely red as if in a state of ulceration, which will upon close inspection be found to be due to removal of its investing epithelium and the occurrence of a granular degeneration. Should this condition exist, it

will afford relief to the mind of the inexperienced Gynecologist, for the diagnosis of the case will be clear. But another state of things may be discovered which will leave him in doubt. Upon removing the plug of obstructing mucus he may discover no evidence of disease. The os is no larger than it should be, its tissue is not reddened, no ulceration exists, in fact nothing is found explaining the backache, nervousness, emaciation, and profuse leucorrhœa which led him to advise and urge the examination. The case is simply one of cervical endometritis which affects the inner and upper parts of the canal without involving the os and lower extremity, or the disease is corporeal and not cervical.

Differentiation.—We will suppose the diagnosis of cervical endometritis to be made; there are several questions to be decided before it should be considered complete. First, it must be settled whether the morbid state is confined to the cervix or extends into the body. Second, whether if confined to the cervix it is limited to the mucous lining of that canal or extends to the parenchyma. If the symptoms are no more severe than those already mentioned, more especially the constitutional signs, it may at least be regarded as probable that the membrane of the body of the organ is free from disease. If the patient be a virgin, it is much more likely to be corporeal than cervical disease; while if she have borne children, it is much more likely to be cervical than corporeal. More reliable information than this may be obtained from the use of the uterine probe, which should now be employed. The examination by touch has taught us the position of the uterus; now, bending the probe so as to give it a curve proper for entrance into its cavity we pass it gently in. If the disease be confined to the cervix, the instrument will meet with slight obstruction at the os internum, which will be dilated in case the affection has advanced beyond it, a fact which has been specially insisted upon by Dr. Henry Bennet. Passing the probe into the cavity of the body, it should be carried up to the fundus, which should be gently struck by it. Then it should be made to impinge with a slight degree of force upon the sides of the cavity. If the body be affected, this will give pain which may last, as a patient once expressed it, "like a toothache," for half an hour, and the removal of the instrument will very likely be followed by a flow of mucus and probably by one or two drops of blood.

Should the disease be cervical, no pain will result from the ex-

ploration, and the removal of the probe will be followed by the escape neither of mucus nor blood, unless improper force be applied.

Course, Duration, and Termination.—Cervical endometritis is not a self-limiting disease, and consequently its duration will depend upon circumstances which control its progress. It may unquestionably disappear without medical aid. Any alterative influence which exerts a complete change in the economy, as, for instance, parturition, entire alteration of the habits of life, or some change equally decided, sometimes results in a cure. But it is certainly safe to say that, unchecked, it might pass, slowly, perhaps, but still steadily, into disease of the parenchyma, which would probably draw in its train hypertrophy, displacement, and all the long list of ailments which make the lives of women suffering from uterine disease so burdensome.

Prognosis.—The prognosis of the disease is always favorable if proper treatment be adopted; but great caution should be observed as to fixing the time at which recovery will take place. Even in the mildest case which has lasted for some time, from four to six months will probably elapse before perfect cure can be accomplished, and even after this a relapse will be very likely to occur unless preventive measures be adopted and strictly adhered to. The prognosis will of course depend for its correctness upon that of the diagnosis, for if parenchymatous complication exist, or the morbid action have affected the lining membrane of the body, an equally favorable prediction cannot be made.

Treatment.—The disease consisting in endometritis and not metritis, the efforts of the practitioner must be directed to producing an alterative influence upon a mucous membrane which is in a condition of chronic inflammation, and the prevention of all influences which may cause it to spread to the muscular structure beneath. These ends will be best accomplished by the following means:—

General regimen;
Emollient applications;
Alterative applications.

General Regimen.—"The first care of the practitioner," says Sir Charles Clarke, "should be to remove, if possible, the causes of the disease. * * * Women who live in a moist atmosphere, who keep bad hours, who spend much of their time in bed, or

who inhabit hot rooms (being generally weak women, and having a relaxed vagina), will be apt to be affected by the complaint." All such unfavorable circumstances should be modified. If any depressing influence, such as lactation, any habitual discharge, or any cause for mental anxiety be discovered, it should be carefully removed and the patient, unless absolutely plethoric, be put upon the use of vegetable tonics, the mineral acids and preparations of iron. The functions of the alimentary canal should be constantly supervised. The diet should be mild, unstimulating, and nutritious. But no system of starvation should be entered upon, for the tendency of the disease is to the production of spanæmia, and this we should combat. All spices, and aromatic and stimulating condiments should be avoided. Every day, unless some special contra-indication exist, the patient should take fresh air and exercise, by carriage or on foot for a time, which should be limited by the circumstances of the particular case. If she should be unable to do this from any cause, she should be thoroughly protected and the pure air, even in winter, be allowed to circulate freely in her chamber, all the doors and windows of which should be opened, for two or three hours daily. This plan, which is suggested by Prof. Byford, of Chicago, I have found a most excellent one. The bowels should be kept regular by saline cathartics, and the skin in proper state by occasional baths. Care must be observed not to depreciate the strength by catharsis, and to prevent this a ferruginous tonic may be advantageously combined with the saline, as in the following mixtures:—

℞.—Magnesiæ sulphatis, ℥ij.
Ferri sulphatis, gr. xvj.
Acidi sulphurici dil. ʒj.
Aquæ, Oj.—M.

One ounce (two tablespoonfuls) in a tumbler of iced water every morning upon rising.

℞.—Sodæ et potass. tart. ℥ij.
Vini ferri amari (U. S. D.), ℥ij.
Acidi tartarici, ʒiij.
Aquæ, ℥xij.—M.

One ounce in a tumbler of iced water every morning upon rising.

Should one draught not be sufficient, two, or even three may be taken daily, for the result will prove tonic and reparative as well as cathartic.

If much disturbance of the nervous system should exist, the

bromide of potassium in doses of from fifteen to twenty grains, three times a day, will be found very useful.

The appetite and digestion are so often impaired that special attention will generally have to be directed to alleviation of that collection of symptoms, which are grouped under the head of dyspepsia. The stomach sympathizing with the uterus does not perform its functions with vigor; the gastric juices appear to be wanting or inefficient, and fermentation of the food often takes the place of digestion. Under these circumstances I can recommend from lengthy experience with it the following digestive tonic:—

℞.—One rennet washed and chopped,
Sherry wine, Oj.

Macerate for twelve days, then decant, filter, and add—

Dilute nitro-muriatic acid, ʒij.
Tinct. nux vomica, ʒij
Subnitrate of bismuth, ʒij.

One tablespoonful in a quarter of a tumbler of water before each meal.

This prescription combines the tonic properties of nux vomica and the peculiar alterative influences of bismuth, with a fluid which resembles the gastric juice. In many cases of habitual indigestion I have obtained from it the best results.

Emollient Applications.—The cervix should be irrigated every night and morning, by warm water thrown against it by one of the plans recommended elsewhere. To the water may be added glycerine, boiled starch, infusion of linseed, slippery elm, or tincture of opium. The irrigation should be so planned as to last for twenty or thirty minutes without fatiguing the patient or proving a source of annoyance to her. The method for doing this is so fully described elsewhere that it need not be repeated here.

Alterative Applications.—The local treatment by means of applications made through the speculum will, with great advantage, be preceded by dilatation of the whole cervix by means of a tent of sponge or sea tangle. This not only exposes the canal to applications, but opens the way for escape of fluids, and by pressure exerts an alterative influence on the diseased membrane. Should granular degeneration exist, it will be peculiarly applicable. The tent being removed the canal should be cleansed of blood and mucus, which may be done by a small pledget of cotton wrapped around a staff of whalebone, hickory, or bamboo, eight inches long, as thick as a pipe-stem, and tapering toward its extremity.

Should the first pledget become saturated, it can readily be slipped from the staff and another wrapped in its place, or several staves may be prepared and kept ready for use. A little practice will be necessary to enable one to arrange the cotton upon the staff in a proper manner. When the plug of mucus is very tenacious and will not allow of removal in this way, a very small bit of

Fig. 75.

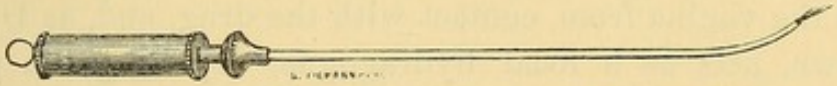


Rod eight or nine inches long, wrapped with cotton.

sponge, not larger than a large pea, may be fixed in a sponge-holder or a pair of long forceps and passed up to the os internum. The sponge should be thrown away afterwards, for the repetition of its use might convey disease from one patient to another. A supply of such small pieces of sponge should be kept at hand in order that a new one may be used for each patient.

Another method of cleansing the cervix and cervical canal, and one which I commonly employ, consists in the use of a syringe with a nozzle four or five inches long, which may be worked by one hand. The thumb retracting the piston, while two fingers hold the body of this instrument, it is filled with

Fig. 76.



Syringe for cleansing the cervix and vagina.

water, which is thrown with violence against the os and cervix, the tip of the nozzle being in direct contact with the part to be cleansed. The fluid thus ejected collects in the speculum if a cylindrical instrument be used, in the vagina if Sims's speculum or one of its varieties be employed. It is again taken up and projected against the cervix, and this is repeated until the part is sufficiently cleansed. I am thus particular in speaking of the process of cleansing the cervix, because I believe that treatment is often impaired in its efficacy by a neglect of it. The caustic used being neutralized by a thick envelope of coagulable mucus, is prevented from exerting a decidedly alterative influence upon the diseased part. Care must be taken not to throw the fluid into

the body of the uterus, but even should this occur after dilatation, it will at once escape. The cervix can then be clearly seen and applications made.

It is a fact, universally admitted in every department of therapeutics, that certain substances of greater or less strength as escharotics have the property, when applied to inflamed mucous surfaces, of so modifying the morbid action existing in them as to diminish its intensity and in time to check its progress. It is upon this principle that chronic inflammation of the fauces, urethra, bladder, and many other mucous surfaces are treated. Those substances which have been found by experience to answer the best purpose in inflammation of the mucous lining of the cervix are the following: nitrate of silver, iodine, chromic acid, carbolic acid, sulphate of copper, solution of persulphate of iron, tannin, and acetate of lead. After the tent has been removed and the cervix cleansed, a brush composed of camel's hair, or, as is better, of delicate bristles, is dipped in a solution of one of the substances mentioned. If copper, zinc, or lead be employed, the solution may be made saturated, and if tannin be used, it may be dissolved in glycerine in large amounts. The whole cavity of the cervix is painted over thoroughly with the solution, from the os internum to the vaginal mucous membrane. After this application a bit of cotton, with a piece of stout thread attached, should be dipped in glycerine and applied against the cervix. This protects the vagina from contact with the drug, and, as Dr. Sims has shown, acts as a local hydragogue, depleting the part to which it is applied.

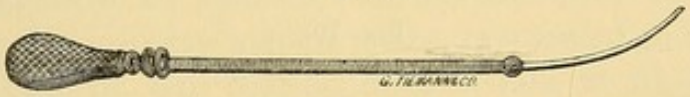
This may be repeated once a week, the application being preceded each time by the tent, which should never be allowed to remain longer than twenty-four hours.

It is difficult to give any rule with reference to a choice of these alterative applications. All that can be said is that it is indicated by the same rules which govern a selection when employed elsewhere in the economy. In choosing the caustic the practitioner should bear in mind that one great objection to those of severe character is the liability of their closing the cervix by causing cicatricial contraction. For this reason I would never, unless to destroy a malignant growth, or cause contractions in an inverted cervical canal, introduce within the os externum, or apply nearer than three or four lines from its edge, the actual

cautery or the acid nitrate of mercury. In the use of even the solid nitrate of silver, one should be cautious and limit its application to cases in which the canal is dilated. Chromic acid, which was, I think, introduced into uterine practice by Dr. Marion Sims, possesses the great advantage of not contracting the neck. At least I should say that I have never seen, nor heard of, a case in which it did so. The fluid preparation in general use is a saturated solution, though it may be used of any strength desired. The plan just described involves keeping the patient in bed only for twenty-four hours out of every week, while the tent is in place, and certainly shortens the course of the affection very much.

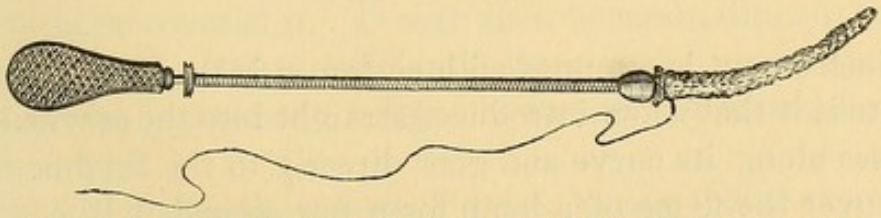
Another means of making applications to the whole cervical canal, either after or without dilatation by tents, is the following: the uterine probe being passed up to the os internum and withdrawn, its curve shows the direction to be followed by the instrument by which the application is to be made. This consists of a flat silver probe, measuring with its handle about eight or ten inches. It is decidedly the best instrument for the purpose in view with which I am acquainted, and was introduced into practice by Dr. Emmet of this city. It resembles very closely the uterine probe, the only difference being that it is flat and has no terminal bulb. Fig. 77, constructed after a plan adopted by Dr. Sims, represents a slight modification of this instrument. Two

Fig. 77.



Silver probe with slide.

Fig. 78.



Same instrument with cotton wrapped around it and thread attached.

inches of the extremity of this are wrapped with a very thin film of cotton, the arrangement of which, although it appears quite simple requires a little practice, and the probe is bent to the curve of the uterine probe which has been passed to the os

internum. It is now dipped in a solution of chromic acid, nitrate of silver, or saturated tincture of iodine and passed up to the os internum, where it is kept for one or two minutes and then withdrawn. A stream of water should then be projected on the cervix to remove any surplus which may have escaped and the application should be repeated. This repetition is advisable because the first application sometimes only coagulates and removes tenacious mucus which remained in the upper part of the canal, and a second is required to really cauterize the surface. This instrument may be likewise employed so as to leave a long thin roll of cotton in the canal. The flat rod, being wrapped with this substance, is dipped in a solution of alterative or astringent character. It is then carried up to the os internum, the cotton is slipped off by the slide and remains in the cervical canal. By the thread attached it may be removed in twelve hours. Instead of dipping the cotton in a solution it may be prepared in the following manner and applied dry. An ounce of the sulphate of copper, zinc, or iron may be dissolved in a pint of water. In this a mass of cotton is soaked, then dried in the sun, and it is ready for use. Or the cotton may be saturated with iodine and glycerine, as recommended by Dr. Greenhalgh, and employed in the same manner.

Another convenient method for reaching the upper parts of the canal is by the use of a very delicate probe of hard rubber about eight inches long, the invention of Prof. C. A. Budd, of New York.

Fig. 79.



Budd's elastic probe.

This instrument is wrapped with cotton as is Dr. Emmet's, and so delicate is it that when introduced straight into the cervical canal, it passes along its curve and goes directly to the fundus. Holding it over the flame of a lamp for a few seconds will cause it to become pliable as a willow twig, when it may be bent as desired, and when it becomes cool it keeps the curve given it until heated again. These two probes leave nothing to be desired in making fluid applications.

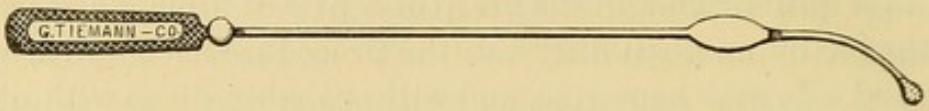
In applying solid caustics to the walls of the canal a different

method should be pursued. Should the case appear to require a solid caustic, the nitrate of silver may, with great advantage, be employed, though the means generally adopted for applying this substance are inefficient. If a straight stick of lunar caustic be fixed in a quill or held in the grasp of a pair of forceps and passed into the os, by no possibility can the procedure accomplish what is desired. It may cauterize, and will probably do so with objectionable thoroughness, a quarter or half an inch of the lower portion of the canal, but how can it be expected to go upwards for an inch and a quarter and come in contact with the whole surface inflamed, a surface remarkable for its inequalities and convolutions. Sir Benjamin Brodie many years ago, according to Dr. Barnes, of London, advised fusing nitrate of silver and allowing it to cool upon the tip of a probe for cauterizing sinuous tracts, and Chassaignac, of Paris, applied the same substance to the cavity of the womb by coating platinum wires with it. Within the last four years Dr. F. D. Lente, of Cold Spring, N. Y., has experimented extensively in reference to this subject, and the result of his investigations has been to furnish the profession with the best and most reliable of all the means at our command for applying solid lunar caustic to the mucous lining of the uterus. Other methods which have been suggested aud employed are these: the use of Lallemand's porte caustique; leaving a pellet of nitrate of silver in the uterine cavity to dissolve; carrying up a small piece held in a delicate wire casing, &c.; but none of these compare with Dr. Lente's, which is thus practised. A probe, shaped like the ordinary uterine probe, is warmed and then dipped in a little platinum cup that contains nitrate of silver which has been fused over a spirit lamp. Removing the probe after dipping it, and waving it for a few seconds, a film of the nitrate will be found to have covered it. It may then be again dipped, and the process repeated until a sufficiently large pellet is made to cover the tip of the instrument. Figs. 80 and 81 represent the probe and cup.

It is used thus: the cervical canal having been cleansed of mucus, and its direction learned by the ordinary probe, Lente's probe is passed up and rubbed against every part of its investing membrane, and dipped as carefully as possible into its convolutions before removal. After all such applications, a stream of water should be projected against the cervix and a pledget of

cotton, which has been freely saturated with glycerine, with a bit of thread attached, should be placed against it. By means

Fig. 80.



Lente's silver caustic probe.

of the thread this may be removed by the patient in twelve hours. It is a question of some importance to decide how often

Fig. 81.



Lente's cup for fusing nitrate of silver.

these caustic applications should be repeated. As a general rule I should say once a week, except in the case of a thorough application of chromic acid or the solid nitrate, when twice that time should be allowed to elapse. These cause decided sloughs to occur, after the removal of which it is better to dress the surfaces left uncovered, by equal parts of glycerine and solution of the persulphate of iron, or by tincture of iodine, or weak solutions of the nitrate of silver left in the canal upon rolls of cotton.

Another excellent plan of treating this affection is by the use of medicated tents of sponge. For the past two years I have employed it very generally, and now prefer it to any other mode of treatment. Tents of this character may be prepared in two ways. The sponge may be wound upon a large wire which will leave a capacious canal. This may be filled, after the tent is dried, with a long suppository of cocoa butter containing nitrate of silver, iron, or any other mineral in admixture. As the tent expands it is permeated by the elements contained in the suppository, which thus come in contact with the walls of the uterus. Another method is this: sponge cut into proper shape is saturated for a length of time in solutions of zinc, copper, iron, iodine, carbolic acid, or lead. They are then squeezed, dried, soaked in a solution of gum acacia, and made into tents. They possess not

only the alterative powers attached to the pressure which they exert, but bring into direct contact with the diseased surface alteratives of most reliable character. The influence of this means is unquestionably good; it produces no more pain than the use of the non-medicated tent, and all offensive odor is prevented in the sponge.

The idea of dilating a uterine neck affected by endometritis by means of sponge is apt to strike one who has never essayed the method as being attended by considerable danger. I can say with positiveness that it is not so. The tent not passing into the body of the uterus does not excite that part of the organ, and in no case in which I have employed one in the cervix have I been led to regret having done so.

Instead of medicated sponge, a caustic or an alterative may be incorporated with butter of cocoa, gum tragacanth, or some similar substance, made into suppositories two inches in length, and left in the cervical canal. Into these cervical suppositories may be introduced zinc, copper, iron, lead, or bismuth, with opium, conium, or hyoscyamus. They do not compare in efficiency with medicated tents, and it is difficult to keep them from becoming dislodged.

To keep in mind the plans recommended for applying caustics and alteratives to the cervical canal the following *résumé* will prove useful:—

1st. Dilatation by tents;
2d. Application of fluids by small brushes;
3d. " " by flat probe;
4th. " " by rolls of cotton;
5th. " of solids by Lente's probe;
6th. " " by medicated tents;
7th. " " by suppositories.

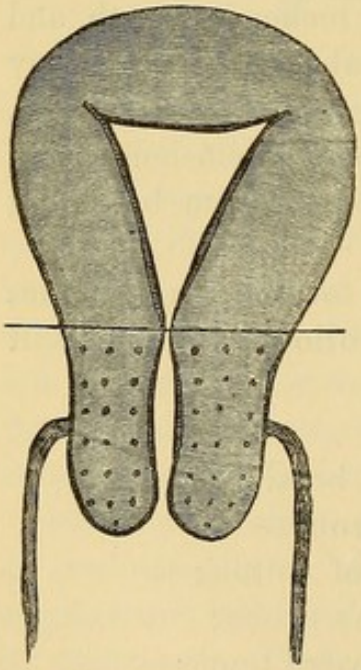
CHAPTER XVI.

CHRONIC CERVICAL METRITIS.

Definition.—This affection consists in inflammation of the parenchyma of the cervix uteri, whether occurring alone or as a complication of cervical endometritis.

It has been described under the names of engorgement, hypertrophy, inflammatory hypertrophy, and chronic cervicitis.

Fig. 82.



The dots represent the site of cervical metritis.

Causes.—The causes may be thus enumerated:—

Parturition or abortion;
Injuries;
Excessive sexual indulgence;
Pessaries;
Displacements;
Cervical endometritis.

It generally originates from parturition or abortion, and hence is exceedingly rare in the nulliparous woman, though it may arise from injury, the result of operations; sexual intercourse; badly fitting pessaries; or friction from displacement of the uterus. I have seen it occur in a number of cases as a consequence of cervical endometritis, inflammatory action passing from the mucous membrane to the subjacent parenchyma. It must not be supposed that it is to be looked for as an early or constant result of the last named disease, which often continues for a long time without inducing it, but in exceptional instances it is unquestionably thus established.

Symptoms.—The disease shows itself by pain in the back and loins, pressure on the bladder or rectum, painful and excessive menstruation, difficulty of locomotion, nervous disorder, pain

during sexual intercourse, dyspepsia, headache, and a general sense of lassitude and debility. If no disease of the mucous lining exist, there will be no leucorrhœa; but as this is usually present it is very commonly a prominent symptom, and should granular degeneration exist, the leucorrhœal discharge will often be tinged with blood.

Physical Signs.—Vaginal touch will generally discover that the uterus has descended in the pelvis so that its cervix will rest upon the floor of it. The cervix will be found large, swollen, and painful, and the os may admit the tip of the finger. If the finger be placed under the cervix and it be lifted up, pain will be at once complained of, and if it be introduced into the rectum so as to press upon the cervix as high as the os internum it will often reveal an exquisite degree of sensitiveness. Under these circumstances the position of the uterus will generally be found to be abnormal. The cervix will in some cases have moved forwards and the body backwards, or the opposite change of place may have occurred.

Course and Termination.—It is astonishing to what an extent enlargement of the cervix as a result of parenchymatous inflammation will go. Sometimes this part will equal in size a very small orange, and, filling the vagina, will compress the rectum quite forcibly, so as in a great degree to close its canal. Left to itself the disease has no limit, but sometimes passes away leaving the cervix enlarged and very soft and flabby, or very hard and nodulated. At other times an atrophy of the diseased tissue occurs, and the cervix becomes small, hard, and indurated.

Pathology.—According to the formerly accepted view, the following changes were supposed to occur. In the first stage the cervical parenchyma was regarded as gorged with blood, a state of active congestion existing. This was supposed soon to pass into the second stage, consisting in an effusion of lymph, when, unlike a similar process in other parts, the morbid action ceased, or rather did not advance, and unless relieved by treatment, continued stationary for a length of time. The third stage of inflammation in other parts, that of suppuration, was admitted to occur rarely here, or in the parenchyma of the body, but in time all inflammatory action ceasing, the cervix remained large and indurated without sensitiveness, or the effused lymph might be absorbed, and great diminution in size occur with induration.

Recently, Scanzoni, Klob, and other pathologists, have ascribed the hypertrophic enlargement attending the disease to congestion and a proliferation of the connective tissue of the part. This produces engorgement, sensitiveness, increase of weight, and induration. It is highly probable that the second of these theories offers the true explanation of the results of disease in this part, and that the former was adopted more in consequence of analogical reasoning than of pathological investigation. It is probably for this reason that pregnancy is found to be so prolific a source of the affection, that condition furnishing the tendency to rapid growth of connective tissue, which constitutes its chief element.

As I have elsewhere mentioned, Klob looks upon this state as an habitual hyperæmia with coincident hypergenesis of the connective tissue. This theory accounts for the exceedingly slow progress of the affection, and for the diversity of opinion which has existed as to its true pathological nature. A long continued, persistent hyperæmia resulting in excessive growth of connective tissue differs from mere congestion on the one hand and hypertrophy on the other. To this middle ground I have thought it proper to apply the term metritis.

Differentiation.—The only point to settle before the diagnosis can be considered complete, will be whether the cervix alone is affected, or whether its enlargement is only a part of a general uterine development from disease. To determine this question, two means are at command; first, the examiner introducing one or two fingers under the body of the uterus, and depressing the abdominal walls by the other hand so as to clasp the fundus, ascertains whether it is larger than it should be, or of normal size and free from sensitiveness. He then passes the uterine probe into the cavity of the body, and measures it. If the uterine cavity is increased in size, the evidence is in favor of the disease having extended to the parenchyma of the body. Should its size be normal, this is probably not the case.

The walls of the uterus should then be struck by the probe to test the existence of pain. Should pain last for some time after the removal of the probe, it is probable that the parenchyma of the body is affected; should it not exist at all, the evidence is against that supposition.

Prognosis.—In this affection, as in all others of the uterus, the

prognosis will depend in a great degree upon the patient. If she be unwilling to sacrifice her inclinations and pleasures, but half fulfil the directions of the attending physician, and clandestinely expose herself to prejudicial influences, the treatment will accomplish nothing. In the case of a reasonable patient, who appreciates what is at stake, and is anxious to regain her health, it may be regarded as favorable, though the reduction of a large cervix may require a great deal of time, many months being often necessary to accomplish it completely.

Complications.—Cervical metritis may give rise to many and serious complications, as, for example, displacements, cystitis, rectitis, and cellulitis, which may greatly annoy and discourage the patient.

It likewise interferes decidedly with the functions of the uterus and menorrhagia, dysmenorrhœa, and sterility are its frequent accompaniments.

Treatment.—In the treatment of the disease under consideration the same principles should guide us as in similar inflammations elsewhere, the special means at command being:—

Rest;
General regimen;
Depletion;
Emollient and sedative applications;
Alterative applications;
Counter-irritation.

Rest.—The patient should be instructed to take much less exercise than usual, to lie upon her bed or lounge for several hours during the day, and to remain in bed during menstrual periods. It will rarely be necessary or advisable to confine her to her bed continuously, for many women become restive under the confinement, and suffer both in mind and body, the sanguineous and nervous systems being impaired by want of fresh air. If the parenchyma be much affected so that the cervix is painful upon pressure, absolute rest upon the back should be insisted upon, but my impression is that deprivation of fresh air and exercise ordinarily does more harm than is compensated for by the advantages arising from quietude. Should she not remain in bed, in order to prevent friction of the inflamed part against the floor of the pelvis, she should be especially guarded against lifting weights and climbing ascents, and the clothing should be worn very

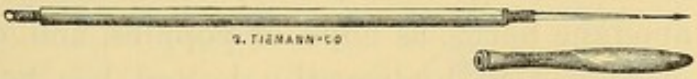
loose around the waist and supported by suspenders or skirt supporters upon the shoulders. The application of an elastic ring pessary, or Prof. Hodge's double lever, will often accomplish much good by supporting the uterus and keeping it from falling upon the floor of the pelvis. Sexual intercourse during the existence of this disease must necessarily be productive of evil, and should be interdicted. There is only one method, as a general rule, by which this can be accomplished, and that is by the separation of husband and wife. If this be impracticable, an injunction of excessive caution should be substituted for total abstinence, which will be almost certainly disobeyed. By these means we do all in our power to place the inflamed part at rest as we would a fractured bone or inflamed testicle.

General Regimen.—The strength should be sustained by mild, though thoroughly nutritious food, and everything of an exciting nature should be avoided. The bowels should be kept in natural condition, and the state of the sanguineous and nervous systems maintained by fresh, pure air, and moderate exercise. As this subject has been fully dealt with in the last chapter, the reader is referred to that in order to avoid repetition.

Depletion.—General bloodletting is now almost universally abandoned in the treatment of chronic diseases of the female genital system, although M. Nonat, a most excellent modern authority, and some others, still advise it in corporeal metritis. So marked is the tendency to spanæmia in all uterine affections that I cannot but regard the practice as highly pernicious. The three methods by which local depletion of the cervix can be best practised are leeching, scarification, and cupping. In such a case as that which we are considering three or four large leeches, or a sufficient number of small ones, to take from three to five ounces of blood, may be applied in the following manner. A cylindrical speculum, of sufficient size to contain the entire vaginal portion of the cervix, being passed and the part thoroughly cleansed, a small pledget of cotton, to which a thread has been attached for removal, should be placed within the os, so as to prevent the entrance of the leeches to the cavity above. A few slight punctures, sufficient to cause a flow of blood, should then be made in the cervix and all the leeches to be applied thrown in, and the speculum filled at its extremity by a dossil of cotton pushed towards the bleeding surface. The speculum should be watched

until they cease sucking, for if left for a very short time, even with the mouth of the instrument filled with cotton, they will escape. After their removal all clots of blood should be removed by a rod with cotton attached, the speculum withdrawn, a large sponge squeezed out of warm water placed over the vulva, and the patient directed to remain perfectly quiet. Should there be great pain upon pressing the cervix, or should the leech-bites give excessive pain, as they sometimes do, they should in future be applied by preference to the perineum. Should scarification be employed, a very sharp and narrow bistoury or tenotomy knife should be introduced within the os, and drawn outward towards the vaginal edges of the cervix so as to sever all the superficial vessels over which it passes. I am in the habit of employing, in preference to the latter, acupuncture, which may be performed by an ordinary three-sided surgical needle held in the grasp of a pair of forceps, or, still better, by a little spear, the invention of Dr. Buttles, of this city.

Fig. 83.



Buttles's spear-pointed scarificator.

This little instrument, when plunged about one-sixteenth of an inch into the cervix and given a rapid half turn before removal, causes a very free flow of blood should congestion exist. If a sufficient flow does not occur from three or four of its punctures, this can be caused by dry cupping the cervix by a very simple instrument, made of hard rubber, which is introduced through the speculum, the medium size of the cylindrical variety being large enough to admit it. Being passed up to the cervix, the piston is retracted, and so perfect is the working of these instruments when constructed of hard rubber, that a complete vacuum is pro-

Fig. 84.



Hard rubber cylinder for dry cupping the cervix uteri.

duced. By using this for a few minutes, and then puncturing, with Buttles's spear, from two to four ounces of blood may readily

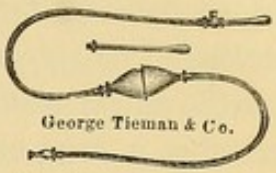
be drawn. The exhauster should not be used after puncturing but before it. All that will then be necessary will be to pass a sponge, attached to one of Sims's sponge-holders, over the punctured surface so as to prevent clotting in the mouths of the bleeding vessels. Dr. John Byrne, of Brooklyn, has recently drawn especial attention to still another method, which in some cases answers an excellent purpose. It consists in passing a long, delicate blade, such as that, for instance, of Emmet's or Sims's knife, up to the os internum and cutting through the mucous membrane, its bloodvessels and the superficial layer of muscular tissue as it is withdrawn through the os externum. Local depletion by one of these methods may be practised with great advantage once or twice a month, the patient for some hours after its adoption being kept perfectly quiet in bed, and directed to employ another antiphlogistic means, the application of emollient and sedative substances to the inflamed part.

Emollient and Sedative Applications.—If any parenchymatous tissue of the body be inflamed, the application of emollient and sedative substances in the form of simple and anodyne poultices, of bags of anodyne herbs, as hops or poppies, and of wet compresses, as employed in hydropathy, is, and has been from the earliest times, universally recognized as beneficial. It is upon the same principle that they are applied through the vagina to the cervix uteri by means of pledgets of cotton or lint introduced through the speculum, and by vaginal injections or suppositories. Other means, which are occasionally though much less generally employed, are, the introduction into the vaginal canal of little bags filled with emollient substances, sponges impregnated with simple or anodyne fluids, the vapors of anæsthetic medicines, and the vapor of water; which was recommended even as early as the Arabian school of medicine, Albucasis advising its introduction by a reed passed up the vagina. We are indebted to the recent work of Scanzoni on Diseases of Females for the explanation of the best method of using this important adjuvant in the treatment of uterine affections by injections.

Vaginal Injections.—To be efficient they should be copious and long continued. There are four methods of employing them which I should recommend. Placing in a tub from one to two gallons of water, at as high a temperature as proves comfortable to the patient, she may sit over it upon a board placed across it,

or upon a stool placed in it, and inject the water by means of a syringe. The most convenient syringes for the purpose are the Essex and Davidson's. Both of these are provided with a stem about five inches long, which being introduced into the vagina and carried up so as to touch the cervix, throws, when the ball of the instrument is compressed by the disengaged hand of the patient, a steady stream against it. By this means a stream of warm water is made to pour over the cervix for from twenty to thirty minutes, according to the amount of fatigue which the use of the instrument causes the patient.

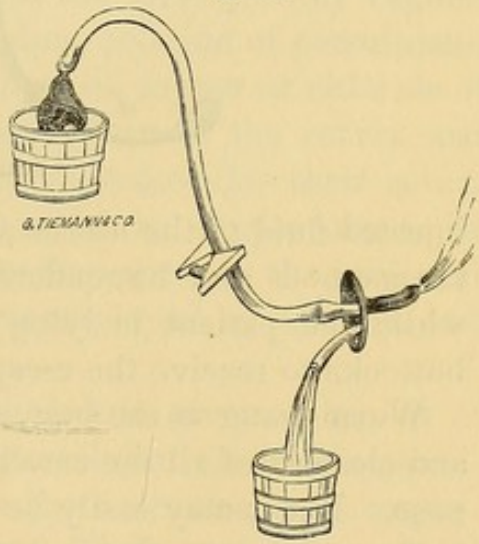
Fig. 85.



Davidson's syringe.

Another method is this: an ordinary tub or bucket, near the bottom of which a stop-cock has been inserted connecting with an India rubber or gutta-percha tube about five or six feet long with a metallic stem like that of the Davidson syringe at the end, is placed upon an elevation, as, for example, a chair placed upon a table, or a shelf made for the purpose. The vaginal stem being inserted, the cock is turned by the patient, and for half an hour a stream of water freely bathes the inflamed part, passing out of the vagina, pours into a tub over which the patient is sitting. This avoids all fatigue, and produces a much more prolonged application.

Fig. 86.



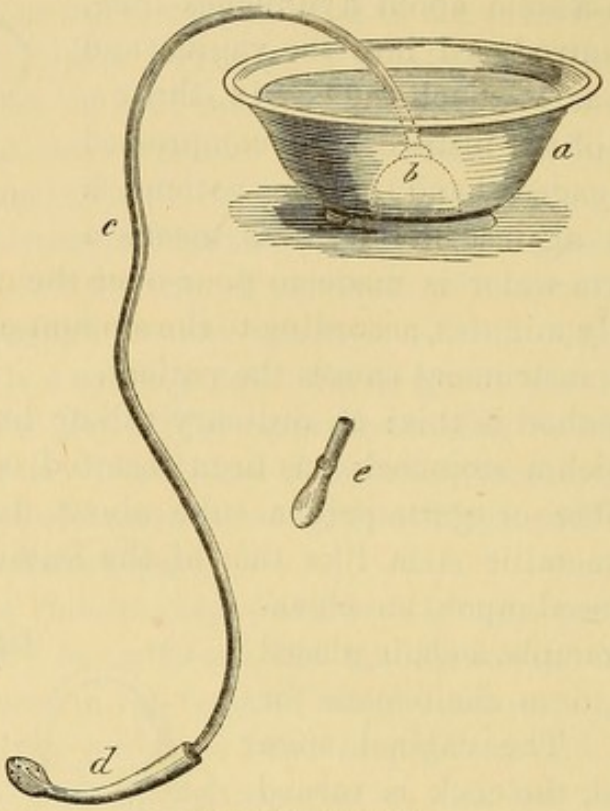
Tub for vaginal irrigation.

Fig. 87 represents a very ingenious plan of irrigation practised by Scanzoni: *b* is a cup of lead, *c* a tube of gutta-percha, *e* a nozzle by which suction is practised so as to fill the tube, *d* is a nozzle for the vagina. After being once filled, the water pours as through a siphon. If the tube is rolled and dipped below the surface of the fluid, it is filled without the action of suction, and the siphon flow is equally well established.

Lastly, the patient may take a warm hip-bath, or entire bath, night and morning, and use the vaginal injection while in the bath. This method possesses the additional advantages to be de-

rived from general and hip-baths in the treatment of these cases, while the horizontal posture favors very much the flow of the

Fig. 87.



Scanzoni's irrigator.

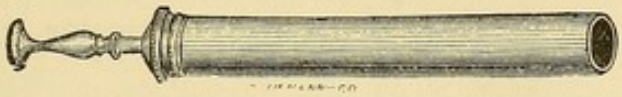
injected fluid to the uterus and roof of the pelvis. Indeed, all of the methods may be rendered more efficient by being employed while the patient is lying in bed with the bedpan under the buttocks to receive the escaping fluid.

Warm water is the best, as it is the simplest, most attainable, and cleanest of all the emollients which can be used for this purpose. But it may easily be medicated by addition of laudanum, half an ounce to the gallon, infusions of linseed, poppies, hops, slippery elm, hyoscyamus, conium, and farina; or by the addition of glycerine, one ounce to the gallon, lime-water or tar-water, both of which last are often very soothing to vaginitis that may exist as a complication.

Vaginal Suppositories may be made very useful if employed after and not instead of the injections just described, which are certainly of much greater efficacy. The best menstruum with which they can be compounded is cocoa butter, or, as recommended by Dr. Tilt in his Uterine Therapeutics, a mixture of starch, almond meal, and glycerine, the whole being coated with

suet or butter of cocoa. One grain of the acetate or sulphate of morphia, one-thirtieth to one-tenth of a grain of sulphate of atropia, one grain of belladonna, or three of opium having been incorporated with these may be placed against the os and allowed to remain all night, being washed away in the morning by an injection. The instrument which I employ for introducing these is one of hard rubber, represented by Fig. 88. Should there be pain, a sedative

Fig. 88.



Vaginal suppository tube.

suppository may be employed every night after the vaginal injection, but should there be no special indication for it, it is better not to annoy the patient with a multiplicity of applications.

Alteratives.—These may be directly applied by means of a brush, by suppositories placed against the cervix, or by vaginal injections. Churchill's tincture of iodine, solution of persulphate of iron, or strong solutions of sulphate of copper or chloride of zinc may be painted over the vaginal face of the cervix and carried up to the os internum. This is not done for their action upon the mucous lining of the canal, which we suppose not to be inflamed, but for the effect which they may exert on the subjacent parenchyma. The same drugs may be employed by injection and suppository.

Before leaving this part of our subject it may not be out of place to remind the reader that vaginal injections and suppositories should not be employed under these circumstances empirically, but with some definite object. They may prove useful when medicated with appropriate drugs in the following ways:—

1st. They may act as calmants, emollients, and detergents, quieting nervous irritation and soothing pain. For these purposes warm water, or any of the emollient or narcotic substances already mentioned, may be used.

2d. They may exert a direct alterative influence on a tissue affected by granular degeneration or erosion, by coming into immediate contact with it. For this end zinc, lead, iron, alum, bismuth, tannin, &c., will prove useful.

3d. They may so affect the nerves governing the nutrition of the part as to check excessive supply of nutrient elements to the connective tissue, and cause an atrophy of that which has undergone exuberant development or cause absorption of lymph effused into the cervical parenchyma. To accomplish this we may employ the iodide of potassium, chloride of sodium, sea water, water at a very high temperature, bromine, or iodine.

4th. They may be employed to give tone to the pelvic tissues, which have been relaxed by diseased action that has passed away. For this purpose the astringents and cold water will prove most useful.

In the treatment of cervical inflammation these means may be brought to our aid to accomplish any of the objects which have been mentioned, and our choice should be governed by the special indication.

The ends for which the means thus far mentioned have been employed were these: to cause diminution in the calibre of dilated vessels; to check excessive nutrition and secretion; and to quiet resulting neuralgia.

In spite of all these remedial resources inflammatory engorgement will often still continue to affect the parenchyma, and it will become evident that other and more decided means must be resorted to. As in treating chronic parenchymatous inflammation elsewhere, we naturally turn most hopefully to counter-irritants. These are not employed for mucous inflammation, should it exist in conjunction with that variety which now engages us, but they benefit this indirectly; for it, even although originally the cause of the parenchymatous disease, is kept up by the latter, which reacts upon it and causes its prolongation.

Counter Irritation.—One of the best methods for practising counter-irritation upon the cervix uteri is by blistering, a means for which we are indebted, I believe, to Aran, of Paris. To blister the cervix, a large cylindrical speculum should be used which will take the whole part into its field. The cervix having been cleansed and dried by a soft sponge or dossil of cotton, a camel's-hair brush is dipped into vesicating collodion, which consists of ordinary collodion, commonly known as liquid cuticle in this country, containing in suspension cantharides, and painted over the whole vaginal cervix, no effort being made to avoid the os. There are two preparations of vesicating collodion, one made

by ether, the other by acetic acid. The second is the more powerful and the less likely to affect the vagina. In a few seconds after it is painted on the cervix, it forms a hard, insoluble covering, upon which two or three other coats may be at once applied. The whole is then exposed to the air by keeping the speculum in place for a few minutes, a stream of cold water projected upon it, to prevent any escape into the vagina, and the process is finished. In from eight to twelve hours the epithelial covering of the cervix is entirely removed by this, and a free flow of serum takes place as from a blister elsewhere applied. After this the patient should be kept perfectly quiet for several days, cleansing the vagina by warm injections, and as soon as the discharge shows a tendency to cessation the blistering should be repeated. The only objections to this method of counter-irritation are the liability to vaginitis and cystitis from escape of the blistering fluid into the vagina and mouth of the urethra, which can readily be avoided, and the pain which is experienced in some cases while vesication is taking place. Another and still better method of destroying

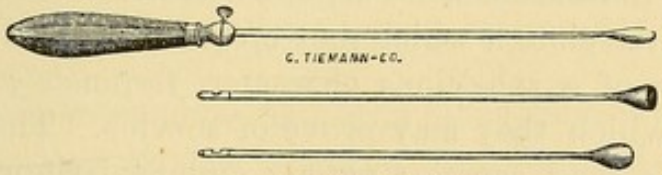


Fig. 89.

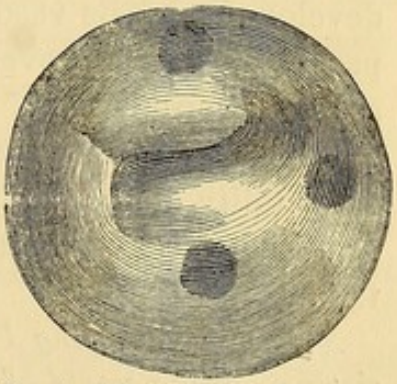
Fig. 90.

Fig. 91.

Cauterizing irons.

the epithelial covering of the cervix and producing serous discharge, is the application to that surface of metal warmed for fifteen seconds in an ordinary spirit lamp. For this purpose the steel rods, Figs. 89, 90, and 91, used in applying the actual cautery, may be employed. One of these should be held over a spirit lamp for from ten to twenty seconds, and then held against the cervix for several seconds, a few lines always intervening between the instrument and the os. Upon removing it a pearly white surface will be seen, which is created by death of the mucous membrane at this spot. The iron should again be warmed and applied to another spot, one such point being created on each side of the cervix, making in all

Fig. 92.



Cervix blistered by the warm iron in three spots.

three or four, as represented in the illustration. To this method there is no objection. It produces no pain, never affects the surrounding parts, and the destruction of the tissue is so superficial that no induration from cicatricial tissue results. Of all the means of counter-irritation for removing chronic parenchymatous inflammation and causing diminution in the size of this part by stimulating absorption, this is the most efficient and least objectionable as to consequences.

Vesication may be easily produced by still another method, which is both effectual and simple. By means of a solid stick of nitrate of silver, which is rubbed gently over the whole vaginal portion of the cervix, its epithelial covering is destroyed, soon sloughs off, and leaves a granulating surface which may be dressed with any of the alterative substances mentioned above.

But sometimes so obstinate is the engorgement of the cervix, that other and more powerful means are required, and these present themselves in the actual cautery and caustic potash. Both methods have many objectionable features, both are liable to result in great induration of tissue, and a contraction of the cervical canal after the slough which they create has passed away; yet there are cases of a rebellious character, *fortunately very exceptional ones*, in which they may prove of service. The classification of these strong caustics among counter-irritants and not alteratives, may be objected to by many, and yet I can see no difference between their action on the uterus and that of issues elsewhere applied. They are unquestionably "escharotics," "alteratives," and "vitality modifiers," as has been stated, but do not blisters and setons act in the same manner? A part, for example the cervix uteri, is in a state of chronic inflammation; its bloodvessels are dilated, its connective tissue is excessively developed, and its vaso-motor nerves are in a morbid state, as if paralyzed, which prevents their proper functions being performed as regards circulation. A powerful counter-irritant destroys tissue to a greater or less extent, and produces a peculiar influence upon the vitality of the part, which results in a stimulation of absorption and the awakening of the nerve power governing nutrition.

Method of Applying Potassa cum Calce.—This preparation, consisting of two parts of lime to one of caustic potash, or two of the latter to one of the former, as Dr. Bennet uses it, is so far

preferable to pure caustic potash that I shall speak of it to the exclusion of the more powerful escharotic. It was formerly used as Vienna paste, until M. Filhos prepared it in the form of a stick, at the same time rendering it much more powerful by combining two parts of quicklime with one of the caustic potash, instead of from thirty to fifty, as was done in the paste. A large cylindrical speculum having been introduced, and the cervix cleansed and completely dried, a dossil of cotton soaked in vinegar and squeezed almost dry should be forced by means of the long-shanked speculum forceps into the os. A large supply, similarly soaked and squeezed, should then be pressed around the neck between it and the rim of the instrument. As acetic acid neutralizes caustic potash, this will protect all the tissues which we wish to avoid injuring. A stick of caustic should now be taken in the grasp of a caustic holder and applied to the cervix. It should remain in contact with one point for from five to ten

Fig. 93.



Sims's caustic holder.

seconds, then be removed and brought in contact with an adjoining part until all the desired surface is cauterized.

A stream of fluid, consisting of equal parts of vinegar and water, should then be repeatedly thrown against the cervix by the speculum syringe, a piece of cotton with a string attached and saturated thoroughly with the same be laid against it and the speculum removed. After this the patient should be kept perfectly quiet, and pain relieved promptly by full doses of opium, by mouth or rectum; for this operation is sometimes followed by metritis, pelvic cellulitis, or peritonitis, and I have in one case known tetanus occur with a fatal issue. There is not great danger of these results; but it is not the less true that they may occur, and it is the duty of the practitioner to be forewarned against the possibility. The application of this escharotic should always be regarded and treated as an operation, and the patient should distinctly understand that it is no trivial affair, to be lightly dealt with.

Mode of Applying the Actual Cautery.—Very little preparation is necessary for the use of this caustic. The iron being brought

to a white heat by placing it in a fire, or still better in the flame of a Russian spirit lamp, which the operator may always have at hand and which gives the powerful aid of a blowpipe, by its ingenious mechanism, is passed up through a cylindrical speculum composed of metal, horn, ivory, or wood, the last being the best, and pressed for a few seconds against the cervix at some distance from the os. As soon as the tissue touched is destroyed, the cautery is brought in contact with another point until the desired amount of action is produced. A stream of water is then thrown against the cervix, a piece of cotton saturated with glycerine is introduced, the speculum withdrawn, and the patient directed to preserve the recumbent posture and cleanse the vagina by warm injections.

The few cases to which these powerful caustics are applicable are great hypertrophy of the cervix, more especially hypertrophy with softening and puffing of the tissues, or of this and the body of the uterus, *which have resisted all milder means;* malignant growths and obstinate ulcerations. They should never be introduced into the cervix for fear of causing contraction of its canal, and because other means will answer as well without the corresponding danger. Bennet, Tilt,[1] and many other excellent authorities, however, advise that they should be passed up the cervical canal, and Amussat even goes so far as to counsel the cauterization of the cavity of the body of the uterus, with potassa cum calce in cases where hemorrhage from corporeal endometritis has proved rebellious to ordinary means.

The primary action of all these counter-irritants, both superficial and profound, is not the only one of which we should avail ourselves. The denuded surfaces, as after blistering elsewhere, should be acted upon by light applications of lunar caustic, tincture of iodine, chromic acid, or any similar substances which may be chosen.

This brings us to the end of what may be regarded as the most important subject in a work on diseases of women—the treatment of inflammation of the neck of the uterus. Before closing it let me beg the reader to note that my constant effort has been to draw a strict analogy between the treatment of inflammation here and in all other parts of the body, and to make a marked distinction

[1] Tilt, Uterine Therapeutics, Am. ed., 1855, p. 92.

between inflammatory action affecting the two structures, mucous and parenchymatous. I have described inflammation of each separately, because by this plan greater accuracy of detail is attainable, but in practice they frequently exist together, and the practitioner will usually be called upon to combine the two methods of treatment which have been advised.

Résumé of Treatment of Cervical Metritis.

1*st.* *Rest* to the extent indicated in each particular case; avoidance of sexual intercourse and muscular efforts; removal of weight from fundus.

2*d.* *General regimen*, mild cathartics, baths, plain but nutritious food, avoidance of stimulants and spices, exposure to pure, fresh air without fatigue.

3*d.* *Depletion* by leeches, cups, or scarification.

4*th.* *Emollient and sedative applications* by vaginal injections, medicated and simple, or by suppositories.

5*th.* *Alteratives.*—Applications of iodine, iron, nitrate of silver, etc.

6*th.* *Counter-irritation* by blisters, warm iron, and in certain very rare cases, by the actual cautery and potassa fusa.

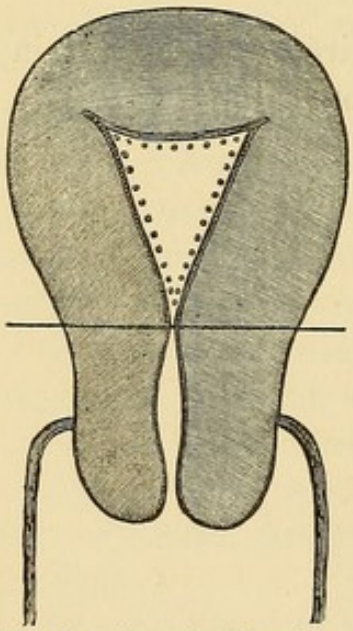
CHAPTER XVII.

CHRONIC CORPOREAL ENDOMETRITIS.

LIKE the cervix, the body of the uterus is liable to two distinct varieties of chronic inflammation, that affecting the mucous membrane which lines its cavity, and that of the parenchyma or tissue which makes up its walls. The first receives the name of corporeal endometritis, in contra-distinction to cervical endometritis; the second that of corporeal metritis, which distinguishes it from the cervical form of the same disease.

Synonymes.—This disease has been described under the names of endometritis, uterine catarrh, uterine leucorrhœa, and internal metritis. The precise seat of the affection is pointed out by the dots in Fig. 94.

Fig. 94.



The dots show the site of corporeal endometritis.

Frequency.—Few points in uterine pathology have created more discussion of late years than this. Some excellent authorities, following the lead of Dr. Henry Bennet, regard it as of rare occurrence, while a large majority consider it quite common. "Internal metritis,"[1] says Aran, "is more frequent, nevertheless, in spite of all that has been said to the contrary, in the cavity of the body than in the cavity of the neck of the womb;" and this opinion is concurred in by Dr. West and others. To show how unsettled this point is in the present state of pathology, let me contrast with this statement that of Prof. Byford,[2] of Chicago, whose excellent work on *Medical and Surgical Treatment of Women* has recently appeared: "Inflammation limited to the

[1] Mal. de l'Utérus, p. 408.

[2] Op. cit., p. 182.

cavity of the body of the uterus is not common, but I am quite sure that I have met with at least two instances." While Dr. Byford's experience furnishes him but two instances, Dr. Tilt gives the statistics of fifty cases of which he has kept notes.

The more industriously the student of Gynecology interrogates the literature of this subject, the more unsettled are his conclusions likely to be, and unfortunately his own investigations, however carefully conducted, will often fail to enlighten him in the individual cases with which he meets, for the differential diagnosis between cervical and corporeal endometritis is often very difficult. My own opinions upon this important point I shall state freely, unbiassed by those of authors for whom I entertain the highest respect, but whose conclusions conflict with what I have carefully observed at the bedside. The most frequent locality of uterine inflammation is that portion of the uterus below a line running across it through the os internum. That portion of the organ above this line, however, is much more commonly affected by inflammatory disease than is stated by Dr. Bennet. During the past eighteen months I have met, in private practice alone, nine well marked and unquestionable cases, and with several more in which I could not satisfy myself as to the exact limit of the disease. The lining membrane of body and cervix may be simultaneously affected, but this is the exception and not the rule; generally we find one or other portion of the organ the seat of disease. In making this last assertion I am fully aware of its importance, and of the fact that it will be dissented from by a great many. But feeling convinced, as I do, that upon its non-recognition depends a certain amount of the obscurity attending the differentiation of metritis of the neck and body, I wish to fix the attention of the reader upon it.

Normal Anatomy.—If the mucous membrane of the uterus be examined by a lens, it will be seen to be studded with minute openings somewhat similar to the mouths of the glands of Lieberkühn in the intestines. These are the mouths of long, curling follicles which project by their closed extremities downwards towards the parenchyma of the organ. They are lined by delicate epithelium, and are supposed to secrete mucus in the non-pregnant state. During pregnancy they become excessively active, and undergo great hypertrophy.

Pathology.—Corporeal endometritis is, like the same affection

in the cervix, a glandular disease. The utricular follicles are the seat of the disorder, and it is to the exaggeration of their secretory functions that is due the uterine leucorrhœa, which constitutes one of its prominent symptoms.

Causes.—These may be enumerated as follows:—

Exposure during menstruation;
Sudden checking of the menstrual flow;
Obstruction to escape of menstrual blood;
Abortion and parturition;
Inflammation of the cervix;
Acute corporeal metritis or endometritis;
Sexual intercourse;
Injury from sounds, intra-uterine pessaries, and injuries resulting from attempts to produce abortion;
Certain hæmic conditions, as those accompanying phthisis and exanthematous diseases;
Tumors in the uterine cavity or walls.

It is quite clear how either of the first two causes, in checking hemorrhage from the congested mucous lining of the uterine body, may at once induce the first stage of this disease. They generally result in the acute variety, which may rapidly pass off, but which sometimes ends in the chronic form.

Obstruction to escape of menstrual blood is a very fruitful source of the affection. The menstrual blood, if it pour at once into the vagina, remains fluid from admixture of an acid mucus secreted by the lining membrane of that canal; but if it be imprisoned in the uterine cavity, where only an alkaline mucus exists, it very soon becomes clotted. These clots are, of course, too large to pass through a cervix of normal dimensions, much more so to escape from one unnaturally constricted. Their presence in the uterine cavity, together with that of blood which they imprison, in time excites contraction, by which they are expelled. But this repeated dilatation and contraction cannot last long without exciting inflammation in the mucous lining either of the body, the cervix, or of both. Such an obstruction may have as its cause a small polypus, which acts as a ball valve at the os internum, congenital or acquired narrowness of the cervical canal, uterine flexion, or swelling of the cervical lining from congestion.

The parturient process is a very frequent source of the disease,

especially where the unripe placenta is prematurely separated from its uterine connection. Where, as in a prolonged labor, the early evacuation of the liquor amnii leaves the irregular outline of the body of the child pressing against the uterine investment for many hours, such a sequel is not astonishing.

Of cervical inflammation Dr. Bennet[1] thus expresses himself: "It" (*i. e.*, corporeal endometritis) "appears, however, to be generally met with in practice as the result of the lengthened existence of inflammatory disease of the cervix and its cavities. The inflammation gradually progresses along the cavity of the cervix until it reaches the os internum, and passes into the uterus." I have already stated my dissent from this view, although, at the same time, I admit that it sometimes holds true.

Acute metritis may, instead of subsiding entirely, very naturally run into this disease.

The effect of sexual intercourse as a causative influence is frequently observed soon after marriage, the first connubial approaches exciting uterine congestion with greater or less intensity. Dr. Tilt[2] remarks, with reference to it: "It is useless to disguise the fact, connection has a downright poisonous influence on the generative organs of some women." I cannot believe that the Almighty has ordained a function as essential to the perpetuation of our species which has a downright poisonous influence on the generative organs of a healthy woman. And yet, to a certain extent, the statement is correct, for upon a woman who has enfeebled her system by habits of indolence and luxury, pressed her uterus entirely out of its normal place, and perhaps goes to the nuptial bed with some lurking uterine disorder, the result of imprudence at menstrual epochs, sexual intercourse has indeed such an influence. The taking of food into the stomach exerts no poisonous influence on the digestive system, but the taking of food by a dyspeptic who has abused and injured that organ, does so.

Injuries from sounds, &c., act so evidently in exciting inflammation as to need only mention.

Certain conditions of the blood sometimes produce acute corporeal endometritis, which, as already stated, may pass into that form under consideration. As a complication of the exanthema-

[1] Op. cit., p. 75.

[2] Op. cit., p. 234.

tous diseases endometritis is well known, and its occurrence with phthisis has been noted by Dr. Gardner in the American edition of Scanzoni. Every practitioner must have noticed it in connection with that affection.

Tumors in the cavity or walls of the uterus very generally produce this disease in consequence of the congestion of the mucous membrane which they cause.

Symptoms.—The symptomatology of corporeal endometritis constitutes one of the most unsatisfactory and obscure subjects in the entire field of Gynecology. At times its symptoms are so slight and at others so masked and obscure that the disease often runs a lengthy course without exciting the suspicions of either physician or patient. Its effects upon the constitution also differ most unaccountably in different cases. Sometimes the disease will continue for ten, fifteen, or twenty years, producing profuse leucorrhœa, menstrual disorders, and nervous derangement, and yet result in no annoyance so grave as to cause the patient to seek medical aid. At others it passes rapidly into disease of the superficial parenchyma, which induces displacement and causes great pain on locomotion, sexual intercourse, and the passage of feces through the rectum; or results in an ichorous discharge, which creates the most annoying symptoms of vaginitis, cystitis, or pruritus vulvæ. The chief symptoms which usually present themselves in a case of uncomplicated mucous metritis of the uterine body are—

Leucorrhœa;
Menstrual disorders;
Pain in the back, groins, and hypogastrium;
Nervous disorders;
Tympanites;
Symptoms of pregnancy;
Sterility.

Profuse leucorrhœa of glairy character is one of the chief signs of the affection. This, when very tenacious and thick, is the product of the Nabothian glands, but the lining membrane of the uterus likewise secretes a similar fluid, differing from it chiefly in possessing the qualities mentioned, in a very much less marked degree. But uterine leucorrhœa differs from cervical in other particulars; it is often more or less mixed with blood so as to have a rust-colored appearance, especially for a fortnight after

menstruation. This, Dr. Bennet[1] looks upon as being "as characteristic of internal metritis as the rust-colored expectoration is of pneumonia." I have never seen it in endometritis unless the parenchyma were somewhat involved. At times the discharge is milky, and at others, and these are the most rebellious cases, perfectly purulent. There is a variety of corporeal endometritis which occurs in old women who have long since ceased to menstruate in which a watery or creamy pus is secreted. These cases are often accompanied by the most wearing and harassing pruritus vulvæ, and always, according to my experience, prove susceptible only of palliation, cure being beyond medical means at present known.

Menstrual disorders are rarely absent. The discharge is sometimes too profuse, even lasting throughout the month and constituting metrorrhagia, or it is very scanty, and shows a marked tendency to cessation.

Where the parenchyma is entirely unaffected, menorrhagia may occur without pain, but this is not common, for that tissue is frequently involved and dysmenorrhœa coexists. Sometimes in these cases, an exfoliation of the entire lining membrane of the cavity of the uterine body occurs at the menstrual periods. This has received the name of the dysmenorrhœal membrane, and may generally be regarded as one of the signs of chronic corporeal endometritis.

Pain in the back, groins, and hypogastrium is rarely absent, and at times a burning sensation over the symphysis pubis proves a source of great discomfort.

Nervous symptoms in greater or less severity generally show themselves before the disease has lasted long. The patient complains of neuralgic headache, especially over the crown, hysterical symptoms, with sadness, tendency to weep, and a feeling of intense isolation and incapacity for any mental effort.

Meteorism is a very common symptom, the connection of which with inflammation of the uterine mucous membrane is not, at first glance, clear. It is probably due to disorder of the nervous influences governing peristalsis and giving tone to the intestinal muscular tissue, which proceeds to such an extent as to result in accumulation of gases in the canal. In the same way it may induce

[1] Op. cit., p. 76.

constipation, which is often one of its most obstinate accompaniments.

Symptoms of pregnancy often exist in connection with the disease, and sometimes mislead the physician. Nausea and vomiting are by no means invariably present, but are valuable as positive signs. They appear to result from this disease as they do from occupation of the uterine cavity by the product of conception. Sometimes, in addition to these, there are darkening of the areolæ of the breasts, and enlargement and sensitiveness of the mammary glands. When to these are added abdominal enlargement, from tympanites and irregularity of menstruation, it will be perceived how easily an error might be made.

Sterility is so commonly a result of endometritis that it should be considered as one of its signs. Very often it has been the only symptom that has led to an investigation of the state of the uterus which has determined the existence of the disease. The affection does not, however, preclude the possibility of conception; it only diminishes the probability.

Physical Signs.—The physical signs are neither numerous nor reliable, and those of real value only will be mentioned. The uterine probe passed into the cavity will often show the length of the uterus to be greater than it would be in health. The mucous lining being gently struck by the probe, pain will be at once complained of, and a few drops of blood with mucus will follow its withdrawal from the cavity. Upon conjoined manipulation, two fingers being placed in the fornix vaginæ, or one behind the uterus in the rectum, and the fingers of the other hand made to depress the anterior wall of the abdomen, sensitiveness will be found in the body of the organ. The recognition of the absence of cervical disease, while at the same time there are profuse uterine leucorrhœa and the other symptoms recorded, will lead us strongly to suspect it. Lastly, dilatation of the os internum, with or without that of the external os, may be taken as a corroborative sign.

Course, Duration, and Termination.—It is very doubtful whether this affection, like that of the cervix, is susceptible of spontaneous cure, or eradication by constitutional means alone. It may be palliated by alterative and tonic influences, diminished in severity and relieved of complications by constitutional means, but I have never seen a case thus cured. If not cured, the tend-

ency of the mucous inflammation is to excite parenchymatous disease and thus to induce uterine displacements with their attendant evils. The duration of the disease is unlimited, twenty and thirty years often elapsing without its removal. It is astonishing to see how long the affection will remain confined, in some cases, entirely to the mucous membrane and not affect the parenchyma to any appreciable degree, but that it does affect it in exceptional cases, even in the virgin, I feel satisfied is true.

Pathology.—I have had three opportunities for examining post-mortem into the pathology of this disease, uncomplicated by parenchymatous or other attendant disorder. Two of these cases were presented to the Obstetrical Society of this city. In these instances the condition described by Scanzoni was most evident. The uterine cavity was found considerably enlarged, its walls diminished in thickness, and in one instance they were pronounced by Dr. J. B. Reynolds, after microscopical examination, to be in a state of fatty degeneration. The uterine neck was in every case found healthy both as to parenchymatous and mucous structure, and the enlarged body displaced by anterior or posterior flexure. The mucous lining of the body was in two cases quite smooth and to a great extent deprived of epithelium, while in the third it was roughened, and presented points where the enlarged blood-vessels created a number of reddish spots. But enlargement of the uterine cavity is not always present; it marks chronic cases, and will not be recognized in those of recent origin. It is highly probable, too, that in cases of recent origin the pathological appearances which have been here described would not be found to exist, but in place of them a thickened, congested, and florid appearance would present itself.

Prognosis.—The prognosis of chronic inflammation of the uterine body is always grave with reference to cure. Even if the case is not of very serious character, and has lasted only a short time, the possibility of rapid recovery is doubtful, while, if it has continued for a number of years it will often prove incurable. Scanzoni[1] says, with a candor which does him honor: "As for ourselves we do not remember a single case where we have been able to cure an abundant uterine leucorrhœa of several years' standing." In most cases a certain amount of amelioration may be effected

[1] Scanzoni, Diseases of Females, Am. ed., p. 202.

even when they are of long standing; in a certain number treated early, cure may unquestionably be accomplished; while in a great many nothing whatever, either in the way of cure or of relief, can be obtained, and the patient, after passing from physician to physician, settles down into a careful mode of life, resolved to cease treatment and bear as best she may an evil which she has learned to regard as incurable.

The symptoms of a hopeful and desperate case of corporeal endometritis may be thus contrasted:—

Prognosis is Favorable when	Prognosis is Unfavorable when
The case is of recent standing;	The case is of long standing;
The discharge is mucus or blood;	The discharge is purulent;
Dysmenorrhœal shreds are not cast off;	Dysmenorrhœal shreds are cast off;
Patient naturally of strong constitution;	Patient naturally of feeble constitution;
Parenchyma is not affected;	Parenchyma is affected;
No displacement exists;	Displacement exists;
Dimensions of cavity are not increased;	Dimensions of cavity are increased;
Discharge does not produce vaginitis;	Discharge produces vaginitis;
Nervous system is not involved;	Nervous system is involved;
Patient near menopause.	Patient not near menopause.

Complications.—The complications of the disease are cystitis, vaginitis, rectitis, ovaritis, corporeal metritis, cellulitis, and pelvic peritonitis.

Treatment.—Special attention should be given to sustaining and improving the general health of the patient, which will always show a marked tendency to depreciation. Good diet, fresh air, systematic exercise, and avoidance of all circumstances calculated to depress the spirits or harass the mind should be recommended. If practicable, change of air and scene should be brought to our aid, and the patient sent occasionally to some suitable watering-place or country resort. The healthy condition of the nervous and sanguineous systems will be fostered by these measures, and should medicinal tonics be required, iron, the mineral acids, quinine, the bromide of potassium, or nux vomica may be administered. All condiments, as spices, and aromatics, should be avoided, and the patient should be guarded against habits of indolence and luxury which tend to exhaust the nervous strength.

The uterus should be placed at rest by removal of pressure upon the fundus by clothing, cessation of marital intercourse, and avoidance of violent and intemperate exercise.

The part affected being removed from the vagina on the one

hand, and the pelvic and abdominal walls on the other, little advantage results from the emollient applications and depletory means which prove so useful where the cervix is diseased. Our chief hope of affording relief must rest upon the general means just mentioned, and upon the direct application to the diseased surface of alterative remedies.

Medicated Tents.—I know of no plan which promises better results than the use of sponge tents, medicated as advised on page 230 when they can be borne. These are passed completely up to the fundus uteri and allowed to remain for twenty-four hours, when, by a thread attached to them, the patient may remove them without difficulty. Tents medicated with iron, iodine, zinc, potassium, or copper, may be employed once a week with great advantage. Not only does the medicinal substance come fully in contact with the uterine walls, but the pressure exerted by the expanding sponge likewise proves beneficial.

Application of Alteratives.—Récamier was the first who had the boldness to cauterize the cavity of the uterus, which he did by means of nitrate of silver in an ordinary porte-caustique. The practice thus introduced was continued and spread abroad by Robert, Richet, Trousseau, Maisonneuve, and others, and to-day is esteemed one of our most reliable methods for combating this rebellious affection. There are four methods by which it may be practised: 1st, by the use of solutions painted over the surface; 2d, by ointments left to melt in utero; 3d, by injections of fluids into the cavity of the body; 4th, by solid caustics. In commencing treatment the practitioner should see that the cervical canal is well opened in order to admit the free escape of fluids from the cavity above, and the application of substances through it from below. This perviousness, should it not exist, should be secured by the use of tents before the local treatment is proceeded with. If the uterus be found sensitive to vaginal and rectal touch the patient should remain in bed for some days before the first application is made, the bowels be kept active by mild saline purgatives, and warm baths or hip-baths with copious vaginal injections employed. If the operator use the ordinary long, cylindrical speculum, he will in the majority of cases fail to accomplish the end in view, reaching the fundus uteri, for through such an instrument, it is always difficult and dangerous to penetrate so high into the cavity. If, however, he use the Sims speculum,

or one of its modifications, or the short, telescopic, cylindrical instrument, he will succeed without effort or delay. The instrument being introduced and the cervix cleansed by the speculum syringe, the operator very gently passes to the fundus Sims's uterine probe and learns the exact course of the canal. Then, placing the flat dressing probe by the side of this, he gives it the exact curve he has ascertained to be that of the uterine canal, and wrapping it with a thin film of cotton passes it to the fundus. This removes a good deal of mucus from the cavity which would otherwise have neutralized the caustic introduced. Removing the cotton from the probe he wraps another piece around it, or, as is better, uses another probe already wrapped, and, dipping this into the fluid caustic which he has determined to use, he passes it directly to the fundus and keeps it still for from thirty seconds to a minute. This should not be repeated, for the astringent action of the caustic makes repetition difficult, and if properly done the first time it will be unnecessary. After this the patient should go to bed and remain perfectly quiet, for three or four days if a strong caustic have been used, for one or two days if a mild one has been employed.

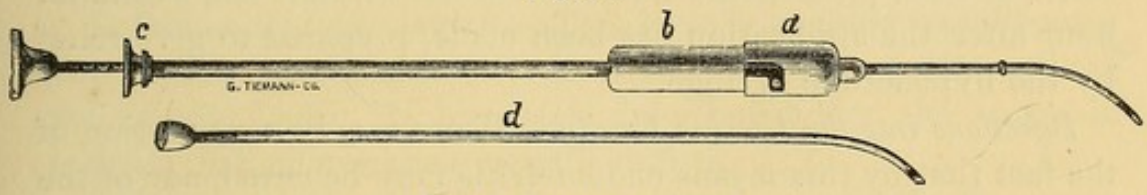
The caustics which may be thus employed are:—

Solution of chromic acid ʒj to ℥j water;
Solution of nitrate of silver ℈j or ʒss to ℥j water;
Churchill's tincture of iodine ℥ss to ℥j glycerine;
Saturated solution of sulphate of zinc;
Saturated solution of sulphate of copper;
U. S. D. solution persulphate or perchloride of iron;
Solution of chloride of zinc ʒj to ℥j water;
U. S. D. muriate tincture of iron ʒij to ℥j water.

It is evident that by the admixture of water, or glycerine, which is better, these may be weakened to any extent desired. Should the saturated solution of strong caustics, like chromic acid, be employed, let the practitioner be sure that there is no excitement about the uterus at the time the application is made, that not one superfluous drop is left upon the cotton, and that the patient remain perfectly quiet after the application. No one, unless familiar with the practice, should resort, at first, to strong caustics, but make use of one of the milder ones until he acquires the requisite skill. This method of employing fluid caustics is that introduced into the Woman's Hospital in this city, by Drs. Sims and Emmet, and surpasses any other with which I am familiar.

Use of Ointments.—The use of ointments is proceeded with in much the same manner, except that a different instrument is, of course, necessary for their introduction. That which answers the purpose best is the invention of Dr. F. D. Lente. It consists of a syringe with a silver tube attached as represented in Fig. 95. The ointment to be employed is put into the syringe by a spatula,

Fig. 95.



Lente's ointment syringe.

and the tube being introduced into the uterine cavity the piston is pushed forward and the ointment is forced out. The following are the ointments which are generally thus employed, though any others—as lead, bismuth, calomel, iodine, &c.—might be substituted:—

℞.—Argenti nitratis, ʒij;
Belladonnæ ext., ʒj;
Ungt. spermaceti, ℈ij.—M.

℞.—Plumbi acet., ʒij;
Morph. sulphat., gr. iv;
Butyr. cacao, ℥ss;
Ol. olivæ, q. s.—M.

The Application of Solid Caustic to the Cavity of the Uterus.—The only caustic which should ever be thus employed is the nitrate of silver, for although one author has advised a similar use of potassa cum calce, no one of whom I have heard has followed his counsel. The use even of lunar caustic gives such great pain and causes such grave constitutional symptoms that it never can become a popular therapeutical resource. It is, however, of great value in obstinate cases, and should always be held in reserve. Sometimes the severest uterine colic is produced by it, with nausea, vomiting, and great prostration. So violent have these symptoms been in some cases that I have been forced to use the hypodermic syringe freely for their relief, and now often employ it before resorting to the method. By Lente's probe the cauterization is accomplished in an easy and effectual manner not attainable by any other method. The nitrate being fused in the little instrument of platinum, repre-

sented on page 230, and the tip of the probe coated, the direction of the uterine cavity having been previously ascertained by Sims's probe, it is properly curved and passed in. By it every part of the uterine mucous membrane is thoroughly touched, the probe being kept within the cavity until its envelope has melted off. This application should always be treated as an operation. The patient should be warned of the pain which she will be likely to suffer and the practitioner remain with her or visit her within an hour after the application has been made, prepared to give relief by the hypodermic syringe.

Injections into the Uterine Cavity.—There can be no question of the fact that by this means endometritis may be cured, nor of the additional fact that it may be used a great many times without injurious results. But it is ordinarily attended by great danger, and no one, not even he who has the largest experience, can tell when a fatal issue may ensue from it. The fluid thrown into the uterus is liable to pass through the Fallopian tubes into the peritoneal cavity and produce the most alarming collapse, or peritonitis and death. The literature of the subject contains a number of cases in which death has thus resulted. It has been found, however, that if the cervical canal be dilated by tents so as to allow of the escape of fluids from the cavity of the body, these dangers disappear to a great degree, and by anticipating the injections by such means we may cautiously avail ourselves of them. The substances which may be thus used are persulphate of iron, tincture of iodine, weak solutions of nitrate of silver, sulphate of zinc, sulphate of copper, &c. The method for employing uterine injections is very simple. A long-necked syringe, charged with the substance to be used, should be passed into the cervix through the os internum and the fluid very slowly and gently expelled; or a small syringe may be fitted by its nozzle into a gum-elastic catheter, the extremity of which is passed into the uterine cavity and the fluid slowly discharged.

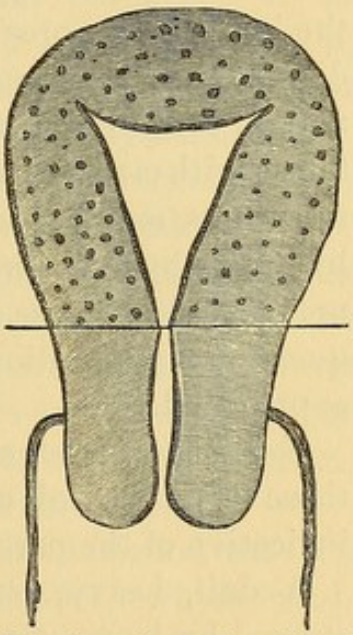
The use of the curette in the treatment of corporeal endometritis is generally mentioned in works upon this subject, but the curette is not really used for this disease. It is employed to remove one of its results which produces metrorrhagia, for the checking of which it is most commonly resorted to. I allude to papillary hypertrophy of the uterine mucous membrane.

CHAPTER XVIII.

CHRONIC CORPOREAL METRITIS.

Definition and Synonymes.—This term is applied to inflammation of the parenchymatous structure making up the walls of the uterine body. It has been described under the names of metritis, parenchymatous metritis, inflammatory engorgement and hypertrophy of the uterus.

Fig. 96.



The dots show the site of corporeal metritis.

Frequency.—This part of the uterus, as already stated, is not so frequently affected by inflammation as the corresponding tissue of the cervix. Still it is by no means unfrequently diseased. A large number of cases of incurable uterine disorders occurring as a remote result of parturition is really of this nature, and the displacements, rebellious leucorrhœa, and other concomitant evils which characterize them are merely symptoms of the parenchymatous affection. An important fact connected with this state is one to which attention has been drawn by Dr. E. R. Peaslee. It is that where inflammatory hypertrophy of the areolar tissue exists as the chief element of metritis, temporary or transient attacks of active congestion frequently occur and excite acute symptoms from time to time. These pass away, leaving the basis of the affection in its original state, soon to return with all the symptoms of relapse. And thus a series of short but severe exacerbations go on developing themselves in the ordinary course of an attack of the disorder.

Causes.—Parturition or abortion;
Sub-involution;
Cervical metritis;
Displacements;
Corporeal endometritis.

In the vast majority of cases the disease results from some disorder occurring subsequent to pregnancy. The puerperal state may be said to be the great predisposing cause of this condition, which is met with very rarely under other circumstances. It may be that upon the exuberant state of the uterine areolar tissue produced by pregnancy, a low grade of metritis has been engrafted, or that an arrest in the physiological absorption of the uterus has occurred. In either case the affection which we are considering is likely to be the result. It is sometimes, though not often, the result of inflammation of the mucous lining, and hence anything which directly excites endometritis may possibly produce it indirectly. Cervical metritis may likewise pass upwards and affect by contiguity of structure the parencyhma of the body. Corporeal metritis when found existing with uterine displacement is usually the cause of the latter condition, but it may in certain rare cases result from a displacement which, interfering with circulation in the uterus and causing a congestion of its structures, may produce a low grade of chronic inflammation and hypertrophy of the areolar tissue. Although all these influences must be admitted as occasionally productive of metritis, the frequency of parturition as the great moving cause must be fully appreciated.

Symptoms.—The symptoms generally resemble very closely those of corporeal endometritis. The following are especially indicative of the parenchymatous affection.

A dull, heavy, dragging pain through the pelvis, much increased by locomotion;

Pain on defecation and coition;

Pain of severe character beginning several days before menstruation, and lasting during that process;

Pain in the mammæ, before and during menstruation;

Darkening of the areolæ of the breasts;

Nausea and vomiting;

Great nervous disturbance;

Pressure on the rectum with tenesmus and hæmorrhoids;

Pressure on the bladder with vesical tenesmus.

I would not convey the impression that these symptoms are distinct from those of corporeal endometritis, and that none of them occur with it. As already stated, the symptoms of the two affections are interwoven so frequently, and to such a degree,

that they cannot be completely separated. Where, however, the mucous affection has lasted long, and the parenchyma becomes diseased, the symptoms just detailed superadd themselves to those before existing.

Physical Signs.—If two fingers be carried into the vagina and placed in front of the cervix so as to lift the bladder and press against the uterus, while the tips of the fingers of the other hand be made to depress the abdominal walls, the body of the uterus will, unless the woman be very fat, be distinctly felt, should the organ be anteflexed. Should it not be detected, let the two fingers in the vagina be now carried behind the cervix into the fornix vaginæ, and the effort repeated; if the uterus be retroflexed or retroverted, or even in its normal place, it will be detected at once. By these means we may not only learn the size and shape of the organ, but its degree of sensitiveness. This may likewise be accomplished to a certain extent by rectal touch. The uterine probe should then be introduced, the cavity measured, and the sensitiveness of the walls carefully ascertained.

Course, Duration, and Termination.—Unlike inflammation in other parenchymatous structures, inflammation in that of the uterus does not tend to suppuration. Usually the organ becomes enlarged and displaced, and remains in this condition until the menopause; or absorption of the exuberant tissue takes place, and it returns to its natural size or becomes atrophied.

Pathology.—Most pathologists agree in the assertion that the affection consists in congestion of the parenchyma, which is followed by an effusion of liquor sanguinis into its tissue. Duparcque[1] maintains that the muscular fibres are separated by a fibro-albuminous material, which may be forced out by pressure or scratching, and that it is this material which, subsequently contracting, strangulates the vessels that it surrounds, and produces atrophy. Scanzoni[2] declares that there is an "hypertrophy of the cellular tissue," which results from organization of the material effused; and this view is adopted by Klob and others of the German school.

Differentiation.—The diseases with which it may be confounded are:—

[1] Mal. de la Matrice, p. 244.

[2] Op. cit., p. 181.

Corporeal endometritis;
Cervical metritis;
Pregnancy;
Neoplasms;
Perimetritis.

From all a most careful differentiation should be made; for if in error, the practitioner would not only surely fail in giving relief, but might do great injury. For example, an examination by the probe might produce abortion, or so aggravate perimetritis as to cause serious and alarming consequences. The introduction of the probe or sound should, for this reason, be practised with great caution, and only when good reason exists for supposing pregnancy and perimetritis absent.

For distinguishing this disease from cervical metritis the following will be the means upon which we must rely. We will suppose that we are dealing with a complicated case in which both tissues, mucous and parenchymatous, are affected, and not with one of those in which the parenchyma alone is diseased.

Corporeal Metritis and Endometritis.	Cervical Metritis and Endometritis.
Glairy, purulent, and bloody leucorrhœa;	Glairy and very tenacious leucorrhœa, perhaps streaked with blood;
Tympanites, often marked;	None;
Uterine tenesmus;	None;
Nausea and vomiting;	Not common;
Dysmenorrhœa severe, days before flow;	Not severe;
Nervous symptoms grave, despondency and sleeplessness present;	Not so grave, no sleeplessness nor great despondency;
Tendency to exfoliation of mucous lining;	None;
Mammæ painful at epochs;	Not so;
Areolæ darkened;	Not so;
Size of cavity often increased;	Not so;
Probe gives pain and a few drops of blood;	Does not;
Conjoined manipulation shows sensitiveness of body.	Does not.

Between pregnancy and commencing corporeal metritis, which is very apt to become aggravated under the influences of matrimony, there is a chance of error in diagnosis; for in both there are enlargement of the breasts, darkening of the areolæ, enlargement of the uterus, derangement of the nervous system, and nausea and vomiting. In the one, however, menstruation does not cease, there is no kiesteine in the urine, there is great sensitiveness of the body of the uterus, and an abundant leucorrhœa.

Dr. Tilt has drawn especial attention to this important fact: "When most of the symptoms of early pregnancy are present," says he, "without menstruation being suspended, in comparatively young women, internal metritis may be suspected."

Neoplasms or fibrous growths in the uterine walls will sometimes, from the peculiar symmetry of their development, completely mislead us, giving uterine enlargement, leucorrhœa of bloody character, &c. &c. I have now in my possession a uterus in the anterior wall of which a fibrous tumor, equal in size to a goose's egg, gives upon superficial examination all the appearances of engorgement of uterine tissue with anteflexion and endometritis. The only way in which a diagnosis could be made under such circumstances would be by the proper use of the uterine sound, and carefully studying the individual case by means of this and conjoined manipulation.

Perimetritis, unless accompanied by endometritis, is unattended by leucorrhœa, and by it the uterus is rendered immovable. The uterine probe, if employed in such a case, should be used with great caution, and would show no sensitiveness of the uterine walls and no increase in the dimensions of the cavity of the uterus.

Prognosis.—The prognosis is unfavorable with regard to cure, though highly favorable with reference to danger to life. Should the patient be approaching the menopause, hope may be held out that after the functions of the uterus cease, atrophy may occur and relief be obtained. But one cannot be sure even of this, for the monthly discharge may give place to metrorrhagia, or all the symptoms of metritis may continue in spite of the menstrual cessation.

Treatment.—No one, in the present state of uterine pathology and therapeutics, can write very positively upon this subject for it really constitutes one of the opprobria of Gynecology. The rules laid down for the treatment of parenchymatous disease below the os internum will disappoint us here. We cannot from the same means expect the same favorable results. The therapeutic resources which were recommended for cervical inflammation were these:—

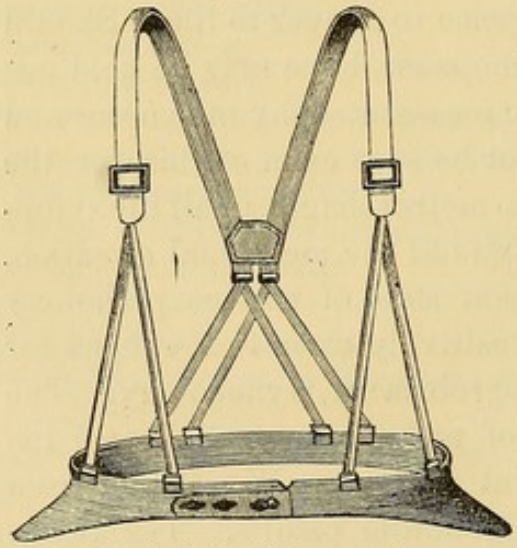
Rest;
General regimen;
Depletion;
Emollients;
Alteratives;
Counter-irritants.

Unfortunately in corporeal inflammation they often all fail to accomplish a good result. Nevertheless, since some cases are relieved by them, and a smaller number cured, it is our duty to essay them cautiously—so cautiously as to feel assured that if we accomplish no good, at least we shall do no evil.

Rest.—It is not only useless but injurious, in a disease which will probably last for many months and perhaps years, to confine a patient to bed, for her general health will almost surely suffer if such a course be persisted in. She should be required to lie down for the greater part of the day while treatment is being instituted, and to remain quiet during menstruation, and for some days after applications have been made to the diseased part, but every day she should go, unless deterred by some such cause, into the open air, and a limited amount of exercise should be inculcated as a means of keeping up the general health.

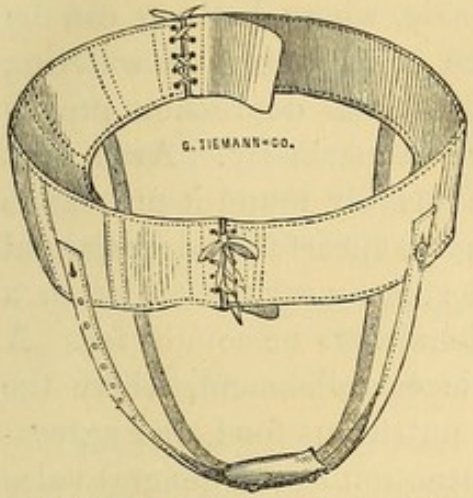
The uterus should be placed at rest as much as possible. Its natural tendency under these circumstances is to fall from its position, consequently all pressure should be removed from its fundus by the use of skirt supporters and a well-fitting abdominal bandage. Fig. 97 represents a very excellent skirt supporter, which has been patented by Mr. Bacheller. Abdominal bandages are very unpopular with many practitioners, who believe that they absolutely do harm. I believe otherwise, and regard them as great adjuvants, not in keeping up the uterus, but in supporting the super-imposed viscera which, pressed downwards by tight clothing, and badly supported on account of the relaxation of the abdominal walls, fall directly upon the fundus. There are a great variety of abdominal supporters. I have no favorite, for one will accomplish the end in a woman of a certain figure which would be inappropriate for another. Some very simple and efficient supporters, which will answer the purpose in all but emaciated patients, are presented in the accompanying diagrams:—

Fig. 97.



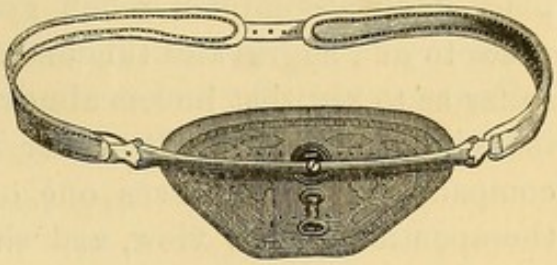
Bacheller's skirt supporter.

Fig. 98.



Abdominal supporter of jean or silk.

Fig. 99.



Abdominal supporter in which the pad covers the hypogastrium.

Two additional patterns are depicted in Chapter IX., upon prolapse of the vagina. That one should be selected which absolutely accomplishes the end in view, namely, sustaining the viscera and supplementing the weakened muscles of the abdomen. In addition to these means of procuring rest for the uterus, the patient should, as far as possible, lead a life of celibacy.

After displacement has occurred, and even before it has done so, great benefit may often be obtained from support rendered by means of a light and well-fitting pessary, the elastic ring of Tiemann & Co., the accommodating lever of Scattergood, or the supporter of Cutter, for example. In some cases the benefit derived from these instruments will be the chief, perhaps the only relief which we can bestow, and even where we cannot cure the disease we may by their use render life much more agreeable by the alleviation of discomfort.

General Regimen.—The diet should be plain and unstimulating, but at the same time nutritious, and in every way calculated to maintain the normal state of the blood. Should spanæmia exist, ferruginous tonics, alone or combined with vegetable tonics, should be administered. The bowels should be kept in a perfectly healthy state, and the skin active. Specific remedies have been, and are still, employed by some practitioners for stimulating absorption of redundant tissue. Foremost amongst these are the iodide or bromide of potassium, iodine and preparations of mercury. Their efficacy is doubtful, although many excellent practitioners rely upon them with confidence.

No other general means compares in results with a change of

abode and corresponding change of air, habits, and associations. A removal, for example, to the sea-side, where bathing can be enjoyed, a sea voyage, or a residence at an agreeable watering place, may accomplish much good. Mental depression predisposes to and aggravates this disease most markedly. Aran goes so far as to say that he has almost invariably found it present as inducing the disease. However this be, cheerful and congenial company certainly proves one of the best nervous tonics in a therapeutic point of view, and should always be sought for. A stay in a well-regulated hydropathic establishment, where the patient can have pure air, plain and nutritious food, and agreeable society, together with the strict attention to the general rules of hygiene which characterizes those institutions, will often produce the best effects.

Depletion, upon theoretical grounds, should be followed by most excellent results in corporeal uterine inflammation, and yet it is not so. So decided is my experience upon this point that I cannot but believe that that of others must be similar to it. As Nonat has pointed out, in cervical inflammation local depletion is productive of good results, for which we look in vain in corporeal disease. I have yet to meet with a case of corporeal metritis uncomplicated, be it understood, with cervical disease, which has been materially benefited by the most methodical and systematic local abstraction of blood, unless amenorrhœa was a symptom. In case this be so, a copious abstraction by leeches, during the menstrual epoch, will sometimes give relief. At times the leeches then applied will give great pain by their bites, under which circumstances they should at the next period be applied to the perineum. The pain from the bite of leeches applied to the cervix, is sometimes so severe as to lead to the apprehension that one has escaped into the cavity; hence it is important that they should be counted before being placed in the speculum, and on their removal from it.

Emollients, which, applied externally, are so useful in acute metritis, and by the vagina so beneficial in chronic cervical inflammation, accomplish very little here. For purposes of cleanliness and relief of pelvic pains, copious vaginal injections should be employed; sedative suppositories may also be brought into requisition for the latter of these purposes, and either entire or hip

baths be prescribed; but further than this I do not believe that we can go with advantage.

Alteratives.—Alterative remedies of a general character, as the iodide or bromide of potassium, should always be given a full trial, care being observed not to persist in their employment so long as to impair the tone of the stomach. Sometimes the following prescription appears to be of benefit:—

℞.—Tr. cinchonæ comp. ℥v;
Hydrarg. bichloridi, gr. j.—M.

A dessertspoonful in a claret glassful of water, three times a day.

Should the affection have engrafted itself upon sub-involution, and metrorrhagia or menorrhagia exist together with enlargement of the uterine cavity, ergot, in moderate doses, may be administered for several months, in the hope of stimulating contraction and absorption. Of the effects of all these drugs I am forced to speak very guardedly, for my experience does not enable me to express decided confidence in their efficacy.

European writers speak in high terms of the alterative influence of the various watering places and baths of the Continent, as those of Marienbad, Schwalbach, Brücknau, and Kissingen in Germany, and of Saint Sauveur, Barèges, &c., in Switzerland. None of these equal in reputation the waters of Kreuznach in Germany, the curative property of which is supposed to depend upon the bromide of magnesium which they contain. It is very probable that the hygienic and social influences which surround these places and render them attractive, are to be credited with all the good that they do. Aran, after admitting that the water of Vichy *may* exert some influence, thus pointedly expresses himself with reference to the others: "Whatever be their composition, in whatever countries they may be found, I know of no work in which we can find the approximation to a demonstration in their favor."

In a very limited number of cases the cavity of the uterus will be found so tolerant of applications, and even of the presence of foreign substances, that alteratives of local character may be employed with safety, but in the majority of cases such means are attended by danger, and are impracticable. The practitioner must, after careful experimentation, determine as to whether they should be resorted to or not, and they should never be used with-

out the fact that they are capable of setting up a train of dangerous symptoms, being kept constantly before the mind. When the case is one admitting their use, local alteratives unquestionably accomplish good in this disease. They may be employed in two methods; the os may be fully dilated by tents once every fortnight, and the entire uterine cavity painted over with pure tincture of iodine or a strong solution of the iodide of potassium; or the drug employed may be brought into contact with the walls of the uterus by means of medicated tents. Sponges cut into proper shape for tents, having been soaked for a week or more in a strong solution of the bromide or iodide of potassium, or in the tincture of iodine, are moistened in a solution of gum acacia and wrapped in the ordinary way. One of these is passed to the fundus of the uterus at intervals of from ten to fourteen days, and allowed to remain in position, should it not create disturbance, for twenty-four hours. By this means not only do we avail ourselves of the alterative influence of the drug, which is kept for hours in contact with the absorbing surface of the uterus, but we also obtain that which is due to pressure by the expanding tent.

Counter-irritation.—Counter-irritation by means of blisters, issues, setons, &c., has long been practised on the abdominal walls for this affection, and is now regarded with much confidence by many Gynecologists. In some cases it is at once productive of great benefit, while in others it produces none whatever. The difference of action depends upon the existence or non-existence of peri-uterine inflammation. Should peri-uterine cellulitis or peritonitis exist as a complication of metritis, the beneficial effects of counter-irritation will usually be marked, while if they be absent, the remedy will be fruitless. In employing this means, the practitioner should bear in mind that it is appropriate in the treatment of a complication, and not of the original affection.

There is only one method by which in pure corporeal metritis counter-irritation can be employed with advantage. It is this: Sims's speculum being introduced, and the uterus fixed by a tenaculum fastened in the cervix, the whole external surface of the neck, together with the surrounding vagina, is painted freely with Churchill's strong tincture of iodine. This may be repeated once a week for a length of time, care being observed not to allow a surplus of the fluid to pour over and inflame the vulva. This

method of application, which I learned from Prof. Fordyce Barker, is beneficial in a certain class of cases—those in which dragging of the uterus upon the utero-sacral ligaments gives pain in the hollow of the sacrum. It is probably by relieving inflammation in these structures, and not in the uterus itself, that it proves useful.

CHAPTER XIX.

ULCERATION OF THE OS AND CERVIX UTERI.

This subject has given rise to a vast deal of discussion and acrimonious dispute among Gynecologists, of late years; some declaring that it is one of the most frequent of uterine disorders, while others have asserted, with equal positiveness, that it is of extreme rarity. Some have met with it in practice as a lesion of daily occurrence, while others of most extensive experience have never seen it, except of specific character. It must be evident that this discrepancy could not have existed in the facts with which the observers dealt, and equally probable that it must have been technical, a mere difference of statement due to disagreement with regard to nomenclature. Those who denied to a peculiar granular degeneration of the part, the name of "ulcer," found ulceration to exist very rarely, while those who thus defined such a degeneration, reported it as of very common occurrence. Even now, there is much difference of opinion as to the propriety of applying the term ulceration to this state; many still looking upon it only as one of the elements of cervical endometritis, as Dr. Robert Lee did originally. That it is so, appears to me certain; but it assumes such peculiar forms, and becomes of itself so absorbing a subject in a therapeutic point of view, that it appears necessary to treat of it apart. It certainly does not present the features which are generally considered characteristic of the process of ulceration elsewhere, yet as the term fulfils the purpose for which it is employed better than any other, and is too generally accepted and sanctioned to admit of alteration, I shall make use of it without further discussion.

Varieties of Cervical Ulceration.

The vaginal surface of the cervix uteri is subject to ulcerations of various types which, according to their character, exert a

greater or less influence upon the health of the patient. They may depend upon inflammation originating in the mucous or parenchymatous tissues of the part, may be created by ichorous discharges, the result of inflammation of the cavities of the neck or body, or be due to some peculiar depravity of the blood, creating a vice of nutrition. All the common and generally admitted forms of cervical ulceration may be classed under the following heads:—

1st. The granular ulcer;
2d. The follicular ulcer;
3d. The true inflammatory ulcer;
4th. The syphilitic ulcer;
5th. The corroding ulcer;
6th. The cancerous ulcer.

The Granular Ulcer.

This variety of ulcer, which has been described under the names of erosion of the cervix, granular degeneration, and abrasion, consists, as its name implies, in the development of a surface of granular character on the smooth face of the cervix and just within the os.

Frequency.—Of all the varieties of cervical ulceration this is by far the most frequent. Very often it exists for a length of time without any suspicion of its presence arising in the mind of patient or physician, and sometimes without causing symptoms which prove in any great degree annoying. At others, grave constitutional signs may be traced to it and entirely removed by its cure.

Causes.—The great pathological feature, essential for this form of ulceration, is inflammation of the lining membrane of the cervical canal, or of that covering the vaginal face of the cervix. This may be associated with parenchymatous inflammation, but whether the last exist or not, a certain amount of mucous inflammation must be present for it to occur. Whatever, then, excites cervical metritis or endometritis may prove indirectly a cause of granular ulceration, but certain influences which exert a deleterious effect directly upon the cervico-vaginal covering and the os, will prove more directly causative.

Examples of such influences are—
Uterine displacements, causing friction against the cervix;
Abuse of sexual intercourse;
Vaginal or uterine leucorrhœa;
The use of pessaries;
Injuries to the os in parturition.

Symptoms.—Should the disease exist, with but slight implication of the subjacent uterine tissue, very few symptoms may be present. Indeed, profuse leucorrhœa is sometimes the only one of which the patient will complain. The fact that other and graver symptoms generally show themselves, is a corroboration of the statement, that inflammation of the parenchyma and mucous membrane are important elements in such cases; for where we meet with true inflammatory ulceration occurring in procidentia and unattended by uterine inflammation or congestion, it is remarkable how little disturbance is excited by it. Ordinarily, these are the symptoms which will be noticed in a case of gravity:—

Profuse bloody and purulent leucorrhœa;
Pain and hemorrhage after intercourse;
Menorrhagia or metrorrhagia;
Pain on locomotion;
Fixed pain in back and loins;
Tendency to spanæmia;
Nervous disorders and perhaps hysteria.

Physical Signs.—Vaginal touch alone will often serve as a diagnostic means, for by it the cervix is felt to be covered by a velvety or granular surface, which, to the practised finger, is at once recognizable. But the speculum offers the fullest corroboration or corrects any error committed by this means. By it, the cervix, more especially near the os, is seen to be covered by a mass of pus, which being removed lays bare an intensely red, granular, hemorrhagic looking space of greater or less extent, closely resembling the inner surface of the eyelids when affected by granular degeneration. The diseased surface does not appear depressed below, but is sometimes even elevated above the surrounding mucous membrane.

Course and Duration.—There is no proof existing that this disease is ever recovered from without surgical interference, although as to this being impossible I am by no means positive. The degenerated surface may go on for an unlimited time pouring out

pus, and thus greatly impoverish the blood and cause the gravest constitutional results; or the same unfortunate end may be reached earlier by spread of the morbid action up the canal as far as the os internum.

Pathology.—The granular ulcer is produced by one of three pathological changes in the tissues of the part; removal of epithelium and erosion of villi; removal of epithelium and hypertrophy of villi; or eversion of the cervical mucous membrane. In the first instance, the ulcer is superficial and not hemorrhagic. The epithelial covering is first removed, producing what is called an abrasion, and the villi themselves are destroyed. In the second, after removal of the epithelium, the papillæ or villi increase in size and length, and project forwards like granulations, the larger ones so compressing the smaller as to cause their death by atrophy. Each of these papillæ contains a looped capillary vessel which, becoming enlarged by its hypertrophy, and being entirely unprotected by epithelium, naturally tends to bleed. Sometimes the circulation in the supplying vessels is so much impeded that they become varicose. These two facts have caused the names of bleeding ulcer and varicose ulcer to be applied to the respective states.

At times still another change occurs in this form of ulcer, giving rise to another name. Its surface becomes coated with false membrane, when the ulcer is termed diphtheritic.

Eversion of the cervix is by no means a rare cause of granular ulcer. As a result of inflammatory engorgement, or in consequence of slitting the walls of this canal by surgical procedure, or the act of parturition, its lining membrane prolapses as the mucous membrane of the lids does in ectropion, and if not diseased at the time of displacement, very soon becomes so. At times the hypertrophy, which, under these circumstances, may take place in the crested folds of the everted cervical membrane, produces so great a degree of convolution and projection as to have caused the appellations of fungous ulcer or cocks-comb granulation to be applied to it, according to Dr. Arthur Farre,[1] though Scanzoni[2] regards this as merely an exaggeration of the villous hypertrophy recently mentioned.

[1] Supplement Cyc. Anat. and Phys., p. 695.

[2] Diseases of Females, Am. ed., p. 222.

Varieties.—Granular ulcer is the genus to which belong as species the varicose, fungous, bleeding, and diphtheritic ulcers that have been described by various writers. It is hardly necessary to multiply names, to describe the almost endless variations which may develop themselves in papillary hypertrophy.

Prognosis.—The prognosis in these cases is always good, though it may require a great deal of time to effect a cure, for this will not be permanent unless that of the coexisting cervical disease be accomplished.

Treatment.—The cardinal point in the treatment of granular ulceration of the cervix uteri is this, to look upon the ulcer only as a local manifestation of diseased action in the cervix or body, which is the lesion to be treated. We should regard it only as a symptom of a graver and more important morbid state which should always be kept in view, even if the symptoms produced by the ulceration rivet the attention chiefly upon itself. It not unfrequently happens that one symptom of a disease will so distress and harass a patient that remedial measures must be entirely directed to it, although the practitioner be aware of the fact that it depends on disease elsewhere located. An example of this is sometimes presented in the morbid state under consideration, the ulceration itself proving so annoying by its profuse discharge, and interference with the functions of the uterus and locomotion, as to call for prompt relief. When the ulceration is the result of inflammation confined to that portion of the cervical tissue immediately underlying it, the relief of the ulcer by the alterative and counter-irritant action of the means adopted to accomplish it, may effect the cure of the disease producing it, and the fact of the existence of such disease may not be recognized. But when it depends upon the irritation of the discharges from the cavity of the cervix, or body of the uterus, or upon deep-seated parenchymatous disease, it is curable only by cure of these.

Should it be discovered then, upon examination, that corporeal or cervical endometritis, or cervical or general metritis exist, as the main disease, remedial means should be directed to their cure, at the same time that the less important local trouble receives due attention. It may be asked, if this be true, how is it that the mere application of caustics to the ulcer will so often effect a recovery without regard to other disease? The disorder which most commonly induces granular ulceration is mucous or parenchymatous

inflammation at the vaginal extremity of the cervix. The solution of continuity to which the caustics are applied, acts, after their application, as an issue, and they by derivative and alterative influence effect a cure. It is precisely in accordance with this principle that the practitioner, if called to treat a case of cervical inflammation, which is unattended by such solution of continuity, creates it by abrading the surface by a blister or the hot iron, and then cures the issue thus caused by such caustics as the nitrate of silver or chromic acid. It is common to hear physicians remark that they are more successful in treating cases of cervical inflammation accompanied by granular ulceration, than those which are free from it. The key to the explanation has been given above.

Having presented these remarks and sufficiently insisted upon their importance, we now proceed to the study of the special treatment of the ulcers themselves. The diseased surface may be reached by three effectual methods; through the speculum, by injections and by suppositories. Caustic applications made through the speculum exert upon this disease a most decided and unquestionable influence, and should be resorted to in the commencement of treatment. The speculum having been introduced and the cervix cleansed, the solid stick of nitrate of silver, the warm iron, chromic acid, or acid nitrate of mercury should be thoroughly applied.

The caustic treatment will be quite sufficient for ordinary granular degeneration, relieving, when repeated often enough and conjoined with other appropriate treatment, not only this state but the pathological condition which induces it.

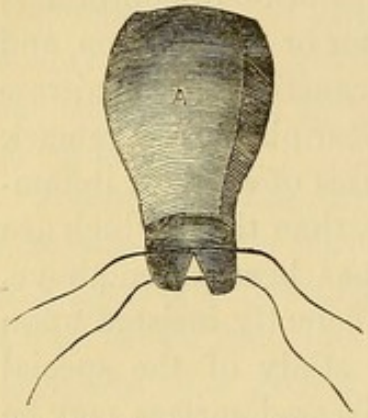
When, however, the exuberant development of villi called, by Evory Kennedy, I think, cocks-comb granulation, exists, it is well to snip the growths as close as possible to the mucous membrane by a pair of long-handled scissors, or even to scrape the surface until it is smooth, by means of the curette, before applying the caustic. After this the same caustics may be used as for simple granular ulcer.

Should eversion of the cervix exist, the hæmorrhoidal mucous membrane should be at once removed by the scissors, or, if more easily done, by the curette, and should much gaping of the os be present, the actual cautery or lunar caustic be employed. I have spoken so fully elsewhere of the danger of producing cicatricial contractions of the canal and induration of the cervix that it

requires no further mention here. In eversion, however, a certain amount of contraction is to be desired.

When eversion of the cervical mucous membrane is due to slitting of the canal either for surgical purposes or by parturition, the condition may be cured by an operation which consists in paring by long scissors the edges of the cervical fissure and passing deep sutures of silver wire so as to approximate them thoroughly. By this means the os is restored to its integrity, and the everted mucous surfaces being placed face to face, friction against them is prevented.

Fig. 100.



Operation for eversion of cervix.

After any of the applications mentioned, the patient should be kept in bed and directed to use copious injections of warm water twice or three times a day, or this with glycerine, laudanum, or infusion of linseed or slippery elm added to it. At the end of ten days, if one of the more potent caustics have been applied, or a week if one of the milder, the speculum should be again used, when it will be found that the slough which was created has separated and been washed away. Should the surface which now presents itself look healthy, and as if inclined to heal, we may rely for hastening this process upon the milder alteratives, and instead of making another caustic application, leave in contact with it a pledget of cotton saturated with equal parts of glycerine and solution of persulphate of iron, or of glycerine holding tannic acid in suspension (℥ij of the latter to ℥vj of the former). This pledget should have a string attached to it, in order that the patient may remove it.

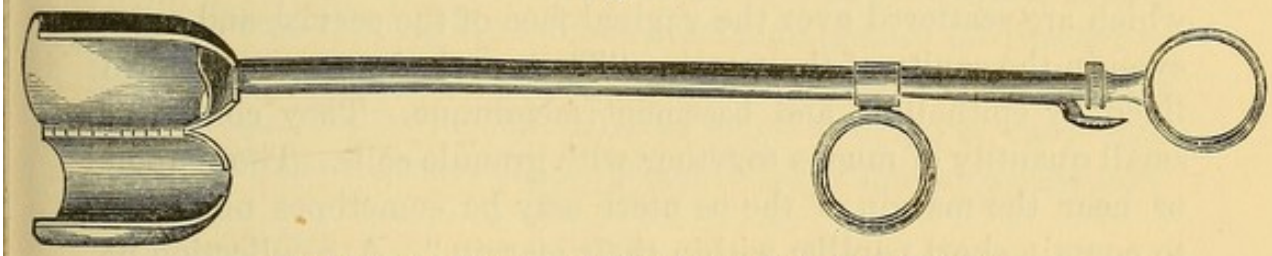
Applications should be made not only by the physician, who will probably use the speculum not oftener than once a week, but also by the patient who should make them daily by injections and suppositories. The former should be thus employed: every night and morning a gallon of tepid or warm water containing one ounce of glycerine and one drachm of sulphate of zinc, or two of sulphate of alum, acetate of lead, or tannin, should be injected for a period varying from ten to twenty minutes. Or if it be found necessary to employ a stronger astringent solution, a gallon of pure water may be used first, for

the time mentioned, and then a medicated solution, one quart in amount, be used for a short time afterwards.

Medicated pessaries or vaginal suppositories may likewise be made of great service. A suppository may be made to contain twenty grains of oxide of zinc, or sulphate of alum; twenty grains of mercurial ointment; five grains of iodide of lead, or ten grains of tannin; to any one of which, should an anodyne be needed, three grains of the extract of belladonna may be added. These substances may be made into a mass with powdered gum tragacanth, starch, or slippery elm, and glycerine, and the ball covered with cocoa butter. They may be introduced by the finger, but by the use of the vaginal suppository tube, delineated on page 241, there is much greater certainty of their coming in contact with the diseased surface. Suppositories may be employed once or twice a day, but are decidedly more beneficial while the patient confines herself to bed.

Dr. Simpson is in the habit of applying dry powders in the upper part of the vagina, and Dr. Sims of introducing a tampon

Fig. 101.



Sims's tampon placer. A piston passes through the handle.

of cotton by means of the instrument represented in Fig. 101. I have found patients complain so much of the difficulty of the introduction of instruments that I have used a simple tube of hard rubber penetrated by a piston. By this every night and morning after the use of copious vaginal injections of tepid water, substances in powder may be placed in contact with the os. The following prescriptions will be found astringent, alterative, and emollient:—

℞.—Pulv. gum tragacanth,
Pulv. calaminaris,
Pulv. amyli, āā ℥j.—M.
S.—A drachm to be introduced night and morning.

℞.—Pulv. ulmi fulvæ, ℥j.
Bismuthi sub. nit. ℥j.
Alumenis pulv. ℥ss.—M.
S.—A drachm night and morning.

But very generally caustic applications must be repeated, and sometimes often repeated, before cure is effected; and a question of importance arises as to the frequency of repetition which is most beneficial. I am convinced that we often apply caustics too frequently, not allowing time for their stimulant effect to be developed. If a caustic is applied to an ulcer on the leg, it is not, unless for special cause, repeated so soon as the slough separates, but the alterative action which it creates is fostered and turned to a good account by subsequent dressing. We should be guided by the same principles in treating cervical ulceration, and in doing so should not cauterize the diseased surface oftener than once a fortnight if it be lightly done, or once a month if after the use of the stronger caustics a sluggish aspect is still maintained.

The Follicular Ulcer.

This form of ulceration, though not so frequent as that last mentioned, is by no means rare. It consists in an inflammation of mucous follicles, which resemble those of the cervical canal, and which are scattered over the vaginal face of the cervix, and exist even in the cavity of the womb. "The[1] cervical mucous cysts are lined by epithelium and basement membrane. They contain a small quantity of mucus together with granule cells. Those upon or near the margin of the os uteri may be sometimes observed to contain short papillæ within their margin." A recollection of these facts is essential to a full understanding of the stages of this form of ulceration.

Pathology.—Follicular disease of the cervix shows three entirely different phases: 1st. A number of vesicles, equal in size to a millet-seed and filled with a fluid like honey, is noticed covering the part. These are due to repletion from retention of their secretion. 2d. These cysts are seen open, *i. e.*, they have burst, and a follicular ulcer marks the former site of each. 3d. The papillæ which they contain undergo hypertrophy and cause the appearance of red, elevated, hemorrhagic looking tubercles in place of the depressed ulcers just mentioned. For the thorough knowledge of these ulcers we are indebted, as for so much

[1] Cyc. Anat. and Phys., p. 640.

else relating to the anatomy and pathology of the uterus, to Dr. Arthur Farre.

Varieties.—It will now be readily perceived how a variety of names have been applied to this disease when examined at different stages. Follicular disease is supposed to be the source of the eruptive affections described by authors as acne, herpes, and aphthæ of the uterus.

Causes.—Like the granular ulcer, it is produced by anything exciting cervical metritis or endometritis, of which it is a complication.

Prognosis.—Like the granular ulcer also, the prognosis with reference to it will depend in a great degree upon that of the disease which underlies it. Should this be severe, a very guarded prognosis should be made as to speedy cure; should it be slight, a favorable prognosis may be made.

Treatment.—The contents of all the cysts should be evacuated, and their cavities thoroughly cauterized by a sharp point of nitrate of silver, chromic acid, or the acid nitrate of mercury. Should the second or third stage exist, the diseased surface should be cauterized thoroughly. Then treatment should be directed to the uterine affection which has produced the disorder. Should cervical metritis or endometritis be found to exist, as they very likely will, the treatment appropriate to them should be adopted

The True Inflammatory Ulcer.

Very little need be said of this form of cervical ulcer, further than clearly to announce the possibility of its occurrence, and the circumstances under which it is met. In procidentia uteri of long standing it is rarely absent, and the deep excavations, precipitous edges, and inflamed bases of the spots, leave no room for difference of opinion as to their nature. This form of ulcer is very rarely met with, except as the result of direct injury with coexisting parenchymatous congestion or inflammation. Thus it may arise from the injuries resulting from friction in procidentia and anteversion or retroversion, or from excessive coition, where the cervix is much enlarged and its parenchyma inflamed.

Prognosis and Treatment need not detain us, since both will depend upon the more important uterine affection. Leeching, fomentations, counter-irritants, and rest, should be resorted to,

just as if no solution of continuity existed, in a case of parenchymatous inflammation. If due to procidentia, the ulcerations may be relieved by simply keeping the uterus in place.

The Syphilitic Ulcer.

Frequency.—Syphilis may affect the cervix uteri either as a primary or secondary disorder, though in neither form is it by any means common. It is now a settled fact that true chancre may locate itself upon the cervix, but not the less certain is it that it rarely does so. I have seen but one case in which I felt satisfied that a cervical ulcer was of this character. This was proved by inoculation, the most certain way in which a strictly reliable conclusion can be arrived at, and by corroborative evidence existing in the presence of syphilitic roseola without primary disease elsewhere. Dr. Bennet[1] states, that in his own practice it has been very rarely met with, and quotes in confirmation of his own experience that of Ricord, Cullerier, Gibert, Duparcque, and others. M. Bernutz, who has made, according to Becquerel,[2] a special study of this subject in the hospitals of Paris, describes chancres of the os minutely, dividing them into Hunterian, diphtheritic, and ulcerous, which resemble phagedenic very closely. With regard to secondary affections on the cervix, there has been considerable discussion, some regarding them as quite common, others as very rare. Becquerel, after careful research in l'Ourcine Hospital at Paris, was convinced of their occurrence, and Bernutz describes mucous patches, vegetations, erosions, tubercles, and gummy tumors. I know of no more significant evidence of the rarity of these affections upon the cervix, than the fact that in the most recent work upon syphilis, now before the profession, a work remarkable for the thorough and comprehensive style with which it deals with all relating to that subject, almost no mention is made of syphilitic affections of the cervix. I allude to the work of my colleague, Prof. Bumstead.[3] The author investigates the character of syphilis when affecting all parts of the body, even the lachrymal sacs, the membrana tympani, &c., but nowhere is any mention made of the disease appearing on the cervix, except a

[1] Bennet on the Uterus, p. 350.

[2] Mal. de l'Utérus, vol. i. p. 169.

[3] Bumstead on Venereal Diseases.

cursory statement that at Bellevue Hospital he had seen some remarkable instances of mucous patches thus located. The sign of the secondary disorder which we would most naturally expect to find in this site, would be the mucous patch, as it is one of the most frequent of all the manifestations of that stage; but we are informed by Messrs. Davasse and Deville,[1] that of one hundred and eighty-six women affected by syphilis, and examined in reference to the location of its lesions, they were found on the cervix uteri but once.

Course and Termination.—The primary affection being located on the cervix the general system becomes affected as from a chancre on any other part, which, as M. Gosselin has pointed out, instead of passing off rapidly, as it sometimes does, may become an ulcer of ordinary appearance, or assume the fungous type. During its course the cervical chancre has a marked tendency to become covered by false membrane, as Robert[2] first noted, and Bernutz subsequently corroborated.

Differentiation.—For evident reasons, this is a matter of great importance, not only as regards therapeutics, but because it may involve a delicate legal question affecting the chastity of the woman.

These are the means of diagnosis in case of chancre:—

Border of ulcer precipitous;
Surface of ulcer depressed;
Great tendency to bleed;
Great tendency to false membranous covering;
Rapid development of symptoms;
Early appearance of roseola:
Transmission by inoculation.

All of these signs are of value, but the only one upon which a positive opinion could be based is the last.

Secondary eruptions, as, for example, mucous patches, vegetations, &c., which appear here will be known by—

Their rapid development;
Their connection with constitutional signs;
Simultaneous affection of the vagina;
Absence of chronic cervical inflammation;
The peculiar appearance of secondary eruptions.

[1] Davasse and Deville, Des Plaques Muqueuses: Arch. Gén. de Méd., 1845, t. ix. et x.

[2] Aran. Mal. de l'Utérus, p. 524.

It is, however, often very difficult to say with any degree of positiveness whether an ulcer is of this character or not.

Treatment.—This will consist in case of chancre of the ordinary treatment adopted when such an ulcer affects any other part. In case of secondary affections the patient should be put upon a mercurial course, the surface cauterized, and subsequent dressings made of mercurial preparations of which the black or yellow wash, mercurial ointment, and calomel are the best.

The Corroding Ulcer.

This term was applied by Dr. John Clark, of England, to a peculiarly intractable, indeed a uniformly fatal, ulcer, which commences in the mucous membrane of the vaginal face of the cervix, and in process of time destroys that structure and gradually the entire organ.

Although there are many points of similarity between this disease and cancer, there are several in which it differs very essentially from it. Thus, cancer generally gives severe pain, while corroding ulcer does not; cancer involves the surrounding tissues, this rarely does so to any great degree; cancer destroys life rapidly, this does so so slowly, that years may pass before it reaches a fatal issue.

Authorities upon Gynecology and Pathology are, at present, almost unanimous in reference to the fact that the disease called corroding ulcer is epithelial cancer of ulcerating form, and that it bears to the uterus very much the same relation that lupus or cancroid ulcers do to the face. All this will be fully investigated when the subject of cancer is taken up. It appears out of place to treat of it in the same category with the less important ulcerations of the cervix, and its consideration will be deferred until other malignant affections receive attention.

The Cancerous Ulcer.

All the varieties of cancer, encephaloid, colloid, and scirrhus, may show themselves in the uterus, which more frequently than any other organ of the body is the seat of their invasion. All these consist in a deposit of a lowly organized material, which subsequently undergoes disintegration. In the destruction of this

material the part of the uterus in which it has found its nidus is likewise destroyed, and as it is most commonly in the cervix that it collects, the resulting solution of continuity creates a cancerous ulcer. To one unfamiliar with uterine affections this might at its commencement be mistaken for a benign ulcer, but such an error will rarely be made. Its consideration will be postponed for the subject of cancers to which it properly belongs.

In addition to these varieties of ulcer of the cervix, a scrofulous ulcer has been described by Lisfranc,[1] Robert,[2] Blatin,[3] Duparcque,[4] and others. More recent works make no mention of it, or if they do, it is only to express disbelief in its existence. Dr. West[5] quotes to prove that the combined testimony of Robin, Lebert, and Hanover is in strong opposition to the occurrence of such an ulcer on the cervix, and Rokitansky,[6] in describing these affections, makes no mention of having met with it. The descriptions given of it by Robert, who has most minutely described it, and of others who record cases, appear so much like those of cancer that very little doubt will be left in the minds of most readers as to its identity with that class of affections.

The French school of Gynecology has always laid great stress upon the existence of certain diatheses as resulting in uterine ulcerations, and thus a great number of varieties will be found resulting from a supposed connection with them. Examples[7] of these are the herpetic, scorbutic, scrofulous, dartrous, tuberculous, arthritic, &c. I refer to them not to advise the adoption of the nomenclature, but lest the student in his researches may meet with and be confused by their mention.

In concluding this subject, it may serve a good purpose to present at one view all the varieties of ulcers which have been described by the most recent authors, and to class each species under its proper genus. I would not recommend the student to employ the names of the varieties, for I believe that they can readily be dispensed with, the generic terms fulfilling every practical purpose. To be familiar with the modern literature of the subject, however, he should be acquainted with them, as allusion to them will be often met with.

[1] Clin. Chirurg., vol. iii. p. 548.
[2] Des Affections du Col de l'Utérus.
[3] Mal. des Femmes, p. 521.
[4] Mal. de la Matrice, vol. i. p. 394.
[5] Op. cit., p. 269.
[6] Op. cit., vol. ii. p. 220.
[7] Blatin and Nivet. Op. cit., Ch. Ulceration.

1*st.* *Granular ulcer.*
- Fungous or cockscomb ulcer;
- Bleeding ulcer;
- Varicose ulcer;
- Diphtheritic ulcer.

2*d.* *Follicular ulcer.*
- Uterine acne;
- " herpes;
- " aphthæ.

3*d.* *True inflammatory ulcer.*
- Indolent ulcer;
- Callous ulcer;
- Diphtheritic ulcer.

4*th.* *Syphilitic ulcer.*
- Chancre;
- Syphilides.

5*th.* *Corroding ulcer.*

6*th.* *Cancerous ulcer*

CHAPTER XX.

GENERAL CONSIDERATIONS UPON DISPLACEMENTS OF THE UTERUS.

History.—That the earliest practitioners of medicine were familiar with this subject is abundantly attested by the writings of the Greek and Roman schools. It is distinctly mentioned by Hippocrates, and more clearly and exactly still by Galen and Moschion about the second century of the Christian era. This remark applies not only to prolapse, but also to versions which were evidently understood. Hippocrates and Moschion even described latero-version, a variety which has not been much noticed by modern writers. There is no evidence, however, that they understood the difference between versions and flexions.

Passing over many centuries, at the middle of the eighteenth we find Gynecologists paying attention to versions, and even to flexions, of the pregnant uterus, but losing sight of these displacements in the non-pregnant organ. Versions were at that period described by Garthshore, W. Hunter, Jahn, and Desgranges; and flexions, by Saxtorph, Wltczek, Baudelocque, and Böer.

Denman was the first writer who describes flexion of the non-pregnant uterus, which he did in reference to a case of retroflexion about the year 1800. The wanting link, the description of anterior flexure, was not supplied until M. Améline, of France, described anteflexions in 1827. For our present improved views upon the subject we are indebted more especially to the following observers:—

M. Bazin, Paris	1827.
M. Améline, Paris	1827.
Mme. Boivin and M. Dugès, Paris . . .	1833.
Simpson, Edinburgh	1843.
Amussat, Paris	1843.
Bennet, Edinburgh	1845.

Subsequently to the last date, the subject was gradually merged

into the common stock of medical knowledge and admitted into all systematic works on Gynecology. I have not of course attempted to enumerate all writers upon it, but only those who have accomplished some improvement or suggested original views. Bazin deserves the credit of being one of the earliest modern writers on the subject. Améline not only that but the additional merit of having been the first to fully describe flexions and differentiate them from versions, Boivin and Dugès introduced the subject into a systematic work upon Gynecology, and Amussat improved our knowledge of it as it occurs during the pregnant state. But all these results were only foreshadowings of the eminent services of Simpson, who opened the way to diagnosis by introducing the uterine sound. At a still later period, Dr. Bennet, by insisting upon the fact, which Lisfranc had stated, but failed to impress out of France, that inflammation is very generally the cause of displacement, accomplished for the subject scarcely less than his compatriot.

Pathological Significance of Versions and Flexions.—The ancients ascribed to these displacements many constitutional evils, as paralysis, hysteria, &c., and even until a very recent period they were credited with a great deal of pelvic pain and functional uterine disturbance which it was supposed almost universally attended them. Until 1854 this belief prevailed very generally, having the powerful support and indorsement of such men as Velpeau, Simpson, and Valleix. It is true that this view was contested by Cruveilhier and Dubois,[1] before the period mentioned; but at that time a spirited discussion arose concerning it, in the Academy of Medicine of Paris, which not only threw much doubt upon it, but gave rise to a powerful opposition, in the ranks of which appeared Depaul, H. Bennet, Aran, Becquerel, and others equally eminent. They maintained that these displacements of the womb, if unaccompanied by textural lesion, produced no constitutional disturbance, created, as a rule, no discomfort, and did not deserve the attention in treatment which had been bestowed upon them. They did not believe that the dislocation was the cause of suffering when this existed alone, but looked upon it, in such cases, as an epiphenomenon engrafted upon some more important lesion. Consequently they were opposed to reliance

[1] Goupil, B. & G., op. cit., p. 459.

being placed upon support by pessaries as one of the essentials of treatment, as had been done by the other school.

When views supposed to be false are repudiated, those adopting new ones are always apt to run too far into an opposite extreme, and in this instance many have done so. Scanzoni[1] sounds the keynote of this extreme party when he states that, "flexions of the womb do not acquire any importance, nor are followed by any serious dangers, save when they are complicated with an alteration in the texture of the organ."

To refute the first part of this statement we shall not have to seek far, for the same author, ten pages farther on in his work, remarks that, "in well-marked flexion, the canal of the neck is always more or less impermeable, which opposes an insurmountable obstacle to conception." This is an open avowal that flexion is of importance though uncomplicated by alteration in the texture of the uterus, and for further proof I would appeal to the experience of every practitioner, whether he has not seen it a cause of severe obstructive dysmenorrhœa. The following propositions may, I think, be presented as embodying the present opinions of the majority of the enlightened Gynecologists of our day.

1st. Versions and flexions of the womb may exist without causing any symptoms, for in themselves they do not constitute disease. Thus it is that we see the uterus forced completely out of its place by tight clothing, without the production of morbid signs.

2d. By interfering with escape of menstrual blood, by disordering uterine circulation, by causing pressure and friction from contact with surrounding parts, and by creating a barrier to the entrance of seminal fluid, they become of great importance and require special attention.

3d. Generally being the results and not the causes of uterine and peri-uterine inflammations, they are best treated by alleviation of these states.

4th. Treatment by pessaries is sometimes, though not usually, effectual, for we generally reach only a symptom and not the disease in this way. Sometimes, however, when the displacement has resulted from relaxation of the uterine ligaments, in conse-

[1] Op. cit., Amer. ed., p. 112.

quence of increased weight or pressure from the abdominal viscera they prove most useful and efficient means of treatment. Even when inflammatory action has once existed and been cured, it may become necessary to resort to a pessary after removal of the causative lesions to prevent their return and to combat resulting relaxation of uterine supports.

Definition and Synonymes.—The term displacement is applied by British and American writers to any decided removal of the uterus from its normal position, without reference to the direction in which it has been moved, while French writers apply the term displacement only to ascent and descent of the uterus, reserving that of deviation for versions and flexions.

Normal Anatomy.—The uterus is delicately poised in the pelvis, and prevented from descending to its floor by three agencies: the vaginal walls, which abut upon the sphincter vaginæ muscle; a surrounding investment of areolar tissue, which binds it to the bladder, the rectum, and the pelvic walls; and four ligaments, which attach it to neighboring points of support. The most demonstrable and important of these means is unquestionably the vagina, loss of tone in which will in time generally result in the accident which we are considering. A great deal of support is likewise derived from the connective areolar tissue, which so closely unites the uterus with the rectum and bladder as to involve displacement of these viscera in its descent.

From the posterior face of the neck, there run two folds of peritoneum which go to the rectum. These inclose corresponding bands of fibrous tissue which attach the cervix to the sacrum, and have received the name of utero-sacral ligaments. Their influence, as likewise that of two similar bands connecting the cervix in front with the bladder, cannot be doubted.

These are probably all the influences which unite in prevention of prolapsus in the first and second degrees. When they are entirely overcome and the descent has become complete, the round and broad or lateral ligaments come into action, but not until that has occurred. Some very interesting experiments upon the cadaver instituted by Dr. Henry Savage[1] prove these statements conclusively.

From retroversion, the uterus is prevented by the round liga-

[1] On Female Pelvic Organs.

ments, two fibrous cords which pass from the fundus to the pubes; the broad ligaments, which attach it to the pelvic walls; the two utero-sacral ligaments, which connect the neck with the sacrum; and the two columns of the vagina. Anteversion, which is generally associated with flexion, is guarded against by less numerous and less effectual means. The presence of the bladder, the broad ligaments, and the columns of the vagina are the only preventives.

None of these means of suspension are concerned in flexions and inversion, which are combated by forces of entirely different nature. The tissue of the unimpregnated uterus is of such strong, resisting character in the adult female, as to prevent too great a curvature of the body upon the neck either anteriorly, laterally, or posteriorly. It is to this peculiarity of structure that immunity from these conditions is due.

When stimulated by pregnancy or the presence of an intra-uterine growth, the uterine tissue develops rapidly into muscular structure. This keeps the cavity of the organ closed by tonic contractions, and removes the possibility of inversion unless it be accomplished by absolute violence. But when from any cause it is destroyed and the condition of tone is replaced by one of atony, flexion or inversion may occur.

It is manifest that a number of mechanical influences may force an organ thus sustained, upwards, downwards, backwards, laterally, or even bend it upon itself or turn it completely inside out, and that the direction of the impelling force, or nature and position of the loss of support will determine the character of the displacement. The displacements which may thus result have received the following appellations:—

Ascent;
Descent or prolapsus;
Anteversion;
Anteflexion;
Retroversion;
Retroflexion;
Lateroversion;
Lateroflexion;
Inversion.

These varieties should not be memorized by the student, for such an effort would be uncalled for. Let him suppose any pear-shaped bag, one of gutta-percha, for instance, suspended by yield-

ing supports in any cavity, and it must be evident that these, and only these, changes of location could be impressed upon it.

The general causes producing these results upon the uterus are the following:—

1st. Any influence which increases the weight of the uterus;
2d. Any influence which diminishes the supports of the uterus;
3d. Any influence which pushes the uterus out of place;
4th. Any influence which displaces the uterus by traction.

1st. The uterine supports are equal to sustaining the organ when of normal weight; but when its weight is increased they naturally fail in their task.

2d. Even if the uterus be no heavier than it should be, it may become displaced from depreciation of that support to which it is entitled, and which was made to sustain it.

3d. If both the uterus and its sustaining powers be perfectly normal, it is evident that direct or powerful pressure must overcome the latter and force the organ from its place.

4th. It is equally evident that as by a tenaculum fastened in the uterus of the cadaver, we may drag it from its position, so may contracting lymph, or shortened ligaments, effect this in a living body.

All these facts having been premised, a concise view of the special causes of displacements may be thus presented:—

1. *Influences increasing weight of uterus.*
   - Inflammation or congestion;
   - Tumors in the walls or cavity;
   - Pregnancy;
   - Hypertrophy;
   - Sub-involution;
   - Fluid retained in cavity;
   - Masses of cancer or tubercle.
2. *Influences weakening uterine supports.*
   - Rupture of the perineum;
   - Weakening of vaginal walls;
   - Stretching of uterine ligaments;
   - Want of tone in uterine tissue;
   - Degeneration of uterine tissue.
3. *Influences pressing the uterus out of place.*
   - Tight clothing;

Heavy clothing supported on the abdomen;
Muscular efforts;
Ascites;
Abdominal tumors;
Abscesses or masses of lymph;
Repletion of the bladder.

4. *Influences exerting traction on the uterus.*

Lymph deposited in pelvic areolar tissue;
Lymph deposited on peritoneum of pelvic viscera;
Cicatrices in vaginal walls;
Shortening of uterine ligaments.

The mode of action of each of these causes is so evident as to require no special mention at this time, but they will be particularly alluded to hereafter.

An article of so great value has recently appeared in the London *Lancet* from the pen of Dr. Alfred Meadows, with reference to the etiology and relative frequency of the various forms of displacements, that I quote it in extenso.

"Referring to the cases of uterine displacement of all kinds which have come under my care in hospital and private practice during the last three years, to the end of 1867, and of which I have careful notes, I find that the total number observed was 84. Of these, 14 occurred in single women, 70 in married. Of the latter, 15 were sterile, and 55 had been pregnant; of these last, 27 had aborted. The total number of abortions was 63, or an average of $2\frac{1}{3}$ to each person who aborted. The total number of children born was 171, or an average of $3\frac{1}{3}$ to each mother, and the total number of pregnancies was 234, or an average of $4\frac{1}{4}$ to each of the fertile women. The frequency of the several varieties of displacement was as follows: Retroflexion occurred 34 times; in 8 the patient was single, in 26 married. Retroversion was met with in 18 cases; 3 were single, 15 married. Anteflexion occurred 20 times; only 1 of these was single, the rest were married. Anteversion was noticed in 12 cases; 2 of these were single, and 10 married. All these points will be best seen by reference to the following table, which shows also the relative frequency of sterility and fertility, of abortion, of children at term, and of pregnancy, in the several varieties of uterine displacement.

	Retro-flexion.	Retro-version.	Ante-flexion.	Ante-version.
Single	8	3	1	2
Married	26	15	19	10
Women sterile	5	2	6	2
Women fertile	21	13	13	8
No. of women who aborted	13	6	3	5
Total No. of abortions	27	23	6	7
Average No. of abortions	2 1/13	23/6	2	1 2/5
Total No. of children at term	72	32	49	18
Average No. of children	3 1/2	2 1/2	3 3/4	2 1/4
Total No. of pregnancies	99	55	55	25
Average No. of pregnancies	4 3/4	4 1/4	4 1/4	3 1/8

"There is one other point of interest which may be gathered from the following table—viz., as to the age at which uterine displacement is most commonly observed. I have here grouped together both the married and single, with the following results:—

	Retro-flexion.	Retro-version.	Ante-flexion.	Ante-version.
From 20 to 25 years	6	4	4	2
From 25 to 30 years	11	2	7	2
From 30 to 35 years	9	3	3	5
From 35 to 40 years	5	5	4	2
From 40 to 45 years	3	2	1	—
From 45 to 50 years	—	2	1	1

"I do not of course attach equal importance to the several statistical results observed in the preceding tables; some of these are much more substantial as bases of arguments than others. Doubtless there are some persons who, discrediting all statistics as applied to vital phenomena, or at any rate those having reference to questions of pathology, will be inclined to attribute but little value to any of these results. Still, there are some facts, it appears to me, in the tables above, which can scarcely be disputed, unless other facts can be found to contradict them. Meanwhile, I submit that I am entitled to believe as clinically demonstrated—

"First, that uterine displacements are much more common in married than in single women.

"Secondly, that sterility is very frequently associated with, if it be not caused by these displacements. In the table it is seen that the proportion of sterile to fertile women is as 1 to 3 3/5, which is certainly a much larger proportion than is ordinarily met with among healthy married women. It will further be seen that the proportion varies in the different kinds of displacement thus: in retroflexion it is as 1 to 4.2; in retroversion as 1 to 6.5; in ante-

flexion as 1 to 2.2; and in anteversion as 1 to 4. Now, it may be thought that the number of facts from which these results are obtained is insufficient for the purpose of arriving at any conclusions. It may be so; but certainly it is remarkable that that condition of the uterus which is thought to be the most nearly normal—namely, anteflexion—is just the one which is more often associated with sterility than any of the other positions. This, it seems to me, is an additional reason for questioning the opinion commonly entertained on this point.

"Thirdly, it appears that abortions are very common in women who have any uterine displacement, 27 out of 55 who had been pregnant. It may perhaps help to a solution of the question whether abortion is a cause or consequence of displacement of the uterus, if we consider the following facts: 1. That at least one-sixth of all the varieties of malposition of the uterus occur in single women. 2. That of the 27 married women who had aborted, in 7 only did it appear from the history to have had any connection with the displacement. 3. That of 55 pregnant women, 27, or just one half, aborted 63 times. 4. That of the total number of cases—namely, 84—there are 57 who never aborted, as against 27 who did; the inference being that if abortion did not operate to produce displacement in the larger number, it did not in the smaller.

"Fourthly, we see that the average number of pregnancies, including the abortions, is $4\frac{1}{4}$ for each fertile woman, which is certainly not a low average, and seems suggestive of the idea that frequent gestation may be to some extent a cause of these disorders of the uterus.

"Fifthly, we learn from the second table that a large majority of the cases occur between the ages of twenty-five and thirty-five years—that is, at the time when the uterus is most heavily taxed in the performance of the procreative function. We learn, further, that uterine displacement is rare after the cessation of the catamenial period, only 10 of the 84 cases occurring after the age of forty, and only four after that of forty-five. All this, again, strengthens the idea suggested in the preceding paragraph."

This is all that need be said upon the subject of uterine displacements in general. I shall now proceed to complete the outline here sketched, and to go into the details connected with each variety of the affection.

CHAPTER XXI.

ASCENT AND DESCENT OF THE UTERUS.

Ascent of the Uterus.

In its normal condition the uterus descends into the pelvic cavity so as to assume a position about two inches from the vulva. If its weight be augmented, it comes much lower than this, and continues to do so as its volume increases, unless its development becomes so great that it cannot be accommodated by the pelvis. Then it escapes from the cavity by ascending to a more capacious space above the superior strait. This change occurs in every normal pregnancy. During the first three months the uterus falls in the pelvis, being in a state of prolapse. As the fourth month approaches its volume becomes so great that it can no longer be retained in the pelvic cavity, and then it escapes above the superior strait, where sufficient space is afforded for it to undergo full development. This is not only so in pregnancy; the uterus is similarly affected by morbid growths. When, under these circumstances, it leaves the pelvis, the fact is expressed by the term ascent.

Ascent of the uterus is never an original disease, but the result of some important change connected with that organ, and requires merely a mention. It may occur whenever a tumor is developed in connection with the vagina, rectum, or recto-vaginal cul-de-sac, or when there exists a growth in the walls or cavity of the uterus which renders it too large for entrance through the superior strait. It never requires treatment, and is of importance only as exciting suspicion of pregnancy, or as an evidence of morbid growth in connection with the organs of generation.

Descent or Prolapsus of the Uterus.

Definition, Synonymes, and Frequency.—The name of this disorder defines its character with sufficient clearness. It is of fre-

quent occurrence, and under the name of Falling of the Womb, is well known to women, and constitutes for them an object of especial dread. As almost all women, after the period of fruitfulness has passed, have an intuitive fear of cancer of the uterus, so do a large number before that time manifest an apprehension of prolapsus. In the one case the anxiety is for life, in the other for usefulness.

Pathology.—It matters not whether the original cause of the displacement be increase of uterine weight, relaxation of support, or direct force exerted upon the organ, an invariable result of its existence is diminution of the power of the uterine supports. The ligaments are stretched, the vagina distended and doubled upon itself or everted, and the contractile power of the sphincter vaginæ impaired. The displaced organ is very generally affected by congestion or inflammation, its cavity much enlarged, and inflammatory ulcers are found upon the cervix. The vaginal rugæ are effaced, and the lining of the canal exposed to atmospheric influences and friction, looks like the cicatrized surface of scalded skin rather than mucous membrane.

Varieties.—This displacement may occur very suddenly and unexpectedly, or gradually and by successive steps. As the symptoms of the two varieties differ only in the rapidity and severity of their development, and the second is much the more frequent, I shall direct my remarks chiefly to it, and describe the first in a few words in an appropriate place.

Fig. 102.

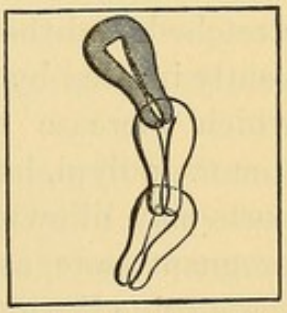


Diagram representing the three degrees of prolapsus.

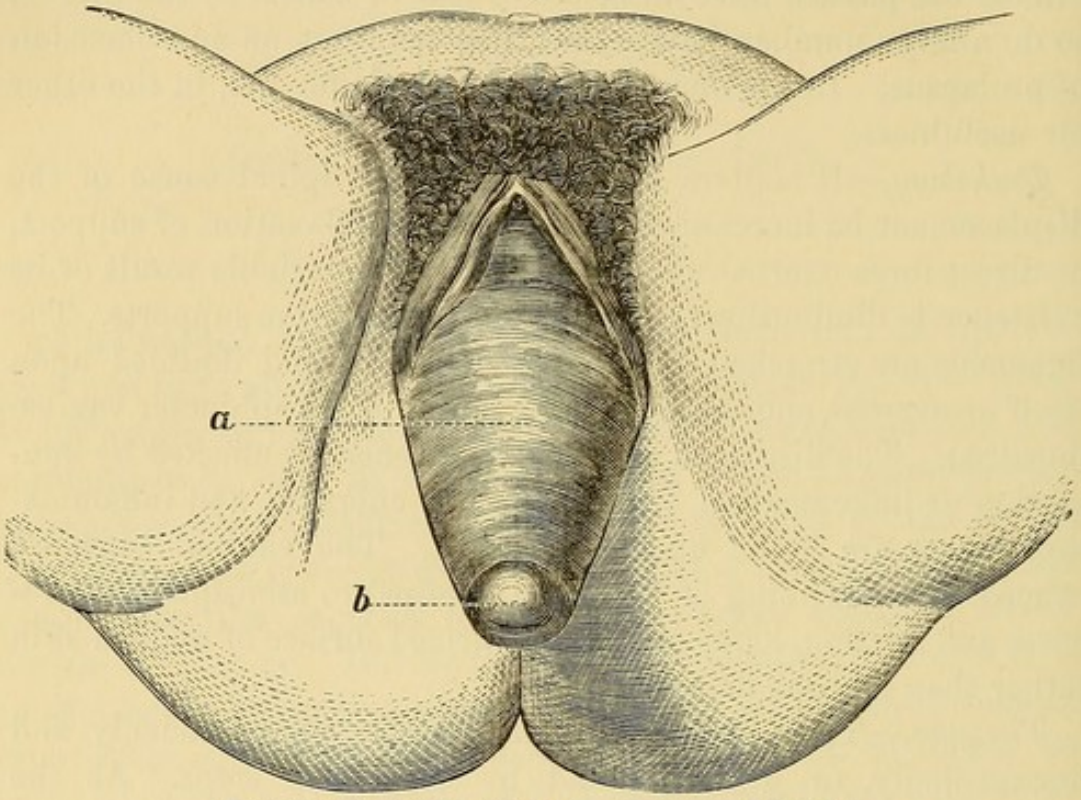
Prolapsus may exist either in the first, second, or third degree, the direction of the uterine axis in each of which is exhibited in Fig. 102.

In the first, the uterine axis is unaltered, the organ having merely sunk in the pelvis. In the second the body has gone towards the sacrum, the cervix having come down upon the resisting ellipse formed by the sphincter vaginæ. In the third the last barrier has been overcome, and either a part or the whole of the uterus hangs between the thighs. This has received the name of procidentia.

Causes.—The causes especially inducing descent of the uterus are most completely combined in the state existing after parturi-

tion. The uterus is heavier than usual, the recently distended vagina relaxed and feeble, the uterine ligaments very much

Fig. 103.



Prolapsus in the third degree. (Boivin and Dugés.)

stretched, and the sphincter vaginæ muscle weakened, or permanently injured by rupture of its perineal union. But other causes which increase uterine weight may act in the same way, as tumors, polypi, inflammatory engorgement, &c. The uterine supports may likewise be injured by other causes acting in the non-pregnant state, as senile atrophy of the vaginal walls, stretching the uterine ligaments by the pernicious habit of tight lacing, prolonged and violent exercise of the abdominal muscles, &c. The affection is very often met with in old women, when it is generally due to atrophy of the vaginal walls.

Course, Duration, and Termination.—The condition is unlimited in its duration, and, unless relieved by art, will continue indefinitely. It impairs the patient's comfort and capacity for exertion, but rarely has a fatal termination, unless by exciting peritoneal inflammation, or pelvic cellulitis, as I have seen it do in several cases.

Symptoms.—The symptoms of prolapsus are dependent upon two results growing out of the displacement; the mechanical in-

terference of the womb with surrounding parts, and alteration induced in its tissue by reason of its abnormal position. The uterus may remain even in the third degree of descent without any marked symptoms, but generally congestion, effusion and ulceration occur, which render it sensitive and intolerant of pressure or friction. At the same time, by dragging upon the bladder, rectum, and all the pelvic areolar tissue and fasciæ, and by protruding between the labia, it produces discomfort and often impedes locomotion to a great extent. The most prominent of the symptoms thus created are the following:—

Sensation of dragging and weight in the pelvis;
Rectal and vesical irritation;
Pain in back and loins;
Menorrhagia;
Great fatigue from walking;
Inability to lift weights;
Leucorrhœa and other signs of chronic metritis.

Physical Signs.—All the symptoms detailed will only excite suspicion and prompt an examination which will fully elucidate the case. Should the affection exist only in the first degree, the finger passed up the vagina will meet with the os low down in the pelvis and pressing upon its floor. As it is slid upwards in front of the cervix and along the base of the bladder, the resisting anterior wall of the uterus will be clearly distinguished, and it may be found that anteversion or anteflexion exists, complicating prolapsus.

If the second degree have been reached, the os will be found at the ostium vaginæ, prevented from escaping only by the resistance of the sphincter, and the body, instead of lying forwards, will be to some extent retroverted. To determine the degree of prolapsus, more especially in this stage, the patient should be examined standing.

Sight and touch will combine in making a diagnosis in the third degree of falling, rapid and easy, but even here I have known very grievous errors committed. The apparent ease of the diagnosis sometimes causes error by inducing neglect of that caution and watchfulness which, even in the simplest cases of disease, constitute the only safeguard of the physician.

Differentiation.—In any of its varieties prolapsus uteri may be confounded with fibrous polypus, inversion of the uterus, and

elongation of the neck, from all of which, however, it is readily distinguished if the practitioner be awake to the possibility of error. From the first, it is known by presence of the os and cervix, and the general shape of the mass. From the second, by presence of os and cervix, and absence of the signs of inversion. The third will readily be recognized by the great length of the cervix, the impossibility of replacing the supposed prolapsed organ, and the great depth of the uterus discovered by the uterine probe.

Prognosis.—The prognosis will depend upon the state of the uterus and vagina. Should the former be much enlarged from a fibrous tumor, or other disorder little amenable to treatment, no amount of support will prove sufficient to sustain it. On the other hand, even if the uterus be normal in weight and volume, the prospect of supporting it will be slight if the vaginal walls be greatly distended and have undergone much atrophy, for the vagina is the only natural uterine support which we can enlist by medical means. Without treatment, prognosis as to recovery is always very unfavorable.

Complications.—Prolapsus of the uterus in its first and second degrees, and still more frequently in its third, produces the following complications:—

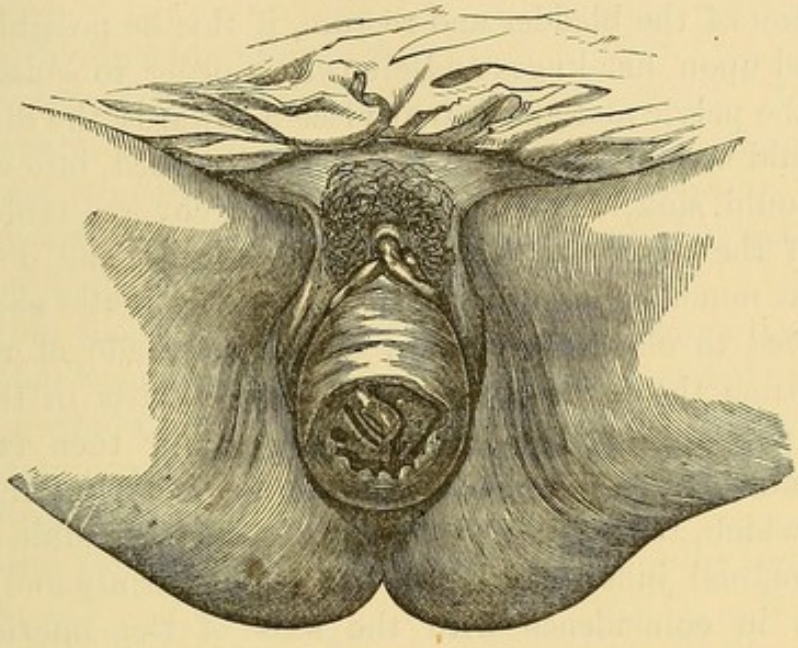
Congestion of the uterus and its appendages;
Endometritis and Fallopian salpingitis;
Chronic metritis;
Hypertrophic elongation of the cervix;
Cystocele;
Rectocele.

In consequence of these, we generally have as concomitant symptoms, leucorrhœa, sterility, dilatation and eversion of the cervix, disorders of the bladder and rectum, and sometimes cystitis. The reason for the occurrence of these will be appreciated by examination of Fig. 104.

So frequent is the occurrence of hypertrophic elongation of the cervix, that in 1858 M. Huguier, of Paris, stated before the Academy of Medicine, in that city, that, as a general rule, those cases regarded as being due to descent were not so, but were instances of this elongation which produced eversion of the vagina. In 1860, he published a work in maintenance of this view, and strongly recommended as a remedy amputation of the

hypertrophied part, or rather of as much of it as existed below the vaginal attachment. Since, for a great degree of uterine

Fig. 104.



Uterine mouth everted, bladder pulled down, and peritoneum stretched in both vesico and recto-vaginal cul-de-sacs. (Cruveilhier.)

descent, a corresponding inversion of the vaginal walls is essential, it follows very evidently that simultaneous displacement of the posterior wall of the bladder and anterior wall of the rectum, which are in close union with them, must occur.

Sudden Prolapsus may come on from any great effort, a fall, or violent contraction of the abdominal muscles, acting upon a uterus which is enlarged by hypertrophy, subinvolution, pregnancy, or tumors. In an instant the patient feels that something has given way within her, becomes prostrate and much alarmed, and suffers pain of expulsive character, as if desirous of forcing something from the pelvis. I have twice seen it occur within a fortnight after delivery from sudden and violent muscular effort, and once in a nulliparous girl of nineteen years. Should reduction not be effected at once, violent pain will be felt over the sacrum and groins, and the degree of traction exerted upon the pelvic peritoneum may result in dangerous inflammation.

Treatment.—The first indication as to treatment is to return the displaced organ to its normal position; the second, to keep it there.

Methods of Replacing the Uterus.—In general no difficulty will attend the performance of the first indication, but in some cases careful and intelligent taxis will be necessary. The best method for applying this is the following: the patient, after thorough evacuation of the bladder and rectum, if this be possible, should be placed upon her knees and elbows, in order to cause gravitation of the pelvic and abdominal viscera towards the diaphragm. She should not kneel upon a soft or yielding bed, into which the knees would sink, but upon the floor or a covered table, for the object of the posture is to elevate the buttocks, and depress the thorax as much as possible. Ten or fifteen minutes should then be allowed to elapse before any efforts are made at reduction. In this time the intense congestion which exists in the pelvic viscera will greatly diminish. The operator then taking the cervix into the grasp of his index, middle, and ring fingers, the tips of which, thoroughly greased, are allowed to slide up as far as the vaginal junction, pushes the uterus firmly and forcibly upwards in coincidence with the axis of the inferior strait. While the right hand is thus employed, the left rests upon the back of the patient and steadies her body. No sudden or violent force is exerted, but by steady pressure kept up, if necessary, for fifteen, twenty, or thirty minutes, the uterus is restored to its place.

Few cases will resist this kind of effort at reduction, although some of long standing may do so. For example, Dr. Alexander Monro has recorded a case in which prolapsus occurred in a child three years of age, which proved irreducible, and resulted in death. If the uterus did not recede, I should regard it as firmly bound down by adhesions, the result of cellulitis, and hope for no benefit from other mechanical means, all of which are far inferior to this.

Methods of Sustaining the Uterus.—Before pursuing any special course of treatment for this end, the practitioner should endeavor to discover the cause of the descent. If it be due to increase in the weight of the uterus, or to pressure exerted upon it from above, it is evident that the indication will be very different from what it would be if the cause were enfeeblement of its supports. Unfortunately, however, after the disease has existed for some time, it is not possible to fix definitely upon the cause; for even if it were originally increase of uterine weight, the long inversion

of the vagina, and stretching of the uterine ligaments involved in its descent, will have destroyed all power in these parts.

If a uterus be found prolapsed, whatever be the original cause of its dislocation, treatment can accomplish a cure only in one of two ways:—

1st. By diminishing uterine weight;

2d. By strengthening uterine supports.

As a general rule the practitioner confines himself to neither one of these, but fulfils both indications simultaneously.

Means adapted to Decreasing the Weight of the Uterus.—This is best accomplished by the following means:—

Removing weight of clothing by use of skirt-supporters;

Removing weight of intestines by prohibition of tight clothing, use of an abdominal supporter, and avoidance of effort;

Preventing accumulation of urine and feces;

Removing polypi, tumors, &c., by operation;

Removing uterine inflammation and congestion by appropriate treatment;

Amputation of the neck of the womb.

The skirt-supporter is merely a pair of suspenders that may be contrived by any woman of ordinary ingenuity, and which enables the patient to carry the whole weight of the under garments upon the shoulders. A representation of a very good one will be found on page 266.

There are many varieties of the abdominal supporter, some of which, unfortunately, are so constructed as to do absolute harm. Should compression be exerted by them upon the abdomen above the navel, it will tend to increase pressure upon the uterus, or at least to annul all the benefit of that exerted below this point. The principle upon which these supporters should act is this—they should do just what the patient's hands do when she places them above the pubes, and lifts the abdominal viscera. Some of them are composed simply of bands of thick cloth, others are pads or disks of horn or metal, with encircling bands like those of the hernial truss. Two varieties are represented on page 267. The physician may choose intelligently, if he only bears in mind what it is that he desires to accomplish by them.

During the pursuance of this plan the patient should be limited as to exercise and confined to bed during menstrual epochs, when the uterus is known to be heavier than at other times. Should

the accident have followed parturition she should be kept in the recumbent posture to allow the accomplishment of involution.

Amputation of the Neck.—Sometimes, by applying appropriate treatment to an hypertrophied cervix, the uterus is in time so much lightened that a cure is effected, but at others the hypertrophy is so persistent and rebellious that these means fail, and resort has been had to amputation of the neck. M. Huguier, of Paris, was, in 1848, the first to perform this operation for prolapsus, though it had long before been resorted to for cancer. Since that time it has been performed by many others, after methods which will be described in a chapter devoted to the operation.

Should these means fail, or should we fear lest they alone may be insufficient for the desired result, we should resort to those which accomplish the second indication.

Means for Strengthening Uterine Supports.—These may be thus enumerated:—

The recumbent posture;

Local astringents and tonics;

Perineal support and perineorrhaphy;

Pessaries;

The operation of elytrorrhaphy[1] for lessening the dimensions of the vagina.

It will be noticed that these means are chiefly directed to development of increased power in only one of the supports of the uterus, the vagina. This is not only from the fact that it is the most powerful factor in sustaining it, but also because we have no decided means by which the others can be affected.

The recumbent posture, persistently persevered in, accomplishes a great deal of good in cases of prolapsus in the first, and sometimes even in the second degree. The buttocks being elevated, the uterus retreats from the pelvis, and its supports are left entirely at rest. Opportunity is thus afforded the weakened tissues to contract, to gain tone and strength, and in time to resume their functions. The results of posture may be materially increased by simultaneous employment of the following agents.

Astringents and Tonics.—By these means the vaginal walls may be so strengthened as to sustain the uterus for a time, and thus

[1] ἐλυτρον, "the vagina," and ῥαφη, "suture."

keeping it out of danger of congestion from interference with circulation, opportunity is given for removal of engorgement or slight hypertrophy.

The astringents most commonly employed are tannin, alum, persulphate of iron, and the bark of the white oak. They may be injected into the vagina in solution or infusion, by means of the ordinary syringe; introduced in suppositories; or applied to the whole canal in powder, by the vaginal suppository tube represented on page 241. By means of this the patient may every night upon retiring leave in contact with the cervix one or two drachms of powdered alum or tannin, or if these prove irritating, a semifluid mixture may be prepared with glycerine and starch and deposited in the vagina by the same instrument.

Tonics may be locally applied by the use of cold hip-baths, douches, sea baths, and by copious vaginal injections of cold water, salt and water, or sea water, which is better. Surf bathing is peculiarly beneficial for this purpose, for it not only acts locally, but improves the tone of the whole system.

Perineal Support.—I have already pointed out the important function of the sphincter vaginæ in closing the mouth of the genital canal and offering a buttress for the support of its walls. When rupture of the perineum occurs, its sphincteric powers are impaired, and the result is sagging of one or both columns of the vagina and coincident descent of the uterus. By firm pressure at the weak spot, by means of a pad or cushion filled with hair, cotton, or air, and combined with an abdominal supporter, to which it may be attached, much relief is sometimes obtained. Where rupture of the perineum appears to have been the origin of prolapsus vaginæ, which has resulted in descent of the uterus, the operation of perineorrhaphy, described on page 118, may prove curative. But generally both this and episiorrhaphy, although efficient in cases of prolapsus vaginæ, will prove insufficient where so heavy a weight as the uterus needs support.

Pessaries.—The plan of giving support to the procident uterus by means of bodies of greater or less density placed in the vagina, naturally suggested itself to the fathers of medicine, and at present it is still resorted to. The varieties most commonly employed are the ring, the disk, the ovoid, the globular, the sponge, and the air pessary. All of these are open to one great objection, they are palliative and not curative; for while they sustain

the prolapsed organ temporarily, by their bulk they prevent the vagina from contracting and in time becoming capable of resuming its duty.

Fig. 105.

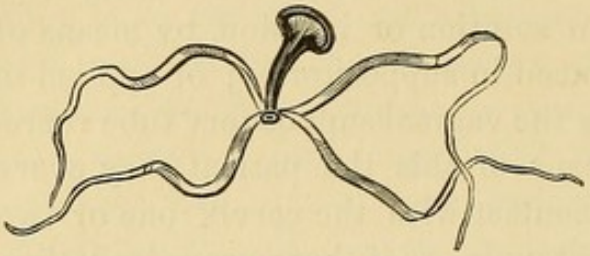


Fig. 106.

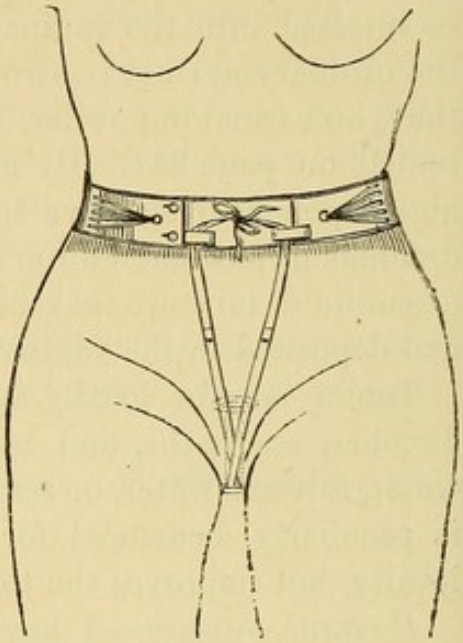
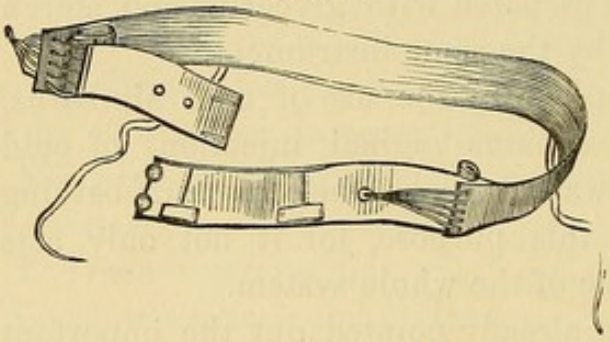


Fig. 107.



Coxeter's pessary.

Fig. 108.

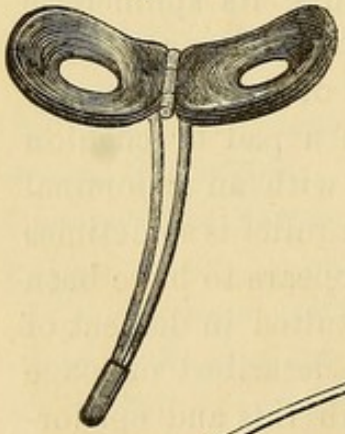
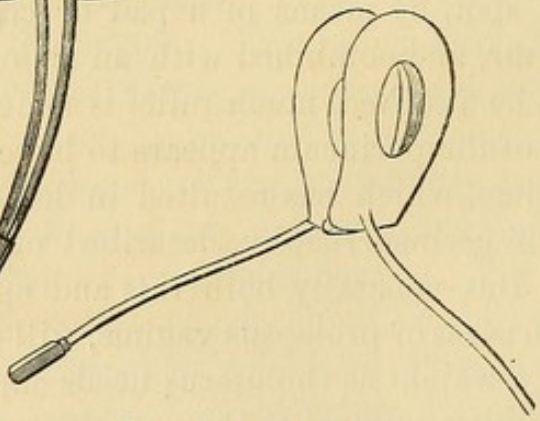
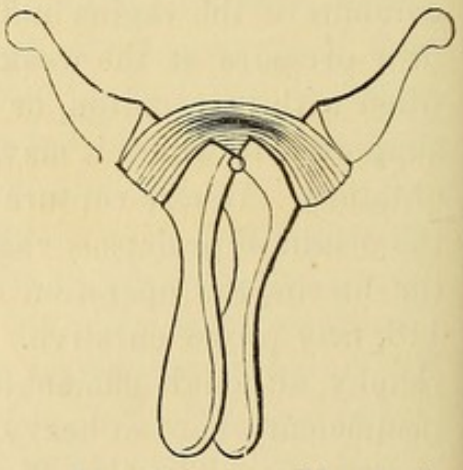


Fig. 109.



Zwanck's pessary.

Fig. 110.

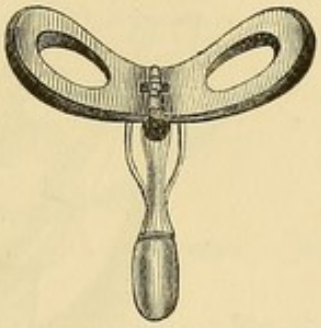


Zwanck's pessary of box-wood.

The desideratum is an instrument which will not distend the vagina at the same time that it will support the uterus. Such instruments as those represented in diagrams 105, 108, 112, and 113, relieve the vagina of all labor by assuming its duties with-

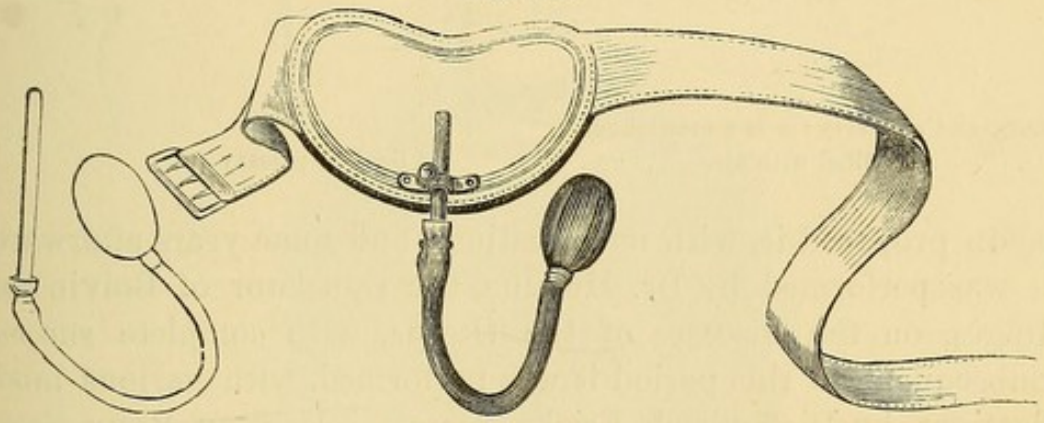
out distending it and thus allow it to regain its former tone and power.

Fig. 111.



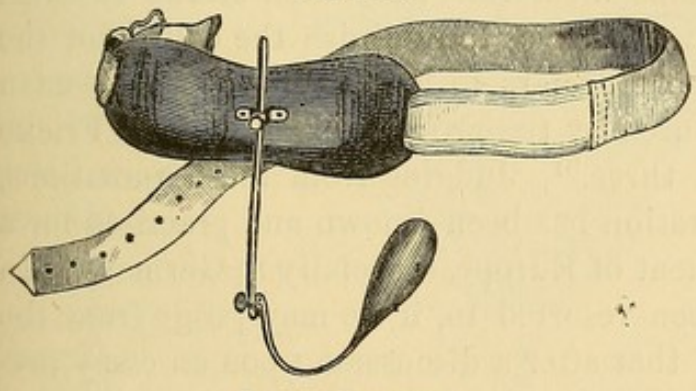
Coxeter's modification of Zwanck's pessary.

Fig. 112.



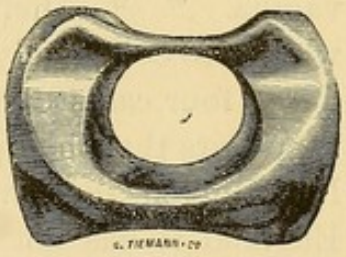
Roser's pessary.

Fig. 113.



Scanzoni's pessary.

Fig. 114.

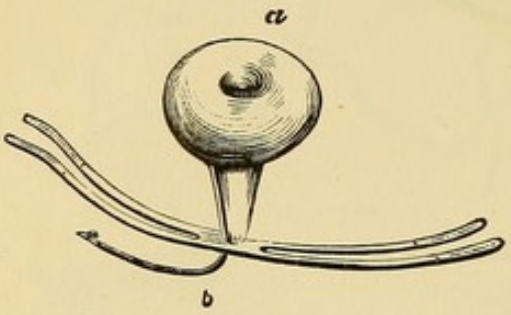


Hoffman's pessary shaped like the pelvis.

Elytrorrhaphy.—The idea of constricting the vagina so as to diminish its capacity and at the same time offer a column of cicatricial material for the support of the uterus, long ago suggested itself to the minds of practitioners for the relief of prolapsus uteri. In 1823 M. Romain Gérardin made the suggestion before

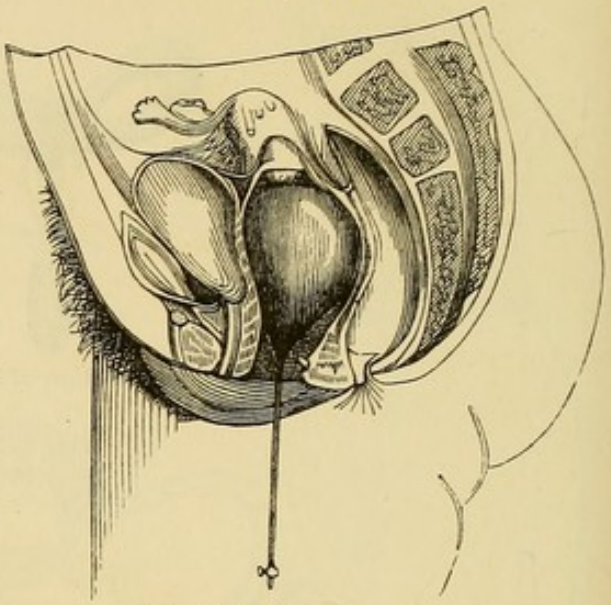
the Medical Society of Metz, but the operation does not appear to have been essayed. In 1831 Dr. Marshall Hall, of England,

Fig. 115.



Bourgeaud's pessary; *a* is a caoutchouc bag filled with air.

Fig. 116.



Gariel's pessary.

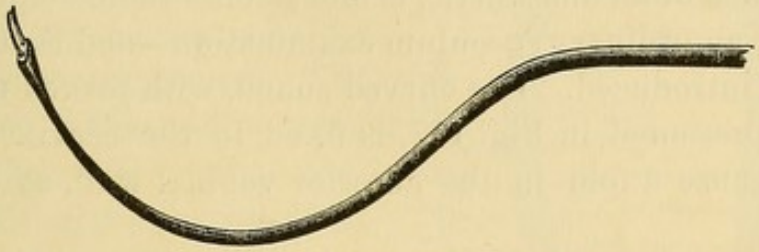
again proposed it, with modifications, and some years afterwards it was performed by Dr. Heming, the translator of Boivin and Dugès, on the Diseases of the Uterus, with complete success. Subsequent to this period it was performed, with various modifications, by Dieffenbach, Fricke, Scanzoni, Velpeau, Roux, Stolz, and others; the operation always consisting in "the removal of a band of vaginal mucous membrane and union of the two lips of the wound in such a manner as to diminish the calibre of the vagina. * * Dieffenbach refers to a great number of women who were completely cured by the procedure. * * * Fricke out of four cases cured three."[1] Judging from these quotations, it appears that the operation has been known and practised for a long time on the continent of Europe, especially in Germany. In England it has not been resorted to, if we may judge from the statement of Dr. Sims,[2] that after a discussion upon an essay presented by himself to the London Obstetrical Society, Mr. Spencer Wells called his attention to the operation of Mr. Heming, already referred to, with the assertion that "at least one case had been successfully operated upon."

[1] Wieland and Dubrisay, op. cit., p. 533.

[2] Uterine Surgery, p. 312, Am. ed.

Before the invention of Sims's speculum and method of vaginal exploration, this operation was practicable only by drawing the

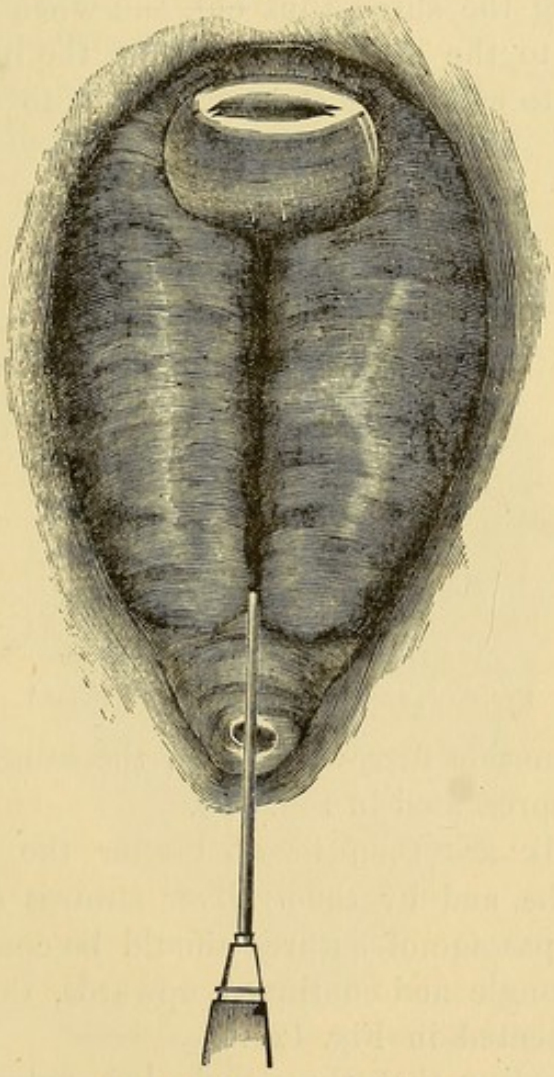
Fig. 117.



Sound with sharp points. (Sims.)

uterus down to the ostium vaginæ, and in all probability the reason for its limited adoption was the difficulty attending its

Fig. 118.



Uterus fixed by sound. (Sims.)

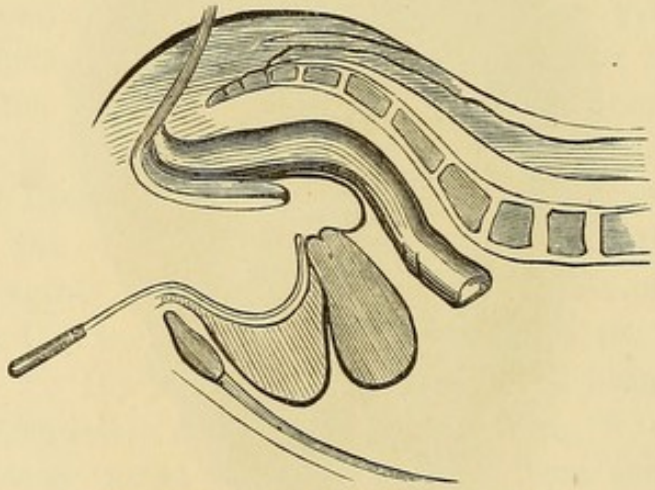
performance. I shall now proceed to describe Sims's method,

which differs very essentially from that adopted by his predecessors.

Sims's Operation of Elytrorrhaphy.—The patient being put under the influence of an anæsthetic, is laid upon a table—upon the left side as for an ordinary speculum examination—and Sims's largest speculum introduced. The curved sound, with forked tenaculum points, represented in Fig. 117, is fixed in the cervix uteri and made to cause a fold in the anterior vaginal wall, as shown in Fig. 118.

The parts being steadied by this instrument, the operator, by means of two tenacula, folds over the opposite walls of the vagina so as to decide where union is to be effected. Having settled this point, the mucous membrane is hooked up by a tenaculum several lines above the meatus and cut by curved scissors. The tenaculum lifting the shred thus cut, and when necessary being again attached to the mucous membrane, the incision is carried upwards so as to cut out a strip extending to one side of the

Fig. 119.



Speculum and sound in position. (Sims)

cervix. Then another furrow is cut in the same manner on the other side, as represented in Fig. 120.

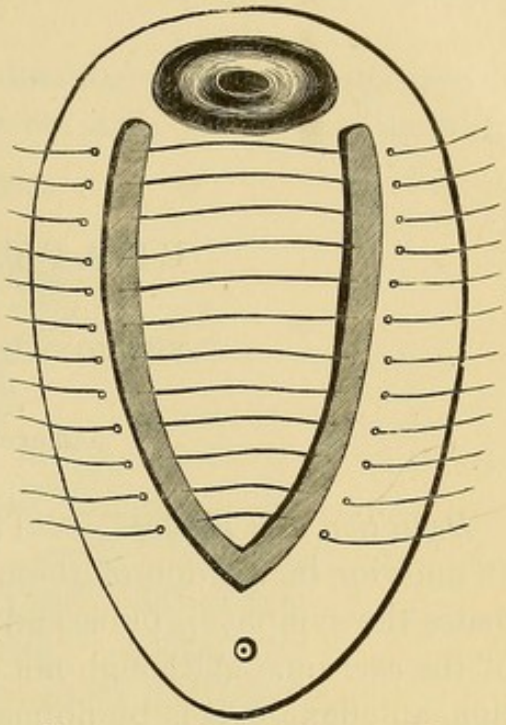
Sutures of silk are then inserted after the plan employed in vaginal fistulæ, and by them silver sutures are drawn into position. The passage of sutures should be commenced at the apex of the triangle and continued upwards, the sutures being placed as represented in Fig. 120.

Dr. Emmet finding that the pouch, left anterior to the uterine neck by this procedure, was sometimes entered by the cervix, improved the operation by closing it as represented in Fig. 121.

The sound being removed and the cervix pulled down by a small tenaculum, the transverse line of denudation, shown in the diagram as uniting the two arms of the V, is accomplished. The only further difference between this and the other method consists in quilting the sutures. This is not properly shown by the diagram.

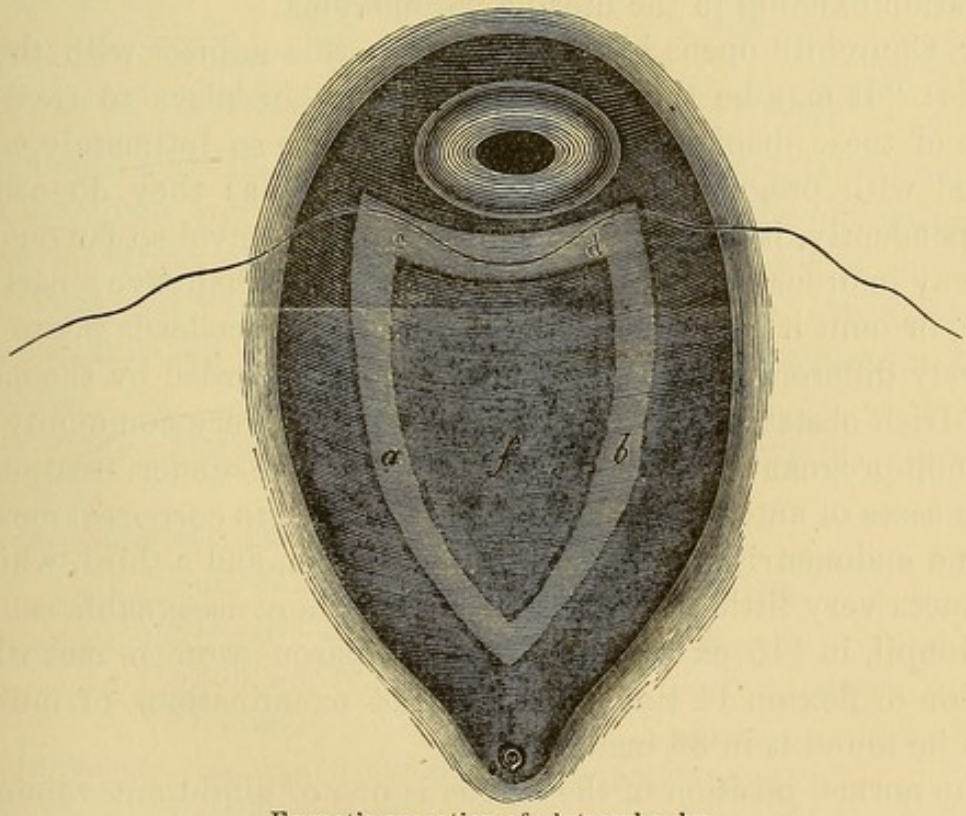
The after-treatment consists in perfect quietude in the horizontal posture, the use of opium, frequent removal of urine by a catheter, and the production of constipation. The lower sutures may be removed in ten days,

Fig. 120.



Sims's operation of elytrorrhaphy, sutures in place.

Fig. 121.



Emmet's operation of elytrorrhaphy.

and the upper in a fortnight. The patient should be kept in the recumbent posture for two or three weeks, and cautioned against immoderate muscular effort for some time afterwards.

CHAPTER XXII.

VERSIONS OF THE UTERUS.

Anteversion.

Definition and Frequency.—This disorder of position consists in an anterior inclination of the uterus, so that the fundus approximates the symphysis pubis and the cervix retreats into the hollow of the sacrum. Although not so frequent as its kindred condition, anteflexion, it is by no means of rare occurrence. At times it presents itself as an annoying complication of chronic metritis or fibroid growths, while at others it is produced without any alteration existing in the uterine parenchyma.

Dr. Churchill[1] opens his chapter upon this subject with these words: "It may be thought somewhat out of place to treat of some of these displacements here, as they are so intimately connected with pregnancy and parturition; but as they do occur independently, it appears to me preferable to travel so far out of the way in order to complete the subject, rather than give a partial view, or omit it altogether." My own experience leads me to an entirely different conclusion from that here recorded by the eminent Irish obstetrician. I meet with versions very commonly in the non-pregnant state. At this time I have under treatment three cases of anteversion, one of which is due to corporeal metritis and endometritis, one to a small neoplasm, and a third, which produces very little disturbance, exists without assignable cause. M. Goupil, in 115 examinations of nulliparous women, met with version or flexion 14 times; and in 114 examinations of multiparæ he found it in 36 instances.

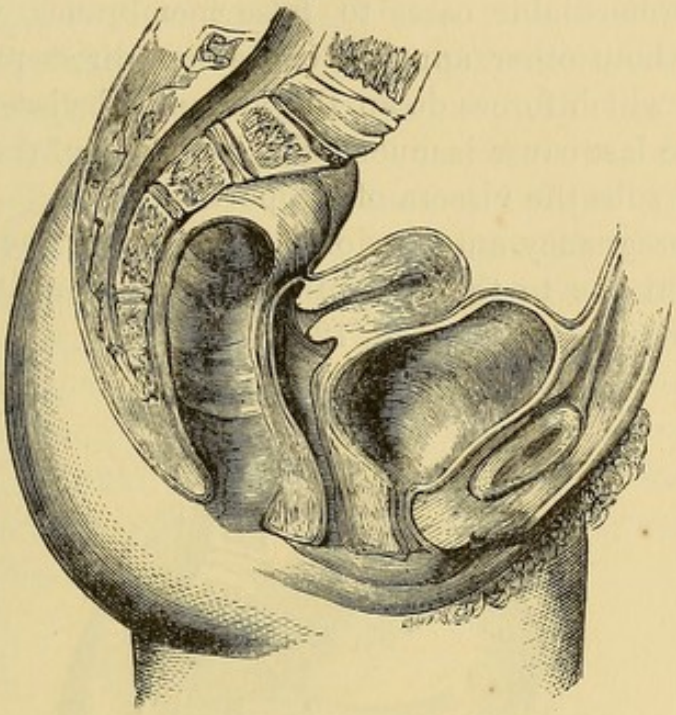
The normal position of the uterus is one of slight anteversion, the axis of the body corresponding with that of the superior strait,

[1] Diseases of Women, Am. ed.

which is a line running from the umbilicus, or a little above it, to the coccyx.

The degree of this forward inclination may be so increased by slight causes as to constitute a morbid state. As to the line which

Fig. 122.



Normal position of uterus. (Wieland and Dubrisay.)

separates what is normal from what is abnormal, it is impossible to lay down any exact rule; experience must be our guide. In general terms, we may say that when the long axis of the uterus is found lying across the pelvis, the fundus near the symphysis pubis, and the neck in the hollow of the sacrum, anteversion exists.

Causes.—The causes of anteversion may be thus presented at a glance.

Influences increasing the weight of the uterus.

Inflammation;
Subinvolution;
Neoplasms;
Pregnancy.

Influences forcing the fundus directly forwards.

Violent efforts;
Abdominal effusions;
Abdominal tumors;
Tight clothing.

Influences dragging the fundus directly forwards.

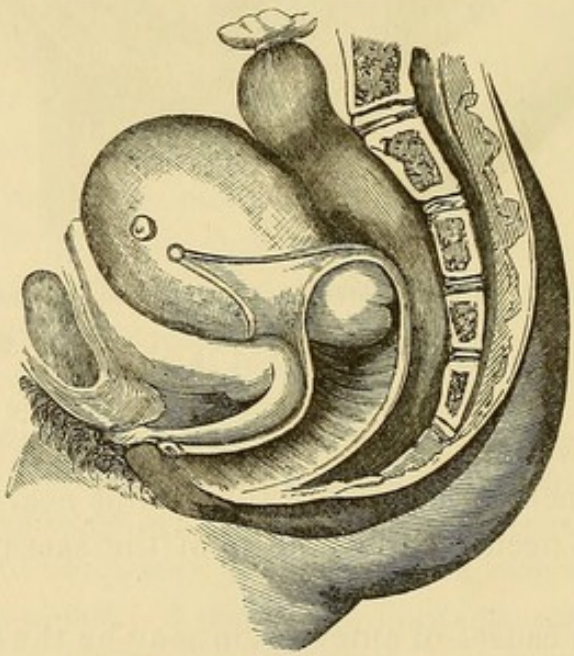
False membranes;

Shortness of the round ligaments.

A certain number of cases will be found due to metritis, a number by no means inconsiderable to fibrous tumors, some of the most irremediable cases to false membranes, while a few will exist without other apparent cause than direct pressure from some power which forces down the abdominal viscera upon the fundus. The last cause is much aided by laxity of the abdominal walls, which robs the viscera of support.

In early pregnancy anteversion always exists, the increase of uterine weight due to that condition causing the uterus to fall forwards as represented in Fig. 123.

Fig. 123.



Position of the pregnant uterus.

Symptoms.—In a certain number of cases anteversion will be found to exist without creating any disturbance either constitutional or local. When symptoms do exist with it, they are generally the result of the disease which produces it. At times, however, by pressure of the os against the posterior vaginal wall, it induces dysmenorrhœa and sterility, and by pressure of the fundus against the bladder, and the cervix against the rectum, these viscera are irritated and interfered with in their functions. The bladder more especially suffers, sometimes a state bordering

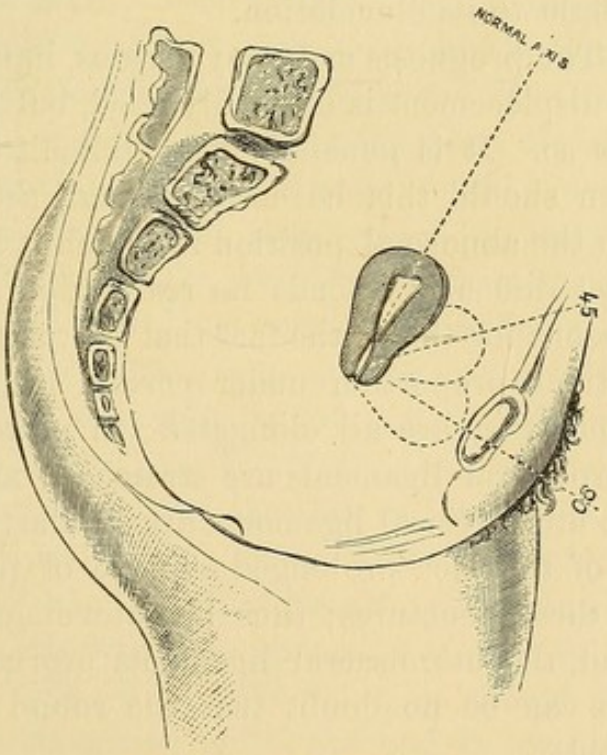
upon cystitis being engendered. Pressure upon the rectum more rarely produces tenesmus and a painful, irritable state.

Course, Duration, and Termination.—Very little need be said on these points, for they depend upon the peculiarities of the affections which have caused the displacement. If the cause be removed, whether it be metritis, fibrous tumors, direct pressure, or traction, the effect will disappear; but until this be done no hope of permanent restitution can be indulged.

Varieties.—Anteversion may be complete or partial. While there are three degrees of retroversion and of prolapse, there are but two of this displacement, for the axis of the uterine body is naturally inclined so much forwards as to prevent us from including slight increase of inclination under the head of disease.

The following diagram, Fig. 124, will show the varieties referred to; an inclination of 45° representing the first degree, or partial anteversion, and that of 90° the second degree, or complete anteversion. I have never met with the second degree, although it unquestionably occurs.

Fig. 124.



The degrees of anteversion.

Diagnosis.—When in a case of this displacement the vaginal touch is practised, the patient lying on the back, the index finger passed into the fornix vaginæ discovers that the cervix is absent.

A rapid investigation will prove that it is not to be found in the pubic or lateral regions of the pelvis, and deep exploration with two fingers will discover it high up in the hollow of the sacrum. The finger being then passed towards the pubes will come in contact with a hard ridge, which will run towards the symphysis. Conjoined manipulation will prove this to be the body of the uterus, and complete the diagnosis. Should further evidence be required, the uterine probe, very much curved, may be passed into the cavity, though this is rarely necessary and always difficult.

Differentiation.—Capuron[1] tells us that Levret mistook the first case he saw for stone in the bladder, operated for this, and sacrificed the life of the patient. In spite of such a grave mistake at the hands of so great an authority, it may be stated that there is no diseased condition with which this should be confounded. The disease inducing the displacement may not be recognized, or some serious error may be made as to its nature, but that does not concern the present subject. The recognition of the mere fact of the anteversion is never difficult, if proper diagnostic means are brought to its elucidation.

Prognosis.—The prognosis as to any serious injury which will arise from the displacement is decidedly good, but that as to cure is by no means so. It is generally very difficult to remove the cause, and even should this be accomplished, the uterus is so prone to retain the abnormal position in which it has been long kept, that great difficulty attends its restoration and retention. One of the reasons for this is the fact that the uterine ligaments readily alter their proportion under certain influences. Thus during pregnancy they are all elongated; in posterior displacements the utero-sacral ligaments are stretched; and in anterior inclination the utero-vesical ligaments are similarly affected. As the antithesis of this fact, prolonged absence of function causes contraction in these structures; thus in anteversion, as Dr. Sims has pointed out, the utero-sacral ligaments are generally shortened, and there can be no doubt that the round ligaments are similarly altered.

Treatment.—The first point which the practitioner should settle before commencing treatment, is whether the displacement is the main source of existing morbid phenomena, or whether these are

[1] Mal. des Femmes, p. 202.

due to some disease which underlies that condition. If he be led to regard the disorder of position as the disease, its rectification by artificial support must constitute the chief object of his attention. But if he view it merely as a result of metritis, fibrous tumor, or pelvic peritonitis, his only hope of relieving it must rest in the cure of the special disorder which is its source. It should not be concluded, however, that treatment by artificial support must be confined to cases of pure, uncomplicated displacement, for it is very often required where this is the result of other disease. We are called upon to alleviate one of the most annoying symptoms of disease here, as we are in so many other instances. Pessaries are frequently applied to the uterus as splints are to the fractured femur, not as a means of cure, but as adjuvants in treatment by which rest and freedom from pain can be procured while the healing process advances.

Means for Reduction.—In the restoration of an anteverted uterus to its place, difficulty will rarely be experienced, for unlike retroversion, the displacement does not often become complete. Even when it does so, reduction may be thus accomplished.

The bladder having been emptied by the catheter, the patient should be placed upon her back on a hard bed or table, and all tight clothing removed from the abdomen. Her shoulders should be unsupported, and her buttocks very much elevated by pillows. The operator having oiled two fingers should then pass them into the vagina, and press their tips against the body of the uterus, which will have forced the walls of the bladder down before it. The fingers of the right hand being thus employed, the left should be laid upon the abdomen, so as to push up the abdominal viscera and uterus when reduction is attempted. The patient is now directed to fill the lungs with air, and then to expel it gently by a prolonged expiratory act. As this expiration is being finished, the operator presses up the body of the uterus by the fingers in the vagina, and the abdominal viscera and fundus by the hand on the abdomen. He will very generally at once succeed in replacing the organ. Should he not do so, he should repeat the process as above described, until the end is attained. Of course where the dislocation is partial, restoration may be much more easily effected; but in this case it accomplishes nothing—for no sooner does the force applied cease, than the organ again falls out of place. In such a case the fundus is lifted by bi-manual mani-

pulation, then the hand on the abdomen keeping it up, the finger in the vagina is placed behind the cervix, and this part is pulled forwards towards the symphysis.

Some practitioners rely for cure upon the daily restoration of an anteverted or retroverted uterus—but hopes thus based will prove delusive. Where the version is complete and sudden, a return to the normal position may be final; but never have I, in a single instance, seen it so result where the displacement was incomplete and gradual.

Means for Retaining the Uterus in Position.—For this purpose we have the five following means:—

The dorsal decubitus;
Prolonged retention of urine;
Removal of pressure from the abdomen;
The abdominal supporter;
Pessaries;
Elytrorrhaphy.

The dorsal decubitus in cases occurring suddenly, as for example during pregnancy or after labor, is of great value, but in chronic cases it cannot be relied on, for the patient should not be confined to bed. Even in these, however, when practised for two or three hours at mid-day, it gives great relief.

Prolonged retention of urine was first recommended by Piorry. It is a means of no great value, but is certainly worthy of trial.

Removal of Abdominal Pressure, by prohibition of tight clothing, of heavy skirts supported by the hips, and of all constricting bands which cause a substitution of abdominal for thoracic respiration, is too often neglected in these cases. It is a means of great value, and often gives more relief than any other at our command.

The Abdominal Supporter.—In proportion to the disadvantages resulting from corseting the upper segment of the trunk, are the advantages to be derived, in these cases, from thus acting upon the lower. When the abdominal walls are lax and yielding, and do not properly sustain the viscera, they fall upon the fundus uteri, and tend to produce and keep up anterior obliquity.

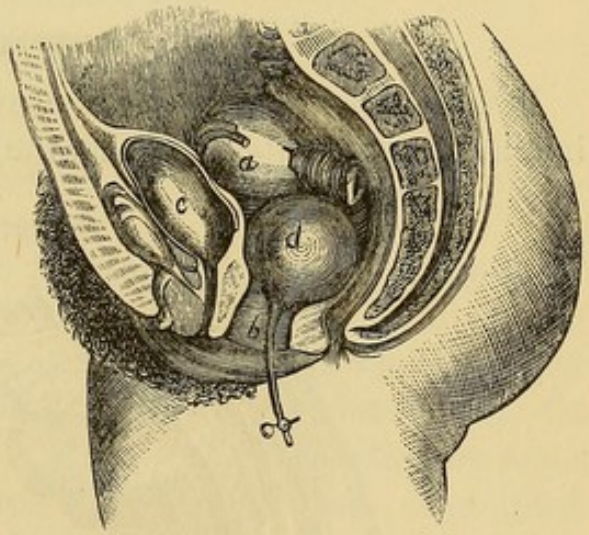
No one can deny that by a well-fitting abdominal supporter, tone is given to the lax walls, and that the intestines, not the uterus, are sustained. I have already stated that many are prejudiced

against this means, and decry it as absolutely injurious; but I see it too plainly and certainly productive of good results in daily practice to admit of any doubt in my mind concerning it. Dr. J. C. Nott offers a very plausible explanation of the fact that in some women benefit follows their use, while in others, absolute injury results from their employment. If the patient be emaciated, says he, and the abdominal walls retracted or even flattened, the supporter will depress and not sustain the uterus. On the other hand, if the woman be corpulent, the greatest support will be yielded by its application.

Pessaries.—These instruments usually accomplish much less for anterior than for posterior displacements. In some cases, however, great relief can be obtained by them, and a trial should always be made. Sometimes benefit results from merely lifting up the displaced organ by a ring or double lever pessary, but I have obtained better results from an instrument which acts directly upon the prolapsed fundus.

This pessary for anteversion I have been in the habit of constructing out of the ordinary block tin ring of Sims, or by bending forwards, under heat, the hard rubber stem of Cutter, so that while one portion of the stem runs from the coccyx along the sacrum, its upper extremity passes forwards and sustains the fundus.

Fig. 125.

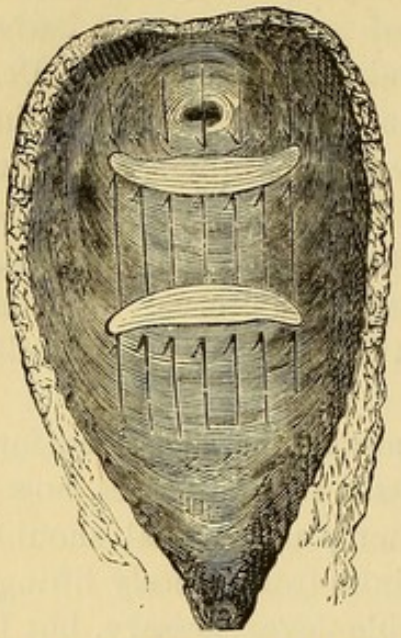


Gariel's air pessary in place. (Wieland and Dubrisay.)

In some cases the air pessary of Gariel, combined with the abdominal supporter, answers a good purpose. Although no single resource will surely effect a good result, two or more of those mentioned, employed in combination, will often be successful.

Elytrorrhaphy.—Should they fail, we may resort to an operation recommended by Dr. Sims as having been successful in his hands, which consists in shortening the anterior wall of the vagina. This operation applied to the purpose indicated, has as

Fig. 126.



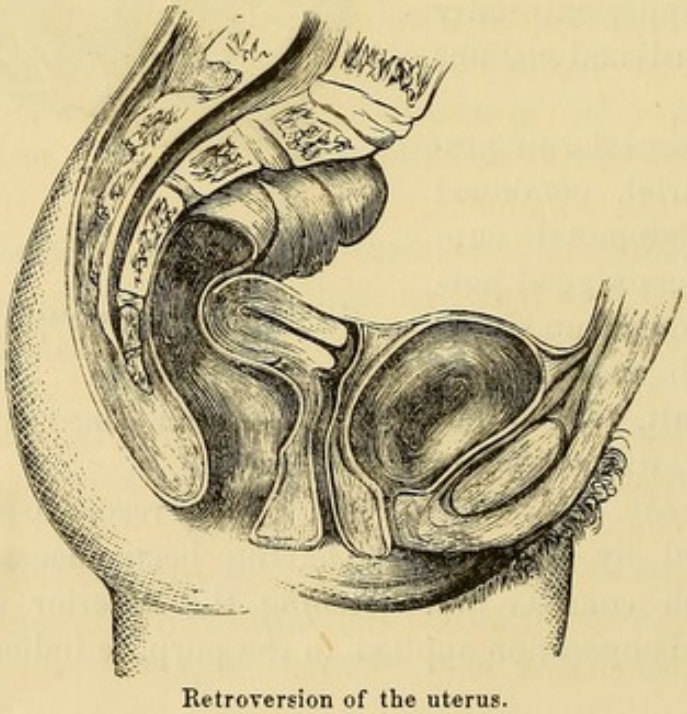
Operation for shortening anterior vaginal wall. (Sims.)

yet been very little tried, but it is worthy of attention from the facts that it commends itself to the reason, and comes to us indorsed by excellent authority. It is thus described by Dr. Sims: two surfaces a half inch wide and running nearly across the anterior wall of the vagina, the one in juxtaposition with the cervix, and the other an inch and a half or more anterior to it, are to be denuded of mucous membrane. They are then brought into apposition by silver sutures, the patient put to bed, and the stationary catheter introduced. At the end of a fortnight the sutures may be removed, when the wall operated upon will be found shortened, so as to draw the cervix towards the symphysis. It is represented by Fig. 126.

Retroversion.

Definition and Frequency.—Retroversion consists in a posterior inclination of the uterus, so that the fundus approaches the sacrum

Fig. 127.



Retroversion of the uterus.

and the cervix advances towards the symphysis pubis. As an idiopathic primary lesion, it is of extreme rarity, but it is frequently symptomatic of inflammatory disease or other states which increase the weight of the uterus.

Causes.—These may be classified under four heads:—

Influences increasing uterine weight.

Neoplasms;
Subinvolution;
Metritis;
Pregnancy;
Results of parturition.

Influences dragging the uterus out of place.

Adhesions from pelvic peritonitis or peri-uterine cellulitis.

Influences forcibly displacing the uterus by direct pressure.

Severe succussion by blows or falls;
Muscular efforts;
Distended bladder;
Tumors;
Management after parturition.

Influences weakening uterine supports.

Pregnancy;
Tumors;
Relaxation of vagina;
Rupture of perineum.

As might be presumed from the natural anterior obliquity of the uterus, anteversion not unfrequently occurs as an idiopathic lesion, resulting from pressure of superincumbent viscera forced down upon the fundus by tight clothing or muscular efforts. Of retroversion this is seldom true. It generally depends upon some pathological state in the uterus or its appendages. The third class of causes mentioned as retroverting the organ by direct pressure, may act through violent succussion and induce sudden displacement with symptoms of most urgent character. Prolonged pressure from a distended bladder or from a tumor anterior to or above the uterus, may likewise induce gradual displacement. Anteversion is most commonly encountered in unmarried women, while retroversion occurs generally in those who have borne children. A little reflection will explain how the management of parturient women, by British and American practitioners

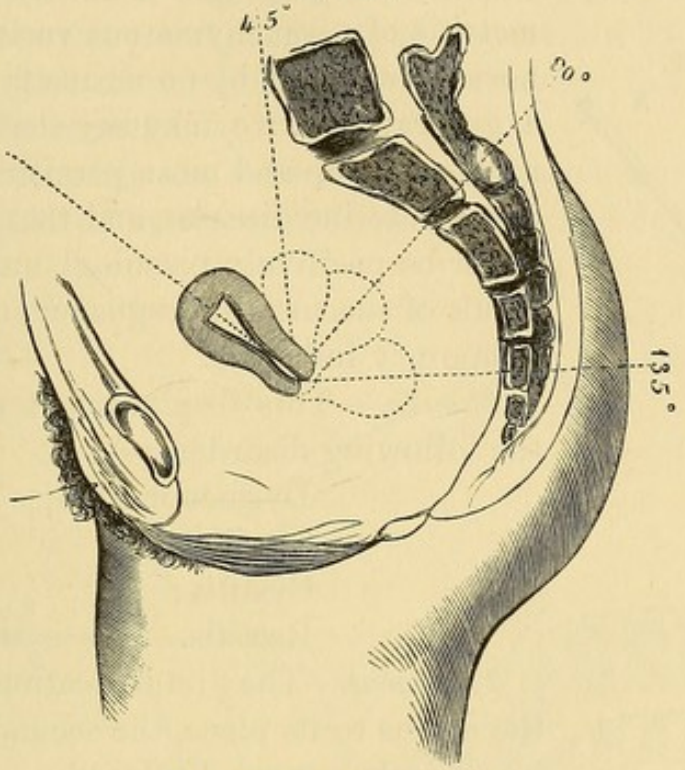
at least, favors the occurrence of the accident. In the first place, it must be remembered that pregnancy combines in itself two of the influences which are productive of this condition, increased weight and relaxed support. It is no exaggeration to assert that the usual plan of management after parturition supplies one of the others which are mentioned above. The woman lying almost constantly upon her back, the heavy fundus naturally tends to fall backwards into the hollow of the sacrum. Many nurses insist upon this position and often for days refuse the patient the privilege of lying upon the side. But this is not all, many a nurse's reputation among ladies rests upon her capacity for "preserving the figure" by tight bandaging. A powerful woman will often expend her whole force in making the bandage as tight as possible to accomplish this purpose. No one who has watched the process can doubt its influence in displacing the uterus by direct pressure. There is no practice connected with the lying-in room, to which so much of almost superstition attaches as to the use of the obstetric bandage for preservation of the figure and prevention of hemorrhage.

Varieties of Retroversion.—It may exist in slight degree, the uterine axis inclining so as to make with that of the superior strait an angle of 45°; or it may incline to 90°, thus lying across the pelvis; or the cervix may be thrown up and the fundus descend so as to form an angle of 135°. These varieties are known as the first, second, and third degrees of retroversion.

Symptoms.—Although retroversion is often itself a symptom, it creates disturbances which without its existence would not have shown themselves. For this reason it is difficult to determine what elements of the case are due to it, and what depend upon the disorder producing it. It may exist without adding anything to the catalogue of symptoms, as proved by the fact that its removal accomplishes nothing in the way of relief; but very often it creates tenesmus of bladder and rectum, together with a low grade of inflammation in the lining membrane of these viscera; fixed, gnawing pain in the back; discomfort in locomotion; and pain in defecation. But these are not sufficient for diagnosis, and often do not excite suspicion of its existence. It is generally discovered by vaginal touch. These remarks do not apply to sudden retroversion, the result of succussion, in which variety the symptoms are marked and severe. The patient

falls to the ground and is unable to rise, experiences the severest pelvic pain, suffers from suppression of urine and feces, and is

Fig. 128.



The degrees of retroversion.

often in such agony that the face is bathed with perspiration and the pulse becomes weak and fluttering.

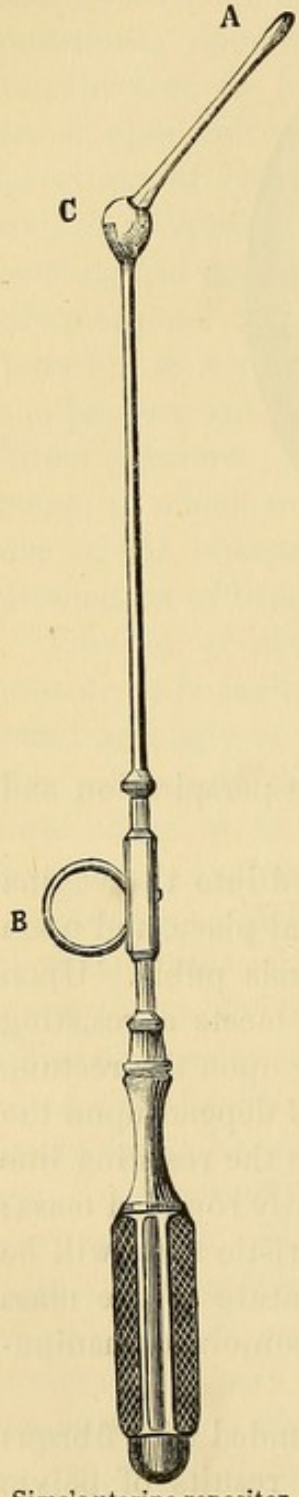
Physical Signs.—The finger being introduced into the vagina discovers an absence of the cervix from its usual place, and upon further investigation finds it near the symphysis pubis. Upon passing the finger backwards to the sacrum it meets a resisting ridge which ends in a hard, round mass, resting upon the rectum. The size, rotundity, and distinctness of this will depend upon the degree of the displacement. In the first degree the resisting line but no tumor will be felt; in the second, a slightly rounded mass; and in the third, the fundus with its characteristic form will be perceived. Should doubt remain as to the nature of the mass thus felt, the rectal touch, uterine probe, and conjoined manipulation will remove it.

Differentiation.—This affection may be confounded with fibrous tumor on the posterior uterine wall, and the results of pelvic peritonitis or cellulitis. A little attention to the direction of the uterine axis as demonstrated by the position of the cervix, the

use of conjoined manipulation, and the passage of the uterine probe will usually settle the question at once.

Prognosis.—This will depend to a great degree upon the disease of which the displacement is a symptom. Generally this will be metritis of parenchymatous variety, the prognosis of which is by no means favorable. As a general rule, we may say that retroversion is an obstinate and most persistent complication of uterine diseases, and that its relief can never be positively promised, unless it be the result of succussion, pregnancy, or some other temporary influence.

Fig. 129.



Sims's uterine repositor.

Results.—This displacement may produce the following disorders:—

Dysmenorrhœa;
Sterility;
Cystitis;
Rectitis.

Treatment.—The first indication is to restore the uterus to its place, the second to prevent its again becoming displaced.

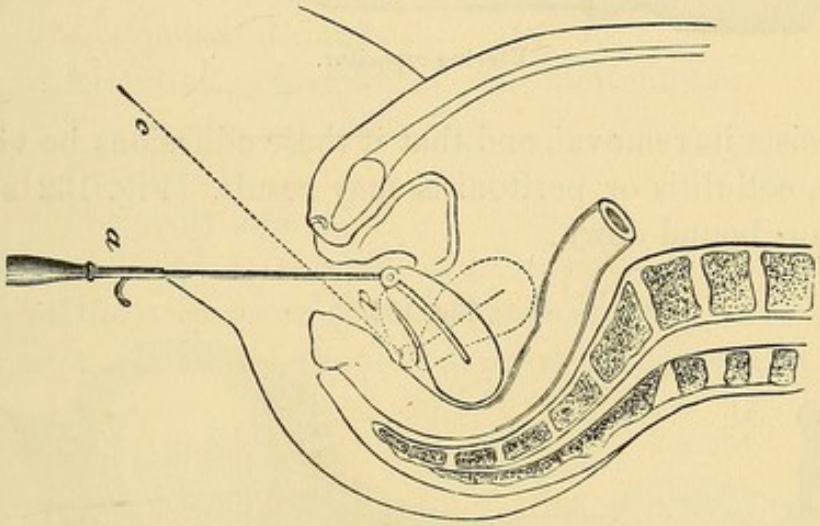
Means for Reduction.—The bladder and rectum having been evacuated, and the clothing loosened, the patient is made to kneel upon a hard surface, and to place the sternum as closely as possible in contact with the plane which supports her. The practitioner then oils two fingers and carries them into the vagina and against the fundus. He then directs the patient to fill the chest with air, and expel it completely. As she does so he forcibly elevates the fundus and restores it to its place. Should this plan fail, the buttocks should be still more elevated by placing cushions under the knees and the attempt repeated.

If it cannot be restored in this way, Sims's repositor is an excellent instrument for the purpose, and should be employed. This instrument, which is represented by Fig. 129, consists of a short metal sound A terminating in a ball C. The ball is

clasped by a straight shaft, moves upon a pivot running through its centre, and is perforated by seven holes. Through the shaft runs a rod which is projected by a concealed spring, that is governed by the finger passed through the ring B. The ball can be made to revolve so that the sound describes a half circle, by withdrawing the stop-rod which runs through the shaft and depressing the instrument.

Fig. 130 represents the instrument introduced, and reposition being accomplished by retracting the stop-rod and depressing the ball.

Fig. 130.



Replacing a retroverted uterus. (Sims.)

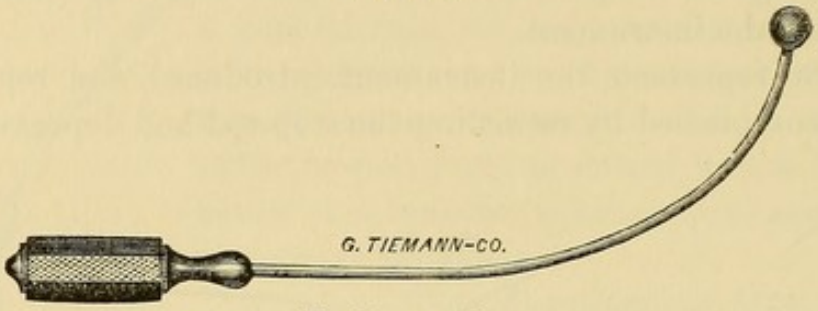
Another very efficient instrument for this purpose is the repositor of Prof. G. T. Elliot. This consists of a jointed rod acted upon by a screw at one end and covered over with elastic webbing, similar to that employed in the manufacture of catheters. By means of the screw the desired curve is given the instrument to enable it to pass into the uterus, then by reversing the action the displaced organ is lifted to its normal position.

In the majority of instances reposition is perfectly practicable by conjoined manipulation or rectal taxis, or by means of two sponge-holders, or the repositor represented in Fig. 131, which consists of a steel rod ending in a hard rubber bulb which passes into Douglas' cul-de-sac.

Good results will often attend carrying a sponge staff up the rectum and another up the vagina, so as to make pressure upon the displaced fundus, after the plan adopted by Dr. Bond, of Phila-

delphia, in his ingenious repositor, which is represented in Prof. Meigs's work on Midwifery. In replacing a uterus in this or any other malposition, the operator should never forget that inflammatory action may have caused an effusion of lymph around it

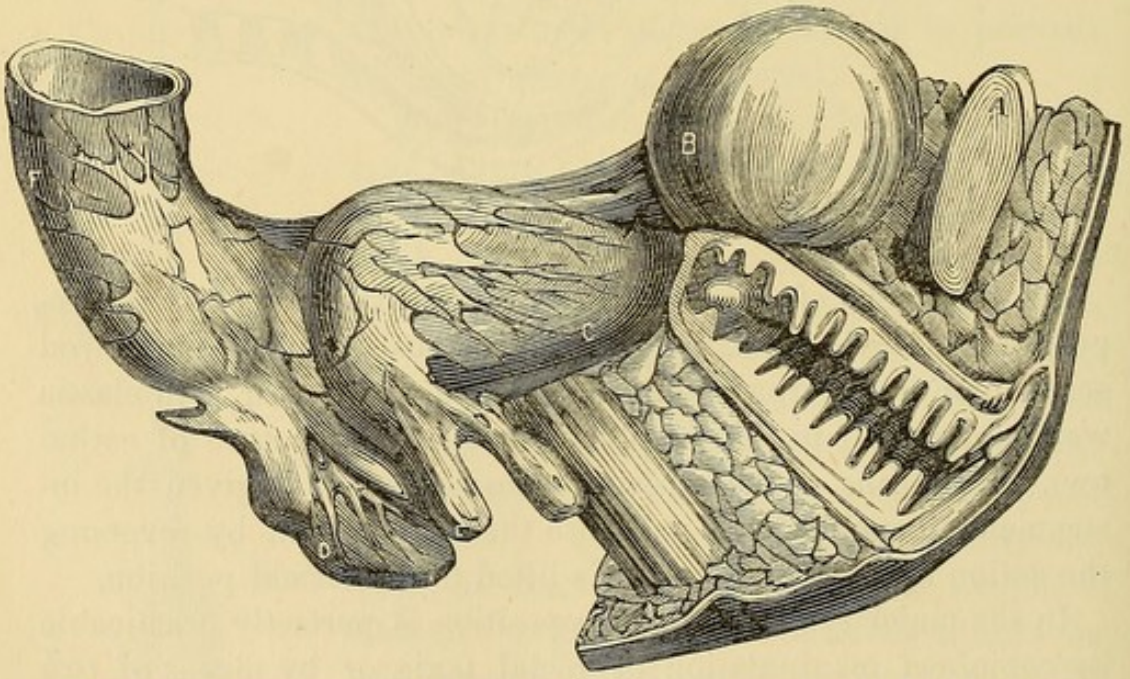
Fig. 131.



Uterine repositor.

which resists its removal, and that if these adhesions be violently ruptured, cellulitis or peritonitis may result. Fig. 132 shows a uterus thus bound down.

Fig. 132.



The uterus is here represented in a state of retroversion and bound down by false membranous attachments. (Picard.)

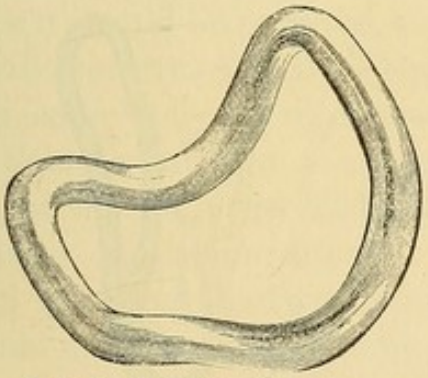
Means for Retention.—Having restored the organ to its normal place, the question which should next suggest itself is not how to retain it there, but whether such retention is advisable, practicable, and void of danger; whether the patient is suffering from

symptoms especially referable to the displacement, or this is merely a sign of existing disease, upon which it exerts no influence. If it be regarded as a symptom which is doing no evil of itself, the disease of which it is a result should be treated in the hope that this symptom will vanish with the disappearance of its other concomitants. Thus, if metritis exist, it should be cured; if a polypus, it should be removed, &c. But if the primary disorder have disappeared and this one of its results remain, or if the original disease be still present, and the displacement be regarded as aggravating it, and adding to the discomfort of the patient, an effort should be made to overcome it by local means. Our resources for accomplishing this are the following:—

Abdominal decubitus;
Attention to keeping the bladder empty;
The abdominal supporter;
Pessaries;
Perineorrhaphy.

As I have alluded to the action of most of these methods in speaking of the treatment of anteversion, I shall not repeat my remarks here. With reference to pessaries and perineorrhaphy

Fig. 133.



Hodge's closed lever pessary.

Fig. 134.

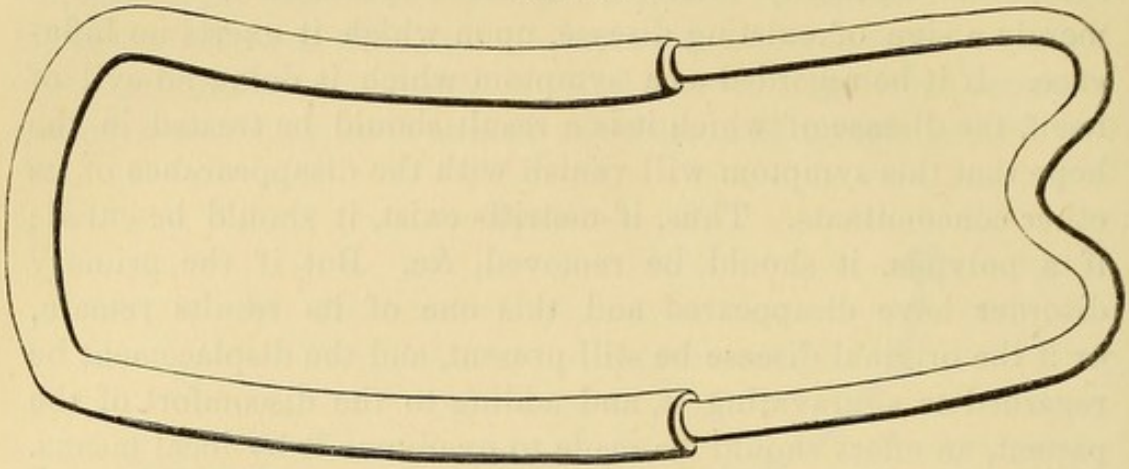


Hodge's open lever pessary.

a few words will be necessary. In speaking of the use of pessaries in anteversion, I stated that they accomplished very little. In retroversion, they are more efficient, and often afford decided relief. The instruments which will be found most useful are the closed or open lever pessaries of Prof. Hodge, the block-tin pessary of Sims, the ring of Prof. Meigs, the spring-lever pessary of Scattergood, and the pelvic pessary of Hoffman.

An excellent instrument for sustaining the retroverted uterus

Fig. 135.



Scattergood's pessary, with spiral springs in branches.

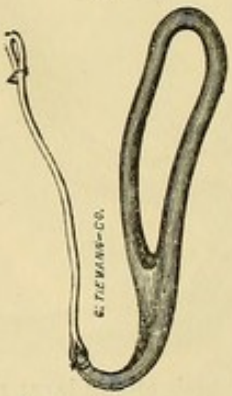
is that of Dr. Cutter, of Massachusetts. (Fig. 137.) The inferior extremity of this pessary arches backwards over the coccyx and attaches to an elastic cord which passes upwards over the sacrum to a girdle around the waist. It is a painless and efficient method of giving support, and will gain a high reputation on account of these qualities, not only in displacement backwards, but, with a little alteration, for those in an anterior direction. The class of cases to which it is especially applicable, is that in which the

Fig. 136.



Sims's block-tin pessary.

Fig. 137.



Cutter's pessary.

displacement is due to enfeeblement of the posterior vaginal walls from rupture of the perineum or other cause. When employed for posterior displacements the upper extremity of the instrument simply lies in Douglas's cul-de-sac, the cervix of course not entering the fenestra. For anterior displacements the instrument must be heated in boiling water, and its upper end bent so as to bring the superior extremity against the anterior uterine wall, and allow the cervix to fall into the fenestra.

Messrs. Tiemann & Co. have recently modified and improved Meigs's ring pessary by making it of a very delicate ring of whalebone covered by India rubber. It is so elastic as to assume any shape required by the pelvis, and answers an excellent purpose in patients who are so sensitive as not to be able to bear a less pliable support.

Fig. 138.



Meigs's ring pessary.

Sometimes one of the stem pessaries, represented on page 336, may be made to answer a good purpose. When no pessary can be tolerated, a roll of cotton or bit of sponge saturated in glycerine, or, as is better, in a solution of sulphate of copper or zinc, may be packed in the space behind the cervix so as to be made to sustain the fundus. It was success by this plan in a very aggravated case which led Dr. Hoffman to devise the instrument represented on a preceding page. Whatever instrument be employed it should pass into the recto-uterine space, and sustain the displaced fundus without creating pain or discomfort. Should any such inconvenience be produced, it should be at once removed, for the most violent cellulitis may result. While a pessary is kept in the vagina, cleanliness should be secured by daily vaginal injections, and at intervals not exceeding two or three months it should be removed, examined, and reintroduced. Pessaries will sometimes produce severe ulceration, and pass from the vagina completely through the septum into the rectum or bladder. Some years ago a case entered the service of Prof. L. A. Sayre, of the Bellevue Medical College, presenting very obscure symptoms of uterine disease. Examination proving that some foreign substance existed in utero, Prof. Sayre dilated the cervical canal and extracted a globe pessary which had migrated from the vagina into the uterus and been retained there for a length of time.

If the posterior vaginal wall need support, which it has lost from rupture of the perineum, the operation of perineorrhaphy may be of great service.

CHAPTER XXIII.

FLEXIONS OF THE UTERUS.

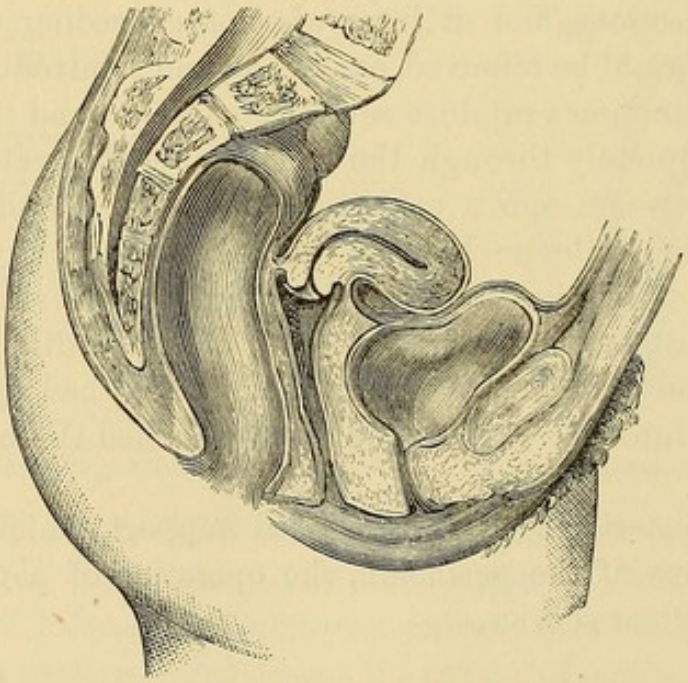
THE uterus may be flexed upon itself anteriorly, posteriorly, or laterally, giving rise to the disorders known as—

Anteflexion;
Retroflexion;
Latero-flexion.

Anteflexion.

Definition and Frequency.—This, which is one of the most frequent of all uterine displacements, consists in a bending of the

Fig. 139.



Anteflexion. (Wieland and Dubrisay.)

organ so that the fundus or cervix approximates the middle of the anterior wall of the uterus.

Before puberty it is so frequent as to have been considered by Boulard, Verneuil, Follin, and others, as physiological. Whether it be so or not, this at least is proved, that before that time it does not constitute, nor depend upon, a morbid state. At that period of life it is probably due to the want of tone and power which characterizes undeveloped uterine tissue, for even when anteflexion does not exist, the organ is generally otherwise displaced. Thus, M. Soudry,[1] in 71 post-mortem examinations of infants, found the uterus anteflexed 41 times, anteverted 11 times, retroverted 15 times, retroflexed twice, and retroverted with anteflexion twice. We may conclude from the evidence at present upon record:—

1st. That anteflexion is the rule during early childhood;

2d. That it is quite frequent in nulliparous women;

3d. That in multiparæ it is, in proportion to other displacements, infrequent.

Varieties.—There are three degrees of anteflexion: first, where the uterus is simply curved upon itself, "antecourbure," as Aran styles it; second, where a decided flexion exists; and third, where the cervical and corporeal portions of the organ are in close proximity. The following peculiarities are noted in different cases:—

Sometimes the body is flexed upon the cervix;

Sometimes the cervix is flexed upon the body;

Sometimes both are flexed forwards;

Sometimes the body is anteflexed and the cervix bent backwards.

Pathology.—To a certain extent anteflexion of the uterus is prevented by the support yielded by the broad ligaments, which, passing from each side of that organ to the pelvic walls, sustain the weight of the fundus. The influence of these structures has, however, been greatly exaggerated with reference both to this accident and to retroflexion. That they are decidedly efficient in keeping the uterus upright and preventing versions, no one can for a moment doubt, but an examination of the pelvic organs of the cadaver will, I think, convince the examiner that their power does not extend to a material prevention of reduplication of the uterus upon itself. This is chiefly accomplished by the inherent strength and resistance of the proper tissue of the organ. Suppose a uterus to be composed of gutta-percha instead of

[1] Aran, op. cit., p. 981.

muscle; the material forming the walls of the neck will support the fundus when the pear-shaped bag is held by the stem or narrow part. To carry the simile further, so long as the proper tissue of the stem or neck remains normally strong, flexion will be impossible unless its resistance be overcome by direct physical force exerted by pressure or traction. But if some influence be brought to bear locally, so as to soften the part sustaining the fundus, it is evident that as the gutta-percha wall grows weak, there may be a flexion of the fundus from its own weight. It will be said that these views represent the uterus as supported by the vagina only, and leave out of consideration the broad ligaments which sustain the fundus. If these ligaments were tightly drawn cords, I could admit their action, but as they are merely lax folds which are not made tense by the bending of the uterus upon itself, I do not do so.

Causes.—As with the substance comprising such a bag, so is it with the tissue of the uterus. Its duty is to support the fundus, and for the performance of this it is abundantly competent, unless its function be impaired by one of the following influences:—

Influences weakening uterine support.

Inflammatory softening of the neck;
Pregnancy;
Fatty degeneration;
An undeveloped state of the uterine parenchyma.

Influences increasing the weight of the fundus.

Inflammatory enlargement of the body;
Pregnancy;
Fibrous tumors.

Influences pushing the fundus or cervix forwards.

Abdominal tumors;
Ascites;
Fecal accumulation;
Tight clothing;
Muscular efforts;

Influences exerting traction forwards.

False membranes from pelvic peritonitis or peri-uterine cellulitis;
Shortness of round ligaments.

Of the first class of causes, inflammation affecting the parenchyma of the neck and impairing its strength is, according to my

experience, one of the most frequent, though Virchow denies its occurrence, as he likewise does the agency of fatty degeneration, observed by Scanzoni, at the point of flexure. The influence of parturition, abortion, and pregnancy has been admitted by all authorities. An undeveloped state of the parenchyma of the uterus is a fruitful source of anteflexion. This in part explains its frequency in infants, virgins, and nulliparæ, and the fact that it is often cured by pregnancy and parturition. Dr. Nöeggerath, whose attention has been especially directed to this point, dissents from the view here adopted, and believes that shortness of the round ligaments accounts for the frequency of anteflexion in the virgin, and the stretching of these by parturition explains its greater rarity after the occurrence of that process. The varieties coming under the head of the second set of causes are all universally admitted, as are also those belonging to the third. Fecal impaction may sometimes produce flexion of the body, and frequently causes the cervix to bend sharply forwards. The fourth set of causes is beyond question, in autopsies the uterus being often found thus bound in a state of flexion.

Symptoms.—Anteflexion, pure and simple, that is, uncomplicated by other disease, is not accompanied by symptoms, unless it so obstruct the uterine canal as to prevent ingress and egress of fluids. Unless such obstruction exist, the symptoms attending it will be due to metritis or endometritis, and not to the mere displacement.

Diagnosis.—As the finger passes into the vagina and touches the cervix, nothing abnormal will be discovered. But as it sweeps along the anterior wall of the uterus, about the os internum a protuberance will be met with which presses upon the bladder. The finger which has thus far explored being kept in contact with this mass, the disengaged hand should then be laid upon the abdomen and made to depress the anterior abdominal wall so as to approximate the finger in the vagina. By this means the shape, size, and sensitiveness of the body may be ascertained. The diagnostician is, however, still in doubt whether the enlargement may not be one due to fibrous tumor or cellulitis. This point he settles by placing the patient on the side, introducing Sims's speculum and gently probing the uterus to the fundus. Giving to the probe the curve which by the vaginal touch he has been informed is that of the uterus, he carefully passes it in.

Should it not proceed without obstruction, he withdraws it, alters the curve, and tries again. Having introduced it, he learns the course of the uterine canal, its length, and the sensitiveness of its walls. Should the probe have entered the mass felt in the vagina, that mass is the uterine body. Should it go in the normal axis or backwards, it is not the uterine body but some growth in contact with it.

Prognosis.—Whatever be the cause, the prognosis of this displacement is very unfavorable, with reference to cure. Fortunately, if its evil results can be prevented or removed, the flexure need create no anxiety—for in itself it is not of great importance.

Treatment.—The indications for treatment are very simple: to restore and retain the flexed part, or, failing in this, to remove any obstruction created by the flexion, while the mal-position is allowed to continue. The fulfilment of the first alone is unimportant, as the part restored to position falls out of it, as soon as the restoring power is removed. It must be borne in mind that flexions are unlike versions in respect to rapidity of production. Versions may occur suddenly from some violent disturbing influence, under which circumstances they are susceptible of immediate relief. We have no proof that flexions are ever thus induced, unless occurring in advanced pregnancy. They are the consequences of influences long kept up, and can never be overcome with any reasonable hope that they will not immediately recur.

Means for Preventing a Recurrence.—And now arises the important question, are there any means at our command by which anteflexion can be counteracted? Its answer is this: direct and immediate prevention is beyond attainment by any safe means at our command, but, indirectly, we may by perseverance accomplish it. Should the practitioner discover, for example, that metritis is the source of the evil, it should be treated; if it result from pregnancy, the dorsal decubitus should be observed until the causative influence has passed away; and if it arise from arrest of development of the parenchyma, growth should be stimulated by sponge tents, the galvanic pessary, &c. If tight clothing or abdominal effusion appear to have produced the flexion, the remedy is self-evident, as it is, likewise, if the neck have been sharply bent forward by fecal impaction.

The propriety of this course is a a plain and valid deduction, but in practice it unfortunately often fails in effecting a cure. The disorder which has been productive of the lesion may be removed, and yet the result remain. Under these circumstances, or where flexion exists so as to produce dysmenorrhœa and sterility, without the coexistence of any other morbid state, what are we to do for its relief? It is evident that but two courses are open to us, to maintain the displaced part, or to leave it in its abnormal position, and prevent as far as possible its resulting evils.

In speaking of the treatment of versions, a variety of means for their relief were enumerated. Not one of these proves efficacious in anteflexion. Abdominal and vaginal supports are useless, unless it be in relieving a certain amount of version which complicates the flexion. They avail nothing in obviating the flexion itself. Recognizing our poverty of resources in cases of version, M. Velpeau,[1] between thirty and forty years ago, conceived the very plausible idea of restoring the uterine axis to its normal direction, by introducing a stem to the fundus, and retaining it there. After experiment he abandoned it, and subsequently Amussat followed in his steps, both in essaying and casting it aside. In 1848, Prof. Simpson again brought it into notice in versions and flexions, and met with a warm ally in M. Valleix, of Paris. The instrument known as the intra-uterine, or stem pessary, unquestionably counteracts directly and immediately both versions and flexions. But it has been found to cause metritis and death in a number of instances, and in consequence it has been almost entirely abandoned. In this city, I am led to believe that it is very rarely employed, from the facts that I never hear it mentioned as a resource, and that at a recent discussion upon displacements in the Obstetrical Society, it was never once alluded to. In an essay read before the New York State Medical Society, last year, Dr. Peaslee advocated its use, and stated that in his hands it has produced good results.

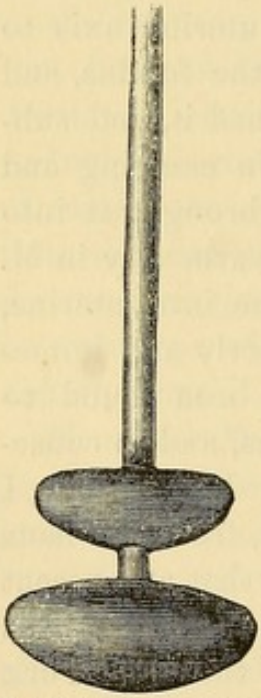
It is beyond question that in exceptional cases, and in such cautious hands as those of the writer last alluded to, the stem pessary may be productive of good, but a faithful trial of the instrument for twenty years by capable practitioners in different

[1] Discussion in Acad. de Méd., reported in Charleston Med. Journ., 1853.

parts of the world, has not returned a verdict in its favor. It is difficult to explain the encomiums once showered upon it by its advocates, and the remarkable cures reported from the use of an instrument now viewed with disfavor by the great majority of practitioners. Nonat seems to have solved the paradox in declaring that, carried away by enthusiasm, "ils se sont laissés aller trop facilement sur le terrain glissant des illusions." Yet who will hesitate to indorse the sentiment expressed by Malgaigne, in the discussion upon the subject in the Academy of Medicine in Paris, in 1852, that, "a treatment which Amussat, Velpeau, Simpson, Huguier, and Valleix had tried, cannot, should not, be considered as repugnant to common sense."

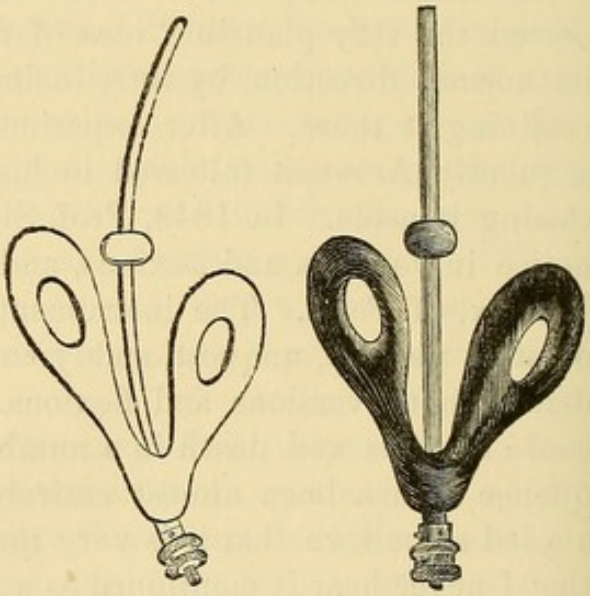
Intra-uterine pessaries should be used with the greatest caution; the uterus should be prepared for tolerance of the foreign substance by trials of one, two, or three hours for a week before

Fig. 140.



Peaslee's stem pessary.

Fig. 141.



Detschy's stem pessary. (Wieland and Dubrisay.)

the introduction of one, and afterwards the patient should be carefully watched in order that the instrument may be removed on the first symptom of metritis. Even the most ardent advocates of stem pessaries will admit the necessity for these precautions, and even their bitterest opponents must allow that with them as a safeguard, in certain cases they should be resorted to. To cast

them entirely aside when such high authority recommends them, would be irrational and unjustifiable.

Figs. 140 and 141 represent the intra-uterine pessaries most commonly employed.

Means of Obviating the Consequences of Flexion.—The reader should bear in mind these facts:—

1st. That flexion as an independent condition is often incurable; but that, in compensation, uncomplicated flexion is often not productive of symptoms, and calls for no treatment;

2d. That when complicated by morbid states, flexion may be much relieved by their removal;

3d. That when flexion occasions evil symptoms, mechanically, we may frequently remove these by surgical interference.

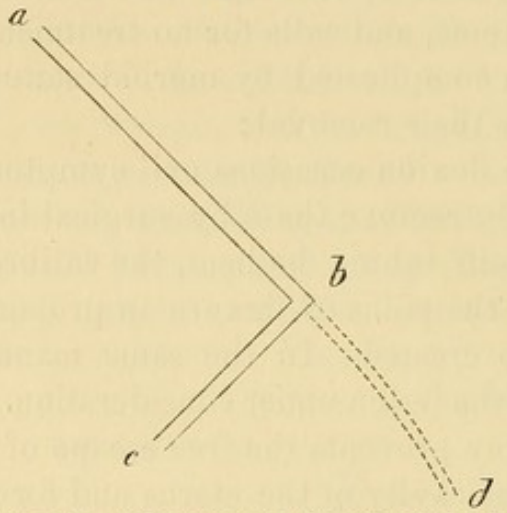
If a piece of stiff tubing be bent, the calibre of its canal will be obliterated at the point of flexure in proportion to the acuteness of the angle created. In the same manner is the uterine canal affected by the lesion under consideration. The obstruction created in this way prevents the free escape of menstrual blood, which distends the cavity of the uterus and forms clots within it, and these at each menstrual period are expelled by uterine tenesmus. In consequence of this, inflammation of the mucous lining of the uterus arises, that in time may produce parenchymatous disease, which favors further displacement by the increase of uterine weight attending it. The effort required for expelling clotted menstrual blood constitutes painful menstruation, and the same obstruction which retards egress of fluids interferes with ingress and prevents conception. Thus it is that we so often meet with the following conditions complicating flexions, sometimes as its causes, but at others as its results:—

Endometritis;
Metritis;
Version;
Dysmenorrhœa;
Sterility.

Having been forced to accept the displacement as an irremediable evil, we now endeavor to strike at the source of the pathological series which results from it by overcoming obstruction at the point of flexure; in other words, by substituting a straight for a crooked canal. This can be accomplished by cutting through one wall of the cervix.

If the posterior wall, in a case of anteflexion, be cut towards the vaginal junction so that a probe will pass into the uterus in the direction of the line *a d*, the obstruction resulting from the existence of an angle will be removed, and thus fluids may have free entrance and exit. The mechanical principle of the procedure is explained by Fig. 142.

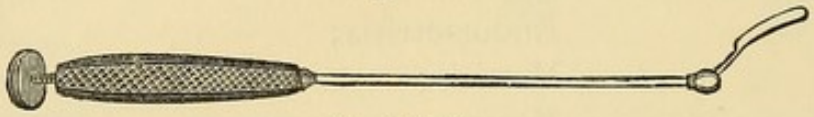
Fig. 142.



Creation of new uterine axis. *a b* represents the axis of the body; *b c* represents the axis of the neck; *b d* represents the axis created by incision.

The operation, which is extremely simple, is thus performed. The patient being placed in position and Sims's speculum introduced, the cervix is seized and held firmly by a tenaculum. Then, by means of a pair of long-handled scissors, an incision is made as far as can be conveniently done without involving the vaginal junction, which will probably be as far as the point *b* in Fig. 142.

Fig. 143.

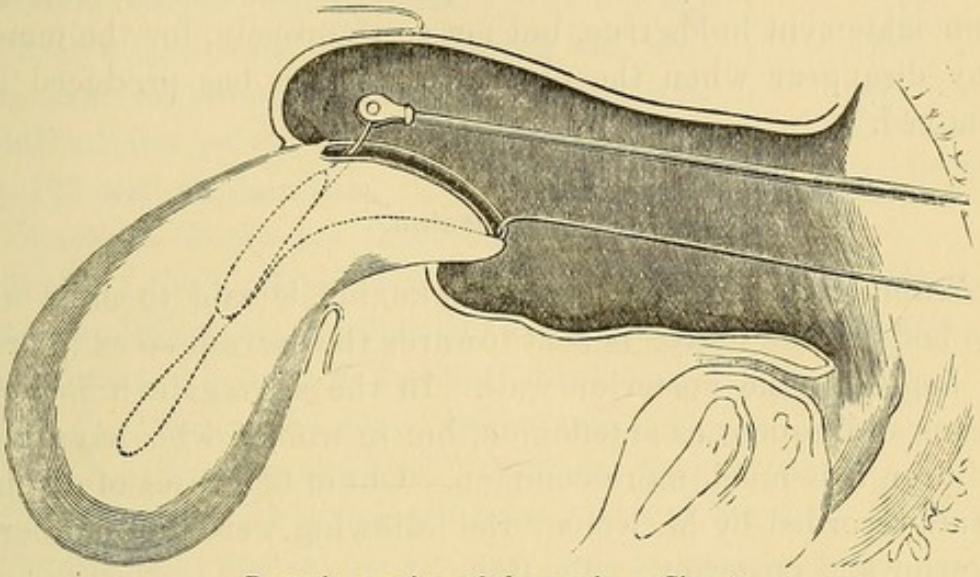


Sims's knife.

The blade of Sims's knife, represented in Fig. 143, or of Emmet's, which is an improvement on it in having the blade move by a ball-and-socket joint, is now introduced through the os internum, and the tissues are cut so as to lay open the posterior wall of the cervix. A little shoulder will, as Dr. Emmet has pointed out, be generally found to exist on the anterior wall of the canal. To

this the blade of the knife should now be turned, and it should be cut through. Fig. 144 explains the operation.

Fig. 144.



Posterior section of the cervix. (Sims.)

I have so often found the slit thus made heal up for a great part of its extent some months after the patient has passed out of observation, that in my more recent operations I have taken a wedge out of the posterior wall instead of simply slitting it. The point of this wedge-shaped piece should of course be taken from the upper extremity of the incision, and the base from the lower.

After the operation is thus completed a roll of cotton saturated with glycerine should, by means of the instrument represented in Fig. 77, be left in the canal, and a tampon of cotton be placed in the vagina to prevent hemorrhage, which sometimes follows. The patient should be kept in bed for a week or ten days, and once in twenty-four hours the dressing should be removed and the lips of the wound separated by the uterine sound, which should be gently passed into the cavity of the uterus on each occasion. By this means the evils recorded as most frequently accompanying flexions may often be very markedly mitigated and sometimes entirely removed.

Should an error be made, however, as to the etiology of the displacement, and this apparently trifling operation be performed during the existence of peri-uterine cellulitis or peritonitis, the gravest results may follow and the sufferings of the patient be

greatly aggravated. A delicate and important point, too, presenting itself for decision is whether existing metritis is the result or cause of the flexion. It may be either. If the cause, no operation should be undertaken until it be removed. If it be the result, the same statement holds true, but not so rigorously, for the metritis may disappear when the obstruction which has produced it is removed.

Retroflexion.

Definition and Frequency.—Retroflexion is said to exist when the body of the uterus is bent towards the sacrum so as to create an angle on the posterior wall. In the aggregate it is by no means so frequent as anteflexion, but in women who have borne children it is much more common. Out of 339 cases of displacements recorded by M. Nonat,[1] the following were the numbers of anterior and posterior inclinations —

Anteversion	135
Anteflexion	33
Retroversion	67
Retroflexion	14

While anteflexion is so frequent in the virgin state as to have been regarded as a physiological condition, retroflexion rarely occur

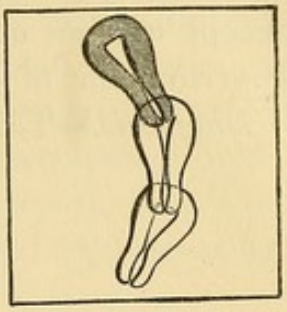
Pathology.—Retroflexion is most frequently the result of some influence which weakens the uterine walls, but, even when these are of normal strength, any force directly applied may overcome their resistance and produce a flexure.

One reason why retroflexion is less frequent than anteflexion, is that the natural anterior obliquity of the uterus favors the latter, and opposes the former displacement. Another is unquestionably to be found in the fact that the former is more thoroughly guarded against by ligamentous support; the round ligaments, running as they do from the horns of the uterus to the vulva, decidedly tending to prevent its occurrence. Not only do they do this; the uterus being kept by them in anterior inclination, should softening of its structure occur, or any direct force be exerted upon it, naturally bends forwards.

[1] Op. cit.

If this be so, it may be asked why metritis more generally results in retroflexion than in anteflexion. It does so because the first effect of the increased uterine weight attending that disease is descent of the uterus. This relaxes the round ligaments, tends to bring the uterine axis in coincidence with that of the middle of the pelvis, and favors retroflexion. Fig. 145 will explain this.

Fig. 145



The uterus descending changes its axis.

Varieties.—There are three varieties of retroflexion: the first, second, and third degrees. In addition to these, the following peculiarities are noticed in different cases:—

In some the body is flexed backwards;
" " the neck is flexed backwards;
" " the neck and body are flexed backwards;
" " the body is flexed backwards and the neck forwards.

Causes.—The special causes may be thus presented:—

Influences weakening uterine support.

Inflammatory softening;
Parturition;
Pregnancy;
Fatty degeneration.

Influences increasing uterine weight.

Inflammatory enlargement;
Pregnancy;
Subinvolution;
Fibrous tumors.

Influences pushing the fundus or cervix backwards.

Abdominal or uterine tumors;
Distended bladder;
Fecal masses above the fundus.

Influences exerting traction backwards.

False membranes.

At the same time that all these causes must be admitted, it will generally be found that retroflexion is due to metritis, which has softened the parenchymatous tissue, and increased the weight of the body of the uterus.

Symptoms.—If the angle produced be sufficient to block up the uterine canal, dysmenorrhœa and sterility will result. If it be not so, there will be no symptoms except those attaching to

the disorder which has produced the flexion. I should perhaps except uterine colic, a violent tenesmus of the uterus, due to imprisonment of mucus by the obstruction.

Diagnosis.—This is made by these means:—

Vaginal touch;
Conjoined manipulation;
Rectal touch;
The uterine probe.

The patient lying on the back, the index finger is introduced to the cervix, which is found in its normal place. It is then swept over the base of the bladder where nothing abnormal is observed. Then it is passed into the fornix vaginæ, and here a round tumor continuous with the ridge of the cervix is discovered. The disengaged hand is then placed on the abdomen, and made to approximate the finger in the vagina, so as to grasp the body of the uterus. If the patient be thin, this will yield good results, but not otherwise. The finger should now be carried into the rectum, in order to study further the character of the tumor pressing upon this canal. The patient being then placed upon her side and the speculum introduced, the uterine probe, which has been curved in accordance with the direction impressed on the mind by the sense of touch, is gently passed into the uterine cavity to the fundus, which completes the diagnosis.

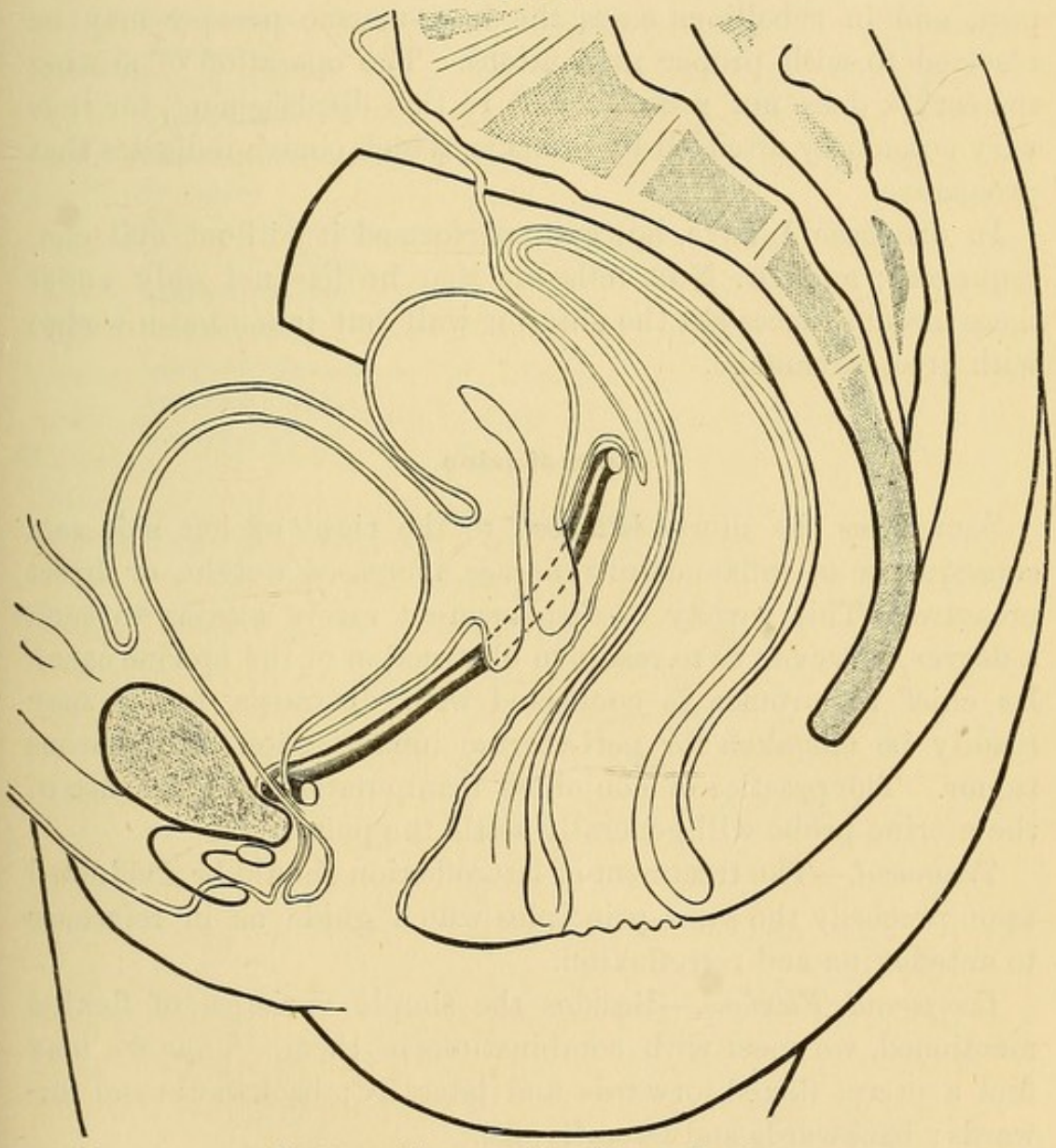
Differentiation.—Retroflexion may be confounded with fecal impaction, fibrous tumors, cellulitis or peritonitis, and a prolapsed and enlarged ovary. The careful practice of the four diagnostic methods mentioned, will remove all doubt.

Treatment.—If the displacement should be simple and uncomplicated, as will very rarely be the case, it will require treatment only in reference to obstruction to the ingress and egress of fluids. If it be a concomitant of any disease, this and not the symptomatic displacement should first receive attention. In many cases the displacement, although a result of metritis, reacts upon this condition, aggravating it and preventing, or, at least, retarding cure. Under these circumstances not only must the original affection receive attention; its chief symptom should do so at the same time

In replacing the flexed part no great degree of difficulty is generally experienced. The patient being placed in the knee-elbow position, or upon the left side, two fingers of the right hand should be slid along the posterior vaginal wall until they

reach the tumor felt pressing upon the rectum. Then the perineum being lifted so as to admit air into the vagina, the fundus is steadily pushed upwards to its place. This plan will almost always yield success. Should it not do so, Sims's speculum should be introduced, and the malposition rectified by two sponge-holders. This method will very rarely fail. If it do so, Sims's or Elliot's repositor should be employed, as explained when treating of anteflexion.

Fig. 146.



Scattergood's pessary in position. (Peaslee.)

When it is deemed advisable to sustain the flexed organ, all weight should be removed from the hips by a skirt supporter, tight dressing prohibited, and the patient cautioned against all muscular efforts. The abdominal walls, if lax, should be strength-

ened by an abdominal supporter, and a well-adjusted pessary made to give direct support to the displaced part. A lever, ovoid, or horseshoe pessary, represented on page 327, may be tried in the hope that by them the difficulty will be rectified. Fig. 146 represents the Scattergood pessary, one of the best which can be employed, in position. Cutter's pessary would likewise be appropriate.

In some cases packing the recto-uterine space with cotton or sponge will answer a better purpose than any other kind of support, and in rebellious cases the intra-uterine pessary may be resorted to with proper precautions. The operation of slitting the cervix does not promise well in this displacement, for it is very commonly attended by metritis, which contra-indicates that procedure.

In one case I have, however, performed it without evil consequences; and Dr. Nott tells me that he has not only under these circumstances slit the anterior wall but taken out a wedge with great advantage.

Lateroflexion.

Sometimes the uterus is flexed to the right or left side as a consequence of inflammatory disease, increased weight, or direct pressure. This variety of displacement rarely attains to such a degree, however, as to result in obstruction of the uterine canal. Its chief importance is connected with diagnosis, for it may readily be mistaken for peri-uterine inflammation or a fibrous tumor. The practice of conjoined manipulation and the use of the uterine probe will generally settle the point.

Treatment.—The treatment of lateroflexion should be conducted upon precisely the same principles which guide us in reference to anteflexion and retroflexion.

Compound Flexions.—Besides the simple varieties of flexion mentioned, we meet with combinations of them. Thus we may find a uterus flexed forwards and laterally; backwards and forwards; backwards and laterally, &c.

These varieties are known as—

Retro-anteflexion;
Retro-lateroflexion;
Ante-retroflexion;
Latero-anteflexion, etc.

The student need not memorize these, but merely keeping in mind the fact that such combinations are possible, he will readily recognize them at the bedside, if he have mastered the three chief forms already treated of.

The relative frequency of the varieties of displacements thus far treated of, may be estimated by examination of a comprehensive table presenting the experience of M. Nonat.[1]

Number of cases examined		339
Anteversion	135	
Retroversion	67	
Anteflexion	33	
Retroflexion	14	
Lateroflexion	1	
Retro-anteflexion	10	
Prolapsus	2	
Retro-lateroflexion	1	
Retro-lateroversion	2	
Ante-retroflexion	2	
Lateroversion	1	
Latero-anteflexion	4	
Ante-lateroflexion	2	
Not specified	65	

[1] Op. cit., p. 416.

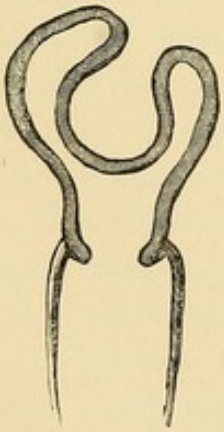
CHAPTER XXIV.

INVERSION OF THE UTERUS.

Definition.—This dangerous and infrequent form of displacement consists in the turning of the uterus inside out. As the bottom of a bag may be pushed through its mouth, so that the inner surface becomes the outer, so may that of the uterus, and the occurrence of such an accident constitutes the disease which we are considering.

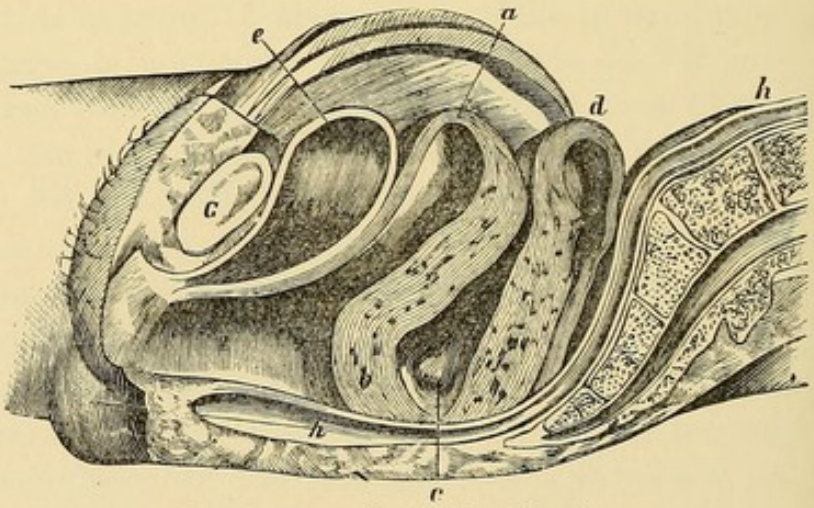
Varieties.—Writers differ in classifying the varieties of the affection, some describing three and some four forms. For practical purposes all these may be brought under two heads—partial and complete. In the first the body has become depressed, but has not passed through the os. In the second the uterus has been turned completely inside out, and the inverted fundus and body hang in the vagina or between the thighs, "*velut scrotum*,"

Fig. 147.



Partial inversion.

Fig. 148.



Complete inversion. (Horteloup.)

as it has been expressed by Hippocrates. Fig. 147 represents the first, and Fig. 148 the second form of the accident.

In addition to these varieties the accident must be divided into

acute and chronic, or sudden and gradual inversion, as it occurs rapidly or slowly.

Normal Anatomy.—In treating of flexions of the uterus it was remarked that they are chiefly prevented by the resisting nature of the parenchyma of the cervix which supports the fundus and body. A similar function on the part of the entire uterine structure keeps the cavities of the neck and body closed, and prevents inversion. Should that power, which in the pregnant uterus we call contractility, and in the non-pregnant, tone, be to any great degree impaired, the body of the organ, bereft of support, will incline to one side or the other. Should it be entirely abolished, the fundus under the influence of traction or downward pressure may pass through the unresisting os and escape into the vagina, constituting inversion.

Pathology.—The accident evidently depends for its production upon two elements—

1st. Relaxation and inertia of the uterine walls;

2d. Downward traction or pressure.

The first of these may be a primary and original state, or it may be induced by the second after months of exhausting action. For example, after labor the uterine walls may remain lax and atonic from inherent inertia; or their tissue in the non-pregnant state may be firm and resisting, yet in time be overcome by the traction and dilatation exerted by a large fibrous polypus attached to the fundus.

Mechanism.—It is generally supposed that the part of the fundus which first undergoes inversion is the middle. This is denied by Kiwisch who maintains that one horn first inverts itself and is followed by the fundus, the other horn, and then the entire body. I have met with one case which proves incontestably that, even if this be not a rule, inversion at least occurs in this manner sometimes. A patient who for several years had suffered from menorrhagia, applied to Prof. C. A. Budd, of this city, for treatment. Upon examination he discovered what he supposed to be a fibrous polypus equal in size to a hen's egg attached to the uterine cavity near the entrance of the right Fallopian tube. Carefully differentiating this, as he supposed, from partial inversion, he applied the écraseur and removed it, when he discovered that he had removed one horn of the uterus with a part of the corresponding Fallopian tube and round ligament. The case, which was one of

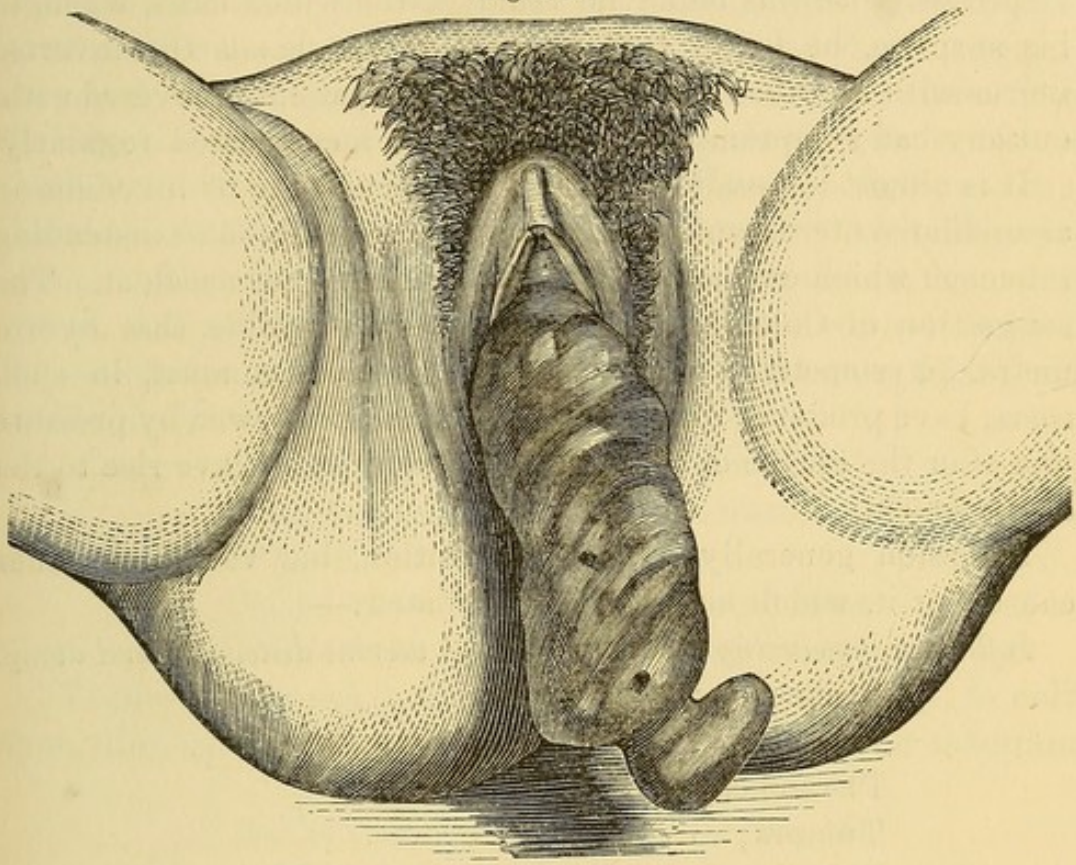
incipient inversion, was not susceptible of diagnosis. The menorrhagia attending it was entirely relieved by the operation, the patient rapidly recovering.

When the accident begins in this way, the inverted horn pulls down the other parts, with greater or less rapidity, and thus the method of occurrence may be lost sight of. Rokitansky, in speaking of irregular post-partum uterine contraction, thus describes partial inversion, with which he has twice met: "We must here mention a very singular circumstance which may, on account of the consequent danger, become important, and may even be misunderstood in post-mortem examinations; it is paralysis of the placental portion of the uterus occurring at the same time that the surrounding parts go through the ordinary processes of reduction. It induces a very peculiar appearance. The part which gave attachment to the placenta is forced into the cavity of the uterus by the contraction of the surrounding tissue, so as to project in the shape of a conical tumor, and a slight indentation is noticed at the corresponding point of the external uterine surface. The close resemblance of the paralyzed segment of the uterus to a fibrous polypus may easily induce a mistake in the diagnosis, and nothing but a minute examination of the tissue can solve the question. The affection always causes hemorrhage, which lasts for several weeks after childbirth, and proves fatal by the consequent exhaustion."

Causes.—Anything which produces distension and relaxation of the tissue of the uterus prepares the way for inversion so completely that a very trifling exciting cause may produce it. For example, any decided traction or pressure exerted upon the fundus of a uterus thus affected, even to a limited degree, may directly result in it. (Fig. 149.) These influences, when combined, are evidently sufficient for the induction of the accident, and it is generally to a union of the two that it is due. The question now arises whether either of them alone can cause it. With reference to the efficiency of the first element, the answer may be affirmative, since, with complete relaxation, inversion may occur from a very insignificant exciting cause, as coughing, sneezing, or a change of posture. But as to the possibility of any amount of force inverting the non-pregnant and undilated uterus there is much doubt. At first thought every one will feel inclined to express a decidedly negative opinion, but the evidence on record

in favor of such a possibility is too strong to be entirely ignored. A portion of it is therefore laid before the reader.

Fig. 149.



Uterus inverted by a fibroid attached to fundus. (McClintock.)

Puzos,[1] in 1744, read before the Academy of Medicine of Paris a memoir in which he declared that he had seen the accident in women who had never borne children. Boyer[2] cites a similar example in a female whose uterus contained no foreign body, and Daillez[3] tells us that Baudelocque met with a case in a girl fifteen years of age in whom clandestine delivery could not have occurred, since a perfect hymen existed.

Prof. Willard Parker, of New York, places at my disposal the following case. A young woman who had borne one child, seven or eight years previously, but had never had any recognized uterine disease, while making a violent effort in rolling tenpins, suddenly felt something give way within her, after which she suffered the most intense pain and became completely disabled. Dr.

[1] Colombat on Females. Meigs, p. 182.
[2] Traité des Mal. Chirurgicales.
[3] Colombat, op. cit.

Parker being called to see her, after a hasty examination coincided with the opinion of the attending physician, that a polypus had been suddenly expelled and was hanging in the vagina. Impressed with this belief he removed the whole mass, when, to his surprise, he found that he held in his hands the inverted uterus with its tubes and ligaments. The patient recovered without any bad symptoms, and subsequently menstruated regularly.

It is almost impossible to admit the occurrence of inversion in an undilated uterus, and probably in all these cases some distending influence which escaped observation preceded the accident. The suggestion of Colombat is certainly very plausible, that hydrometra, physometra, or retention of the menses must, in such cases, have produced dilatation, which, being followed by pressure just after the escape of the contained air or fluid, gave rise to the displacement.

Inversion generally follows parturition, but there are other causes for it, which may be thus tabulated:—

Influences producing inversion through uterine distension and atony.

Pregnancy;
Hydrometra;
Physometra;
Tumors;
Polypi;
Hydatids;
Inertia uteri;
Retained menses.

Influences producing inversion by exertion of pressure or traction.

Traction on placenta;
Traction by polypi or tumors;
Sudden delivery of child by traction;
Muscular efforts.

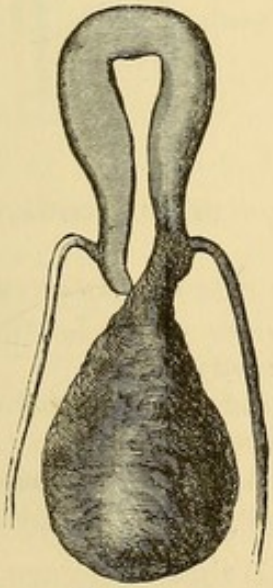
Instances of its production by all these causes are on record, though the greatest number of cases has followed parturition. Of 400 cases collated by Dr. Crosse, of Norwich, England, 350 followed delivery, and of the remaining 50, forty were due to polypi. This disproportionate frequency does not, however, invalidate the fact that the other causes mentioned have resulted, and may result in the accident. Most frequently it occurs very soon after delivery, though Ané and Baudelocque report its having taken place on the third, and Leblanc on the tenth day.

Symptoms.—Should inversion occur suddenly, as for instance after delivery, the patient will complain of discomfort about the vulva, faintness and nervous disturbance. Hemorrhage and tendency to collapse will show themselves, and unless proper treatment be adopted at an early period, death may ensue. A physical examination will at once settle the diagnosis, for a large flabby, globular mass, perhaps with the placenta attached to it, will be found in the vagina, if the condition be incomplete, or between the thighs of the patient if it be complete. But very often no diagnosis will have been made at the time of its occurrence, and months, perhaps years, afterwards the physician will be called upon to determine the character of the case, which will probably present the following symptoms:—

Occasional or constant hemorrhage;
Dragging pains in back and loins;
Difficulty in locomotion;
Difficulty in defecation and micturition;
Chlorosis and its accompanying evils.

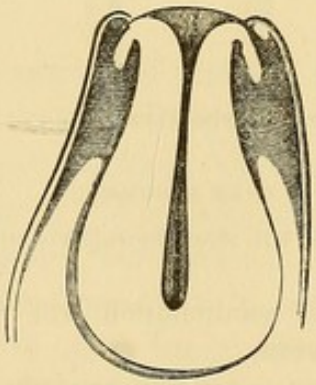
Physical Signs.—All these symptoms belong as much to polypus, fibrous tumor, and cancer as to inversion, and to determine

Fig. 150.



Polypus.

Fig. 151.



Inversion.

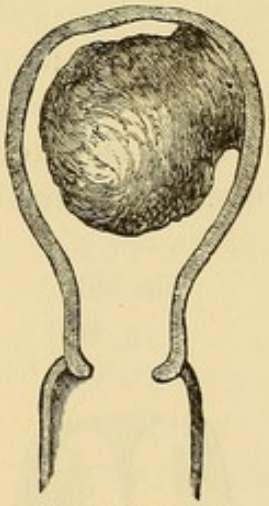
their true cause physical exploration is indispensable. Should the inversion be complete, the finger being introduced into the vagina will meet with a tumor which the examiner will at once

know is either the displaced body of the uterus or a polypus, and his attention will be directed to their differentiation.

IF IT BE A POLYPUS,	IF IT BE INVERSION,
The probe will pass by its side into the uterus;	The probe will be arrested at the neck;
Conjoined manipulation will reveal the uterine body;	Conjoined manipulation will reveal a ring where the uterine body should be;
Rectal touch will reveal the uterus;	Rectal touch will not reveal the uterus;
Recto-vesical exploration will reveal the uterus;	Recto-vesical exploration will not reveal the uterus;
The pedicle will be small.	The pedicle will be large.

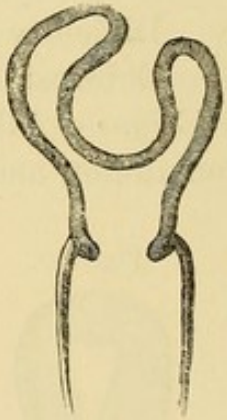
Should the inversion be incomplete, diagnosis will always prove difficult, and in fat women often impossible. Differentiation from a fibrous tumor will depend upon the following signs:—

Fig. 152.



Sessile fibroid.

Fig. 153.



Partial inversion.

IF IT BE A FIBROID,	IF IT BE PARTIAL INVERSION,
The probe will show increase of uterine cavity;	The probe will show diminution of uterine cavity;
Conjoined manipulation will reveal body of uterus;	Conjoined manipulation will reveal small abdominal ring;
It will have come on very gradually;	It will have occurred more suddenly;
It will have no reference to parturition.	It usually follows parturition.

Course, Duration, and Termination.—All these are very variable. The accident occurring after delivery may rapidly, unless relieved, produce death by hemorrhage and exhaustion; or it may continue for many years, giving very little annoyance; or, again, it may render the life of the patient miserable on account of hemorrhage and other attending symptoms, and nevertheless last for years.

As a rule it may be stated that inversion continues until relieved by treatment, and yet even this is not without exception. The womb has been known under these circumstances to replace itself by its own contractions when the accident has occurred after labor. Prof. Meigs[1] minutely reports an instance where such spontaneous reposition took place more than two years after the occurrence of the accident, and Dr Jason Huckins, of Maine, gives me the account of an undoubted instance taking place about two months after inversion. Even admitting these and other cases, spontaneous reduction must be regarded only as a curiosity, and not as a process to be anticipated.

Prognosis.—This will be governed by the strength of the patient and the possibility of returning the organ to its place. Should the immediate danger arising from hemorrhage and collapse pass off, the prognosis is generally good. When the prospect of returning the uterus seems brightest, however, the practitioner is sometimes disappointed by the existence of adhesions. Thus Velpeau,[2] after the removal of a polypus attached to an inverted uterus, was completely foiled in restoring it, and the patient died from peritonitis.

Treatment.—There are three plans of treatment:—

1st. To return the uterus to its place;

2d. To leave it displaced and adopt means preventive of hemorrhage;

3d. To remove it by amputation.

Methods of Replacing the Uterus.—In cases of sudden inversion the accident should be relieved as soon as possible, for experience has shown that the longer the interval between the occurrence and the adoption of means for reduction, the greater the difficulties attending its accomplishment. Should the placenta or a large tumor be attached to the body, the propriety of its removal must be at once considered. If this should seem easy, the patient's strength be good, and no appearance of hemorrhage exist, it should be removed as rapidly as possible. But should the opposite conditions prevail, it would be wiser to insure the woman against immediate peril and deal with the complication after she has rallied.

The hands being dipped in warm water and thoroughly oiled,

[1] Colombat, op. cit., p. 187.

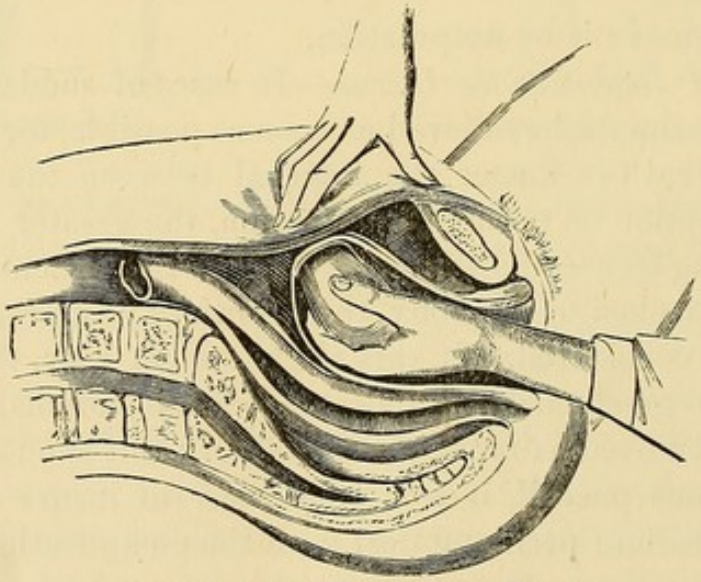
[2] Becquerel, p. 306.

the mass, if external to the body, should be grasped in both palms and one of two methods of reduction essayed. The uterine body should be indented so as to push up first the part which first escaped, or the whole body should be pressed upwards so as to re-invert the pedicle of the mass and thus return the fundus last. The first procedure will be favored by relaxation of the organ; the second by contraction, and the operator should bear this fact in mind during his manipulations. Should tetanic spasm of the uterine fibres exist, so as to resist replacement, an anæsthetic should be employed without delay.

Until the fact was demonstrated by Dr. Tyler Smith, of London, that, even after the continuance of inversion for years, reduction is possible, the second and third plans of treatment were the only resources at the command of the physician in cases of long standing.

In April, 1858, Dr. Smith reported a case of twelve years' standing reduced by him; and in July of the same year Prof. White, of Buffalo, N. Y., succeeded in replacing one which had been inverted for sixteen years. Since that time many successful cases have been published, among others one of thirteen years' standing, by Dr. Nöeggerath, of N. Y. Dr. Smith advised manipulation followed by gradual pressure from an air bag in the va-

Fig. 154.



Reducing an inverted uterus. (Sims.)

gina, while Dr. White succeeded by manipulation, and pressure by means of a large bougie. The first plan occupied eight days,

and the patient recovered; the second fifty minutes, and the patient died of peritonitis.

The diagnosis having been clearly made and reduction determined upon, the bowels and bladder should be emptied, and the patient put under the influence of an anæsthetic, and laid on her back upon a strong table. The operator should always be attended by three or four reliable counsellors, upon whom he may call not only for advice but physical aid. As Prof. George T. Elliot has pointed out, the strength of one man will often fail to accomplish what that of several, replacing each other in rapid succession will readily effect. Having thoroughly oiled one hand, the nails of which have been pared, the operator should slowly dilate the vagina so as to introduce it, and grasp in its palm the entire tumor. The other hand should be laid upon the abdomen so as to press just over the ring which marks the non-inverted cervix, and oppose the force exerted through the vagina, so as to prevent too great stretching of this canal.

In a case of four years' standing, which I attended with Dr. Joseph Worster, of this city, and which had been subjected to eight attempts previous to my seeing it, each varying in duration from two to three hours, I suggested substituting for the hand a cone of boxwood four inches long. The patient being very thin, this could readily be inserted into the abdominal ring of the uterus, and it was gradually forced down into the inverted fundus for such a distance as to dilate the cervix and allow reposition. Fig. 155 represents the shape of the boxwood plug employed.

Fig. 155.



Plug for making counter-pressure in inversion.

In overcoming chronic inversion of the uterus three methods of manipulation may be tried in succession:—

1. The method of encircling by the fingers the constricting neck and forcing up first the tissue which came forth last.

2. The method of indenting the fundus and thus returning first the part which first escaped.

3. The method of Nöeggerath, by indenting the cornua, by pressure over the lateral surfaces of the tumor so as to re-invert one or both of these parts, thus imitating the method of occurrence of the accident, according to the theory of Kiwisch.

The first of these methods[1] has long been recognized and practised in France, and has, by authors in that country, been accredited to Viardel. Capuron[2] describes it, and Aran and others give it special mention. For chronic cases it is one of the best methods at our command. Dr. Emmet has drawn special attention to it of late, and illustrated its applicability by several successful cases.

The second method is especially applicable to acute cases, but may unquestionably be applied to those which are chronic.

The third plan deserves especial attention, and recommends itself on theoretical grounds, while its practical utility has been abundantly demonstrated. It has proved successful in one case in my hands.

One after the other each of these plans should be tried, the operator not persevering too long, but yielding his place to another as soon as his hand becomes fatigued or benumbed.

It is impossible to set an absolute limit to the time which should be allotted to one attempt, but these efforts cannot be persisted in much longer than two hours without great danger from metritis, cellulitis, or peritonitis. It is true that numbers of successful cases are on record in which from three to five hours have been spent in continuous exertion before success was accomplished, and in which no unfavorable symptoms have arisen; but a safer and more judicious course would be to desist after a reasonable effort, secure what has been gained by pressure from a caoutchouc bag in the vagina, or closing the os uteri by silver sutures as practised by Emmet, *American Journal of the Medical Sciences* for January, 1868, administer a large dose of opium, and make another attempt in thirty-six or forty-eight hours. Manipulation should then be cautiously repeated for about the same period, and again, in case of failure, followed by the air bag, or closure by suture. Should no signs of inflammation show themselves, there could be no valid objection to extending this plan of treatment, over a period of time indefinitely long. With the facts now before us we are warranted in asserting that henceforth the operation of amputation will be limited to the small number

[1] "It is advisable, as far as practicable, to return first the parts which last escaped; for in this way we dilate in advance the muscular fibres which oppose reduction. (P. Dubois, Danyau). * * * M. Velpeau considers this the best method."—Becquerel, op. cit., t. ii. p. 314.

[2] Mal. des Femmes, 2d edition, p. 510.

of cases in which the condition of the patient is such as to render delay and manipulation alike impracticable.

The resistance offered to the return of the fundus is generally, not in the vaginal portion of the neck, which remains in its normal position, but in that which is inverted and undergoes a certain amount of atrophy that diminishes its calibre. Should it be recognized that resistance is due to constriction exerted by the fibres of the vaginal cervix, a pair of long, blunt-pointed scissors should be carried up upon the fingers and these fibres snipped at two or three points. Then the efforts at manipulation should be renewed.

Methods of Checking Hemorrhage, the Uterus being left in situ.— Should the operator fail in repeated attempts at reduction, it becomes a question whether he should amputate the displaced organ or leave it in its abnormal position and endeavor to combat the evils resulting. The greatest of these is unquestionably hemorrhage, which steadily exhausts the patient; but others of less moment arise from dragging of the uterus upon its ligaments and the mechanical inconvenience of a tumor in the vagina. If the patient be near the menopause, both of these may diminish by atrophy and cessation of menstruation. Should she be young, artificial means may, in a limited degree, accomplish the same results.

The most vascular growths, such, for example, as hæmorrhoids and nævi, may be diminished in size and rendered non-hemorrhagic by astringents or caustics, which destroy their superficial varicose vessels and leave a less vascular tissue beneath. The inverted uterus may be similarly acted upon, not only in checking hemorrhage, but in producing atrophy, and thus removing, to a certain extent, the two sources of suffering.

Solutions of alum, tannin, persulphate of iron, or acetate of lead may with advantage be injected into the vagina so as to bathe the uterus freely, or they may be placed in contact with it by means of pledgets of cotton. Should these fail in checking the flow, a plan, proposed by Aran, of applying caustics to the whole bleeding surface may be resorted to. The tumor being drawn down and exposed to view as much as possible, its surface is seared by the actual cautery or touched by potassa cum calce or the mineral acids. The organ, after being bathed in a neutralizing fluid, is then enveloped in lint, so as to protect the vaginal walls,

and placed within the pelvis. I have never seen the method employed, but would not hesitate in an appropriate case to venture upon it. Aran declares that not only is hemorrhage checked by it, but great diminution of the tumor effected. The procedure recommends itself as eminently rational, and when it is remembered that the only alternative is amputation, the propriety of giving it consideration must be admitted.

Many cases are on record in which the uterine mucous membrane has become altered so as to resemble skin, and in which the patients have lived without suffering for many years. Dr. Alexander H. Stevens had one case under observation for more than thirty years; Dr. Charles A. Lee diagnosticated one which had remained undetected for twenty-five years; and the works of older writers offer many other examples. If we can bring about a similar condition by artificial means and avoid the operation of ablation, we will certainly be acting in the best interests of the patient. It is for this purpose that cauterization offers itself as a resource.

Methods of Amputating.—Although it cannot be denied that instances may present themselves in which, from impossibility of returning the inverted uterus, removal of the whole organ is indicated, it is equally undeniable that the operation has been resorted to very often upon insufficient grounds and before efforts at reduction had been fairly tried. Dr. Smith succeeded after persevering for eight days, and Dr. Emmet, in one instance, labored incessantly for four hours, when success crowned his efforts. In the hands of many practitioners both these cases would have been treated by amputation before success was attained. Amputation of the inverted uterus will surely be less frequently performed in the future than it has been in the past. It is destined to assume among operative procedures its proper place as a last resort. In addition to its own manifest and inherent dangers it must ever present these great objections:—

1st. Hernia of the abdominal or pelvic viscera may take place into the inverted sac and cannot be detected;

2d. It usually produces emansio-mensium and its train of evils;

3d. It induces sterility.

It is impossible to conceive of circumstances which would justify the procedure before full consultation with the most able counsel attainable.

Removal of the uterus, although attended by great danger,

often ends in recovery. Radford, J. C. Clarke,[1] and others have reported cases in which an inverted uterus has sloughed off from strangulation without a fatal issue, and Osiander for many years showed a patient in his lecture-room from whom, after delivery, the midwife tore away not only the placenta but the inverted uterus to which it was attached. The most comprehensive view of the results of amputation is presented us by Dr. West in the following table:—

		Recovered.	Died.	Operation abandoned.
Uterus removed by ligature . . .	45	33	10	2
" " " knife or écraseur .	5	3	2	
" " " knife or écraseur preceded by the ligature	9	6	3	
	59	42	15	2

Four methods of amputation have been employed; by the knife, the ligature, the écraseur, and a combination of the ligature with either of the others. The ligature is objectionable because it is slow in action, leaves a putrefying mass for a long time in contact with the vaginal walls, and exposes to peritonitis and septicæmia. The use of the knife exposes to the danger of hemorrhage. No other means compares with the écraseur, which in great degree prevents hemorrhage at the same time that it is rapid and certain in its action. In applying its chain around the upper portion of the tumor, the organ should be drawn down as far as possible through the vulva.

If amputation become necessary soon after delivery, when great vascularity exists, the ligature may be applied for thirty-six or forty-eight hours, after the plan pursued by Dr. McClintock, of Dublin, and then the écraseur resorted to. Or should the galvano-caustic be accessible, it might advantageously be made to replace any other method.

Should the stump remaining after removal by any method, show signs of hemorrhage, the white-hot iron should be passed over its surface through the speculum. A tampon should be avoided, lest blood collecting above it might separate the lips of the wound and enter the peritoneal cavity.

In the *American Journal of Obstetrics* for August, 1868, appears a *résumé* upon the subject of uterine amputation, translated from

[1] Dublin Journal, 1837.

the *Beitræge zur Geburtskunde und Gynæcologie*, which possesses so much interest in this connection that I place it before the reader.

RECORD OF REMOVAL OF THE INVERTED UTERUS BY LIGATION, EXCISION, AND BY BOTH COMBINED.

1.—REMOVAL BY LIGATION.

a. Cases terminating successfully.

I.—1767. Faivre, Journ. de Méd., 1767, Août-Labrevoit, l. c., p. 49. Patient nineteen years old, irreplaceable inversion after birth; threatening gangrene. Separation of uterus on twenty-seventh day.

II.—1824. Rheineck, Siebold's Journ. Bd. 5, p. 628. Inversion of one month's standing. The ligated tumor soon (?) separated.

III.—1818.—Newnham (an essay of inversio uteri. London, 1818.) Inversion caused by a neoplasma (polypus or fungus hæmatodes). Uterus separated on seventh day.

IV.—1828. Staub, Schweiz. Zeitschr. fuer Natur u. Heilkunde. Bd. iii. h. 1. Inversion caused by a large polypus; the latter was excised, the uterus ligated.

V.—1835. Bouchet of Lyon (Jacquemier, Manuel des Accouch.), tom. ii. p. 580.

VI.—(?) Gooch, ibid. Inversion existing for three years. Ligature cut through on fourteenth day.

VII.—1840. Harrison, London Med. Gaz., 1840, April. Uterus separated on fourteenth day.

VIII.—1836. Bloxam, Gaz. Méd., 1837. Labrevoit, l. c., p. 50. The inverted uterus was supposed to be a polypus. Ligature removed on sixteenth day; every month a bloody discharge.

IX.—1837. Kuttler, Œsterr. Jahrb. Bd. xi., s. 3. Inversion after eleventh pregnancy; the ligated uterus separated after three days. Patient is reported to have menstruated again.

X.—1838. J. Williams, Lancet et Gaz. Méd., 1839. Ligature.

XI.—1843. Esselmann, Tenness. Soc. West. Journ. of Med. and Surg., 1843. Aug. Breslau, l. c. Inversion of twelve years' standing, believed to be a polypus. Ligated uterus came off on eighteenth day.

XII.—1846. Greyson, Lond. Med. Gaz., 1846. Feb. 20. p. 342. Inversion after a difficult birth; ligated uterus came off on ninth day.

XIII.—1852. Betschler, Beitr. zur Gynæk. Bd. i. p. ii. Inversion existing for one year. Ligature cut through on fourteenth day.

XIV.—1855. Oldham, Guy's Hosp. Rep., Ser. iii. 1. Inversion after difficult labor. Ligature came off on twenty-second day.

XV.—1861. Courty, Labrevoit, l. c., p. 51. The ligated uterus came off on thirtieth day.

XVI.—1863. Dale, Gaz. Méd., 1863. Inversion with cancer. Ligature. Cancer recurred after two months; death.

b. Cases terminating fatally.

XVII.—1784. Lammonier, Rec. per. de la Soc. de Méd. de Paris, 1798. T. iv. Labrevoit, l. c., p. 52. Inversion caused by a polypus. Repeated ligations. Death after one month.

XVIII.—1816. M. A. Petetin Lyon, Journ. Gén. de Méd. T. i. vi. p. 128. Labrevoit, l. c., p. 52. Inversion, existing since three months; considered a polypus. Ligation. Death on fifth day.

XIX.—1824. Quoted by Boyer in his Traité de Mal. Chir. Inversion mistaken for a polypus. Ligature cut through on twenty-sixth day. Death ensued on thirty-eighth, in consequence of septicæmia.

XX.—1830. Symonds, London Med. Gaz., 1830, Nov. Incomplete inversion, believed to be a polypus. Tumor came off on fifteenth day; death on twenty-third day.

XXI.—1852. Deroubiax, Gaz. Méd. de Paris. 1853. 27 Août. Inversion of eight months. Ligature broke on twelfth day. Death on twenty-third day, with diphtheritic symptoms.

XXII.—1855. Coats, Assoc. Med. Journ., July, 1855. Inversion existing for half a year. Death on sixteenth day after application of ligature.

XXIII.—1860. Betschler, Beitraige zur Gynækologie. Bd. i. p. 7. Inversion caused by a fibroid tumor. The ligature came off on twentieth day; death on twenty-fourth day.

2.—Removal of Inverted Uterus by Excision.

a. Cases terminating successfully.

XXIV.—1839. Luytgareus, Ann. de la Soc. de Méd. de Gand. 1839. Inversion caused by a large broadly attached polypus. Cutting of the pedicle, ligation of the arteries. Healed in ten days, menstruation afterwards.

XXV.—1844. Michalowsky, Journal de la Méd. de Montpellier, May, 1845. Inversion existing since thirteen months. Tumor cut off with scissors. Recovery in fourteen days.

b. Cases terminating unsuccessfully.

XXVI.—1678. Arnoult, de la Motte Tr. d'accoucheur, p. 806. Death after a few days.

XXVII.—1788. Deleirye, Labrevoit, l. c., p. 52. Death on third day.

XXVIII.—1858. Aran, Lect. Cliniq. sur les Mal. de l'Utérus. Removal of inverted uterus with écraseur. Death in fifty-nine hours.

XXIX.—1859. McClintock, Tr. Prat. de Mal. de Femmes. Paris, 1835. Puerperal inversion of one year's standing. Removed with the écraseur; death after fifty-nine hours.

XXX.—1864. Wilson, Edinburgh Journal. Labrevoit, l. c., p. 53. Inversion caused by a polypus: removed with the écraseur.

XXXI.—1861. Veit, Winkel's Path. and Therap. des Wochemb. p. 99. Inversion after birth, existing after birth seven months. Removed with the écraseur.

3.—Removal of Inverted Uterus by Ligation and Excision.

a. Cases terminating successfully.

XXXII.—16—. Vicuseium, Tract. de liquorib. Labrevoit, l. c., p. 49. Ligation, followed by removal with the knife. Patient lived for fifteen days.

XXXIII.—1787. Desault and Baudelocque, Rec. per de la Société. Méd. de Paris. 1791. Inversion caused by a polypus; double ligation, afterwards removed below by the knife.

XXXIV.—1802. Alex Hunter, Hufeland's Journ., 1802, Maerz. Ligation and, after six hours, excision.

XXXV.—1804. Chevalier, Merrimann, die Regelwidrige Geburt. Deutsch von Kilian, p. 309. Ligation; after twenty days amputation. Patient lived for several days.

XXXVI.—1806. Clarke, Edinb. Med. and Surg. Journ., 1806, t. ii. Inversion caused by and believed to be a polypus. Ligation and amputation.

XXXVII.—1811. Baxter, Annal. de Litér. Méd. Etrang. Gaud, 1811, Juillet. Inversion of five weeks. Ligation followed by amputation. Menstruation returned twice.

XXXVIII.—1818. Windsor, Med.-Chir. Transact., 1819. Puerperal inversion existing since a year and a half. Double ligation. Amputation after twelve days. Stump healed in two and a half months.

XXXIX.—1820. Roettger, Walther u. Graefe Journ., Bd. xxiii. p. 203. Inversion, after repeated removals of polypi, believed to be another polypus, by a barber, who intended removing it by pieces. Fundus cut off. Roettger placed a ligature around it to stop the hemorrhage, and cut the tumor away below. Ligature came away after three weeks. Menstruation is said to have appeared again.

XL.—1821. Weber, Siebold's Journ., bd. v. s. 2. Inversion caused by a polypus. Ligation, followed by amputation.

XLI.—1831. Laserre, Froriep's Notiz., 1836, Jan., p. 116. Puerperal inversion of one and a half year's standing. Ligation; after eight days, amputation. Recovery after four weeks.

XLII.—1835. Cook, Lancet, 1846, Jan. 16. Puerperal inversion; ligation, followed in three weeks by amputation.

XLIII.—1836. W. Mooz, Lancet, 1836, vol. ii. Puerperal inversion; ligature; amputation after three weeks.

XLIV.—1840. Portal, Filiatre Sebezio, 1841. Feb. Gaz. Méd., 1841, No. 16. Inversion of four years' standing; ligation; amputation after a few days. Recovery in twenty-nine days.

XLV.—1842. Betschler, Beitr. zur Gynækologie, bd. i. p. 2. Inversion caused by a broad fibroid tumor, attached to the fundus. Ligation, followed after fifteen days by removal with the knife.

XLVI.—1842. Juergeues, M. Horten, Dissert. de Uteri Invers., Dorpat, 1853. Inversion caused by a polypus; ligation with silver wire; excision on fourteenth day.

XLVII.—1843. Crosse, Archiv. Gén. de Méd., 1848, Fevrier. Puerperal inversion since one month; ligature; amputation after five days; recovery after four weeks.

XLVIII.—1848. Johnson, ibidem. Puerperal inversion of five years' standing. Ligation, followed after twenty-eight days by amputation. Patient recovered after six weeks.

XLIX.—1848. Hublier, Bull. de l'Acad. de Méd., 1848, No. 41. Puerperal inversion existing for two months.

L.—1849. Higgins, Monthly Journal, 1855, No. 134. Puerperal

inversion of twenty years. Ligation; excision with a bistoury; quick and complete recovery.

LI.—1854. Gredding, Gaz. des Hôpitaux, 1855, No. 134. Inversion caused by a broad fibroid tumor; ligation, followed immediately by amputation; three sutures inserted.

LII.—1859. McClintock, Dublin Journal, xxvii., Feb. 1859, p. 137. Puerperal inversion. Ligature remained for forty-eight hours. Removal by the écraseur in the groove formed by ligation.

LIII.—1863. Sheppard, Med. Times, 1863. Ligation and excision.

b. Cases terminating unsuccessfully.

LIV.—1803. Watkinson, Journ. der Ausland. Med. Lit., 1803. Jan., p. 84. Ligation, followed by immediate excision. Ligature slid off the stump; fatal hemorrhage.

LV.—1836. Meerholdt, Dissertatio de Uteri Inversione, Dorpat, 1836. Puerperal of one year's standing. Ligation; amputation; soon signs of internal hemorrhage with consecutive peritonitis, terminating fatally on nineteenth day.

LVI.—1840. Velpeau, Gaz. des Hôp., 1840, Mai, No. 36. Incomplete puerperal inversion; ligation, followed by excision. Death after seventy-two hours.

LVII.—1850. Reported by Engel, in Zeitschr. des Deutsch. Chirurg. Vereins, bd. iv. p. 43. Patient suffered from polypus for three years, which was ligated.

LVIII.—1867. Scanzoni. Inversion caused by an intra-parietal fibroid tumor: ligation with Maisonneuve's constrictor, followed immediately by excision with the bistoury. Death ensued on seventh day.—*Beitræge zur Geburtskunde und Gynækologie.*

CHAPTER XXV.

PERI-UTERINE CELLULITIS.

History.—The history of this affection presents one of those examples, which are often repeated in medical literature, of a subject which was once understood being subsequently completely overlooked and forgotten.

There can be little doubt that it is to this disease that allusion was made by Archigenes, who flourished in the second century, and whose account of it was subsequently repeated by Oribasius in the fourth, and Aëtius and Paul of Ægina in the sixth and seventh. The last two unquestionably refer to it under the head of, "Abscess of the Womb," for in one passage Paulus especially speaks of cases in which the "aposteme is seated about the mouth of the uterus."

The modern history of the subject may be thus stated:—

Described by Richard Wiseman,[1] England, as "Distempers of the uterus in childbed," 1679.
" " Nichs. Puzos,[2] France, "Dépôts Laiteux," 1743.
" " Bourdon, a pupil of Récamier, "Fluctuating tumor of true pelvis," 1841.
" " Doherty, Ireland, "Chronic inflammation of the appendages of uterus," 1843.
" " Marchal de Calvi, "Intra-pelvic-phlegmonous abscess." 1844.
" " Churchill,[3] Ireland, as "Abscess of uterine appendages," 1844.
" " Lever, England, 1844.

It will thus be seen that after being appreciated, then entirely

[1] McClintock, "Diseases of Woman," p. 1.

[2] Drs. West and McClintock date the appearance of Puzos, "Traité d'Accouchement," 1759. They are probably in error, as Bernutz and Nonat both date it 1743.

[3] West, "Diseases of Women," Am. ed., p. 310.

forgotten, then for a second time signalized, the knowledge of this affection languished for nearly two centuries, to be suddenly restored by the efforts of four investigators who entered the field almost simultaneously. It would be unjust to a conscientious observer, M. Auguste Nonat, not to mention the great influence which his writings have had in advancing our knowledge, but when he commenced his investigations in Hôpital Cochin, in 1846, the morbid state which he subsequently did so much to elucidate, had already received considerable attention in Great Britain.

Definition, Synonymes, and Frequency.—It has been described by different writers under the following titles, peri-metritis, peri-uterine phlegmon, inflammation of the broad ligaments, pelvic abscess, and pelvic cellulitis. This last term, which was applied to it by Sir James Simpson, graphically indicates the nature and seat of the disease; but it is open to the grave objection of being too general in its application, and not sufficiently confining within proper limits a distinct and well-defined affection.

Normal Anatomy.—"The sub-peritoneal pelvic tissue," says Dr. Savage, in his beautiful work entitled "Illustrations of the Female Pelvic Organs," "fills up all that part of the pelvic cavity between the pelvic 'roof' and floor of the pelvis, which is not occupied by the viscera, and is the sole bond of union between them." Any one can satisfy himself as to the abundance of loose cellular tissue in the pelvis, by even a rough dissection. It will be found in the broad ligaments in great abundance, separating their contents, between the vagina and rectum, the rectum and sacrum, the uterus and bladder, the bladder and abdominal parietes, and investing the psoas and iliac muscles. The relations of the urethra and rectum to this tissue are peculiar, each being isolated in a sheath or canal which may be removed with ease.[1]

Everywhere around the pelvic organs cellular tissue exists except between the peritoneum and uterus. Here so little is discoverable that some have ventured to deny its existence, while all admit that over the body of the organ it is difficult of demonstration. Dr. Farre[2] declares that along the median line and over the whole fundus he has found the peritoneum inseparable from the uterus, except after prolonged maceration. On the sides of

[1] Savage, op. cit. [2] Cyc. Anat. and Phys., Sup., p. 631.

the organ and at the cervix the connection is not so intimate, loose cellular tissue existing at these points to such an extent as to permit of the investing membrane gliding upon the uterus. M. Goupil,[1] who has made a special study of this tissue, declares that it is so small in amount at the point of contact of the peritoneum and vagina, and in front and rear of the uterus, that, "its presence can scarcely be determined."

Pathology.—According to the wide range given to the affection by the majority of English pathologists, this tissue is the seat of the disease under consideration, which may affect any or all of its parts. Drs. West, Simpson, and most British writers, except Dr. Bennet, adopt this view and regard as instances of the affection any inflammation of the cellular tissue within the pelvis. But this evidently leads to great confusion. It is certainly not conducive to clearness of comprehension to blend the description of iliac, psoas, and peri-rectal abscesses with this disease.

French writers,[2] on the contrary, regard as instances of peri-uterine cellulitis only inflammation of the cellular tissue of the broad ligaments and of that immediately in contact with the uterus at its junction with the vagina and bladder. While admitting that inflammation originating here may spread, by continuity of structure, to other areolar tracts in the pelvis, they regard these as complications, designating them by different appellations, and do not admit them as elements of this affection. This is the definition which I would adopt, and to express it clearly have employed the term peri-uterine, in place of pelvic, cellulitis.

Peri-uterine cellulitis has three stages: 1st, the stage of active congestion; 2d, that of effusion of liquor sanguinis; 3d, that of suppuration. In its course it may be likened to an ordinary furuncle; at first there is simple congestion accompanied by pain, heat, and swelling; then liquor sanguinis is effused, which creates hardness and tension, and lastly suppuration occurs, and ends the morbid process, unless one of two other terminations take place. Resolution may occur, or, in place of suppuration, the areolar tissue involved may be destroyed, as it so generally is in anthrax and phlegmonous erysipelas, and come forth as a sloughing mass.

The term phlegmon, now almost obsolete with us, but still in use on the continent of Europe, signifying inflammation of areo-

[1] Becquerel, p. 441, vol. i. [2] Aran, Mal. de l'Utérus, p. 675.

lar tissue, is strictly applicable to this affection. Its course is similar to that of areolar inflammations in other parts of the body, and its three stages are identical with theirs.

The usual, indeed the almost invariable, seat of peri-uterine cellulitis is the areolar tissue of the broad ligaments and generally that of one side only is affected.

In a certain number of cases where no affection of the areolar tissue of the broad ligaments exists, circumscribed tumors, in immediate contact with the womb, have long been noticed. Lisfranc supposed them to be due to partial parenchymatous metritis, "engorgements," which had resulted in enlargement of one part of the organ, and no one contradicted him until M. Nonat,[1] about the year 1849, described them as being due to phlegmonous inflammation in the areolar tissue immediately around the uterus, *i. e.*, between the cervix and rectum, the cervix and bladder, and immediately by the side of the neck. The existence of this variety of cellulitis has been denied by M. Bernutz, who sustains his position by abundant argument. In reference to it, I will merely say here, that there are, so far as my knowledge extends, only two cases of such limited cellulitis substantiated by autopsic evidence, one reported by M. Demarquay,[2] the other by M. Simon.[3] There are many in which abscesses in the broad ligaments have pointed anteriorly or posteriorly to the cervix, but these come within a different category. The broad ligaments and their entire contents, cellular tissue, ovaries, and Fallopian tubes, are more frequently affected than any other parts, and M. Aran goes so far as to say that the collections of pus occurring in peri-uterine cellulitis "belong more particularly to the ovaries and tubes." In post-mortem examinations these parts are often found imbedded in a mass of effused material, the ovaries, one or both, in a state of suppuration, and the tubes inflamed and filled with pus, or constricted at both uterine and ovarian extremities and dilated by sero-purulent material so as to constitute tubal dropsy. I have examined the post-mortem reports of cases by a number of authorities with reference to this point, and rejecting only those in which the examination was made in too careless a manner to allow of their admission, I present them in the following table:—

[1] Op. cit., p. 237. [2] Gazette des Hôpitaux, April 17, 1858.

[3] Bull. de la Soc. Anat. de Paris.

NO. OF CASES.	AUTHORITY.	SEAT OF PURULENT COLLECTION.
1	M. Nonat.	Behind the uterus connecting with suppurating cyst in left ovary; small abscess in right ovary.
2	M. Nonat.	Between uterus and rectum extending into broad ligaments of both sides.
3	M. Nonat.	On left side extending from uterus to ilium.
4	M. Nonat.	Behind uterus and vagina extending into left broad ligament; another the size of a hen's egg just behind the uterus, opening into a third, very large, extending to Sigmoid flexure and into broad ligament.
5	Dr. West.	Left broad ligament.
6	Dr. West.	Opposite right sacro-iliac synchondrosis under psoas muscle, another to the left of and behind the rectum.
7	Dr. West.	Left broad ligament.
8	Dr. McClintock.	Left broad ligament.
9	M. Demarquay.	In cellular tissue between uterus and rectum and also in recto-uterine pouch of peritoneum.
10	M. Simon.	Size of a small orange between the bladder and uterus sending conoidal prolongation into left broad ligament. Its limits were as follows: base of bladder in front; neck and body of uterus behind; peritoneum above; vagina below: at the sides it ran off into the broad ligaments.
11	M. Aran.	Left broad ligament.
12	M. Aran.	Left ovary, right tube, with pelvic adhesions throughout.
13	M. Bourdon.	Size of an apple in left broad ligament.
14	M. Aran.	At side of uterus and in the left broad ligament.

It will thus be seen that of this number, which is large when it is remembered that the disease rarely ends in death, but two cases present instances of cellulitis, uncomplicated by disease of the cellular tissue of the broad ligaments, ovaries, or tubes. One of these, that of Simon, is conclusive of the possibility of such disease; that of Demarquay is doubtful, for with the abscess in the cellular tissue, there was also one in the cul-de-sac of Douglas. The purulent collections in this disease may be results of morbid action in the cellular tissue, the ovaries, or the Fallopian tubes. In other words, with the disease known as cellulitis we often, indeed generally, have other affections, some of them, in the present state of our knowledge, not separable from it, which attend upon it as complications.

Complications.—The complications of peri-uterine cellulitis are—

Pelvic peritonitis;
Ovaritis;
Fallopian salpingitis;[1]
Endometritis.

The occurrence of these complications with cellulitis is so frequent that they may, at least the first three, almost be regarded as elements of it, when it exists in severity. They are, indeed, universally present where the tissue of the broad ligaments is seriously involved, as will be seen by reference to autopsic evidence contained in any of the works upon the subject. The fact of the frequent coexistence of endometritis should be especially noted, for great injury may be done by local treatment of it, under the supposition that it is the cause of symptoms which in reality are the results of cellulitis.

Course, Duration, and Termination.—It is necessary that I should here inform the reader that the account which I shall give of this part of our subject will differ essentially from that generally given in systematic works, for the reason that, regarding pelvic cellulitis and pelvic peritonitis, which are usually treated of synonymously, as different affections, I shall attempt to describe them separately. Cellulitis proper, that is, uncomplicated by other diseases, rarely passes into a chronic state, but usually in the course of two or three weeks passes off by resolution or ends in suppuration. Any one of its usual complications, however, peritonitis, endometritis, ovaritis, or salpingitis, may pass into that condition and thus leave the impression upon the mind of the observer that the original affection has done so. Or one or more abscesses may discharge themselves by long sinuses which fail to allow of their complete evacuation, and may continue to pour out pus for months or even years. In saying that cellulitis rarely becomes chronic, I look upon chronic pelvic abscesses rather as one of its results than one of its stages. If the case be of acute character and occur as a sequel of parturition, suppuration may take place in a few days, but ordinarily, even under these circumstances, it does not occur for two or three weeks. In a chronic case the effused matter may remain hard, resisting, and

[1] σαλπιγξ, "a tube."

ligneous for months, without showing signs of softening, but such instances are exceptions to the rule. After suppuration has occurred the disease may follow one of three courses.

1st. The accumulated pus may discharge itself and the abscess gradually dry up and disappear.

2d. The empty sac, lined by pyogenic membrane, may for an unlimited time go on pouring out pus.

3d. Small abscesses may form and discharge in one part, then others may do so in another, until the whole pelvic areolar tissue is perforated by them and by fistulous tracts connecting them.

There are various outlets for the imprisoned purulent accumulation:—

1st. Through the abdominal walls or saphenous openings;

2d. Through the pelvic viscera, bladder, rectum, vagina, urethra, or uterus;

3d. Through the floor of the pelvis near the anus;

4th. Through the pelvic foramina, obturator, or sacro-ischiatic;

5th. Through the pelvic roof into the peritoneal cavity.

Sometimes the purulent collection burrows into the surrounding tissues and evacuates itself at a distance. In one case which I saw with Dr. Echeverria, it passed through the sciatic foramen, and burrowing upwards and forwards, came forth near the great trochanter. It may thus take so eccentric a course as to mislead the practitioner as to the seat of the abscess.

The most frequent channels of evacuation are the vagina and rectum, in the non-puerperal form, and probably the abdominal walls in the puerperal, or at least the results of Dr. McClintock's[1] carefully noted cases would lead us to believe so. In 37 puerperal cases treated by him which ended in suppuration, 20 abscesses discharged in the iliac regions, 2 above the pubes, 1 in the inguinal region, and 1 beside the anus. Of the remaining 13, 6 were discharged per vaginam, 5 per anum, and 2 burst into the bladder. In the non-puerperal variety it is extremely rare for the abscess to discharge externally, and fortunately in both forms it is rare for it to burst into the peritoneum.

Prognosis.—A guarded prognosis should always be made as to the time of recovery, for no amount of experience can foresee the course of the affection; whether the effused liquor sanguinis will

[1] Op. cit.

disappear by absorption in three weeks; whether the discharge of one abscess will end the patient's suffering; or whether a chronic induration will exist for a great length of time. But fortunately it may be stated, that the prospects as to life, are decidedly favorable, though in cases occurring just after parturition, there is always some danger from general peritonitis.

Causes.—The disease usually occurs as a result of one of the following causes:—

Parturition or abortion;

Inflammation of uterus or ovaries;

Direct injury from coition, caustics, pessaries, operations, or blows.

Parturition or abortion produces, according to statistics, from one-half to two-thirds of all the cases. Even this large proportion I believe to fall short of the truth, from the fact that those collecting the statistics from which the deductions were drawn, made no distinction between this disease and pelvic peritonitis. Cellulitis will very rarely be met with except after the parturient process. It is true that when the puerperal state exists as a predisposing cause, exposure to cold, fatigue, over-exertion, &c., will excite it; but under these circumstances they are merely immediate and exciting influences. The great causative power is the puerperal condition.

Inflammation of the Ovaries or Uterus. It is rare to meet with the affection in a non-puerperal patient, as the result of exposure, unless she be suffering from disease of these organs. Aran believes disease in the ovaries to be "almost always the cause." It is certain that these organs are generally diseased where the affection exists, but it is difficult to determine whether as a complication, or as the first link in the chain. In the histories of fourteen autopsies which I have collected, the state of the ovaries is mentioned in ten. Out of these they were affected by inflammation in seven. In some of the seven cases, abscesses existed; in others their tissue was destroyed, and in others they had entirely disappeared. Any chronic or acute disease of either the uterine parenchyma or mucous lining, may also result in it, and I have more than once seen it follow applications of mild character to the cavity of the uterus.

Direct injury is by no means a rare cause in the non-puerperal cases, though it generally proves active in those suffering from

previous uterine or ovarian disorders. Thus it may follow operations upon the neck or body of the uterus, slitting the neck for flexion or contraction, for example, or simple dilatation by a tent. It may result from efforts at removal of intra-uterine growths, and one fatal case that I have met followed the ligation of hæmorrhoids.

Symptoms.—The acute form, and more especially that occurring after parturition, is usually ushered in by very decided symptoms, of which the most constant are the following:—

Chill;
Increased local heat;
Pain;
Fever;
Dysuria;
Painful defecation;
Metrorrhagia.

The chill, though sometimes absent, is a very general symptom. No sooner does it pass off than the pulse rises to 110 or 120, increased heat is felt in the hypogastric region, and pain, which for a number of hours or perhaps days before was just perceptible, comes on with considerable violence. With these symptoms, there will be others pointing to the rectum and bladder, and should the affection exist in a menstruating woman the flow may be much increased. Even when the patient is not menstruating, uterine hemorrhage sometimes, though not frequently, comes on.

But he who awaits these symptoms for diagnosis will be led into many errors of omission, for subacute cases very generally, and acute cases sometimes, fully develop themselves without them.

All cases may be brought under three heads as to severity of symptoms:—

1st. Cases accompanied by chill, fever, pain, and ordinary signs of inflammation;

2d. Those accompanied by pain without chill or fever;

3d. Those marked by scarcely any symptoms except extreme feebleness and some sense of pulsation and weight about the pelvis, with hectic fever towards evening.

Cases which have assumed the chronic form will present themselves with such a history as this; a patient who was delivered one, two, or three months ago has not recovered her strength, but is very feeble, has no appetite, and feels nervous, depressed, and

feverish towards evening. She has no absolute pain, but fears that something is wrong about the womb, for now and then she feels a sensation of throbbing, tension, and weight about that organ, which is increased by defecation, urination, and walking. This incites to physical exploration, which establishes the diagnosis

Physical Signs.—Physical exploration is the means on which we must rely for a rapid and certain determination of the character of these cases. Should the finger be introduced into the vagina during the first stage, the parts will be found to be very warm and perhaps a feeling of puffiness may be detected. Upon pressing in different directions great sensitiveness will be observed and by conjoined manipulation a particularly sensitive point will be detected on one side of the uterus.

As the second stage, or stage of effusion, advances, induration occurs in the areolar tissue affected, and then by careful vaginal touch combined with external manipulation a tumor as large as a nut, a goose's egg, or an orange may be detected in one of the broad ligaments, upon one side of the cervix, or on one wall of the vagina.

But the examiner must not suppose that the mere introduction of the finger into the vagina will accomplish a discovery which often requires the greatest care and most thoughtful attention in examination. The finger being passed up to the cervix and the other hand placed upon the hypogastrium so as to make counter-pressure, it should be carefully pressed into Douglas's cul-de-sac and all around the cervix over the base of the bladder and as far as possible towards the fundus. Then it should be made in a similarly careful manner to traverse the sides of the pelvis where the broad ligaments are placed, and last of all, those parts below the pelvic roof. For one sufficiently practised in this kind of examination this procedure will generally be sufficient to determine the existence of even a very small point of induration on the sides or in front of the uterus. Sometimes, where it is posterior to that organ, a rectal exploration will throw much additional light upon the case.

Should the disease have advanced to its third stage, in addition to the signs already noted, the uterus, which, as already mentioned, is generally displaced, is now pushed far from its normal position, in a direction opposite to the accumulated pus. Sometimes it lies

upon the floor of the pelvis, at others it is in a state of anteversion, retroversion, or lateroversion, and, more rarely, sharply flexed, the body having remained movable after the cervix has become fixed.

Into whatever malposition it has been forced it remains to a certain extent immovable, from fixation by adhesive lymph.

Differentiation.—The diseases with which it may be confounded are—

Fibrous tumors;
Hæmatocele;
Pelvic peritonitis.

Fibrous tumors are painless, free from tenderness, and movable in the pelvis. They are unaccompanied by chill, fever, and other signs of inflammation, and are closely attached to the uterus, so as to form part of it. The tumors resulting from cellulitis are the contrary of all this, and appear firmly attached, like bony growths, to the walls of the pelvis.

Hæmatocele occurs suddenly with uterine hemorrhage, and is not marked by signs of inflammation, but by prostration, coldness, and other symptoms of loss of blood. The tumor created is soft in the beginning and grows hard; that of cellulitis is hard in the beginning and tends to softening.

Pelvic peritonitis shows the ordinary signs of peritoneal inflammation, great tendency to relapse at menstrual periods, excessive pain and tenderness, and produces no distinct tumor in the beginning, but hardening of the whole pelvic roof. Later, a small tumor may be discovered, but it is very high up and attached to the uterus and not to the pelvic walls. The uterus is less movable than in cellulitis, and when the body is fixed the cervix sometimes moves under pressure.

Consequences of Cellulitis.—The remote results of this affection are so grave, that even if there were no dangers immediately connected with it, they would stamp its occurrence as a great disaster. The ovaries are at times destroyed by suppurative action; at others they undergo an atrophy, the result of inflammation, and the Fallopian tubes are often left impervious. The uterus is often permanently displaced in consequence of strong adhesions which bind it in a bad position. From this results the fact, that although the disease be cured, the patient is often left incapacitated for some of the most important physio-

logical functions. Sterility, amenorrhœa, dysmenorrhœa, menorrhagia, tubal dropsy,[1] and displacements may remain to attest the gravity of the original disease, and continue for an unlimited time a source of suffering for the patient and discouragement for the physician.

Treatment.—Should the practitioner be called in the acute stage, before effusion has occurred, or after its occurrence and before its complete organization, leeches should be at once applied over the hypogastrium, to the perineum, or around the anus, in sufficient number to draw from six to twelve ounces of blood, according to the strength of the patient. No false delicacy should induce us to apply them from choice to the hypogastrium, for no one will question the fact, that when drawing blood from the hæmorrhoidal veins, they act much more directly upon the pelvic circulation than when so placed as to allow the intervention of two layers of peritoneum. At the same time that it must be admitted that in a nervous, hysterical, or over fastidious patient, the hypogastrium might prove a less offensive place for the application, the importance of checking so serious an affection before it fully enters upon its course is too great to allow any trifling consideration to interfere with success. Application around the anus need involve no exposure; the leeches being placed in a wine-glass which is held against the part until they bite.

After leeching, warm poultices of powdered flaxseed should be applied every third or fourth hour over the hypogastrium, the bowels kept constipated by opiates, and febrile action, should it exist, be quieted by refrigerants and direct sedatives, as tincture of veratrum viride or tincture of aconite.

Another indication which will force itself upon the notice will be the relief of pain. This must be accomplished by opiates, either by the mouth or rectum, or, if excessive pain exist, ten drops of Magendie's solution of morphia may be injected by the hypodermic syringe into the cellular tissue of the thigh.

Absolute rest should be enjoined, the patient not being allowed to sit up in bed for a moment, upon any pretext whatever. Were I limited to one remedial resource in this affection, I should choose this in preference to all others, but to accomplish anything it must be absolutely enforced.

[1] Aran, op. cit., p. 638.

The diet of the patient should be mild and unstimulating, consisting of milk with farinaceous substances, and tea or coffee.

As soon as the acute symptoms have passed, and vaginal touch informs us that the effused material is becoming thoroughly organized, a further effort should be made to break up the morbid train before it passes on to suppuration or into chronic induration, by the application of a blister six by eight inches over the hypogastrium. This should not be applied before febrile action and the most acute symptoms have disappeared.

Some excellent authorities, among others Sir James Simpson, object to blistering for fear of strangury resulting. I have never had to do otherwise than congratulate myself on its employment. Should the case tend to an acute course, and suppuration be impending, this should be encouraged by constant poulticing.

As soon as the acuteness of the attack has passed, until which time attention should be turned to quieting the general symptoms of inflammation, it is advised by the best authorities that the iodide or bromide of potassium should be administered, the former in five grain doses repeated every third or fourth hour, or the latter in doses of ten, fifteen, or even twenty grains at the same intervals. At the same time that I am not prepared to deny the utility of these drugs, I confess that I have never been able to persuade myself that they really accomplish any good result. There is no more certain method of disgorging the veins of the pelvis and lower bowel than by acting upon the liver, which governs the outlet of the portal system, with which they are connected, and this can most readily be done by mercurial cathartics. Thus occasionally used, the mercurials prove of great benefit in relieving congestion, which is a leading element of the disease. But in doing this we are not developing the specific action of these medicines, which here act as a subordinate, and not the chief element of treatment. The production of ptyalism should be avoided, since it is by no means certain that it is of any benefit, and by impoverishing the blood at the commencement of what may become an exhausting disease it may do absolutely injury. As the acuteness of the affection subsides the bowels should be kept free by laxative medicines, and the occasional use of a mercurial in this capacity is indicated. It may be necessary to repeat the application of leeches, and the repetition

of the blister is often called for before the case ends in suppuration or passes into the chronic stage.

While the patient remains in bed, warm poultices, or towels wrung out of warm water and covered by oil silk, should be worn over the hypogastrium. An additional emollient remedy of great value remains to be mentioned. It is the persevering use of the warm douche during fifteen or twenty minutes, night and morning, after the manner already advised. The fluid used should be as warm as the patient can bear it, and may be slightly medicated by the addition of chloride of sodium, tincture of iodine, or iodide of potassium. The injections stimulate the absorbents, and, at the same time, quiet inflammatory action, in the performance of which functions they are invaluable in these cases.

As the third stage of the disease, or the stage of suppuration, merges into pelvic abscess, it will be best to postpone the consideration of its management to the chapter in which that subject is treated. I will merely state here that after an abscess has formed and evacuated itself, great care should be taken not to allow the patient to exert herself for several weeks, for fear of a relapse, and even after she has left the house and begun to exercise regularly, during two or three menstrual periods she should confine herself to bed.

CHAPTER XXVI.

PELVIC PERITONITIS.

Definition.—Inflammation involving the peritoneum covering the female pelvic viscera, and limited to it, receives the name of pelvic peritonitis. It must not be supposed that by this definition is meant simply that form of peritoneal inflammation arising in the pelvis and spreading into general peritonitis, which has long been described as metro-peritonitis. The disease that we are now considering is one usually strictly limited to the pelvis, presenting symptoms peculiar to itself, and rarely passing into the general form of the same disorder.

History.—Long before pelvic cellulitis was known, peritonitis, limited to the serous covering of the pelvic organs, had attracted attention, and its clinical resemblance to cellulitis, as subsequently described, fully noted. Thus Morgagni[1] relates a case in which, thirty days after delivery, the right ovary and tube were adherent to the colon and almost destroyed by an abscess. Nauche, in his work on Diseases of the Uterus, published at Paris in 1816, described inflammation of the uterus as affecting, first, the mucous membrane, second, the parenchyma, and third, the serous covering. In 1828, Mad. Boivin credited the adhesions resulting from this affection and binding the uterus down, with a large number of abortions attributed to other causes, and, in 1833, she described immobility of the uterus, for which she gave as causes, peritonitis, metro-peritonitis, and pelvic abscess. In 1839, Grisolle[2] distinctly stated that "there are cases of circumscribed peritonitis which, producing a tumor appreciable to sight and to touch, may lead to the belief in the existence of phlegmon," *i. e.*, a tumor the result of inflammation of areolar tissue. Lisfranc,[3] writing ten years

[1] Artic. 22, Epist. 46. Nonat, op. cit., p. 234.

[2] Bernutz and Goupil, op. cit., p. 398.

[3] Clin. Med., vol. iii. p. 514.

after Boivin and Dugès, copies their description very closely in his article on "Fixité de la Matrice," without referring to them, and like them attributes it to peritonitis or metro-peritonitis.

Although these facts were known and universally admitted, they attracted little notice, and after the description of pelvic cellulitis by Doherty and Marchal de Calvi, pelvic peritonitis was almost entirely lost sight of. This was due to the fact that the enthusiasm created by the description of a long forgotten affection, caused observers to look upon the results of peritonitis as those of cellulitis, and to describe them as such. Thus the matter rested until 1857, when M. Bernutz, in a treatise written in concert with M. Goupil, not only drew especial notice to it, but took the position that inflammation of the cellular tissue immediately around the uterus, described by Nonat as "phlegmon péri-utérin," or what would strictly be termed, in our nomenclature, "peri-uterine cellulitis," did not exist as a pathological reality, but that the lesions ascribed to it were absolutely due to pelvic peritonitis.

These views, published at first in the "Archiv. Gén. de Méd.,"[1] are fully elaborated in the admirable work[2] of these observers recently brought forth. They do not touch the general subject of peri-uterine cellulitis, as it exists in the broad ligaments, sub-peritoneal tissue, and around the rectum, but only that variety supposed to have its seat in the areolar tissue between the uterus and peritoneum.

It has been already stated that M. Bernutz was incited to his investigations by certain views advanced by M. Nonat as to the pathology of peri-uterine induration, which sometimes goes on to suppuration. But his researches served not merely to settle this comparatively unimportant point, they proved the fact, for which the investigator appears to have been himself entirely unprepared in the beginning, that many of those cases regarded as instances of non-puerperal cellulitis are in reality not phlegmonous but peritoneal inflammations. Since the publication of these views I have directed my attention particularly to this point, and from careful observation, both clinical and post-mortem, feel warranted in recording the conclusions at which I have arrived in the following propositions:—

[1] Archiv. Gén., 1857.

[2] Clin. Med. des Femmes, 1862.

1st. Peri-uterine cellulitis is very rare in the non-pregnant woman, while pelvic peritonitis is very common;

2d. A very large proportion of the cases now regarded as instances of cellulitis are really those of pelvic peritonitis;

3d. The two affections are entirely distinct from each other, and should not be confounded simply because they often complicate each other. They may be compared to serous and parenchymatous inflammation of the lungs, pleurisy, and pneumonia. Like them they are separate and distinct, like them affect different kinds of structure, and like them often complicate each other.

4th. They may usually be readily differentiated from each other, and a neglect of such thorough diagnosis is as culpable as a similar want of care in determining between pericarditis and endocarditis.

M. Bernutz cites the results of five autopsies[1] by himself, and between twenty and thirty by others which presented all the signs of pelvic peritonitis and none of cellulitis, although during life the symptoms and signs generally attributed to the latter disease were present. As an example conveying some idea of the close clinical resemblance between his cases found in autopsy to be peritonitis and those ordinarily regarded as cellulitis, I quote the salient points in his sixth observation.

Patient 33, lymphatic temperament, entered hospital November 24th, for feebleness, pain in the back, emaciation, and dysmenorrhœa. After a while loss of appetite, increase of pain, and chills appeared. By touch the uterus was found completely fixed, low down in the pelvis and inclined to the right side, and attached to it a very sensitive tumor the size of a hen's egg, extending behind the womb. On the 15th of December this tumor was as large as a turkey's egg. February 1st: tumor only the size of a pigeon's egg; a circumscribed tumor on the left, attached to uterus and to the walls of the pelvis. March 23d: uterus movable and tumor reduced to the size of a little nut. April 4th: she died, and autopsy showed tubercular pelvic peritonitis, evidenced by tubercular deposit, lymph, pus, firm old adhesions, ovaries imbedded in false membrane and nearly destroyed.

I had often been struck by the great similarity between peritonitis and many of the cases of what, until enlightened by M.

[1] I have rejected a number of the cases reported, because not sufficiently conclusive.

Bernutz, I had regarded as cellulitis, and by the fact that they occasionally ran into general peritonitis without any apparent emptying of purulent collections into the peritoneal sac, but I never had an opportunity of examining such a case post-mortem until the following, of which I give only a short sketch here, as it is elsewhere[1] fully related.

Mrs. M., aged 35, married, but never pregnant, was under my care, during the winter, at the Woman's Hospital, for anteflexion of the uterus, the result, as I supposed, of peri-uterine cellulitis. August 6th: I was called to see her in consultation with Dr. Roth, her family physician, and found her suffering from severe pelvic pain, constant vomiting, and fever. Upon vaginal touch I found the uterus immovably fixed and the pelvic roof as hard as a board. The pelvic tissue was everywhere hard and resisting, and the physical signs of what I had habitually styled cellulitis were present. About a week afterwards the patient died suddenly and unexpectedly, and I held an autopsy in presence of Drs. Roth and J. C. Smith. No general peritonitis existed; the left ovary presented a sac the size of a hen's egg, filled with pus; the pelvic peritoneum was intensely inflamed and the uterus bound down by old false membranes, bands of which matted all the parts together. The vermiform appendage was bound to the right ovary and the caput coli lay just below the uterus. No trace of inflammation could be discovered in the pelvic cellular tissue except, of course, that in immediate contact with the ovary.

The fixation of the uterus, observed during life, was due to lymph effused upon the pelvic peritoneum, and no trace of inflammatory action in the pelvic areolar tissue could be discovered as accounting for it. It is true that the left ovary, enveloped by the layers of the broad ligament, was inflamed, and that a certain amount of inflammation existed in the cellular tissue immediately surrounding it, but this did not extend. There could be no question of the facts which are here stated.

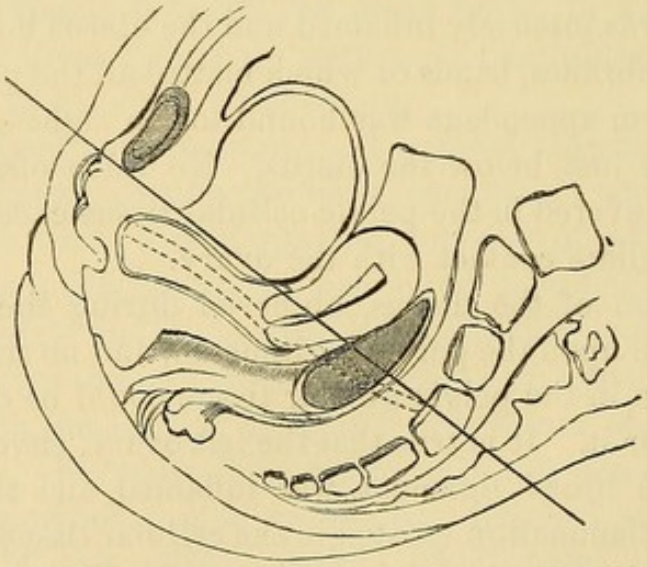
Frequency.—A reference to the autopsic notes of cases of cellulitis, for example, those recorded by West, Nonat, Aran, and McClintock, will give abundant evidence of the almost universal attendance of this complication upon it. But, even without the existence of that disease, Aran found it in greater or less degree

[1] Chap. on Ovaritis.

in fifty-five per cent. of cadavers of women examined in his service. This proves that peritonitis, limited to the pelvic viscera, is a common affection, and one which is very generally overlooked. It is probably to its occurrence that are due so many of those attacks of violent hypogastric pain occurring with menstruation, or just after it, accompanied by vomiting and slight febrile action, and which are generally treated by domestic remedies and viewed as cramps or uterine colics.

Pathology.—The disease runs its course here, as peritoneal inflammation does elsewhere, in three stages. With the first there are simple engorgement and turgescence of the vessels, producing redness, dryness, and pain. In the second stage an entirely different state of things will be found to exist, to comprehend which fully, the reader must bear in mind what is meant by the "roof of the pelvis." If a plane be passed backwards from a point just under the pubic arch, through the cervix uteri at the attachment of the vagina, to the sacrum at the attachment of the utero-sacral

Fig. 156.



The straight line represents approximatively the roof of the pelvis; the dotted line represents it more exactly.

ligaments, it will correctly represent this roof, which is thus formed by the vesico-vaginal septum, the lower extremity of the uterus, which projects, as it were, through a hole in the roof, the upper part of the fornix vaginæ, and the utero-sacral ligaments. Above the plane, the organs of reproduction float, as Nonat expresses it, "in an atmosphere of cellular tissue." Let the reader suppose that instead of this yielding, springy tissue, these organs

were fixed in their places by having a fluid mixture of plaster of Paris poured around, among, and over them, which had afterwards become solid, and he may form a correct idea of what vaginal exploration will yield to the sense of touch in the second stage. The roof of the pelvis is hard, ligneous, and as if composed of a "deal board," to which Prof. Doherty likens it. The uterus, which is generally much displaced, is immovable, and all its appendages appear fixed by some solid, surrounding element.

This, the second, stage consists in a collection of plastic lymph on the surface of the peritoneum, and of serous, purulent, or sero-purulent fluid in its most dependent parts.

In the third stage the fluid, if serous, is absorbed, if purulent, discharged, and the exuded lymph undergoes organization and subsequently contraction. This binds the uterus, its appendages and some of the intestines together in a mass, which yields all the physical signs of a tumor.

Causes.—Its causes are as follows:—

Peri-uterine cellulitis;
Parturition or abortion;
Gonorrhœa;
Metritis, ovaritis, or salpingitis;
Escape of fluids into the peritoneum;
Traumatic influences;
Imprudence during menstruation;
Tubercular or cancerous deposit.

Its frequent dependence on the first needs no further mention.

As a result of parturition or abortion, it is so well known as to make the exhibition of proof here almost unnecessary. Reference may be made, however, to 53 autopsies by Aran,[1] in which out of 38 women who had borne children, 24 presented evidences of its previous existence, while out of 15 who were nulliparous, only 5 did so.

Gonorrhœa, by passing into the uterus and through the Fallopian tubes, is a fruitful source of the affection. According to M. Bernutz 28 out of 99 of his cases had this origin. I have at present a very distinct case under treatment, which was produced in a lady two weeks after marriage, the disease having been contracted by her husband four days before, and showing itself in him on the very day of the ceremony.

[1] Op. cit., 718.

It would be strange if ovaritis and metritis did not, at times, cause pelvic peritonitis. That they frequently do so, is abundantly demonstrated by autopsies made after their existence both in the puerperal and non-puerperal states.

Salpingitis causes it not only by the extension of inflammation along the mucous, into the serous membrane which is continuous with it, but by emptying its accumulated pus into the peritoneal cavity.

Escape of fluid into the peritoneum is an undisputed cause of this, as of general peritonitis. I myself produced a well-marked case which almost terminated fatally, by injecting a solution of persulphate of iron into the uterine cavity. The passage of the fluid through the tubes could not be questioned, for agonizing pain came on in less than three minutes, and continued up to the development of inflammation. This danger has caused the almost entire abandonment of intra-uterine injections on the part of the majority of practitioners in New York, and I think elsewhere, unless the cervix be previously dilated by tents. But many other sources from which fluid may enter the peritoneum exist; as, for example, rupture of an ovarian cyst, discharge of tubal dropsy, or of a pelvic abscess, intra-peritoneal hemorrhage, regurgitation of obstructed menstrual blood, &c.

Traumatic agencies, as blows, falls, injury during labor, punctures, &c., may result in partial, as they do in general inflammation of the peritoneum.

Imprudence during Menstruation.—During a period in which a physiological function involves rupture of the peritoneum and produces hemorrhage, which must pass to the uterus by a narrow tube not permanently in immediate contact with the ovary, any degree of exposure must evidently tend to inflammation in the ruptured part. Of M. Bernutz's 99 cases, 20 were thus produced.

Tubercles deposited in the part, either on the peritoneum, or in the tissue of the tubes or uterus, may, as they do elsewhere, result in secondary inflammation, and cancerous or cancroid degeneration would be still more likely to produce the same result.

Varieties.—This affection may assume either an acute or chronic form, though when it constitutes the principal disease it generally, in the beginning, presents the features of the former. When it occurs as a complication of cellulitis, tuberculosis, or uterine disease, it assumes from the beginning the chronic type.

Very often those cases which are destined to assume the chronic form present themselves thus; the patient states, that on one or several occasions, after miscarriage, or during menstruation, perhaps, she has had severe cramping pain in the lower bowel, which she supposed to be due to some intestinal disorder, but the effects of which have never entirely passed off. This she believes to be the case from the fact that ever since the primary attack she has suffered from pain in locomotion, dysmenorrhœa, leucorrhœa, and perhaps menorrhagia. In spite of these symptoms, she attends to her usual avocations and fulfils all her functions as a wife. The history pointing to disease of the pelvic viscera, an examination is instituted which discovers the existence of the affection we are considering.

Symptoms.—The acute form shows itself by—

Pain and tenderness;
Fever;
Nausea and vomiting;
Anxious facies;
Mental disturbance.

When a severe acute attack sets in it may cause either a chill, or a sensation of coldness so slight that the patient will not recall its occurrence unless her attention be especially directed to it; or pain and fever may show themselves without this symptom.

Pain is at times only moderate, but at others most severe. It may occur in paroxysms, which create the greatest agony and prostrate the patient by their severity. I have seen it amount to agony equal to that arising from the passage of a biliary calculus, causing the patient to roll in bed, seize the bedclothes in the teeth, and cry aloud most piteously. As a rule it is not so violent as this. Pain may show itself quite early in the disease, or may be preceded for several days by pelvic uneasiness and weight.

Tenderness over the whole hypogastrium accompanies it to such a degree, that even the weight of the bedclothes is intolerable, and the patient, to relieve it, lies upon the back with the legs flexed in order to relax the abdominal muscles.

The pulse shows in slight cases very little, and in severe cases a considerable amount of febrile action. It is small and wiry, and increases to 110 or 120 to the minute.

Nausea and vomiting are common symptoms, though they do not generally exist to such a degree as to prove very annoying.

The facies is peculiarly anxious, and is sometimes rendered very striking by the appearance of dark circles around the eyes.

I have generally noticed in acute cases that the mind is markedly disturbed, as if the patient instinctively dreaded some serious disease, and even in chronic cases there is a decided tendency to slight mental alienation.

It may justly be observed that these are the symptoms which mark general peritonitis. This is true; it is merely the slighter degree of severity and the localization of pain and tenderness, which will point to the partial nature of the affection.

With reference to general peritonitis, it may be stated that, on the one hand, it, of all diseases, may declare itself by the most numerous and characteristic symptoms, or, on the other, run its fearful course with the greatest obscurity, so as to mislead the most careful diagnostician, even up to its latest stages. If this be true as to the general disorder, how much more must it be so as to the local. Thus it is that we find the subacute and chronic forms passing off without recognition, and the fact that they have existed is known only by the discovery of firm adhesions over the whole pelvic roof in post-mortem examinations. In these varieties, there is less pain and tenderness and less tendency to nausea and febrile action than in the acute. Sometimes, indeed, there is merely a sense of local discomfort, increasing to pain at menstrual periods, accompanied by fever towards evening, by difficulty in locomotion, and by a general sense of feebleness and malaise.

Physical Signs.—Should an examination be made during the first stage, nothing will be ascertained but the existence of sensitiveness upon pressure in the vaginal cul-de-sac and upon lifting the uterus. Tenderness will likewise be demonstrated by pressure on the hypogastrium. None of that doughy, œdematous, puffy feel which accompanies cellulitis will be discovered by vaginal touch. Should the disease run its course as one of those very insignificant attacks, which produce no grave symptoms and are scarcely recognizable, no other physical signs will present themselves at this or any other period. Should it be one of graver character, a sense of resistance merely, or a tumefaction like an ill-defined tumor, may be felt in the recto-vaginal space

or at the side of the uterus. Or if very little lymph and much sero-pus have been the result of the inflammatory action, a sense of fluctuation may be detected very early. The uterus is always more or less interfered with in its mobility, and in severe cases it is absolutely immovable. This explains how Lisfranc and Boivin applied to it the name of "fixity" or "immobility" of the uterus.

I have stated that a tumor is commonly felt posterior to, or at one side of the uterus. This tumor, which is formed by agglutination of the pelvic and abdominal viscera, is extremely sensitive to touch.

If the disease go on to formation of pus, the sense of tumefaction may disappear as this discharges itself, but if the effused lymph become thoroughly organized, it remains hard and resisting for a length of time. This accumulation almost invariably displaces the uterus, sometimes by pressing it in an inverse direction, sometimes by drawing it towards itself as the lymph contracts.

In a case which I saw a year ago with Prof. George T. Elliot, we were much puzzled for a short time before its fatal issue, by the existence in the fornix vaginæ of a pouch, apparently filled with fluid, all the surrounding parts being unattached and no sense of tumefaction or resistance being discoverable. The patient died suddenly from general peritonitis, and upon post-mortem examination, conducted by Prof. J. W. S. Gouley, we found, first, a small piece of fetid placenta in utero, the result of a recent abortion; second, an abscess of the right ovary, which had created general peritonitis by emptying itself into the peritoneum; and third, pelvic peritonitis, which had evidently existed for more than a week. It had created a purulent collection in Douglas's cul-de-sac, which was limited to this space by false membranes, that formed for it a complete roof. This accumulation, it was, which gave the sensation above described.

In another case, sent to me by Prof. J. C. Hutchinson, of Brooklyn, the uterus was found firmly bound to the sacrum by a hard, resisting mass, which was very sensitive. There was considerable corporeal endometritis, and I incautiously applied to the uterine cavity tincture of iodine, and as a result the most violent pelvic peritonitis developed itself, which almost became general. In ten days after its inception, a soft, fluctuating pouch formed in the fornix vaginæ, which became so painful that I tapped it with an

exploring needle and drew off about an ounce of clear serum, much to the patient's relief.

Course, Duration, and Termination.—In no disease can these be more variable and uncertain than in that under consideration. A great similarity exists between its phases and those of pleuritis. As in that affection we have shades of difference, varying from the ordinary "stitch in the side," which results from inflammation of a portion of the pleura not larger perhaps than a silver half dollar, to empyema and tubercular pleuritis, which may continue till death by pulmonary consumption or pneumothorax closes the scene, so may we have in pelvic peritonitis like variations. It may run its course unobserved, leaving evidence of its existence only in adhesions found post-mortem. It may pass though its first two stages in three or four weeks, leaving the uterus permanently displaced by the continuance of the third. It may reappear with a certain amount of acuteness at menstrual periods, causing them to be very painful. It may, if due to tubercular deposit, continue so as to exhaust the patient slowly. It may produce a purulent collection, which, by emptying itself into the peritoneum through the adhesions thrown around it, may create general peritonitis, or this last may result from the spread of morbid action from the pelvic to the general serous membrane.

Differentiation.—The diseases with which this is most likely to be confounded are—

Peri-uterine cellulitis;
Pelvic hæmatocele;
Fibrous tumors.

Peri-uterine Cellulitis. Differentiation between these two affections is in severe cases simple enough, but in milder forms it is not so. Difficulty will occur when cellulitis affects, and is confined to, the tissue most immediate to the uterus, but this we know to be very rare. Our suspicions will often be turned into the proper channel by the cause of the attack. Cellulitis will very rarely occur except after parturition, abortion, or an operation on the pelvic viscera. Peritonitis will usually result from exposure during menstruation, disease of the ovaries, or collection of fluid in the peritoneum. Should the attack occur as a result of gonorrhœa, it is probably due to serous and not cellular inflammation, a fact which the anatomical relations would lead us *à priori* to anticipate, and which is fully substantiated by statistics. West

and Aran credit gonorrhœa with the causation of cellulitis in from one to two cases in a hundred, and Bernutz declares it active in twenty-eight out of a hundred of peritonitis.

Other signs by which we may arrive at a decision may thus be tabulated:—

PERI-UTERINE CELLULITIS.	PELVIC PERITONITIS.
1. Tumor easily reached, generally felt in one broad ligament, and may be felt above pelvic brim;	1. Tumor very high, only in vaginal cul-de-sac, does not extend above superior strait;
2. Marked tendency to suppuration;	2. Suppuration rare;
3. Abdominal tenderness chiefly over one iliac fossa;	3. Abdominal tenderness excessive above brim of pelvis;
4. Tumefaction generally noticed laterally in the pelvis;	4. Generally noticed near or upon the median line;
5. No constitutional signs of peritonitis present;	5. Constitutional signs of peritonitis present;
6. Tendency to monthly relapses not marked;	6. Tendency to relapse every month very marked;
7. Retraction of thigh not rare;	7. Retraction of thigh never occurs;
8. Pain severe and steady;	8. Pain excessive and often paroxysmal;
9. Facies not much altered;	9. Facies very anxious;
10. Nausea and vomiting not excessive;	10. Nausea and vomiting often excessive;
11. Does not necessarily displace uterus;	11. Always displaces uterus;
12. Not accompanied by tympanites;	12. Always accompanied by tympanites;
13. Uterus fixed to limited extent.	13. Uterus immovable on all sides.

Pelvic Hæmatocele. From this it may be distinguished by the great suddenness of appearance of hæmatocele, absence of signs of inflammation, presence of those of hemorrhage, and by the much greater dimensions of the tumor, which unlike that of peritonitis is at first rather soft and gradually becomes hard. The occurrence of bloody flow will likewise point to hæmatocele. Two facts in this connection must not be lost sight of: one, the rarity of hæmatocele and frequency of pelvic peritonitis; the other, that the former will sometimes excite the latter and thus that both may exist together.

Fibrous Tumors. These will generally be known by their producing no pain, presenting no sensitiveness on pressure, no sense of œdema, no signs of inflammation nor rapidity of development. They are likewise movable and cause no fixation of the uterus.

Importance of Differentiating Peritonitis from Cellulitis.—The importance of differentiating this disease from cellulitis rests in part upon the fact that it admits of less local interference. Sometimes the passage of a uterine sound, an application to the cavity, or even the use of a cold vaginal injection which by accident has entered the uterus, have been known to destroy life by causing peritonitis which has extended to the whole cavity. It is likewise important in reference to prognosis as to the course of the affection and its remote results. Lastly, it should not be forgotten that progress in the comprehension of the diseases of all organs must be preceded by a careful and systematic separation of them, one from the other. As the study of acute cardiac affections under the common name of carditis could never have accomplished what that of each of its varieties has done, so could not investigation of these affections, undivided into their proper classes.

Prognosis.—If the case follow parturition or abortion, the prognosis will be rendered graver by that fact. Otherwise it will be governed in great degree by the general symptoms. Should these show great intensity of inflammation, and constitutional disturbance be evidenced by excessive nausea and vomiting, quick pulse, anxious facies, &c.; in other words, should the symptoms point to the probable spread of the disease over the whole serous sac, the ordinary prognosis of peritonitis may be made. In cases of chronic type, occurring in the non-puerperal state, it is decidedly favorable, unless the disease exist in a scrofulous or tuberculous patient, or show a tendency to severe monthly relapses. Another fact, which will increase the gravity of prognosis, is the existence of purulent effusion in place of lymph and serum as the result of the inflammatory action.

Results.—The common results of the disease, which remain long after it has passed away, or perhaps permanently, are destruction of the ovaries by abscess or atrophy; obliteration or dropsy of the tubes of Fallopius; and fixation of the womb in malposition, by organization of false membranes. As consequences of these lesions follow, very naturally, amenorrhœa, dysmenorrhœa, and sterility.

Treatment.—Should the medical attendant be called in the first stages, leeches, if they can be tolerated, should be applied over the hypogastrium, and a poultice, as warm as can be borne, should

follow them immediately. The patient should be brought fully under the influence of opium by mouth, rectum, or the hypodermic syringe, and perfect rest should be enjoined. No cathartic medicine should be given, as it interferes with quietude, and very often it is well to keep the bladder empty by the sigmoid catheter. Milk, beef-tea, and other plain, nutritious and unstimulating food should be prescribed.

In the second and third stages, where lymph has been the chief and perhaps the only product of inflammation, we must rely upon counter-irritants, and I know of none to be compared with the blister. One made of Spanish flies, four by six inches in dimensions, should be applied over the hypogastrium and its abrasion dressed with savine ointment. As soon as it heals entirely, another should be applied directly over the newly-formed skin, and this may be repeated every ten or fourteen days with great advantage. I have known patients who dreaded them in the beginning beg for them after experiencing the relief which they gave. Should the patient be rendered so nervous by this remedy that it cannot be employed, or should any other reason prevent its use, nitric acid issues may be applied over the iliac regions and kept open by issue peas or occasional cauterization with solid nitrate of silver. The blister is to pelvic peritonitis what it is to pleuritis, the most rapid and efficient of remedial agencies.

Another very excellent method for producing counter-irritation is by tincture of iodine painted over the hypogastrium once in twenty-four hours for weeks.

Treatment of Chronic Cases.—The affection having passed into the chronic stage, or originated with all the appearances of chronic disease, a different course of management becomes advisable. The patient should not be so strictly confined to bed nor dieted. She has entered upon an invalid course which may last for months or for years, and in making a strenuous effort to cure her local disorder we may sap her general health and do her irretrievable injury. On the other hand, she should not attend to her household cares, nor take exercise to any great degree; but remaining in bed or on a lounge most of the time, go out in the fresh air for an hour or two daily. Her diet should be of the most nutritious character, stimulants should be allowed in moderation, and the impoverished blood resulting from a combination of circumstances

prejudicial to hæmatosis, combated by change of air and the use of vegetable and mineral tonics, especially iron.

One of the most important questions in the management of chronic cases is that of the amount of exercise to be allowed, and the strictness of confinement to be practised. No absolute rule can be laid down in reference to these points, for each case will call for special guidance, based upon careful experiment. In general terms it may be stated that when motion does not produce pain or discomfort, the patient should ride in an easy carriage for two or three hours daily. In those cases which are still more free from local trouble, she may walk with moderation; while in others which present elements of acuteness, no motion whatever should be allowed.

Sometimes the patient will even bear removal from home to the sea-side or some watering-place during the summer. If this be so, a locality should be chosen that is accessible by other means than railroad travel, which is peculiarly prejudicial. One great and ever recurring difficulty in this connection arises from the great tendency of patients, allowed to take exercise, to commit indiscretions by overtaxing themselves. This becomes so great at times, as to make it advisable to confine to bed one who would be benefited by moderate exercise, in order to avoid danger from her imprudence. The fact should never be lost sight of that the pelvic peritoneum forms a part, a sheath, as it were, of the suspensory ligaments of the uterus. The fibrous structure of the round, broad, sacral, and vesical ligaments is covered by it, so that dragging of the uterus upon them puts the peritoneum upon the stretch and strongly tends to excite renewed action there.

Of all influences which act in a directly prejudicial manner upon these cases, sexual intercourse is the most decided, and its absolute interdiction should be made one of the first rules laid down for their management.

Should acute exacerbations occur in chronic cases, the use of local depletion would be indicated, but as a plan to be strictly pursued with reference to cure it is highly objectionable on account of the spanæmia which it induces.

If it be deemed advisable to keep up the use of the iodide or bromide of potassium, the results of which are, however, doubtful, they may, with advantage, be combined with iron and vegetable tonics as in the following prescriptions:—

℞.—Potassii iodidi, ʒv.
Ferri iodidi syr., ℥iv.
Tr. calumbæ, ℥iv.—M.
A dessertspoonful (ʒij) in water three times a day.

℞.—Potassii bromidi, ʒv.
Vini ferri dulcis, ℥iv.
Tr. calumbæ, ℥iv.—M.
A dessertspoonful in water three times a day.

Should collections of pus or serum be evacuated? The important bearings of this question are manifest, but unfortunately no definite answer can be given to it. In evacuating these collections the peritoneal cavity is not exposed to entrance of air, for a false membranous roof covers the collection, but there is always danger in perforating the delicate and easily inflamed serous sac. I have elsewhere reported a case in which I drew off one or two ounces of serum under these circumstances to the great relief of the patient, who rapidly improved and did well. It is the only case in which I have ventured to invade the peritoneum under these circumstances, though I have repeatedly evacuated pelvic abscesses resulting from cellulitis. The safest rule for practice will be this: if in spite of the sero-purulent collection the patient be doing well and do not suffer from the local trouble, it should be left to empty itself spontaneously. If, on the other hand, the patient suffer from the collection and be not progressing favorably, it should be evacuated.

Methods of Evacuation.—Evacuation may be accomplished by a small trocar and canula, or by a guarded bistoury or tenotomy knife. After evacuation the sac should not be injected, for fear of exciting peritonitis, although such a course has been advised.

CHAPTER XXVII.

PELVIC ABSCESS.

Definition.—Upon this point little need be said, as any purulent collection originating in, and not simply passing through, the pelvis, comes under this head, regardless of its cause.

Pathology.—There are three sources of pelvic abscess: 1st, breaking down of tuberculous material deposited in any of the tissues of the pelvis; 2d, suppurative action taking place in the walls of a cavity formed by an hæmatocele or ovarian cyst; 3d, inflammatory suppuration in the areolar tissue, the ovaries, or tubes, the pelvic peritoneum, or the parenchyma of the uterus itself. Of all these sources the third is decidedly the most frequently met with, and is most generally the result of cellulitis, occurring after parturition or in the non-puerperal state. Under the latter circumstances cellular inflammation may be primary, or secondary to irritation from some foreign body, as the débris of an extra-uterine fœtus, a hard substance in the vermiform appendix, or a fibrous tumor of the uterus.

Causes.—Any influence which induces cellulitis, or either of the other two pathological conditions mentioned, may prove immediately causative of abscess. As remote causes may be mentioned the tuberculous, scrofulous, and syphilitic diatheses; great depression of the vital energies from any cause, as impure air, like that of a hospital; the puerperal state, and pyæmia.

Symptoms.—These will not differ essentially from those of abscess elsewhere. When pus is forming, violent chills, followed by fever, with profuse sweating, are likely to occur. Then a feeling of prostration with throbbing pain in the pelvis, pressure upon the rectum and bladder, and sometimes interference with urination, present themselves. Pain down the thigh, which may be mistaken for sciatica, will also at times be noticed.

Physical Signs.—By abdominal palpation, combined with rectal

or vaginal touch, a fluctuating tumor will be felt, presenting the ordinary physical signs of purulent collections elsewhere.

Course, Duration, and Termination. — Pelvic abscesses may evacuate themselves through any part of the floor of the pelvis, through its roof into the peritoneum, through any one of its walls by means of foramina, through any of the pelvic viscera, or by several of these channels at the same time. They may open by free outlet or by a long sinuous tract, which renders prognosis as to cure extremely grave. The most favorable points for evacuation are through the vagina and rectum. Next to these comes, in point of favorable prognosis, evacuation through the abdominal walls. Nonat declares that when the collection "opens simultaneously into the intestine and bladder, death is almost inevitable." In the "Charleston Medical Journal," for 1853, I published a fatal case of this character with autopsy. Sometimes, when left to themselves, these abscesses will go on to recovery without delay, opening into and discharging themselves through some of the parts mentioned and gradually contracting and disappearing. If deprived of the assistance of art, they may burrow deeply into the tissues, open by long fistulous tracts into some organ, as the large intestine or sigmoid flexure, or discharge into the peritoneum.

Sometimes, even when the opening at first is large, it contracts so as to allow only an imperfect discharge of the contents of the sac. Then hectic fever arises, and the patient either leads a miserable existence for years from the constant fetid flow, or is worn out by exhaustion or septicæmia. At other times these collections of pus will remain imprisoned for a long period, without any attempt at escape.

Differentiation.—The morbid states with which it may be confounded are these:—

Pelvic hæmatocele;
Extra-uterine pregnancy;
Displaced ovarian cyst;
Hydrometra;
Tubal dropsy.

The first of these being a hemorrhage, gives certain symptoms characteristic of that accident, as prostration, coldness of the surface, great suddenness of appearance, &c.; and absence of chill,

heat, fever, and other signs which are likely to accompany abscess.

With the second, the signs of pregnancy exist, and as early as the fourth month fœtal movements may be detected, while the perfect health of the patient with absence of menstruation will excite suspicion as to the character of the affection.

Around abscesses, even of tubercular character, there is always a wall of lymph thrown up which would not be present in a displaced ovarian cyst. All the rational signs of suppuration would likewise be absent in the latter.

He who confounds the distended body of the womb with abscess would surely be very culpable, for the spherical shape of the body and the light obtainable from the uterine probe should be guides by which to avoid error.

Tubal dropsy is generally the result of inflammatory action affecting the Fallopian tubes and closing both uterine and ovarian extremities, at the same time that it causes a secretion, which distends the intermediate canal. The fluctuating tumor thus resulting being produced by inflammation and being often attached, in consequence, to the surrounding parts, would offer difficulties in diagnosis which might well prove insurmountable. If an error were made, however, no evil would result from it.

Prognosis.—The prognosis will depend upon the following circumstances: it will be favorable if the abscess be superficial, point upon a mucous tract, open low down in the pelvis by free exit, and give forth pus which has no offensive odor. Should it be deep seated, open by a long tract, give forth fetid pus, open high up and by two points of exit, as, for example, the bladder and bowel, or abdominal wall and bowel, the prognosis is decidedly unfavorable, unless the case can be so altered by surgical interference as to change its character.

Treatment.—Nothing can be done in these cases by specific medication, by which I mean that directed especially to relief of the existing morbid condition. All of our efforts should be directed to supporting the vital forces, which are always much prostrated by the process of suppuration. The patient should take the most nutritious diet, as much animal food as she can digest, eggs, milk, fresh vegetables, and malt liquors. Whiskey or brandy should be allowed her, and the blood state should be improved as much as possible by vegetable and mineral tonics.

Those most especially suited to the condition are preparations of cinchona, and of iron, as, for instance, the following pill:—

℞.—Quiniæ sulphat., ℈ij.
Ferri sulphat., ℈j.
Acid. sulph. arom., gtt. x.
Mucilage acaciæ, q. s.—M. et ft. pil. No. xx.
S.—One to be taken three times a day before meals.

But it is to surgery that we must look most confidently for aid, and in this connection arises the important question as to the propriety of opening such abscesses, the best point for evacuation, and the time for interference.

Is it best to open them?—Should an abscess in the pelvis show a rapid tendency to point and discharge through a favorable channel, at the same time that no distressing or dangerous symptoms show themselves, it would be the part of wisdom to await the action of nature, for all must admit that there are few localities in the body into which it is more hazardous to cut than this. Even under these circumstances, however, there is danger in delay. Sir James Simpson relates a case which he saw with Dr. Ziegler one day when the abscess pointed decidedly towards the vagina and rectum very low down. Feeling sure that it must soon discharge, they left it till the next day, but before that time, to their surprise, it had burst into the peritoneum. This danger, as evidenced by statistics, is not great, and as experience goes to prove that the knife is often employed too early, rather than too late, I should strongly recommend the delay of surgical interference as long as possible. If it be delayed, the tissues intervening between the pus and the point of introduction of the instrument become broken down, and thus a tract or sinus is avoided; if two or three abscesses exist near each other, we give time for them to coalesce; and the mass of lymph poured out is liquefied by the suppurative process. Should the knife be resorted to too soon, all these advantages will be lost.

Let us suppose a different case, that the patient is suffering grave constitutional signs from the abscess. The answer to the question of the propriety of interference resolves itself into this; if the pus can be certainly, easily and safely reached, it should be evacuated. Should the abscess be deeply seated, on the other hand, so as to make the operation difficult and uncertain, it would

expose the patient to hazards greater than those attendant upon delay.

The best Point for Evacuation.—To whatever surface the point of the abscess is nearest, that will, as a general rule, be the best for its evacuation. If there be a choice, the locations at which it will most likely point should be chosen in this order; 1st, the vagina; 2d, the rectum; 3d, the abdominal walls.

The Proper Time for Evacuation.—If possible, the operation should be delayed until all the lymph effused has been softened down, until all the abscesses have coalesced, and until the accumulated pus has broken down the mass of tissue between itself and the channel of evacuation.

Methods of Operating.—The propriety of opening the abscess having been determined upon, the operator, if he intend reaching it through the vagina or rectum, should carefully investigate, by touch, as to the presence upon their walls of large bloodvessels, the opening of which might prove a source of serious hemorrhage. The patient being placed on the left side and Sims's speculum introduced, if the abscess be superficial, a trocar and canula may be plunged into it. If it be deeply seated, a bistoury may be employed, not to plunge in, but to cut line by line through the overlying tissues until it is reached. An anæsthetic should always be administered, as perfect quietude is essential to safety. If the opening made be large enough to admit the finger, it should be passed in and by it any tract leading into an adjoining abscess should be enlarged, and any sloughing tissue met, removed. After this, should there be any fear of closure of the canal just opened, its walls may be touched by nitrate of silver, or painted with solution of persulphate of iron, or a sponge tent, or piece of gum-elastic catheter may be left in it.

If it be thought best to select the abdominal surface as the point of evacuation, all danger of escape of pus into the peritoneum should be avoided by following the suggestion of Récamier with reference to hepatic cysts, namely, causing adhesion of the layers of the serous membrane by a nitric acid issue over the point of selection. The trocar may be plunged through the centre of the issue without the danger just mentioned.

Should the operator open any large vessel in the vaginal walls, hemorrhage may be checked by applications of persulphate of

iron, the vaginal tampon, or, should these not prove effectual, the actual cautery.

Means for Causing Closure of the Sac.—Sometimes, after the evacuation of these abscesses, their sacs will not close, but, remaining open for months and even years, go on pouring out large quantities of pus.

The causes of their not closing are these—the existence of sinuses, which will not allow their complete evacuation; a peculiar condition of their walls from the existence of a membrane, called by Delpech, pyogenic, which tends to prolong suppuration; or the passage into the sac of air or feces from the intestines, or urine from the bladder.

Of these the first is decidedly the most frequent, and should be met by dilatation of the tract leading to the abscess, by tents of sponge or laminaria, or enlargement by the knife.

Should the abscess have a short and free outlet, the sac should be injected two or three times a week with tincture of iodine, at first in solution, afterwards pure; or by solution of persulphate of iron, weakened by admixture with twice its bulk of water.

In case of entrance of feces, air, or urine into the diseased part, a counter-opening should be made which will allow their free escape, and the part kept as clean as possible by injection of tepid water. Then the fecal or urinary fistula allowing the vicarious discharge should be cured by appropriate means.

CHAPTER XXVIII.

PELVIC HÆMATOCELE.

Definition and Synonymes.—Under this and the synonymous titles of retro-uterine hæmatocele, peri-uterine hæmatoma, and bloody tumor of the pelvis, has been described an accumulation of blood in the pelvic cavity either above or below the peritoneum.

History.—Although an attempt has been made to prove that the ancients were cognizant of this affection, the proof of such a fact is not satisfactory. The earliest allusion made to it is contained in the works of Ruysch, of Amsterdam, who wrote in 1737. After this, little attention was paid to it until the time of Récamier, although mention of it was made by Frank, Deneux, and some others.

In 1831 Récamier, under the impression that he was opening an abscess, cut into a tumor behind the uterus and gave exit to a large amount of black, grumous blood, and about ten years afterwards Bourdon, one of his pupils, published another case occurring in his practice.

A tabular view of the names of those who have been chiefly instrumental in elucidating the subject and systematizing our knowledge upon it is here presented:—

Récamier, 1831, "Lancette Française;"
Velpeau, 1843, "Recherches sur les Cavités Closes;"
Bernutz, 1848, "Archives de Médecine;"
Vigues, 1850, "Des Tumeurs Sanguines de l'Excav. Pelvienne;"
Nélaton, 1851, "Gazette des Hôpitaux;"
Nonat, 1851, "Thèses de Cestan, Gallardo, et Prost;
Huguier, 1851, Lecture before Surgical Society of Paris;
Gallard, 1855, "Union Médicale;"
Voisin, 1858, "De l'Hématocèle Rétro-Utérine."

I have not endeavored to record the names of all who have made valuable contributions in France, for had I done so, the list would have been a long one. Those only are referred to who have been foremost in advancing our knowledge.

It will thus be seen that we are indebted to France for the early literature of pelvic hæmatocele. Germany has contributed little towards it. In Great Britain, Dr. Tilt was the first to publish upon it, and in America, Prof. Gunning S. Bedford reported the first case which I can find recorded. More recently, we are indebted to Dr. Byrne, of Brooklyn, for a faithful report of several cases. Prior to the year 1851, although it had attracted some attention, it was not well understood even in France, for, in 1850, we find Malgaigne cutting into an hæmatocele under the impression that he was enucleating a fibrous tumor, and losing his patient from hemorrhage.

Pathology.—The definition of hæmatocele has no relation whatever to the cause of the hemorrhage which gives material for the bloody tumor. The disease consists in the collection of a mass of blood in the pelvis, either above or below its roof. Whatever be its source, such a collection constitutes the affection which engages us. Ordinarily, we find that the flow giving rise to it takes its origin from one of the three following sources:—

1st. Direct escape of blood from vessels in or near the pelvis;

2d. Reflux of blood from the uterus or tubes;

3d. Transudation of blood in consequence of dyscrasia.

It is evident that hæmatocele is not a disease, but a symptom of a number of pathological conditions. As, however, the source of the hemorrhage which results in the bloody tumor very often cannot be ascertained, we are forced to deal with its most prominent and significant sign, taking this as an exponent of a state which is beyond the possibility of diagnosis.

In works upon practice written twenty years ago, we find dropsy treated of as a disease. In those of to day it is regarded only as a legitimate result of renal, cardiac, or hepatic disease. Obstetric writers, even as late as ten years ago, described puerperal convulsions as a disease incident to parturition. Those writing ten years hence will probably regard them, as many do to-day, as one of the numerous consequences of renal disease. We may with good reason hope that the time will come when a similar improvement in description, based upon an advance in our knowledge of pathology, may connect itself with hæmatocele, but at present the etiology is often impossible.

The special sources of the hemorrhage inducing the affection,

which have been revealed by post-mortem examinations, may thus be presented at a glance.

1. *Rupture of bloodvessels in the pelvis.*
   - Utero-ovarian;
   - Varicose veins of broad ligaments;
   - Aneurism of artery;
   - Vessels of extra-uterine ovisac.
2. *Rupture of pelvic viscera.*
   - Ovaries;
   - Fallopian tubes.
3. *Reflux of blood from the uterus.*
   - Reflux of menstrual blood.
4. *Transudation from dyscrasia.*
   - Purpura;
   - Scorbutus;
   - Chlorosis.

All of these causes have been proved by post-mortem research to have resulted in hæmatocele, but it cannot be questioned that rupture of any bloodvessel which empties its contents into the peritoneum might also do so. Blood poured into the peritoneum from rupture of the spleen, for example, would gravitate towards Douglas's cul-de-sac, because it is the most dependent portion of that membrane, and coagulating would give all the signs of a bloody tumor in that locality. At times the affection is indicative of serious internal lesion, rupture of the ovary or tube; at others it results merely from imperviousness of the cervical or tubal canal, which prevents the advance of menstrual blood and causes it to regurgitate into the peritoneum; while in still a third class of cases, it is created by pouring out of impoverished and diseased blood from the vessels of the peritoneum. The last condition has been described as hemorrhagic peritonitis.

Whatever be the source of the blood, it collects either in the most dependent part of the peritoneum, or in the pelvic areolar tissue beneath it. Here it remains for a time fluid, then undergoes partial coagulation, becoming a grumous mass like currant jelly, and lastly, all the fluid being absorbed, a hard, resisting tumor composed of fibrinous material remains. Should the collection have occurred in the peritoneum, its boundaries will be the walls of that cavity laterally and below, while a localized peritonitis forms for it a roof of effused lymph. If it collect in

the areolar tissue of the pelvis, the effused blood will make its own nidus by percolating the loose structure and mechanically creating a space in it.

In either of these positions it is entirely absorbed and reduced to a hard, firm tumor, which remains for a long time, or is discharged by the vagina or rectum, or into the peritoneum. The last point of evacuation is fortunately rare. Nonat[1] quotes Dupuytren for this very ingenious and plausible explanation of the method of such absorption, which he likens to the process of digestion. The vessels of the cyst which are in contact with the mass remove its fluid portion, and thus its hard surface comes in apposition with the sac. This excites effusion of serum, which softens the fibrinous wall and renders it susceptible of absorption, which soon occurs. Then again contact excites a flow of fluid, and again this is removed until the whole mass is diminished or completely absorbed.

Causes.—A glance at the recognized causes of the disease will make it evident that congestion of the pelvic organs must, in an eminent degree, predispose to it. This explains the fact that it has been found most frequently to have occurred during the period of uterine activity and especially during a menstrual epoch.

The predisposing causes are—

The period of uterine activity, 15 to 45;
Disordered blood state, plethora or anæmia;
The menstrual epoch;
Chronic uterine or ovarian disease;
The hemorrhagic diathesis.

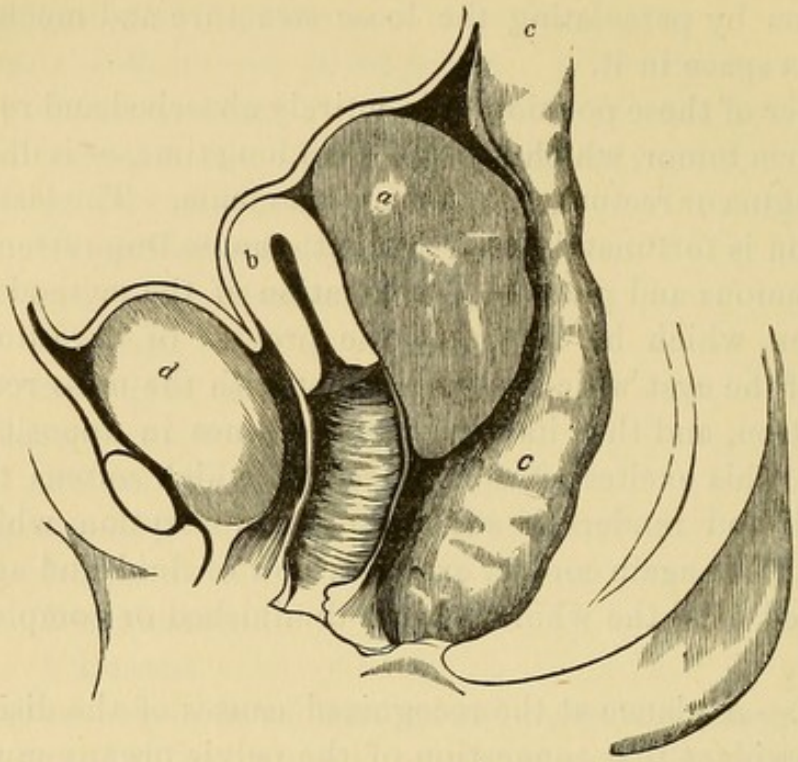
The exciting causes are—

Sudden checking of menstrual flow;
Blows or falls;
Excessive or intemperate coition,
Obstruction of cervical canal;
Obstruction of Fallopian tubes;
Violent efforts;
Diseases impoverishing the blood;

Varieties.—There are two forms of the affection, subperitoneal and peritoneal, which are represented by Figs. 157 and 158.

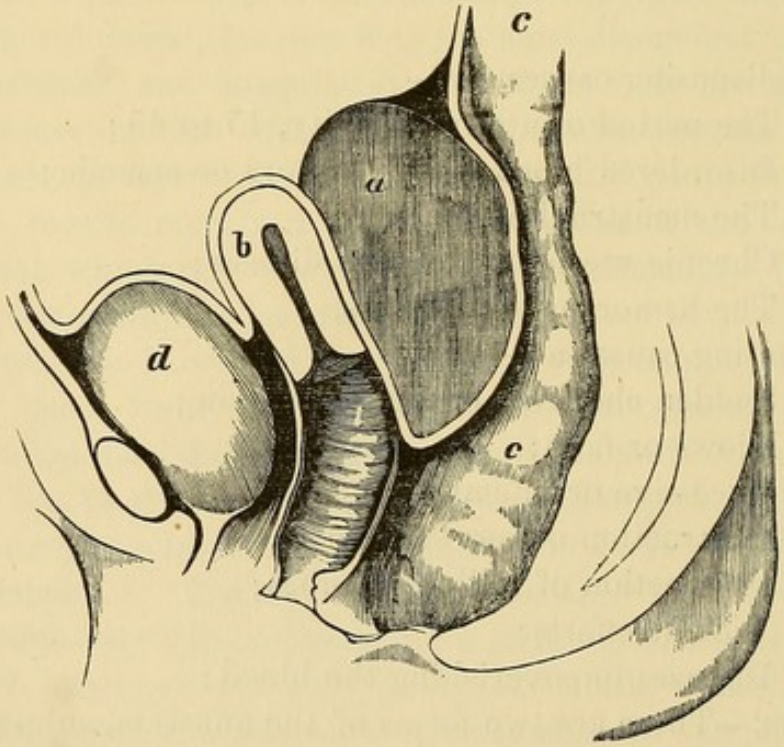
[1] Op. cit., p. 344.

Fig. 157.



Subperitoneal hæmatocelè. *b* uterus, *c* intestine, *d* bladder; *a* represents the large mass of coagulated blood which has lifted the peritoneum above it. (Simpson.)

Fig. 158.



Peritoneal hæmatocele. *d* bladder, *b* uterus, *c* intestine; *a* represents a large blood clot in the most dependent portion of peritoneum.

The occurrence of the former has been denied by Aran, Voisin, and others, but reports of autopsies substantiating it, by Simpson,

Nonat, and others, place it beyond doubt. Who, for example, can question such autopsic notes as the following by Prof. Simpson, explanatory of the case represented in Fig. 157. "On dissection I found the reflection of the peritoneum between the uterus and rectum raised up, as shown in this diagram, and a large mass of broken coagula of blood formed the tumor, having been extravasated behind the peritoneum forming the posterior covering of the broad ligaments, and, as it accumulated, having separated and pushed before it that portion of peritoneum and the utero-rectal fold of this membrane." Of the two varieties the peritoneal is probably the more frequent, at the same time that it is by far the more grave.

Symptoms.—The absolute occurrence of hemorrhage is generally preceded by symptoms which are premonitory, as fixed, dull pain over the ovaries, derangement of menstruation, metrorrhagia, or prolongation of the menstrual discharge. The symptoms of the actual escape of blood will depend in great degree upon the nature and gravity of the accident which has given rise to it.

Sometimes the affection occurs without any violent symptoms and almost without warning. It will be appreciated that this would be so if it were due to gradual reflux of blood on account of constricted cervix, or transudation, the result of purpura. Frequently a sudden manifestation of symptoms occurs, and the accident is announced as rapidly as is cerebral apoplexy.

Most prominent among the symptoms are—

Severe pain in the pelvis;
Faintness and coldness of extremities;
Nausea and vomiting;
Metrorrhagia;
Uterine tenesmus;
Tympanites;
Interference with bladder and rectum;
Febrile reaction.

The patient feels as if a large and heavy body exists in the pelvis, and instinctively strives to expel it by the vagina. At times the pain complained of is very acute; at others it is a dull and heavy aching. These symptoms abate in severity in a few days and are replaced by—

[1] Simpson on Diseases of Women, p. 262.

Great exhaustion and feebleness;
Extreme paleness;
Tendency to chilliness;
Constipation;
Suppression of urine;
Great tympanites;
Apyrexia.

All these symptoms point to two facts: 1st, sudden and excessive loss of blood; 2d, the existence of some substance in the pelvis which mechanically interferes with its viscera. A part of them might be produced by menorrhagia, a part by sudden retroversion; but a union of the whole will strongly excite suspicion of hæmatocele and call for a physical exploration.

Physical Signs.—Vaginal touch reveals a tumor, which is generally posterior to the vagina, and which, to a greater or less extent, closes that canal. This is generally very marked, especially in the subperitoneal form of the disease, but sometimes, to detect the tumor, the finger must be carried into the fornix vaginæ. The mass thus felt, if the examination be made within a day or two after its formation, will be found to be soft, smooth, and obscurely fluctuating. If a number of days have elapsed before it be touched, it will give the impression of irregularity, due to coagula surrounded by fluid blood. The uterus will be found pressed out of its position, generally upwards and forwards, so that the cervix will be above the symphysis. Sometimes, however, it is forced out of the median line to one side.

Nonat[1] dogmatically announces that the uterus is never found between the tumor and the rectum, that is to say, behind the mass of blood; but Chassaignac[2] reports a case in which the sanguineous collection existed entirely between the bladder and uterus, and consequently must have forced that organ backwards.

Rectal touch will merely show that the bowel is closed by pressure from the tumor.

Abdominal palpation will reveal the presence of a hard mass which may extend only up to the superior strait, or as high as the navel. In cases where a small quantity of blood has been effused, and more especially where this has collected under and not in the peritoneum, an abdominal tumor may not be discovered.

[1] Op. cit., p. 342.

[2] Courty, Mal. de l'Utérus, p. 912.

By the aid of conjoined manipulation the shape, extent, and character of the mass may be further ascertained.

Differentiation.—The diseases with which hæmatocele may be confounded are—

Pelvic cellulitis or abscess;
Retroversion;
Extra-uterine pregnancy;
Fibrous tumor;
Dislocated ovarian cyst;
Cancerous deposit in pelvic tissue.

Cellulitis and abscess generally follow parturition, present a tumor of small size, develop slowly and with signs of inflammation, and become soft as they develop. The contrary is true in reference to hæmatocele.

Retroversion may present the signs due to the mechanical results of hæmatocele, but not those due to loss of blood. If pregnancy coexist, conjoined manipulation will usually suffice for diagnosis. If it should not, the uterine probe will elucidate the case.

Extra-uterine pregnancy does not develop suddenly, but slowly, and is characterized by all the signs of pregnancy. In place of metrorrhagia there is amenorrhœa.

Fibrous tumors grow slowly, are painless, and move with the uterus. They are irregular and hard.

Displaced ovarian cysts are painless, show no signs of hemorrhage, and cause no constitutional disturbance or metrorrhagia.

Cancer in the pelvis is rare, and could hardly cause error of diagnosis. Its slow development, the absence of sudden and severe symptoms, absence of metrorrhagia, presence of cachexia, and general feebleness will serve as correct guides.

It is always of great importance with reference both to prognosis and treatment to determine whether the case be one of peritoneal or subperitoneal form. Differentiation may generally be made by the following comparison of symptoms:—

PERITONEAL HÆMATOCELE.	SUBPERITONEAL HÆMATOCELE.
Tumor high in pelvis and abdomen;	Tumor low and towards floor of pelvis;
Constitutional disturbance very great;	Not so;
Bladder and rectum often undisturbed;	Bladder and rectum interfered with;
Peritonitis marked;	Not so;
Uterus pressed forwards or to one side;	Uterus elevated;
Vagina not completely closed;	Vagina occluded;
Vaginal mucous membrane of normal hue.	Vaginal mucous membrane of violet color.

Course, Duration, and Termination.—Hemorrhage from the sources enunciated as those of hæmatocele, may be so great as to destroy life immediately. Five such instances are recorded by Voisin, and Ollivier d'Angers[1] mentions two in which death occurred in half an hour from rupture of a varicose utero-ovarian vein. Such a termination is, however, decidedly exceptional. The tumor generally disappears by absorption, is discharged by the rectum or vagina, or remains a hard, indurated mass for years afterwards. Discharge is most frequently followed by recovery, but sometimes putrefaction occurs in the walls of the sac, septicæmia takes place, and death ensues. The process of absorption may be accomplished in three weeks, or six months may elapse before it is complete.

Prognosis.—The prognosis is governed by the severity of the attack but in general is favorable. Death may result, but such an issue is rare. Of eight cases that I have seen, one ended fatally from general peritonitis, and seven recovered. Even this proportion of deaths is large. Nonat out of fifteen cases lost but one. In cases of peritoneal form a graver prognosis is called for than in the subperitoneal, for evident reasons; and where a great deal of blood has been lost the dangers are greater than where the amount has been more limited. This is true not only from the fact that an excessive flow might cause death from exhaustion, but because the removal of so large an amount of coagulum, whether by absorption or discharge, must necessarily expose the patient to great dangers.

Complications.—The complications of the affection are—

Peri-uterine cellulitis;
Pelvic peritonitis;
Displacement.

Results.—These complications, by leaving the uterus bound in a vicious attitude by false membranes, often induce as results, which may remain permanently—

Dysmenorrhœa;
Sterility;[2]
Tendency to abortion.

Treatment.—It will be rare that the physician will be called

[1] Noeggerath, Bul. N. Y. Acad. Med., vol. i. p. 577.
[2] Courty, op. cit., p. 917.

upon to resort to treatment before the amount of blood which is destined to be lost has collected in the pelvis. He will, however, often be present to witness the great constitutional disturbance and excessive prostration and pain which immediately follow the hemorrhage. The diagnosis being made, the indications of treatment will be simple enough:—

1st. To check tendency to further loss;
2d. To prevent death from prostration;
3d. To relieve pain.

To accomplish the first indication, perfect rest should be immediately secured. The clothes should be loosened, but no time spent in their removal, and the patient kept quiet upon the back. A bladder of ice, or cloths soaked in cold water, should be laid over the hypogastrium, and cold fluids given to drink if nausea should not exist as a symptom.

In the fulfilment of the second indication, alcoholic stimulants and opiates should be freely used. Iced champagne or cold brandy and water should be given, and with them should be combined a solution of the sulphate of morphia or some fluid preparation of opium. In great nervous prostration, and more particularly when this has resulted from hemorrhage, opium proves a far more reliable and rapid stimulant than alcohol. In hæmatocele it is peculiarly applicable for the additional reason that it accomplishes at the same time the third indication, the relief of pain.

Should pain be very severe or nausea exist, Magendie's solution of morphia should be injected hypodermically in the amount of ten minims, which may be repeated in twenty minutes if it fail to give relief.

As soon as reaction has been fully established the attention of the practitioner should be turned to the decision of this important point, whether the accumulated blood should be evacuated or whether the case should be allowed to proceed without such interference.

Surgical Treatment.—Récamier, in introducing the subject to the profession, inaugurated the practice of evacuating such tumors, and Nélaton indorsed and popularized it. But experience taught Nélaton that the procedure was not judicious, and "to-day he proscribes it in an almost absolute manner."[1] Immediate sur-

[1] Nonat, op. cit.

gical interference presses its claims in consideration of the facts that—

1st. It is capable of cutting short a lengthy and dangerous disorder;

2d. It may save the patient from the dangers incident to absorption as well as discharge;

3d. It removes from the peritoneum or pelvic cellular tissue a foreign body, which, undisturbed, would prove the focus of inflammation.

It is not surprising that it was the favorite plan in the infancy of the subject. When, however, pathologists had had an opportunity of studying the natural history of the affection it was as naturally superseded for the following reasons:—

1st. It was discovered that, when not interfered with, hæmatocele very generally passes away rapidly.

2d. It was discovered that the dangers of puncture were greater than those of the tumor left undisturbed.

3d. Medical means were found to exert a marked controlling influence over its complications.

Of course the special circumstances of each case must be the guide as to interference of this sort. In general terms all that can safely be stated is this: if great and prolonged pain threaten to exhaust the patient; if the tumor be still fluid; if, for any reason, rupture of a subperitoneal tumor into the peritoneum be threatened; and if the case be an unquestionable instance of the subperitoneal form, evacuation may be advantageously resorted to. Indeed, under such circumstances, a neglect of this means would be culpable. Without such indications surgical interference should be avoided, and reliance placed upon medical resources, for it should be borne in mind that the collection of blood is usually in the peritoneum, and that incision of this membrane in addition to its own inherent dangers would always expose to those arising from admission of air.

Methods of Operating.—The patient being placed upon the back, as if for lithotomy, a trocar and canula may be held in the right hand, guided to the most fluctuating and dependent part of the mass and plunged in. Or, the patient lying on the left side, the perineum and a part of the posterior vaginal wall may be lifted by Sims's speculum, and an incision made into the wall of the tumor by a tenotomy knife or small bistoury. Through the

opening thus made, one or two fingers should be introduced and the clots removed. After evacuation by either method, the nozzle of a syringe should be introduced into the sac and a stream of tepid water, or of this with a very small amount of carbolic acid, should be very gently and cautiously made to wash out the cavity remaining. This should be repeated once or twice in twenty-four hours, for prevention of septicæmia.

Medical Treatment.—Reaction having taken place, perfect rest should be insisted upon. The patient should not rise from bed even for the calls of nature, the bladder being emptied by the catheter and the rectum by enemata, if necessary. Should the patient's strength permit of local abstraction of blood, leeches should be applied to the hypogastrium, and after their removal warm poultices of ground linseed should be constantly kept over the part. Pain should be quieted by opiates, and all the functions supervised.

After the abatement of acute symptoms, a blister, four by six inches, should, unless some contra-indication exist, be applied over the hypogastrium, and this may with advantage be repeated every ten or twelve days. Its results will often be very marked, and although apparently harsh practice, it prevents much suffering, while it causes none.

If the stomach be not much disordered, the iodide or bromide of potassium in moderate doses may be employed. Should any tendency to hectic fever show itself or a tonic be needed, quinine, alone or combined with iron, will serve an excellent purpose.

CHAPTER XXIX.

FIBROUS TUMORS OF THE UTERUS.

Definition and Synonymes.—This affection consists in the development of hard, resisting, and generally globular, masses in connection with the parenchyma of the uterus, with which they are identical in structure, except in the proportion of the elements forming them. Since the true nature of these growths has been understood, they have been described under the names of fibrous tumors, uterine fibroids, fibroma, and, more recently, by Virchow and Klob, myoma.

History.—Until the time of Dr. William Hunter, who wrote towards the close of the eighteenth century, the true nature of uterine fibroids was not appreciated. They were confounded with malignant growths, of which they were regarded as a variety. He described them under the name of fleshy tubercle, and contributed greatly to the knowledge of their pathology; but it was not until the writings of Chambon,[1] Baillie, Bayle, and others, that the subject was fully elucidated. Sir Charles Clarke, in 1814, wrote an excellent chapter upon them, which would almost answer the requirements of our day.

Pathology.—Surprise that any confusion should have existed between these tumors and cancerous growths, will cease when the statement is made that their identity is boldly assumed by so careful an observer as Dr. Ashwell, as late as 1844. He gives five reasons for his belief, which he declares appear to him "conclusive." His reasoning has failed to convince others, no writer since his time having adopted the view which Dr. Hunter succeeded in abolishing, and no fact in Gynecology is now more fully settled than that of the non-malignancy of these tumors. There is another point in their pathology which is not so fully determined; that is, the possibility of the irundergoing cancerous de-

[1] Nonat, op. cit.

generation. Bayle and Lobstein have declared that they never do so, and the researches of Cruveilhier and Lebert tend to support the view; but Dr. Atlee,[1] of Philadelphia, and Prof. Simpson, of Edinburgh, believe that malignant degeneration sometimes occurs. If such alteration be possible, it is certainly extremely rare, and is not an issue to be apprehended.

Their number is almost unlimited, as is also their size. M. Courty reports one weighing fifty pounds, and Dupuytren another weighing twenty-five. I exhibited some years ago to the New York Pathological Society, the uterus of a negress which contained thirty-five tumors of every size between that of a fœtal head and that of a marble.

Fibroids may develop in any part of the uterus; but the usual site is in the body or fundus. Mr. S. Lee examined seventy-four preparations in the London museums, and found that the rarest of all locations for them is the cervix. A very interesting instance of a large tumor developed below the os internum is reported by Dr. Murray, in the sixth volume of the London Obstetrical Transactions. Their structure differs very greatly not only from their original development being different, but from their being susceptible of several diseased states, which will very soon be mentioned, and which produce their characteristic alterations. The typical form is that of hard, resisting fibrous tissue, which creaks under the knife. Under the microscope this is found to consist of long, fine fibres, generally united in bundles; of fusiform fibre cells analogous to fibro-plastic elements; and of round or elliptic granules of small size; the whole being bound together by fine intercellular substance. This type is departed from by formation of cysts in the midst of the fibrous tissue, which constitutes the tumor one of fibro-cystic character. They are liable to a variety of diseases, among which the most frequent are œdema, inflammation, fatty, colloid, and calcareous degeneration and apoplexy. The last consists in rupture of small bloodvessels within the mass, and consequent accumulation of blood.

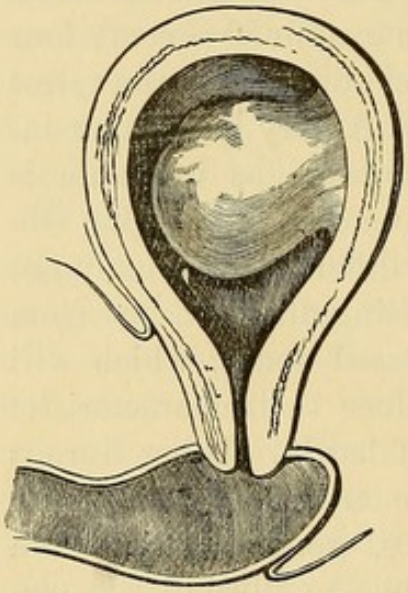
Very rarely the whole mass becomes a ball of calcareous matter, which projecting in utero, and becoming detached from its uterine attachment, is sometimes discharged per vaginam.

[1] McClintock, Diseases of Women.

This is the disease which was described by old writers as uterine calculus. The uterine attachment of fibroids of compound character is sometimes the seat of a species of varicose degeneration of the small vessels which causes the structure to resemble erectile tissue. Tumors thus affected have been styled by Virchow, telangiectatic tumors. This vascular structure readily bleeds, and in one case I saw it the cause of a small hæmatocele. But large vessels are likewise discovered in the pedicles of fibroids; Caillard reporting one the size of the radial artery. Klob has met with but one such vessel, which was the size of the uterine artery.

Varieties.—Klob, whose excellent work on the "Pathological Anatomy of the Female Sexual Organs" has just been translated by Drs. Kammerer and Dawson, of this city, divides these growths into two classes—simple and compound. The first consists of one tumor, which is generally spherical, and which is connected by loose connective tissue with the uterus. The second is a compound tumor, made up of a number of small fibroids, connected by loose connective tissue. The second variety is more vascular than the first, and its surface is nodulated and not smooth. Both these classes present themselves clinically in three varieties which are created by the locality of the growths in the walls of the uterus. If they lie under the mucous membrane projecting into the uterus, they are called submucous; if under the peritoneum, subserous; if in the wall of the uterus, interstitial. Figures 159, 160, and 161, represent these forms.

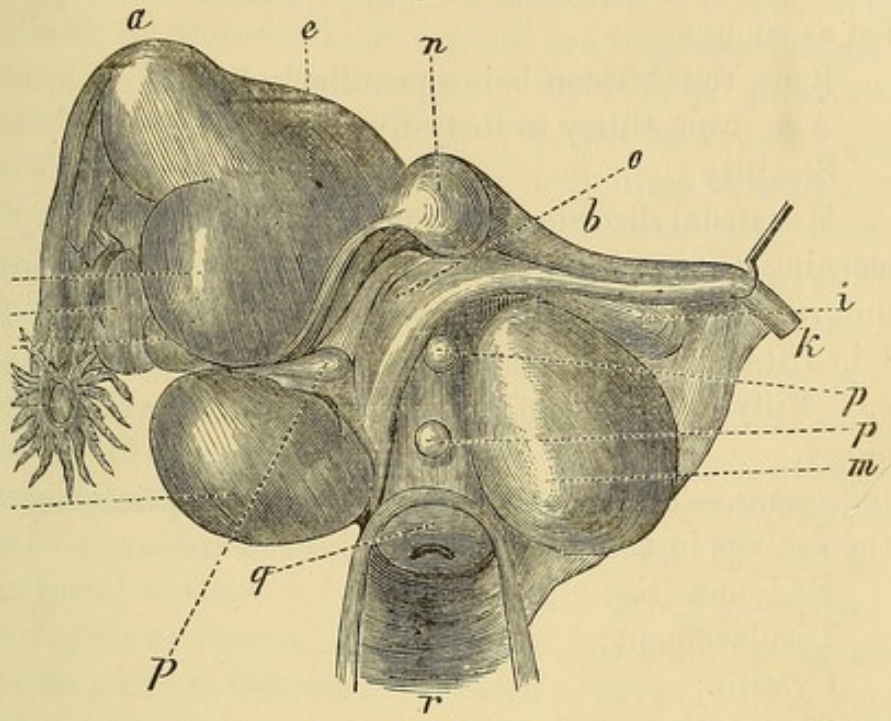
Fig. 159.



Submucous fibroid. The tumor is seen jutting from the wall of the uterus into its cavity. (Sims.)

If a tumor be situated in the wall of the uterus, it may remain there until it assumes large dimensions. Should it be near its mucous or serous lining, it is subjected to contractile efforts on the part of the surrounding parenchyma, which are excited by its presence, and which often in time force it towards the uterine or abdominal cavity. Sometimes its connection with the mother

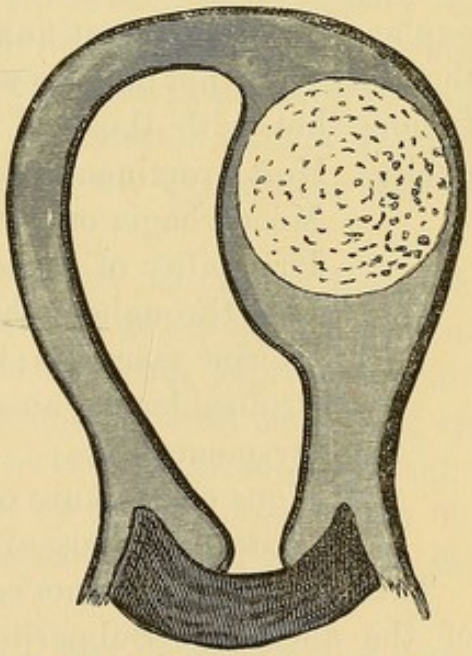
Fig. 160.



Subserous fibroids. Tumors are seen under the serous membrane, lifting it in various directions. (Boivin and Dugès.)

tissue is kept up by a broad base; sometimes it is limited to a long, slender pedicle, which, in the case of the subperitoneal varieties, allows of great mobility. Should the mass be forced into the uterine cavity, and gradually assume a slender, pedunculated attachment, it receives the name of fibrous polypus, which is therefore a variety of submucous fibroid.

Fig. 161.



Interstitial fibroid. A solitary tumor is seen developed within one wall of the uterus.

Subperitoneal uterine tumors have been known to perform the most singular migrations. The pedicle being broken, they have at times been found rolling about freely in the peritoneum, and at others, having set up adhesive inflammation, they have been found detached from the uterus, and attached to some other abdominal viscus.

Causes.—The predisposing causes, or rather those generally regarded as such, are—

Race, the African being peculiarly liable;
Age, from thirty to forty-five;
Sterility;
Menstrual disorders of long standing.

Concerning the exciting causes, one writing in the year 1866 may, unfortunately, quote the words of Sir Charles Clarke, recorded in 1814: "Nothing is known respecting the cause of this disease." Fifty-two years of research have thrown no light upon its etiology.

Complications.—The most frequent of the complications which show themselves in the course of the disease are—

Endometritis;
Displacement;
Cystitis;
Obstruction of the rectum;
Hæmorrhoids;
Pelvic peritonitis.

Symptoms.—This enumeration of complications is a sufficient explanation of the great number of rational signs which present themselves, for not only do we meet with the symptoms of fibrous tumors, but with those of a variety of disorders which they excite. Most prominent among the symptoms are—

Menorrhagia or metrorrhagia;
Irritability of bladder and rectum;
Pain throughout the pelvis;
Uterine tenesmus;
Profuse leucorrhœa;
Dysmenorrhœa;
Signs of pressure on crural nerves and vessels;
Watery discharge from uterus.

These symptoms are not equally common to the three varieties of the affection. Subperitoneal tumors often, and interstitial tumors sometimes, are accompanied by none, or at least by very few of them. It is the submucous variety which most constantly and prominently develops them.

Physical Signs.—Although the rational signs are so numerous and striking, they can never do more than excite a suspicion, which leads to investigation by physical means.

In the case of a large tumor no difficulty in diagnosis will present itself; for the results of vaginal touch, abdominal palpation, and conjoined manipulation will be so decided as to settle the character of the case definitively. When, however, a growth of small size exists, great difficulties will often attend diagnosis, which may be delayed until the case has been under observation for a long time. A thorough examination involves full and careful exploration, by touch, of the anterior and posterior surfaces of the uterus, as well as of its cavity to the fundus.

To examine the posterior wall the patient should be placed upon the back. The examiner then depressing the uterus powerfully by one hand placed over the hypogastrium, should sweep the index finger of the other over that wall, first by the vaginal and then by the rectal touch. While the finger is lying under the uterus, in the vagina or rectum, the fingers of the hand on the abdomen should be made to depress its walls so as to sweep from the fundus over the anterior surface down to the cervix. The finger under the uterus lifting it up will offer itself as an opposing force to the hand on the abdomen. This manœuvre will expose to examination the outer surface of the uterus, unless the patient be very fat.

Should this be so, a tenaculum may be fastened in the cervix and the uterus drawn down by it so that the posterior wall will be within reach of rectal touch, and the anterior wall of vaginal exploration when the finger is pressed firmly against the base of the bladder.

For investigating the interior surface of the uterus the neck should be fully dilated by tents of sponge or sea tangle, and immediately upon their removal, the uterus being depressed as for examination of the outer surface, the finger should be carried up to the fundus. Even without dilatation the presence of submucous tumors may often be detected by careful examination by the uterine probe, and the attachment of a tumor may thus be ascertained.

Differentiation.—The diseases which may be confounded with fibrous tumors are—

Peri-uterine cellulitis or abscess;
Pelvic hæmatocele;
Anteflexion or retroflexion;
Ovarian tumors;
Fecal impaction.

The tumor created by cellulitis is always immovable, very sensitive, accompanied by fever, comes on suddenly, and fixes the uterus. A fibrous tumor is the opposite of this in every respect.

Hæmatocele occurs suddenly with violent symptoms. The tumor is sensitive and immovable, at first semifluid, and accompanied by tympanites. Fibrous tumors show no such symptoms.

Flexion may be determined by the uterine probe, and differentiation established between it and fibroids by conjoined manipulation and rectal touch.

Ovarian tumors of solid form are the only ones which usually give difficulty in diagnosis. They are unaccompanied by menorrhagia, can be pushed from side to side without affecting the position of the uterus as ascertained by vaginal touch, and are not themselves affected by movement of the uterus by means of the uterine sound. In cases where an ovarian tumor is firmly attached to the uterus, differentiation is not only difficult but often impossible.

Fecal impaction presents a tumor which can be indented by pressure, is generally in the caput coli, does not move with the uterus, gives severe intestinal pain and disorder, and exerts no influence on the functions of the uterus.

Prognosis.—The practitioner cannot be too cautious or display too much reticence in pronouncing the prognosis of uterine fibroids. There are few diseases in which the young physician will be led into greater error or be made to regret more decidedly an over-confident prediction. Fibrous tumors, unless of great size, rarely end fatally, however gloomy the prospect may appear when they are first discovered. And yet death from them is not so infrequent as to warrant an entirely favorable prognosis.

Frequency.—These facts are to a certain degree corroborated by an examination into their frequency. Were they as dangerous as is sometimes supposed, a large number of deaths would be annually produced by them, for, to use the words of McClintock, "without question the most frequent organic disease of the uterus, if we except inflammation and its effects, is fibrous tumor." Bayle estimated that of all women dying beyond thirty-five years of age, twenty per cent. were thus affected. Even supposing that his assumption was an exaggerated one, an idea of the frequency of the affection may be gathered from the fact of his venturing upon it.

Course, Duration, and Termination.—As already stated, these growths may attain the enormous weight of fifty pounds. Fortunately they very rarely reach such dimensions, but even when they do not, they frequently exhaust the patient by metrorrhagia, leucorrhœa, hydrorrhœa, and a low grade of constitutional irritation, often attended by hectic fever. But this termination, like the preceding, is exceptional. Having attained a moderate size they generally remain stationary, or increase slowly until the menopause, creating considerable inconvenience and depreciating the patient's strength by hemorrhage. Then undergoing a certain degree of atrophy with the cessation of uterine and ovarian functions, they cease to be, to any great degree, a source of annoyance, or at least of danger. Even during the age of uterine activity, nature may, unaided, effect a cure by the following means:—

Absorption or atrophy;

Direct expulsion by rupture of attachment;

Sloughing, from deprivation of nutrition, or inflammation;

Calcareous degeneration.

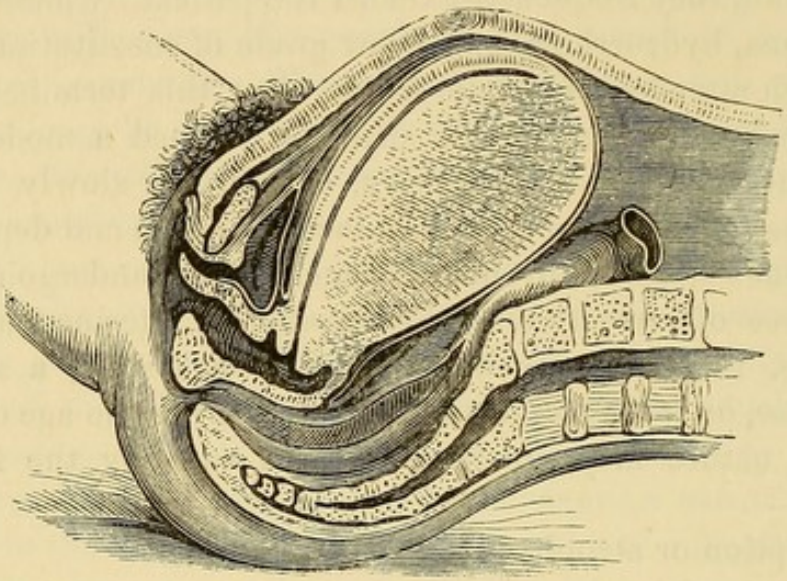
The tumor is sometimes deprived of nutrition by inflammatory action occurring in the vascular structure of the uterine attachment which has just been described, collections of pus being sometimes discovered in it.

Sometimes fluid collections take place within these masses, some morbid process destroying their tissue as if by liquefaction. The fluid thus collecting may be purulent, watery, or sanguineous. One of the most interesting of these instances is recorded by Dr. Sims, and represented by Fig. 162. Sims's view, that the growth was fibro-cystic, appears to me to be incorrect, though there is a difference of opinion with reference to these collections within fibroids.

He describes it thus: "I passed a trocar into it at its lowest point, and in the direction of its long axis, and there were discharged more than twenty ounces of a colored serum. The puncture was enlarged for two inches, to prevent its closing. There was at once a sensible diminution in the size and tension of the abdomen. The discharge kept up for some time; and this, together with occasional injections into the very fundus of the uterus, with the liquor ferri persulphatis, diluted with three or four parts of water, arrested very promptly the hemorrhages, and

the patient was dismissed in two months in a very comfortable condition, and with strength enough to walk six or eight miles."

Fig. 162.



Submucous fibroid. A large tumor is attached to posterior wall from os to fundus. A channel is seen to extend from the os along anterior wall. (Sims.)

Palliative Treatment.—In the vast majority of cases the efforts of the practitioner are limited to palliation of the evils resulting from the growth. Mechanical interference is prevented by an abdominal supporter and a pessary; menorrhagia and leucorrhœa by astringent injections into the vagina and uterus; and pain by opiates and rest.

Curative Treatment.—Surgical means should be resorted to only under two circumstances: 1st, where the growth is so located as to render removal easy and safe; 2d, where the disease is threatening the patient's life. In the removal of these growths the practitioner imitates the processes by which nature accomplishes a cure. Bringing to his aid the first three of her methods which have been mentioned, he adds to them others which she never develops.

Uterine fibroids, whether submucous, subperitoneal, or interstitial, may frequently be removed by the following means:—

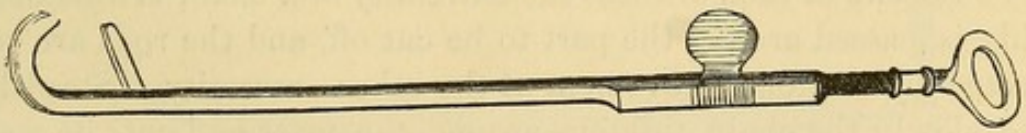
Absorption;
Excision;
Écrasement;
Enucleation;
Sloughing;
Gastrotomy.

Absorption.—Whether their absorption can be excited by any medicines at our command is very doubtful. Tumors have in certain instances been known to disappear while drugs have been employed, and perhaps they did so in consequence of their use. But no such effect can be looked for with any confidence. Indeed, with our present experience, such a result must be regarded as decidedly exceptional. Scanzoni,[1] after advising those medicines which are most popular as stimulants of absorption, says, "We do not remember a single case in which, with the means indicated, or with others, we have obtained the complete cure of a fibrous body." Whatever drugs be tried for this purpose should be continued for many months, and even a year or two, before the trial can be considered fairly made, for their action is never immediate. Those in greatest esteem are iodine, the iodide and bromide of potassium, and the waters of certain mineral springs, as Kreuznach, Kissingen, Krankenheil, &c. All these may be employed externally in the form of hip-baths as well as internally.

In the case of small submucous tumors absorption is sometimes effected by pressure from the fœtus in utero, and the same result is attainable by systematic pressure by tents of sponge or sea tangle. Thus far very few successes have been reported, but the plan certainly promises good results, and is worthy of trial.

Excision.—Should a small submucous fibroid project into the uterine cavity, it may be removed by the severance of its attachment, by means of the knife, scissors, or other cutting instrument. If it be within reach of the knife or scissors, after dilatation of the cervix by tents, it may be removed by them. In case it be attached higher in the uterine cavity, the polyptome of Aveling may be made to answer a good purpose (Fig. 163).

Fig. 163.



Aveling's polyptome.

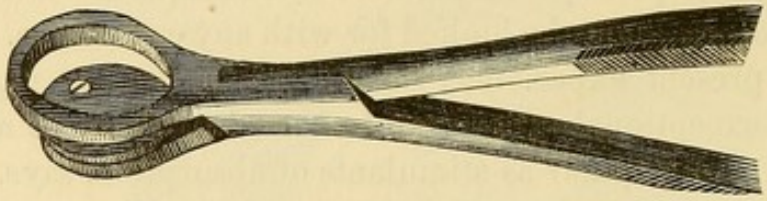
Removal may likewise be accomplished by the forceps of Nélaton, represented in Fig. 164.

This method of removal is, however, much more applicable to

[1] Op. cit.

those fibrous growths which, instead of preserving extensive connection with the uterus and coming under the head of tumors,

Fig. 164.

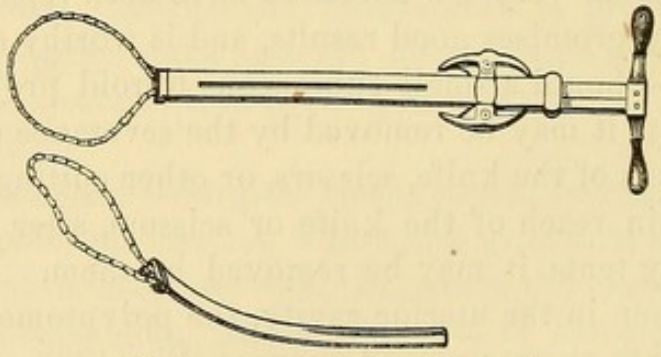


Nélaton's forceps. (Wieland and Dubrisay.)

have only an attachment by a pedicle and are therefore classed with polypi.

Écrasement.—Under almost all circumstances where excision may be practised, écrasement becomes possible and should always be preferred. The operation consists in cutting off the mass, as near its attachment as possible, by the écraseur. This instrument, the invention of M. Chassaignac, of Paris, consists of a flattened tube of steel which has two rods of the same metal passing through it to its upper extremity (Fig. 165.)

Fig. 165.

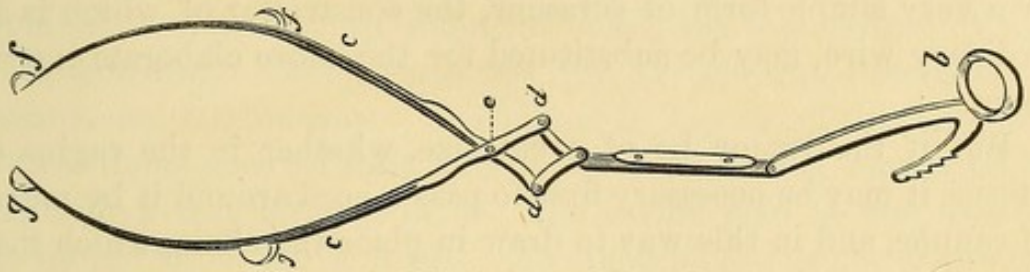


The écraseur, straight and curved.

To the end of each of these the extremity of a chain is attached. This is passed around the part to be cut off, and the rods are retracted by a ratchet movement at the other extremity. Steadily and slowly the chain tightens around the mass and cuts its way through it. The écraseur not only presents the great advantage of preventing hemorrhage, but experience proves that after its use inflammatory action is much less likely to occur than after that of cutting instruments. Should the tumor be small and have passed out of the uterus into the vagina, the chain of the écraseur may be passed over it as a noose, by the fingers. If it be small

and in the cavity of the uterus, the chain may be passed by means of the porte-chaine attachment of Sims, represented in Figs. 166 and 167, which enables the operator by the aid of deli-

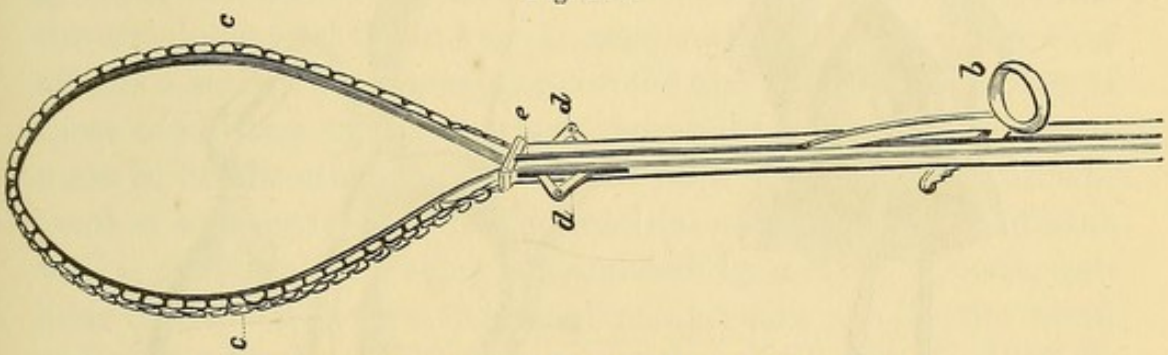
Fig. 166.



The arms of Sims's porte-chaine. (Sims.)

cate arms extending beyond the écraseur to spread it out to the greatest extent.

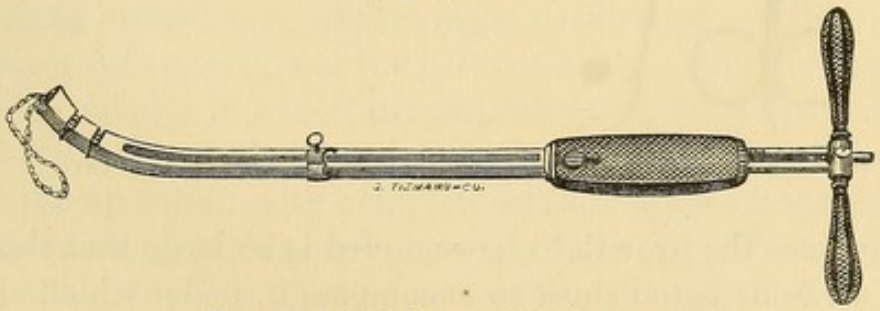
Fig. 167.



Sims's porte-chaine ready for encircling a tumor. (Sims.)

Tiemann & Co. have constructed a simpler instrument, in which the chain is passed by the limbs of the écraseur, which are elastic, and Dr. Emmet has improved this by making joints near the end of the instrument, as represented in Fig. 168.

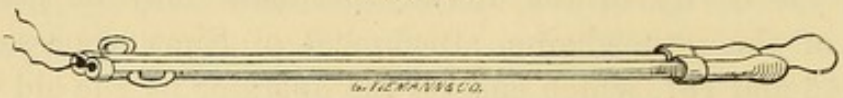
Fig. 168.



Ecraseur with joints and elastic arms.

The chain of the ordinary écraseur may with great advantage be replaced by the wire rope, as suggested by Dr. Braxton Hicks,

Fig. 169.



Gooch's canulæ armed with a ligature.

or a very simple form of écraseur, the constrictor of which is an ordinary wire, may be substituted for the more elaborate instrument.

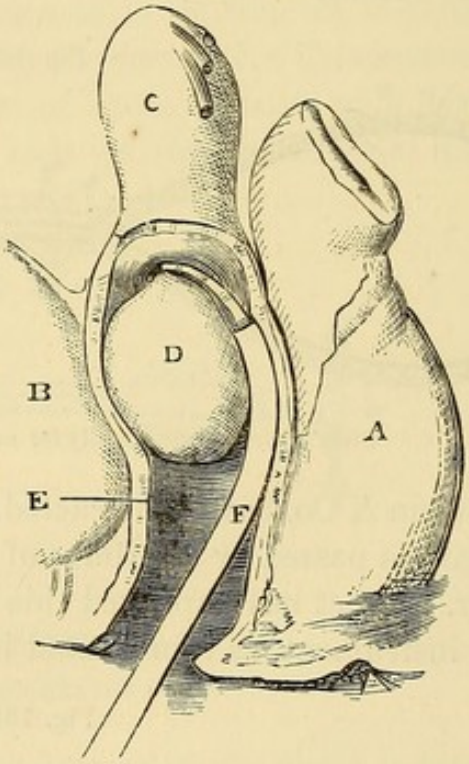
But if the tumor be of great size, whether in the vagina or uterus, it may be necessary first to pass a cord around it by means of canulæ, and in this way to draw in place the chain, which may be subsequently attached to the écraseur, as represented in Fig. 170.

Fig. 170.



A tumor encircled by Gooch's canulæ.

Fig. 171.



The écraseur at work.

Sometimes the growth to be removed is so large that the chain of the écraseur is too short to encompass it, under which circumstances it may be replaced by a number of small wires called a wire rope, by a single large wire, or by a strong cord.

Should the tumor be very large and fill the vagina completely,

there are two methods by which it may be entirely removed: 1st, it may be drawn down by obstetric forceps and delivered; 2d, it may be cut away, piece by piece, until its base be reached. By the first plan the uterus is temporarily inverted, the morbid growth removed by the knife, scissors, or écraseur, and the uterus replaced, after the stump, should it bleed, has been seared by the white-hot iron. This process was first advised and practised by Desault and Herbineaux. Prof. Isaac E. Taylor, of this city, has several times resorted to it, and in one case I thus succeeded in removing a very large growth. The second plan is best carried out by the aid of the écraseur. As much of the tumor as can be secured is seized in the chain and removed. Then another portion is engaged, and so on until a great part or the whole of the mass is cut away.

Enucleation.— Excision is applicable to small submucous growths near the cervix, and écrasement is only practicable when the attachment of the tumor is smaller than its body, and thus affords a surface for the support of the chain. Where neither of these conditions exists, or where the tumor is interstitial, resort must be had to other means. It has been stated that the attachment of submucous and even interstitial neoplasms to the uterine wall is not firm, they being surrounded by a layer of loose cellular tissue. This fact suggested many years ago, to the mind of Velpeau, the possibility of enucleating them, and in 1840 M. Amussat put the theory into practice. Since that time the operation has been resorted to by many surgeons, among the most successful of whom may be mentioned Dr. Atlee, of Philadelphia. A sufficient number of favorable results have been attained by it to render it a warrantable procedure; but it is unquestionably one attended by great hazard, as it may be destructive to life by inducing exhaustion, hemorrhage, perforation of the uterus, pyæmia, or inflammation of the pelvic viscera. Dr. West reports twenty-eight cases in which it was performed, fourteen of which proved fatal. Prof. Fordyce Barker, of this city, has once performed the operation with complete success upon a large growth.

"Peritonitis, phlebitis, and pyæmia," says Dr. West,[1] in estimating the prospects of success held out by enucleation, "the consequences of violence done to the uterus of women exhausted

[1] Dis. Women, Eng. ed., p. 305.

by large and frequently repeated floodings, are dangers from which but few have altogether escaped; under which I fear that correct statistics will show that most have succumbed." But the great dangers attending its performance should not deter the surgeon from resort to it in suitable cases, which absolutely require aid. They should merely induce him to exhaust all palliative means before resorting to this, which should be looked upon, in large tumors, as a last resource.

The steps of the operation are as follows :—

1st. The cervix should be fully dilated by tents, or freely incised in two or three places, as practised by Dupuytren, Amussat, and Baker Brown.

2d. After checking hemorrhage, if any be created by incision, should this have been resorted to, the vagina being dilated by Sims's speculum, and the tumor held firmly by tooth forceps, an incision is made over its surface and through its capsule. This may be either straight or crucial.

3d. The fingers or a blunt instrument being passed into the opening thus made is swept around the mass, so as to sever its attachments and turn it out of its bed. At the same time it is lifted from below upwards by the forceps. If the mass be removed, all clots should be washed out of the uterus by a stream of water, and the patient quieted by full doses of opium.

Sometimes a middle course may be followed with advantage in such a case as that represented in Fig. 172, for example. The os being dilated or incised, a long crucial incision is made over the presenting part of the tumor, and the lips of the capsule separated by the finger, in the hope that the body of the tumor may present through this species of os, and be expelled by uterine efforts. A most interesting case in which this occurred is recorded by Dr. Grimsdale, in the *Liverpool Med. and Surg. Journal* for January, 1857.

Sloughing.—Mr. I. Baker Brown, of London, has proposed in imitation of a process sometimes naturally set up in fibroids, to create the tendency to sloughing by cutting a deep, circular hole in them and filling this with oiled lint. This he has styled gouging, and reports a number of cases successfully treated by the plan. We are informed by Dr. Sims[1] in his recent work,

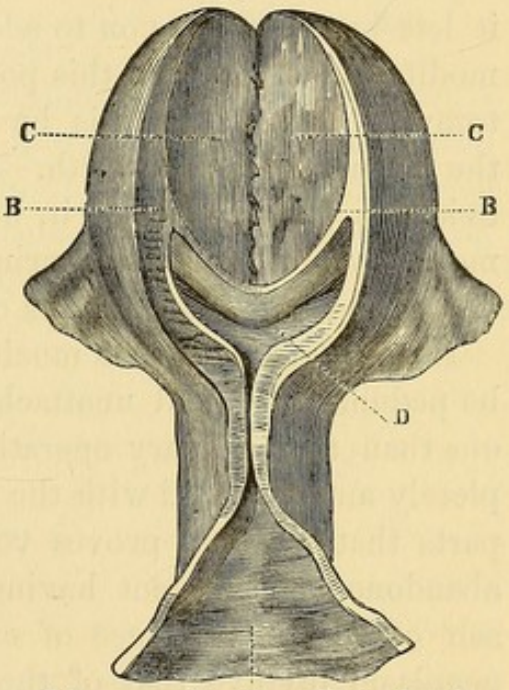
[1] Op. cit., p. 121.

however, that, "Mr. Baker Brown does not now mutilate the fibroid, but satisfies himself with simply incising the os and cervix uteri."

The dangers which must result from the presence of a large sloughing mass in the uterus are manifest, but it is equally so that in such a case as that represented in Fig. 172, it may become necessary to incur the attending risks rather than allow the patient to die from the continuance of the disease.

Gastrotomy.—Subperitoneal tumors are much less amenable to surgical treatment than those which are submucous, but in compensation they are less injurious in their results. In some cases, however, they excite so many evil symptoms as to call for removal—and this has been effected by incision through the abdominal walls. The operation is truly a formidable one, and yet, since it has been repeatedly successful in cases susceptible of no other means of relief, it is worthy of consideration. Indeed, should the steady decadence of the patient's strength make it certain that a fatal issue must soon ensue, the operation in the case of a pedunculated subperitoneal tumor would become a matter of duty, and not remain one of choice.

Fig. 172.



Submucous fibroid. (Wieland and Dubrisay.)

The prospects of success from it will depend very much upon the character of the attachment of the tumor to the uterus and other viscera of the abdomen. Unfortunately the extent of these cannot be accurately ascertained before abdominal section and investigation by touch, which of itself involves risk. This is by no means so considerable as would at first be supposed, and where doubt exists it should be resorted to. Dr. John Clay reports twenty-three instances in which it was adopted. Of these, sixteen recovered, three died, and of four no account was given in the reports.

With reference to the propriety of the operation of gastrotomy

for removal of uterine fibroids the opinion of the mass of the profession is at present determinedly adverse. And yet it is not more so than it was twenty years ago with reference to ovariotomy. It is highly probable that when experience has rendered the operation safer than at present it will be resorted to for the same reasons which to-day cause us to perform extirpation of the ovarian sac, and be regarded, as that operation is, as a practicable and expedient procedure. Not only is this opinion sustained by recent statistics, it is foreshadowed in the modified opinions expressed by late writers. M. Courty, after stating the unfavorable results of the operation and the adverse impression concerning it left by them, goes on to add: "But recent operations tend to modify our opinion on this point as they have done upon ovariotomy."[1] In saying this he appears to have anticipated what the future will bring forth. It is true that thus far statistical evidence does not favor it, but Prof. Storer declares, "that the mortality of the earlier uterine extirpations was no greater than that in many isolated groups of the other operation."

It is not venturing too much even now to say that if the fibroid be pedunculated and unattached, its removal is no more dangerous than the ordinary operation of ovariotomy. If it be completely amalgamated with the uterus, or so bound to neighboring parts that removal proves very difficult, the operation may be abandoned, the patient having, without great risk, availed herself of the only chance of cure. Even if the removal of the neoplasm involve that of the uterus and ovaries, we may still indulge in a hope of saving our patient, as the following table, arranged by Prof. H. R. Storer,[2] will prove:—

[1] Op. cit., p. 977.

[2] "*On removal of the womb and both ovaries.*" The tumor which necessitated the operation weighed thirty-seven pounds, and was the largest ever extirpated.

	Operations.	Deaths.
Clay	3	2
Heath	1	1
Burnham	9	7
Kimball	3	2
Parkman	1	1
Peaslee	1	1
Koeberlé	1	0
Baker Brown	1	1
Wells	1	1
Sands	1	1
Buckingham	1	1
Storer	1	0
	24	18

Percentage of recoveries 1 in 4, or 25 per cent.

The statistics here displayed, although showing, as they do, a large mortality, would, I fear, lead one to take a more favorable view of the results of this operation than enlarging experience will warrant. Since their publication the uterus has been removed in this country with the following results:—

	Operations.	Deaths.
Storer,[1] of Boston	4	4
Cutter,[1] of Newark	2	2
Wood,[2] of Cincinnati	1	1
Hackenberg,[2] of Hudson	1	1
Atlee,[2] Philadelphia	1	1
Weber,[2] Cleveland	1	1
	10	10

No operator should undertake gastrotomy for uterine neoplasms without being prepared, if necessary, to remove the uterus with the tumor, for sometimes the connection is so intimate that an exact localization of the tumor is out of the power of the most skilful diagnostician. Indeed, even after removal of the mass from the body, its relations to the uterus are often discovered only after patient and intelligent search. Dr. Farre tells of a case preserved in one of the London museums as a solid ovarian tumor which, upon careful examination, he proved to be uterine by tracing the Fallopian tubes into it. It was also in this way that the nature of the tumor removed by Dr. Storer was identified, Prof. Ellis, after very minute examination, distinctly discovering

[1] Personal communication.

[2] N. Y. Med. Record, Jan. 18, 1868.

the entrance of the tubes into the cavity of the body and thus settling the matter.

The operation is performed in exactly the same manner as ovariotomy, and for particulars concerning it the reader is referred to the chapter describing that procedure. The accidents which have generally produced a fatal termination in cases of gastrotomy are as follows:—

1st. Primary or secondary shock or collapse;
2d. Hemorrhage;
3d. Peritonitis;
4th. Septicæmia.

As Prof. Storer points out, we have now arrived at means for limiting the first; the improved methods of hæmostasis at our command diminish the danger of the second; and the knowledge of the fact that carefully cleansing the peritoneum of blood and other fluids markedly diminishes the probability of the occurrence of the third and fourth, will in future aid in avoiding them.

I have endeavored to lay the facts connected with gastrotomy for uterine neoplasms before the reader in their true light, carefully avoiding any partial or prejudiced representation concerning them. What position the future will assign to the operation no one can at present declare, but of this we may even now be sure, that they are culpably barring the way to advancement who refuse to attempt the only plan by which life may, at times, be saved, and screen themselves from blame in so doing by casting censure and reproach upon those who endeavor to afford the patient every chance for life.

In some cases surgical means fail to effect removal, and are resorted to merely for palliation. Where a large submucous fibroid is producing exhausting hemorrhage an incision directly across its most dependent point, and others cutting the superficial layer of fibres of the os, will often control the flow to a great extent. This probably results from disgorging the habitually distended vessels of both tumor and uterus.

CHAPTER XXX.

UTERINE POLYPI.

Definition.—A uterine polypus is a tumor covered by the mucous membrane of the uterus and attached to that organ by a pedicle or stem.

History.—While so many uterine disorders of greater obscurity are described by the earliest medical writers, this, the diagnosis of which is often so self-evident and positive, attracted little attention. Hippocrates, Celsus, Galen, and even Aëtius make no mention of it. By Moschion it was described in the third century, and called pulps or polypus, but it was certainly neither well understood nor treated in his time, and we get no clear accounts of it until the revival of this branch of learning by the French School in the seventeenth century. Then Guillemeau, and subsequently Levret, threw much light upon it, and in the latter part of the eighteenth and beginning of the nineteenth centuries many others contributed to place our knowledge upon its present basis.

Varieties.—The student will meet with much difficulty in arriving at definite ideas concerning the varieties of uterine polypi. Almost all authors differ in their classification, and the number of names which have at various times been applied to them is too large even for repetition. Let it be borne in mind that since these tumors are formed by excessive development of one of the tissues existing permanently or temporarily in the uterus, there are but four elements which can give rise to them: the parenchyma, the mucous membrane and cellular tissue, the glands of that membrane, or some foreign mass which is retained in the uterus. It is true that by some a species of vascular polypus formed from development of the bloodvessels, a species of telangiectasis, has been described, but it is probable that this is only a form of the mucous variety. All classifications of these growths are to a great

extent arbitrary, and hence in the present state of pathology none can become universal. That which I will adopt is this:—

1st. Cellular polypi;
2d. Glandular "
3d. Fibrous "
4th. Fibrinous "

Each of these genera includes several species, the chief of which may thus be tabulated:—

Cellular Polypi include,
Fibro-cellular polypi;
Soft "
Mucous "
Vascular "
Cellulo-vascular "

Granular Polypi include,
Vesicular "
Cystic "
Channelled "
Tubular "

Fibrous Polypi include,
Hard "
Muscular "
Fibro-cystic "

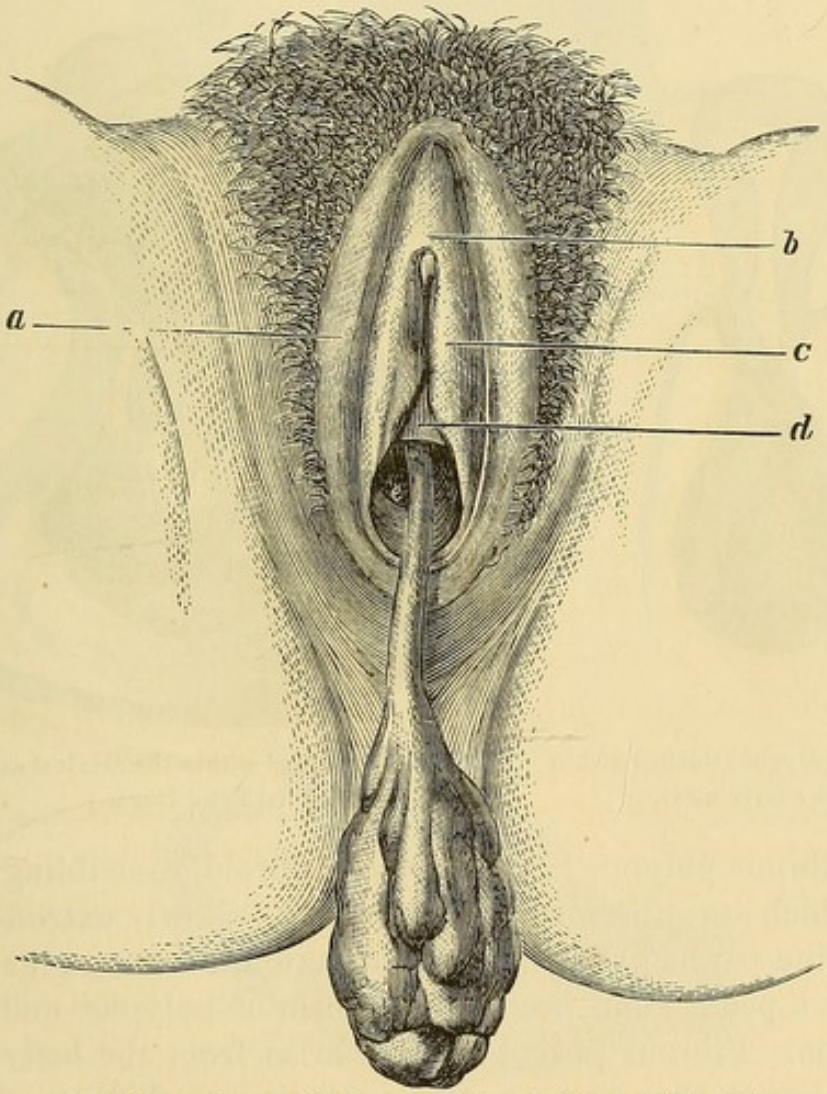
Fibrinous Polypi include,
Sanguineous "

These varieties are subject to morbid changes which create other forms, as, for example, fatty, calcareous, and malignant polypi. Colombat refers to a large, hollow polypus which, when removed, leads the operator at first to fear that he has mistaken an inverted uterus for a polypus. He states that Richerand and Jules Cloquet were once thus deceived, until the subsequent death of the patient enabled them to correct their error by post-mortem inspection. Mme. Boivin represents one of this character as shown in Plate 19 of her work. She calls it hollow polypus; declares that before its removal by M. Dubois it was regarded as inversion by several physicians, and accounts for it by supposing that some plastic element had coated the uterus and been ripped off, except at its cervical attachment, and had become inverted by menstrual fluid collecting above. Some months ago Dr. Henschel presented to

the New York Obstetrical Society a hollow polypus which was attached to the cervix by three points. It was referred to Dr. Noeggerath for examination and report, and his method of accounting for it was similar to that of Mme. Boivin in the case just mentioned.

Pathological Anatomy.—The cellular polypus is a tumor, generally of pear shape, varying in size from a marble to a hen's egg. It is covered over by mucous membrane, and consists within of cellular tissue in a state of hypertrophy or hypergenesis. Its

Fig. 173.



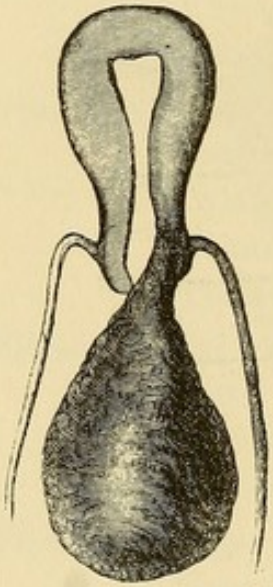
A cellular polypus with long pedicle. (Boivin and Dugès.)

attachment is generally, though not always, to the wall of the cervix, and in its structure appears a certain amount of cervical fibrous tissue. Sometimes the pedicle of this variety is very long and slender, so that it hangs outside of the vulva. Fig. 173

exactly represents one sent to me by Dr. Crane, of Elizabeth, N. J., for corroborative diagnosis, and which was afterwards removed by him.

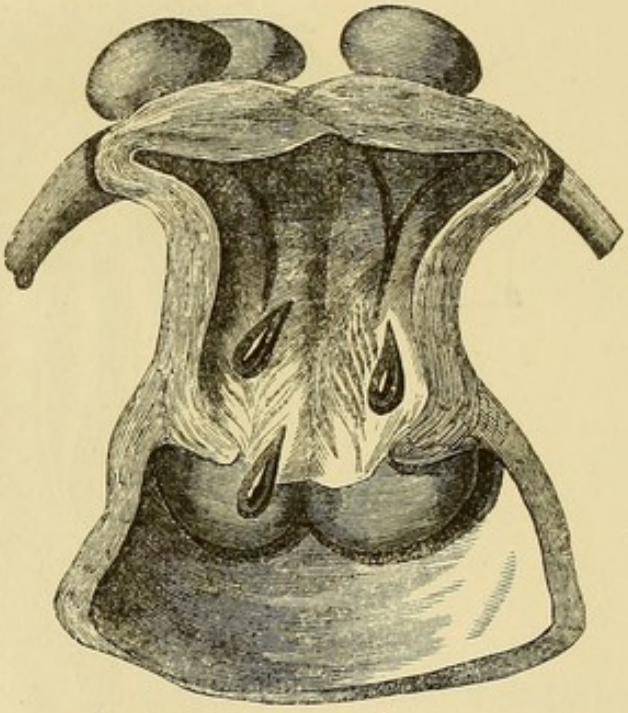
The glandular polypus consists in hypertrophy of the Nabothian glands or, according to Dr. Farre, of the utricular follicles. Several follicles are enlarged, and, being bound together by connective tissue, make up a tumor of pediculated form. It may arise either from the cervix or body, but very generally grows from the former, and is commonly gregarious.

Fig. 174.



A cellular polypus attached within the cervix uteri.

Fig. 175.

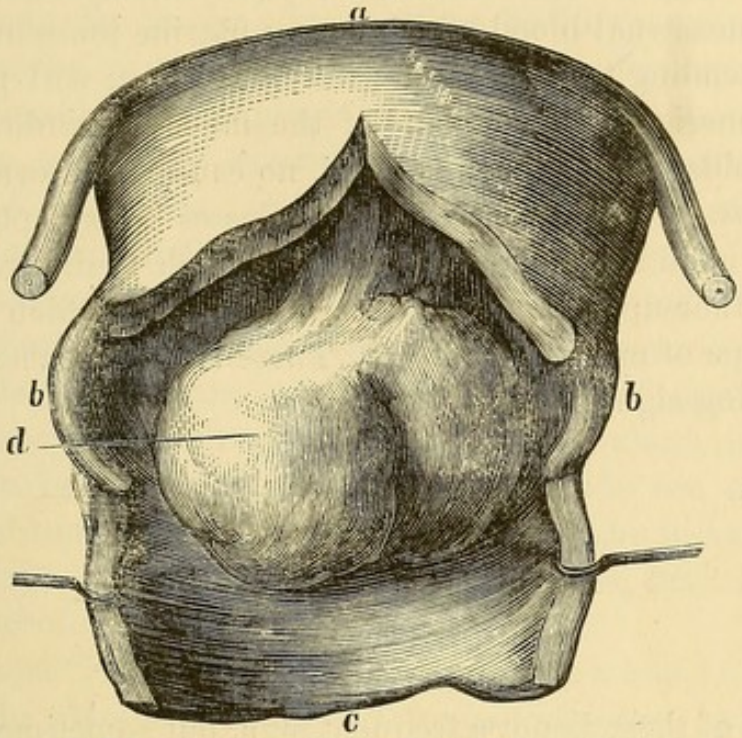


Glandular polypi within the cervical canal. (Boivin and Dugès.)

The fibrous polypus is a submucous fibroid, resembling closely those which are subserous and interstitial. Slowly extruded from the uterine parenchyma by its contraction, the tumor gradually acquires a pedicle and becomes the form of polypus under consideration. Fibrous polypi usually arise from the body of the uterus, though they are sometimes attached to the rim of the os.

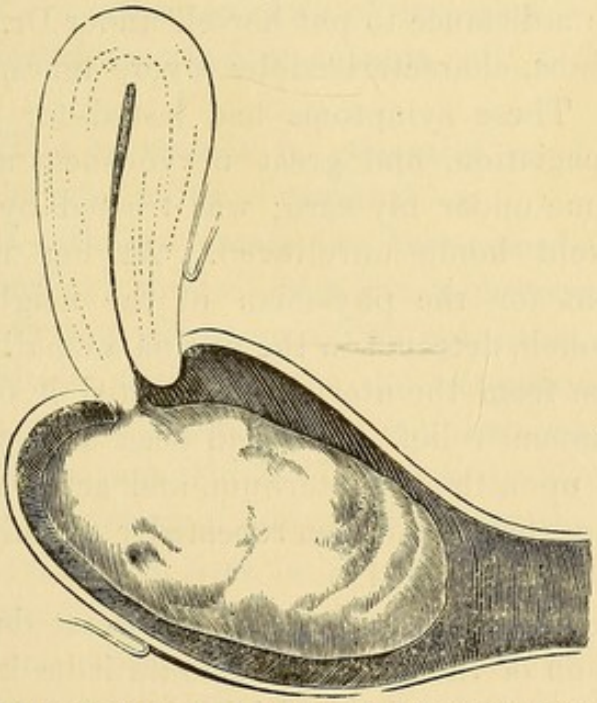
About the very existence of the fibrinous polypus there is some doubt. Kiwisch regards it as due to a collection of blood in utero, the serous portion of which is absorbed and the fibrinous organized. Scanzoni accepts this view, but regards the previous occurrence of pregnancy as necessary to it, and supposes

Fig. 176.



d. Fibrous polypus growing from fundus. (Clarke.)

Fig. 177.



Fibrous polypus growing from lip of cervix. (Sims.)

that the blood clot is attached to the placental site. The mass thus attached obtains vascular connection with the uterus, and presents the ordinary features of polypi. I have met with but two instances of this variety of polypus; in one, slight traces of the placenta were discoverable; the other was a pure blood clot.

Causes.—Any chronic inflammatory action, any obstruction to escape of menstrual blood which causes uterine tenesmus, or any influence tending to keep up uterine congestion, will predispose to hypergenesis of the elements of the mucous membrane. But as for fibroids, so for fibrous polypi, no cause is known.

Symptoms.—Polypi occasion two classes of symptoms; one dependent upon the mucous congestion which their presence excites, the other upon the mechanical obstruction which they offer to the escape of menstrual blood. These two influences result in the following signs:—

Leucorrhœa;
Pain in back and loins;
Menorrhagia;
Metrorrhagia;
Hydrorrhœa;
Dysmenorrhœa.

The last of these is not a frequent sign, but sometimes presents itself prominently, as it did in the following case which occurred before we understood the use of tents as we do at present. A lady came from a distance to put herself under Dr. Metcalfe's care for dysmenorrhœa, characterized by severe tenesmus and expulsion of clots. These symptoms had lasted for years, and had resulted in emaciation, and great nervousness and irritability. In time she came under my care; was treated by me for nearly a year, and went home unrelieved. At her next menstrual period she sent for the physician of the neighborhood, who examined by touch, detected in the vagina a small polypus which hung by a stem from the uterus, and twisted it off to her complete and permanent relief. This had been at last expelled after having rested upon the os internum, and acted as a ball valve for years. The uterus had been repeatedly examined before, but nothing could be discovered.

Physical Signs.—These will depend in great degree upon the size and location of the growth. Should it be in the cavity of the body, and small, no signs will be afforded by the touch or speculum; if, however, the body be explored by the probe, this will be found to be deflected by it. The cavity will be discovered to be much congested, and a copious flow of blood will often follow the withdrawal of the instrument. Should the tumor be large, the body will also be found to be displaced, increased in

size, and the cervix somewhat dilated. Should the attachment of the tumor be cervical, it can often be felt hanging from the canal or in the os uteri. But no examination for uterine polypi can be considered complete until the cervix has been fully dilated by tents, and careful exploration been made by sight, touch, and the probe. Even then a number of attempts will often be requisite before small growths are detected.

Differentiation.—Polypi must be differentiated from fibrous tumors even after the discovery of an intra-uterine growth has been made. The symptoms to which these affections give rise are very similar, and it is by physical means alone that differentiation can be effected. These means are the use of tents, the probe, and touch. By them, the mobility of the tumor, the point of its attachment, and the breadth of its base, may all be definitely determined.

Course and Termination.—Nature may cure a uterine polypus by ejecting the mass with so much force as to fracture its attachment and disconnect it from the uterus, or calcification or sloughing may occur. But none of these results can be looked for with any confidence. In the majority of instances, without surgical interference, steadily advancing anæmia will ultimately destroy life.

Prognosis.—The prognosis is generally good, depending, of course, upon the possibility of removal.

Complications.—Polypi create but two complications, namely, endometritis, and chlorosis of very grave character.

Treatment.—In the treatment of polypi, these two indications present themselves: first, to cause the expulsion of the growth from the uterus, and second, to accomplish its removal when thus expelled, by means which will presently be considered.

To cause the extrusion of the growth from the uterus into the vagina, the cervix must first be opened by tents, or by slitting its walls, and then the uterus must be stimulated to contractions by systematic and prolonged use of ergot. If it be possible to grasp the polypus by forceps, it may be drawn out in that way.

The second indication may be accomplished by—

Excision;
Torsion;
Ligature;
Écrasement.

Should the pedicle be within reach of knife or scissors, it may be divided; or if higher in the uterus, the polyptome may be employed. Should the growths be so small as not to be susceptible of seizure, they may be scraped from their attachment by the curette; and should they be small and possess slender pedicles, they may be seized with forceps and twisted off. The ligature, lately so popular, is now rarely employed; the tardiness of its action, and the fetid discharge which it excites, rendering it objectionable and dangerous. Écrasement constitutes the safest and most expeditious of all the operations. Sometimes, however, great difficulty attends the encircling of the tumor by the chain of the instrument. To effect this, it is often necessary to encircle the mass first by means of a ligature passed by Gooch's canulæ, and then to draw the chain into position by tying it to the end of this, as represented in the chapter on fibroids.

Whenever it is practicable, all manipulation should be delayed until expulsion of the tumor into the vagina is obtained; but, unfortunately, operative procedure is sometimes called for before this can be effected. Then the operator works to disadvantage, and the patient is exposed to great hazard. I have in more than one instance seen life destroyed by such efforts, even when cautiously conducted.

No sooner does the tumor escape into the vagina than the whole phase of the case is altered. Removal involves no dangerous manipulation, and is simple and easy. For this reason it is advisable to use every effort to open the cervical canal and stimulate uterine action. Even if section of the cervix to the vaginal junction is needed, it would be safer to resort to it than to manipulate the tumor in utero. In case the growth be shut up in the uterus, it is always advisable, unless some urgent reason for immediate removal exist, to dilate the cervix by tents, and if necessary, by incision, and to cause the expulsion by steady and prolonged use of ergot.

The directions for applying each of the means of removal recommended are so fully given in the preceding chapter upon fibrous tumors, that, to avoid repetition, the reader is referred to it for details.

CHAPTER XXXI.

CANCER OF THE UTERUS.

MALIGNANT disease may affect the uterus in three forms:—

Cancer;
Cancroid;
Epithelioma.

The varieties of each may be presented at a glance by the following table:—

Malignant diseases of the uterus.

- Cancer.
  - Encephaloid;
  - Colloid;(?)
  - Scirrhus.
- Cancroid.
  - Fibro-plastic;
  - Recurrent fibroid.
- Epithelioma.
  - Corroding ulcer;
  - Cauliflower excrescence.

Each of these will in turn engage our attention, the present chapter being devoted to cancer.

Definition and Synonymes of Cancer of the Uterus.—This disease, which has been described under the synonymous terms of carcinoma uteri, and ulcerated carcinoma, may be defined as a degeneration of the interstitial tissue of the uterus characterized by grave constitutional implication, great tendency to molecular death, and a certainty of reproduction if removed by surgical means.

Frequency.—According to Rokitansky,[1] the following average scale may be adopted as representing the preference of cancer for various organs. "First the uterus, the female breast, the stomach,

[1] Sydenham Trans., vol. i. p. 198, Am. ed.

the large intestine, and especially the rectum; next comes cancer of the lymphatic glands," &c. The great frequency with which the uterus is thus affected, may be judged of by the statements of Prof. Simpson, based upon reports made under the Registration Act, during a period of five years (from 1838 to 1842), for England, exclusive of London.

Number of women who died of cancer . . .	8746
" " " " " " " of the uterus .	3000

These statistics further prove that cancer is nearly three times more frequent in women than in men, and more than three times more frequently met with in the uterus than in any other organ of the female.

History.—M. Becquerel asserts that, "in spite of its great frequency, cancer of the uterus is not a disease of which the history has been long known." That it was not understood as we understand it to-day, is most true; but the ancients surely had a great deal of very accurate knowledge concerning it. Hippocrates—de Morbis Mulierum—describes it at length, declaring it to be incurable. Archigenes wrote an able chapter upon it, describing the ulcerated and non-ulcerated forms and the peculiarities of the discharges. His article is preserved by Aëtius, who entitles it "De Cancris Uteri," and is copied verbatim by Paul of Ægina without the slightest acknowledgment. The Arabians likewise were familiar with it, Alsaharavius, Haly Abbas, and Rhazes, all alluding to its prognosis and treatment in a manner which leads us to believe that they understood its true nature.

Upon the revival of Gynecology in France, the disease was confounded with fibrous tumors and parenchymatous inflammation, or rather with its resulting hypertrophy. Astruc described "scirrhus" as the result of abortion, in 1766, and the confusion which attached to his description extended long after him. It characterized the times of Récamier and Lisfranc, and even so late as our own period we see the view indorsed by Drs. Ashwell, Montgomery, Duparcque, and many others. Messrs. Blatin[1] and Nivet, in expressing their belief that scirrhus results from chronic inflammation of the parenchyma, append the following foot-note: "Paul of Ægina, Galen, Andral, Broussais, Breschet and Ferrus,

[1] Mal. des Femmes, Paris, 1842.

Piorry, Bouillaud, &c., place scirrhus among the terminations of chronic inflammation; some of them, however, admit the existence of a predisposition."

For the proper differentiation of true malignant disease from neoplasms and the results of inflammation we are indebted to no one so much as to Dr. Henry Bennet, of London.

Although there are many points connected with the subject which are still undecided, the following may be laid down as generally accepted truths:—

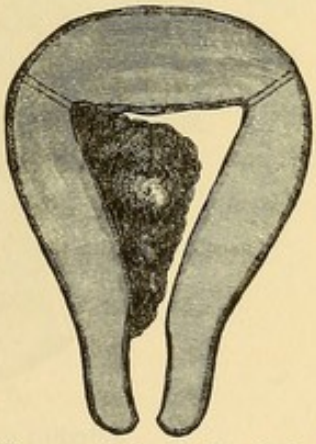
1st. Cancer of the uterus bears no similarity to fibrous tumors, polypi, or parenchymatous engorgements;

2d. It arises from a constitutional vice, and is never the result of chronic inflammation or any other purely local condition;

3d. It is incurable, and if removed by surgical means will inevitably return.

Pathology.—The affection probably originates in some peculiar blood state which we do not at present understand and which results in a local deposit of a morbid element. Rokitansky regards the abnormal condition of the blood as consisting mainly in a preponderance of albumen and a hypinosis or diminution of fibrine. Whatever be the peculiar state which gives rise to cancerous deposit, it is certain that any form of the affection may arise from one and the same disorder. This is proved by the facts that several deposits of different varieties may coincidently exist, that one form may change into another, and that one being removed by surgical means a different one may replace it.

Fig. 178.



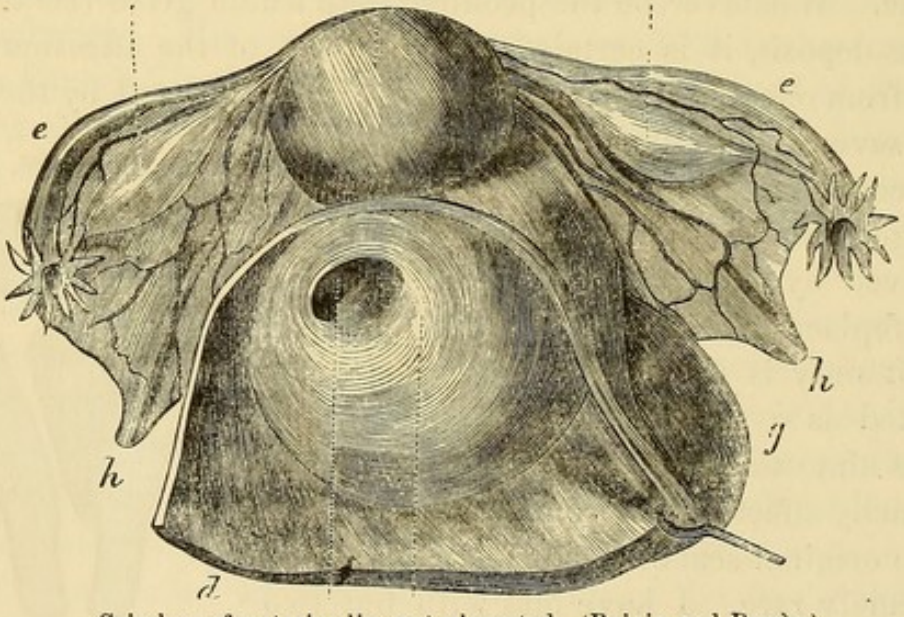
Cancer of the body of the uterus.

Not only is the uterus most frequently selected as a site by the disease; the cervix is almost always the part of this organ primarily affected. In some cases the body is the original seat of the deposit, but this is extremely rare. I have met with but two cases in which the cancer originated in the body of the uterus. One, which is represented in Fig. 178, I saw with Prof. Charles A. Budd. The other is now under the care of Dr. James L. Brown, with whom I have had an opportunity of examining it after dilatation by sponge tents.

The tissue usually first affected by deposit is the submucous areolar tissue of the neck. From this point it spreads, invades the whole neck, and sometimes the body of the uterus, the ovaries, vagina, bladder, and intermediate tissue. Even the bones of the pelvis may be attacked. For a varying length of time the deposition goes on, then without assignable cause the lowly organized mass begins to die, and ulceration or molecular death occurs. The detritus gives rise to a fetid, ichorous, and bloody discharge, which excoriates the vulva and thighs and renders the patient disagreeable to herself and all around her. With greater or less rapidity the vital forces are sapped, and the patient succumbs; not, however, in many cases, before the greater part of the uterus has been removed and the bladder and rectum opened into.

Varieties.—Cancer may assume in the uterus any of its various forms. Scirrhus, or hard cancer, in which there is a preponderance of fibrous tissue; colloid or gelatinous cancer, in which an abundance of fluid is combined with epithelial cells in alveolæ or loculi; and encephaloid, medullary, or soft cancer, in which epithelial hypergenesis preponderates over the other elements of the deposit.

Fig. 179.



Scirrhus of anterior lip, not ulcerated. (Boivin and Dugès.)

The first of these is rare. The vast majority of cases present the features of the encephaloid variety. As to the second or colloid form of cancer, pathologists are rapidly altering their views, many not only doubting its true cancerous nature, but denying it entirely.

Causes.—Those predisposing causes which are of undoubted authenticity may be thus enumerated:—

Hereditary tendency;
Middle or advanced life;
Grief or other depressing mental influences;
Repeated parturition;
Life in a large city;
Want of food, pure air, and exercise.

Although cases have been reported at the extremes of womanhood, it is generally admitted that few occur before twenty and after sixty. The most fruitful period is from 40 to 50; the next from 30 to 40; the next from 20 to 30; and the next from 50 to 60.

The exciting causes are entirely unknown. As has been already stated, the view entertained by many a few years ago, that cancer is often a result of chronic inflammation is now generally repudiated. In my own experience I have yet to find a case even remotely sustaining such a position.

Symptoms.—The disease may pass through its period of inception and make considerable progress towards a fatal issue without developing any symptoms which attract the attention of the patient. Or only slight leucorrhœa and hemorrhage may exist, which may have been passed over as trivial circumstances, not deserving treatment or investigation; but this is decidedly exceptional. Usually the following symptoms develop themselves and become more and more prominent as destruction of the exudation advances:—

Pain through the pelvis;
Tenderness upon movement or coition;
Menorrhagia and metrorrhagia;
Ichorous and fetid leucorrhœa;
Hydrorrhœa;
Dark, grumous discharge;
Constitutional debility;
Pallor and cachectic facies;
Vesico-vaginal or recto-vaginal fistulæ.

Pain and tenderness are not nearly so constant or severe as is often supposed, and they may both be entirely absent.

Menorrhagia and metrorrhagia may exist even before ulceration has occurred, resulting then from congestion of the mucous

membrane. But it is not until after the inauguration of the process of destruction that they become alarming or excessive.

Ichorous, watery, and grumous discharges very generally mark the advance of the disease. The first of these discharges produces erythema, erosions, vaginitis, and often a strong sexual appetite. The second exhausts the patient by draughts made upon the serum of the blood. The third creates fetor, and sometimes results in septicæmia, for the material giving color and odor to the flow is a putrilage formed by the detritus of the decaying uterus.

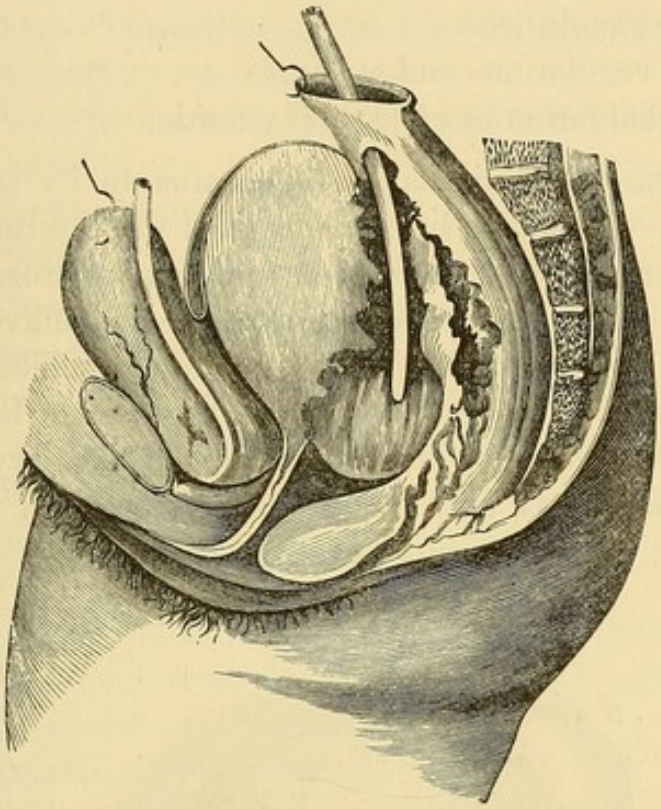
Constitutional debility and cachectic facies are the results, in part, of the malignant toxæmia which is the basis of the disorder, in part of exhaustion produced by loss of blood or some of its elements. Should the walls of the rectum and bladder become implicated, as they very often do, the functions of these viscera are deranged, and the feces or urine, or both, pour out through the vagina, increasing the misery of the patient.

Physical Signs.—Suspicion is generally first aroused and physical exploration prompted by these three symptoms, menorrhagia, fetid discharge, and ichorous leucorrhœa. They belong to the second or ulcerative stage of the affection, and, as Dr. Henry Bennet has well established, it is almost invariably in this stage that the physician is consulted. Before it no symptom generally exists which calls for physical exploration.

I have examined but one case which I am positive was incipient or non-ulcerated cancer. In that the diagnosis was made by the peculiarly hard, nodular feel of the cervix, and by the coincident implication of the vagina. Without vaginal implication I should have hesitated in arriving at a positive diagnosis, and I feel sure that he who ventures upon a decision as to the nature of the disease at this period must expose himself to great risk of error. The mere fact of the cervix being excessively hard and nodular is not enough to warrant a diagnosis. This must be accompanied by other reliable signs, as menorrhagia, hydrorrhœa, and constitutional failure, to make even a hypothetical conclusion admissible. After ulceration has occurred, diagnosis is as simple and certain as it is obscure and uncertain before. The finger discovers an absolute destruction of tissue, and finds the walls of the deep and ragged ulcer producing it, covered over with a crumbling, brittle mass, interference with which causes hemorrhage. The uterus is often fixed by secondary cellulitis, and the

walls of the vagina near the uterine junction participate in the deposit. Sometimes there is a stricture of the rectum, which

Fig. 180.



Cancer in ulcerative stage. The rectum has been opened by the advancing disease. (Boivin and Dugès.)

especially engages the attention of the patient, who suspects no disease of the uterus or vagina.

It is difficult to describe to another the peculiar sensation yielded by an ulcerating cancer, but it is easy to appreciate it by touch. He who carefully explores one case and marks the hard, unyielding border and brittle investment, with its marked tendency to crumble and produce hemorrhage, will rarely fail to recognize another.

Differentiation.—Ulcerating cancer of the cervix is by no means difficult of diagnosis, and we are rarely called upon to decide as to the non-ulcerative form.

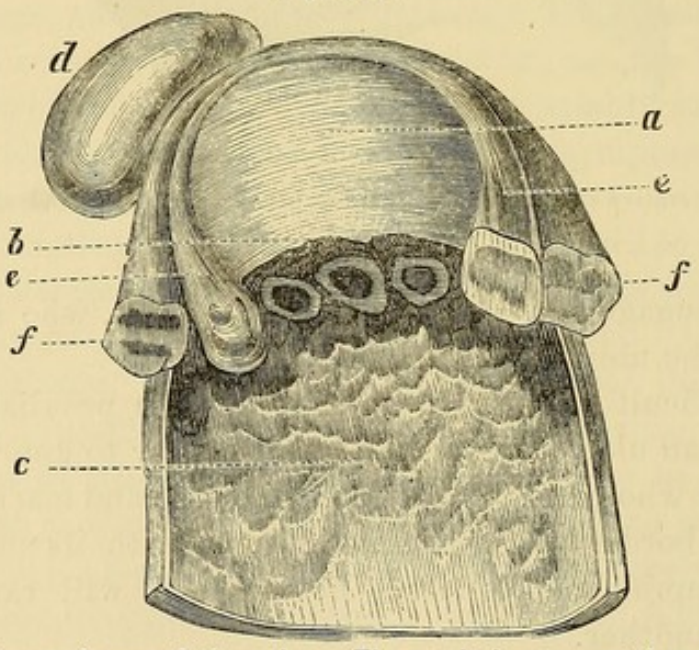
The diagnosis of cancer of the body is not so simple, and I have known many errors of diagnosis made with reference to it. As examples, I have seen in practice the following errors committed:—

A sloughing fibroid	mistaken	for	cancer;
A placenta three months retained	"	"	"
A sponge left by accident in utero	"	"	"
Syphilitic disease of pelvic bones	"	"	"
Peri-uterine cellulitis	"	"	"
Syphilitic vegetations and stricture	"	"	"
Cystic degeneration of chorion (hydatids)	"	"	"

In such cases differentiation is attainable by one and only one resource—dilatation by tents, careful exploration by the finger, and examination of the structure by the microscope.

Prognosis.—The prognosis is pre-eminently unfavorable. Not only is it so from the fact that the disorder is cancerous, but because that form which usually affects the uterus belongs to the most rapid and dangerous of its varieties. "Medullary carcinoma," says Rokitansky, "is, both in its development and in its subsequent course, the most acute of all cancers."

Fig. 181.



Cancer in extreme degree of ulceration. The cervix is represented as entirely destroyed and the disease advancing into the body. (Boivin and Dugès.)

Course and Duration.—In some cases death will ensue in from three to six months, while in others it may not occur for five, six, or seven years. I have under my care at present, a working woman who has had the disease for four years. The average duration of life after the commencement of ulceration is, according to Sir James Simpson, from two and a half to three years. The ter-

mination is always the same—death, which may occur from exhaustion, from hemorrhage, from irritative fever, assuming a typhoid type, or from some of the numerous complications which may develop themselves.

Complications.—The following are the complications which most frequently accompany the disease:—

Septicæmia from absorption of putrid fluid;
Cellulitis;
Peritonitis;
Phlebitis;
Cancer in lymphatic glands or other organs.

In rare cases, as has been pointed out by Beatty and Cruveilhier, cancerous degeneration obstructs the ureters, and produces, in this way, uræmic poisoning. Dr. Theophilus Parvin records an instance of this character in which, for a week, no urine found its way into the bladder, and the symptoms of uræmia were well marked.

Treatment.—The indications of treatment are these:—

To amputate or destroy the diseased part;
To check hemorrhage;
To relieve pain;
To correct fetor;
To sustain the general strength.

Ablation, which in cancroid disease is often indicated, is here only a forlorn hope. Indeed it is but rarely practicable in true cancer to accomplish complete removal, from its rapid tendency to involve adjacent parts. And, lastly, experience proves that this operation is attended by grave dangers, and can at best prove only palliative.

Hemorrhage may be checked by rest during menstruation; cold vaginal injections; and the use of styptics, by injection and by application to the bleeding surface upon pledgets of cotton. Should the patient employ the syringe, the most appropriate styptics will be the sulphate of alum, infusions of tannin or oak bark, or a solution of the persulphate of iron, one or two drachms to the pint of water. Should the practitioner make the application himself, a bit of cotton saturated with pure solution of the persulphate of iron, or a little muslin bag filled with tannin or powdered alum, may be placed against the os. In doing this the use of the speculum should be avoided if possible, for its intro-

duction always tends to excite hemorrhage. In checking a flow due to this disease, the tampon should be resorted to only in case of absolute necessity, for its introduction often does great injury, and its removal would almost inevitably excite the flow which had been temporarily checked.

All these are minor means, and fall far short of the careful use of caustics which produce only a superficial slough and for a time seal up the mouths of the bleeding vessels. Once in every two or three weeks the surface of the diseased mass may be lightly touched, after being cleansed by syringing with cold water, by the actual cautery, acid nitrate of mercury, or chemically pure nitric acid. Care must be taken not to create a deep slough, lest this being cast off the peritoneal cavity may be opened into.

The relief of pain should be accomplished by the free, unrestricted use of opium by the mouth, the rectum, the vagina, or under the skin. I often encourage my patients to become opium eaters, and urge them to obtain as complete relief as the use of this drug can afford. In place of opium other narcotics may be tried, but there is none which compares with it for efficiency.

When opium produces the painful results noticed where an idiosyncrasy exists against it, the persistent use of it will often effect a tolerance.

The fetor of the discharges may be, to a great extent, corrected by the use of vaginal injections containing disinfectant substances in solution. Solution of carbolic acid from one to two drachms to a pint of water, Labarraque's solution of soda in the same proportion, one drachm of powdered persulphate of iron to the pint, or a weak solution of the iodide of lead, will prove very useful. Of all these, carbolic acid is the most certain and effectual.

The general strength should meantime be maintained by fresh air, residence in the country, generous food, alcoholic stimulants, iron, and bitter tonics, while the mind should be kept cheerful by lively company, and avoidance of the society of those who encourage conversation concerning the existing disease. As the digestion is weak, the most digestible substances should constitute the staple diet, and very often a patient who will become emaciated upon solid food and a mixed diet will improve upon the exclusive use of milk, beef-tea, and similar substances. So marked is this fact, that the milk diet strictly adhered to has been regarded, and is now, by many non-professional persons, as a means of cure for cancer.

CHAPTER XXXII.

CANCROID TUMORS OF THE UTERUS.

BETWEEN cancer on the one hand and fibrous tumors on the other, there is a doubtful, debatable ground which is occupied by what are called cancroids or cancroid tumors.

This term, which is derived from "cancer" and "εἶδος," implies a great similarity between this disease and true cancer, and yet the two affections are far from being identical. Both have an interstitial origin, both affect the surrounding tissues, and both, if removed, are very prone to return. But they present these differences: cancer is not curable, presents a characteristic cell, and invariably poisons the surrounding parts. Cancroid is curable, does not present cells of such abnormal type, upon section shows no cancerous juice, and very slowly affects neighboring parts.

Varieties.—The varieties of uterine growths coming under this category are the fibro-plastic and recurrent fibroid. Of the latter there are several species, as the myeloid, fibro-nucleated, &c.

Fibro-plastic Tumors.

To this class belong many tumors which in their commencement are curable, but in their progress develop features of malignancy, for example, malignant polypus.

Pathology.—Although having, like cancer, an interstitial origin, they differ from it both clinically and anatomically. The characteristic cell is smaller and has a smaller nucleus. The cells of this morbid growth are larger, however, than those of any other lymph-tumor, excepting cancer. They are of an oval form, with one elongated extremity, and flask-shaped, as Mr. Paget has expressed it. Mr. Collis declares that as soon as the full distension of the tumor is reached, its covering, whether of skin or mucous membrane, gives way, and an ulcer is formed, from which

a fungus protrudes, which by hemorrhage and discharge exhausts the patient's strength.

Clinically this difference is noticed between it and cancer. While the latter is developed as a result of a vitiated blood state, the former exists for some time without affecting the system, and may before such a result has occurred be removed without return. But its tendency to return is marked, and the secondary growths are always more malignant than the primary.

Upon section, fibro-plastic tumors leave a clear white surface, uncovered by fluid, and quite hard to the touch.

Recurrent Fibroid Tumors.

Definition.—This term has been applied by Mr. Paget to a tumor in many respects resembling fibrous tumors, and yet endowed with the unfortunate feature of recurrence after removal, and tendency to ulceration and fungous degeneration.

Pathology.—"These growths," says Mr. Collis, "are of a firm, elastic feel, a more or less globular outline, and lobed sometimes by the pressure of an intersecting fascia or band. They are unattended by any special pain, and free from glandular or constitutional complication." Like the fibro-plastic tumor they ultimately ulcerate, and a free flow of blood occurs. Then a fungous growth protrudes, which, by hemorrhage and discharge, exhausts the patient. Under the microscope the elements of this form of tumor appear to be elongated, caudate cells, interspersed with free nuclei and young cells.

For most of the facts connected with this subject, and for the classification adopted, I am indebted to the work of Mr. M. H. Collis, of Dublin, upon *Cancer and Tumors*, to which I refer the reader.

For the pathologist there is much to study in the various forms of uterine tumors belonging to this class. For the Gynecologist there is less, for the following are the only facts connected with the subject which are of clinical importance:—

1st. That there is a class of tumors resembling fibroids, yet presenting a tendency to ulcerate, develop fungus, and persistently refuse to heal;

2d. That this class, if removed, is almost as prone to return as cancer itself;

3d. That if this variety of tumor be removed in its incipiency,

the system may possibly be left unimplicated, while, if allowed to remain *in sitû* for a longer time, it will become involved.

Prognosis.—The prognosis is unfavorable, although there is a possibility that no return may take place after removal, if this be practicable.

Frequency.—Fortunately recurrent fibroid tumors very rarely develop themselves in the uterus. Lebert declares that they may do so, and Dr. West[1] mentions several cases. I have myself met with but one case concerning which I felt positive, and even in this the conclusion was supported by clinical evidence alone. This patient I saw in consultation with Prof. Budd. The tumor, hard and elastic, was attached to the inner wall of the cervix, and extended upwards towards the cavity. It presented to the touch a hard, carcinomatous resistance, not unlike that of a fibroid, and, although not larger than a walnut, had undermined the patient's strength completely. It was in time attacked by ulceration, from which profuse hemorrhage occurred, and destroyed life.

[1] Op. cit.

CHAPTER XXXIII.

EPITHELIOMA, OR EPITHELIAL CANCER OF THE UTERUS.

CANCER of the uterus, like the same disease in other parts of the body, has two distinct stages, that of deposit and that of destructive ulceration. In the first of these a deposition of the materies morbi takes place in the interstitial portions of the structure affected, and as the second period becomes established this forms a connection with the surface by ulceration. In certain cases the morbid influence, instead of exciting interstitial deposit, is exerted upon the mucous membrane itself, affecting its production of epithelial cells. In such cases no deposit occurs in the tissue underlying the mucous membrane. To this class the names of epithelial cancer, epithelioma, carcinomatous ulcer, and cauliflower excrescence, have been applied. As Mr. M. H. Collis[1] remarks, its special name is unimportant, "if its difference from cancer and its analogies to it be kept clearly in view."

Although in many respects kindred to cancer, it differs from it so essentially in others as to call for a separate consideration of the two. The most marked differences existing between cancer and epithelial cancer are these:—

Cancer	*Epithelial Cancer*
Is deposited in the parenchyma;	Begins with no interstitial deposit;
Invariably returns if removed;	Does not return as a rule;
Is from the first a constitutional disease;	Is at first a local evil:
Soon affects neighboring parts;	Slowly affects neighboring parts;
Runs usually a very rapid course;	Progresses slowly;
Is characterized by a peculiar cell.	Has no characteristic cell.

Varieties.—Epithelial cancer may affect the uterus in two forms:—

Corroding ulcer;
Cauliflower excrescence.

Each of these will in turn engage our attention.

[1] On Cancers and Tumors.

Ulcerating Epithelioma, or Corroding Ulcer of the Uterus.

Definition.—The term corroding ulcer was applied by Dr. John Clarke, of London, and subsequently by his brother Sir Charles Mansfield Clarke, to a form of ulcer of the cervix in which nothing but rapid destruction of tissue is noticed as a pathological lesion; in which there is no hardness of the part affected; no induration or inflammation of surrounding organs, nothing but molecular death in the cervix uteri, and disappearance of its structure as if by liquefaction.

Synonymes.—It has been described under the names of phagedenic ulcer, diffuse ulcerative cancer, epithelial cancer, and cancroid of the uterus.

Frequency.—All authorities agree that this affection is comparatively rare. Dr. Ashwell[1] remarks: "For one case of corroding ulcer we meet with ninety or a hundred of cancer of the uterus;" and he further states that in the appropriate ward at Guy's Hospital at the time of his writing, not one example of the malady had appeared. In five hundred recorded cases of uterine disease in that hospital not one case of corroding ulcer was to be found. This is the experience of all authors who make their reports, not from clinical, but from careful post-mortem evidence. Those who rely upon clinical observations alone report the disease much more frequently; but it is highly probable that, as Scanzoni[2] remarks, an error has been made in such cases with reference to their anatomical characteristics. It should be borne in mind that many cases proved by the microscope in post-mortem inspection to be unquestionably cancerous, have run a course very similar to the epithelial form of the affection. Ashwell states that on several occasions where a diagnosis of corroding ulcer had been made, post-mortem examination gave evidence of true cancer; and Scanzoni tells of a case occurring in the clinique, at Prague, in which at an autopsy all present were inclined to reverse their diagnosis of cancer and adopt that of corroding ulcer, until the matter was settled by discovery of cancerous elements. It is only in view of these facts that I can account for the frequent reports of this disease made in public societies and private conversations in this city. I have myself met with two cases presenting clinically all the cha-

[1] Dis. of Women, p. 318. [2] Op. cit., p. 226.

racteristic signs of corroding ulcer, but in neither was autopsic evidence obtained. Two very interesting cases are reported by Dr. Gardner,[1] in the American edition of Scanzoni, in one of which merely the peritoneal shell of the uterus existed at the time of death; yet both are invalidated for science by want of microscopical investigation.

Pathology.—Pathologists are now very generally agreed that this affection is a variety of epithelial cancer, as the following table will prove. In preparing it no author is quoted who wrote over twenty-five years ago.

Authority.	*Opinion as to Pathology.*	*Where reported.*
Dr. West . .	Epithelial cancer . .	West on Diseases of Females, p. 270.
Dr. Graily Hewitt .	Quotes and appears to indorse West.	Hewitt on Diseases of Women, p. 259.
Dr. Churchill .	"Essentially different" from cancer.	Churchill on Diseases of Women, p. 208.
M. Aran . .	Diffuse ulcerating cancer .	Aran, Mal. de l'Utérus, p. 937.
Dr. Scanzoni .	Decomposed medullary cancer.	Scanzoni on Diseases of Females, p. 227.
M. Nonat . .	Epithelial cancer . .	Nonat, Mal. de l'Utérus, p. 521.
M. Becquerel .	Epithelial cancer . .	Becquerel, Mal. de l'Utérus, tom. ii. p. 209.
Dr. Ashwell . .	Similar to lupus . .	Ashwell on Diseases of Females, p. 319.
Dr. H. Bennet .	Epithelial cancer . .	Bennet on Uterus, p. 386.
Dr. Tilt . .	No allusion to it . .	Uterine and Ovarian Inflammation.
Dr. Byford . .	Epithelial cancer . .	Byford, Med. and Surg. Treat. of Women.
Dr. Lever . .	Malignant ulcer . . .	Lever on the Diseases of the Uterus, p. 149.
Dr. Kiwisch .	Decomposed medullary cancer.	Scanzoni, Dis. of Females, p. 227.
M. Colombat de L'Isère	Compares it to noli me tangere.	On Females.
M. Courty . .	Epithelial cancer . .	Mal. de l'Utérus, p. 875.

Rokitansky[2] says: "We also find primary and syphilitic ulcers, cancerous ulcers that have resulted from the fusion of cancerous morbid growths, the so-called phagedenic ulcer of the os tincæ, Clarke's corroding ulcer. The latter may be compared to the

[1] Op. cit., p. 228.

[2] Path. Anat., Sydenham ed., vol. ii. p. 220.

phagedenic, cancerous sore of the skin; without having a morbid growth for its base it gradually destroys the cervix and even the greater part of the uterus, and may extend to the rectum and bladder."

Mode of Development.—On this point nothing is known. The infrequency of the disease and the fact that the physician is called after it has progressed for some time, will explain our ignorance. No better proof of the uncertainty attaching to this point can be given than the fact that Kiwisch and Scanzoni[1] both regard the ulcer as the base of a decomposed encephaloid cancer.

Course, Termination, and Prognosis.—Like cancer the inevitable tendency of this affection is to death. As the process of destruction advances through the mucous membrane into the parenchyma beneath it, and profuse hemorrhages occur, the patient is gradually exhausted, and as the peritoneum in time becomes invaded, peritonitis of fatal type is excited. Unlike cancer, however, its course is often slow, and years may pass before death results. Upon these facts, and the additional one that the disease is in its commencement a local affection, a prognosis of very grave character, though somewhat less grave than that of cancer, may be confidently based.

Symptoms.—The symptoms which mark its development are very similar to those of cancer, from which it can never be diagnosticated except by physical means. The most prominent are—

Hemorrhage;
Fetid, ichorous, and watery discharge;
Pain in back and pelvis;
Emaciation;
Slight fever.

The character of the pain is much insisted upon by Sir Charles Clarke as diagnostic. He declares that it is hot and burning, but not lancinating. Little reliance can be placed upon this sign, and to arrive at a diagnosis, physical examination is always necessary.

Physical Signs.—Upon vaginal touch an ulcer, whose base is covered by minute and unequal projections, is found to have eaten away the cervix to a greater or less extent. Besides this nothing is discovered. The uterus is movable, no hardness is found above the ulcer, and no glandular or other induration exists in the pelvis.

A corroding or gnawing ulcer, "ulcère rongeant," is found to

[1] Op. cit., p. 227 Am ed.

have devoured a part or the whole of the cervix, and beyond this nothing is ascertainable.

Differentiation.—It may be confounded with granular ulcer, syphilitic ulcer, and ulcerated cancer. From the first two it may be known by its fetid and ichorous discharges, profuse hemorrhages, extensive destruction, and the peculiarly gritty feel of its surface. The differentiation from cancer is so difficult, and at the same time important, as to call for a comparison of symptoms.

In Cancer,	*In Corroding Ulcer,*
Constitution profoundly involved ;	Not so profoundly affected ;
There is deposit in the uterus and other pelvic organs ;	There is no deposit in the uterus or other organs ;
Uterus is somewhat immovable ;	Uterus is movable ;
Vagina generally affected ;	Vagina free from disease ;
Other organs often affected ;	No other organs affected ;
Bladder and rectum often opened into.	Rarely so.

Causes.—On this subject nothing is known.

Treatment.—Should the disease be detected early, and sufficient grounds be discovered for a positive diagnosis, the propriety of complete removal of the cervix by amputation cannot be questioned. If the disease be cancer, and not epithelioma, the operative procedure will fail in effecting a cure, but will probably not hasten a fatal issue. If it be the latter, a cure may be accomplished.

If it be thought best not to resort to amputation, cauterization, by means of the actual cautery, acid nitrate of mercury, or potassa cum calce, should be made to destroy the diseased surface as deeply as may prove compatible with safety, in the hope that as the slough separates a healthy, granulating base may replace the old and vicious one. Dr. Churchill thus speaks of the use of strong nitric acid as a caustic : " I have found it relieve pain, arrest hemorrhage, and restrain the discharges. In one case, hopeless when I first saw her, life was prolonged for three years under this treatment." If by these means the rapid progress of the disease may be checked, as we have every reason to believe that it may, it is incumbent upon the practitioner to essay them even when not absolutely positive of the correctness of his diagnosis, for besides them we have no others that ever prove curative. Should they fail, all that remains for us to do is to palliate the evils arising from the disease.

The vagina should be kept clean, and irritation within it re-

lieved by frequent syringing with tepid water containing in admixture carbolic acid, Labarraque's solution, glycerine, or some other disinfectant. The violence of the hemorrhage should be controlled by pledgets of cotton saturated with solution of the persulphate of iron and laid against the bleeding surface, and pain should be relieved by vaginal or rectal suppositories of opium or belladonna. At the same time that these local means are being resorted to, the general state of the patient should be improved by fresh air, carefully regulated exercise, nutritious food, tonics, and chalybeates.

Vegetating Epithelioma, or Cauliflower Excrescence of the Uterus.

Definition and Synonymes.—This peculiar affection, which has been described under the names here employed and under that of cauliflower tumor of the uterus, consists in an hypertrophy of the villi of the cervix with great increase of their vascularity. The term cauliflower excrescence was applied to it in 1809, by Dr. John Clarke, from its resemblance to the vegetable known by that name, and is so graphic that it has been retained by all English writers since that time.

Frequency.—Epithelial cancer, of the vegetating, as of the ulcerating form is stated by authors as comparatively rare. Dr. West, in 120 cases of malignant disease, met with it only ten times, while encephaloid cancer existed one hundred and eight times. Becquerel[1] goes so far as to treat the question of frequency in these words: "If this malady really exists, no one will deny that it is very rare, or I have been little favored by chance, for I have studied uterine diseases for ten years and have never met with a single case." My own experience as to the frequency of the affection differs so markedly from that of these authors, that I am at a loss to account for the discrepancy. It is, according to my observation, by no means rare; for, as I look back through my practice, I can recall twenty[2] cases which were undoubtedly of this character. The diagnosis of many of these was corroborated by Drs. W. H. Van Buren, J. T. Metcalfe, J. Marion Sims, Jas L. Brown, and others; so that I feel confident that few, if any, have been erroneously regarded as of this nature.

[1] Mal. de l'Utérus, tom. ii. p. 214.

[2] Dr. Jas. L. Brown, my clinical assistant at the College of Physicians and Surgeons, has drawn my attention to the erroneous statement made upon this point in the first edition of this work.

Anatomy.—Before studying the pathology of this disease, it is necessary to have a definite idea concerning the normal anatomy of the mucous membrane of the vaginal extremity of the cervix, which is its usual seat. The researches of Dr. Franz Kilian, of Bonn, and of Drs. Tyler Smith, Hassall, and Jones, of London, have proved that this part is covered over by papillæ, which stand forth like a fringe. Each villus is covered by pavement-epithelium, and contains within itself a looped vessel which passes to its extremity, then returns and inosculates with the bloodvessels of neighboring villi. Sometimes two or three vascular loops will be found in the same villus, if of large size.. Each villus thus projecting from the mucous membrane is covered, over its whole surface, by pavement epithelium.

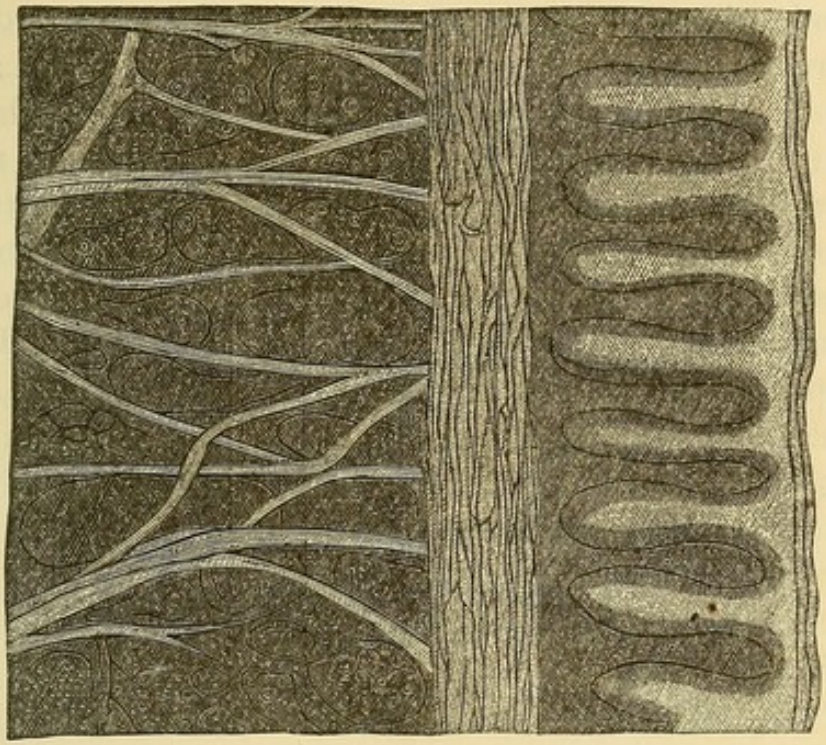
Pathology.—The disease which we are considering consists in an extraordinary development of these villi, an increase of their vessels, and a great activity in the growth of the cells which cover them, a "proliferation," as it is termed by Virchow. A morbid influence, the nature of which is unknown to us, stimulates the activity of cell growth so that cells thickly cover the villi. "These growths," says Prof. J. H. Bennet, "speaking generally, are almost wholly composed of epithelial scales." In addition, the villi increase in size and length, their bloodvessels enlarge, and a true papilloma or papillary tumor is inaugurated. "The gall-nut which arises in consequence of the puncture of an insect, the tuberous swellings which mark the spots on a tree when a bough has been cut off, and the wall-like elevation which forms around the border of the wounded surface, produced by cutting down a tree, and which ultimately covers in the surface, all of them depend upon a proliferation of cells just as abundant, and often just as rapid as that which we perceive in a tumor of a proliferating part of the human body."[1] Fig. 182 represents one of these growths in section.

It must not be supposed that these masses are supplied with blood only by the vessels of the villi. These ramify outside of their proper canals, and, running into the mass of cells, allow of transudation of serum, which constitutes the watery discharge so characteristic of the disease, and, being ruptured, give forth a profuse flow of blood.

These tumors, commencing as papillary hypertrophies on the

[1] Virchow, Cellular Pathology.

Fig 182.



Transverse section of a vegetating epithelioma. (Virchow.)

cervix or os, are at first local, but in time affect the constitution. They are sometimes engrafted upon true cancerous deposit in the cervical parenchyma.

Their most frequent site is the vaginal portion of the cervix, but from this point the morbid process may spread into the uterine cavity or down into the vagina. An important, indeed a vital question as to such growths is this: is every cauliflower excrescence a malignant disease? Virchow, than whom we know of no better authority, is decidedly of opinion that it is not. "The pathological importance of a papillary tumor," says he, "is, at least as far as I know, determined by the condition of its basis substance, or by that of the parenchyma of the villi themselves; and a formation can only be pronounced to be cancroid or carcinoma when, in addition to the growth of the surface, the peculiar degenerations which characterize these two kinds of tumors take place also in the deeper layers or in the villi themselves."

Virchow then believes that some tumors, resembling in every outward aspect cauliflower excrescence, are really non-malignant papillomata. The difference between these and the real epithelioma is to be found by microscopic examination of the submucous tissue. In the one case it is healthy, in the other diseased.

This opinion, arrived at by the learned German pathologist by careful microscopic research, was maintained as a result of clinical observation many years ago by Dr. Gooch, who said: "I do not believe that any man can tell infallibly by touch whether a tumor in the vagina is a malignant excrescence, which is to grow again, or a benign one, which, if removed, will never return."

The pathological condition that we have thus far described may be styled the first stage of the disease. In time ulceration occurs in the mass thus created, which rapidly breaking down its tissue, opens large and numerous vessels, and destroys life by long-continued and profuse hemorrhages.

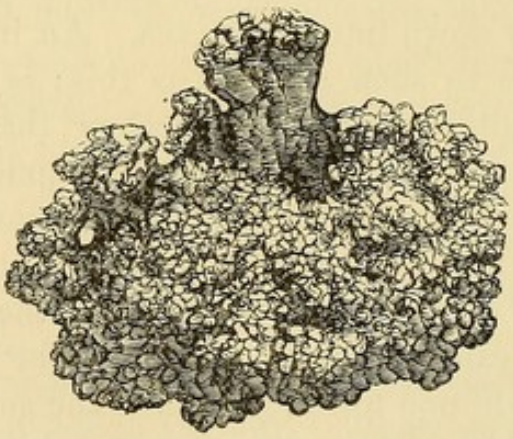
Causes.—The same dearth of precise knowledge which attends the etiology of malignant disease of other forms attaches to this.

Symptoms.—The chief symptoms are these:—

Discharge of bloody water like the washings of beef:
Hemorrhage;
Profound spanæmia;
Œdematous swellings;
Gastric disorder, vomiting, and dyspepsia;
In time, fetid discharge.

The discharge of water is sometimes so profuse as to saturate a large number of towels during each day.

Fig. 183.



Vegetating epithelioma. (Simpson.)

Hemorrhage sometimes follows slight injuries, as coition, &c., in the beginning, but soon occurs spontaneously and profusely.

The other symptoms enumerated are not properly symptoms of the disease, but of one of its results, hemorrhage.

Physical Signs.—These are of the utmost importance for diagnosis, for without them no decision can be reached.

Vaginal touch reveals a nodulated tumor which is generally attached to one lip of the os. This is not smooth and even, like a fibroid growth, but soft and uneven like the uterine surface of the placenta. Upon slight tactile interference it will bleed freely and it will show a marked tendency to crumble under firm pressure.

Differentiation.—Cauliflower excrescence may be confounded with—

Syphilitic vegetations;
Retained placenta;
Simple papilloma;
Cancer.

Syphilitic vegetations will be known by their dependence upon a constitutional vice which demonstrates itself by other signs, and by their readily yielding to specific treatment.

A retained placenta may mislead the practitioner, but a differentiation will readily be accomplished by microscopic examination of a portion of the mass and by dilatation of the cervix by sponge tents.

Simple Papilloma. The authority of Virchow has been already quoted to prove how difficult is a differentiation from this disease in its commencement. Indeed, Scanzoni[1] declares that Virchow is of opinion that "the excrescence is at first a simple papillary tumor, which afterwards passes into a cancroid state."

Cancer in any of its varieties may be recognized by induration of the tissue above the nodulated, exuberant mass which projects into the vagina, and also by the smaller amount of the profuse, watery discharge.

Prognosis.—If the disease be discovered early enough for complete removal to be effected, the prognosis is good, but otherwise it is eminently unfavorable.

Treatment.—Should amputation of the neck promise entire removal of the morbid tissue, it should at once be done by the écraseur, the curved scissors, or the galvano-caustic.

If this be impracticable from any cause, the growth should be

[1] Op. cit., p. 291.

destroyed as completely as possible by the actual cautery, potassa cum calce, one of the mineral acids, or the gas jet cautery. The last, which is the invention of Dr. Acosta, of Paris, is applied by means of a metal tube attached to one of gutta-percha, which connects with a reservoir of the ordinary gas used for lighting buildings. Through the end of the metallic tube a minute jet escapes, which being lighted, is brought in contact with the morbid growth through a speculum. It soon destroys the surface entirely, and possesses certain advantages not attaching to other methods, but it is infinitely less manageable than the white hot iron.

Should the disease have involved so much of the uterus that complete removal is impossible, the physician will be forced to limit his interference to the fulfilment of these three indications:

Controlling hemorrhage;
Correcting fetor;
Sustaining the general strength.

The first may be to a limited extent accomplished by the application of pledgets of cotton or the use of vaginal injections medicated with the persulphate of iron, alum, or tannin. Or the same result may be attained by passing a cylindrical speculum, and introducing through this one or two drachms of tannic acid against the cervix. This plan, which was suggested to me by Dr. S. R. Percy, has proved, in my hands, an excellent one.

The second indication may be fulfilled by injections into the vagina of water medicated by carbolic acid, Labarraque's solution, the sulphate of iron, or other disinfectants.

The third indication will require tonics, good diet, fresh air, and stimulants.

CHAPTER XXXIV.

DISEASES RESULTING FROM PREGNANCY.

In the non-pregnant state, the parenchyma of the uterus consists of fibrous tissue, resembling that of fibrous tumors, with fibre cells disseminated throughout it; and the cavity of the organ is lined by a mucous membrane so indistinct that within the present century its very existence has been contested. No sooner does "fixation of the impregnated ovum,"[1] or conception, occur, than the fibre cells begin to elongate themselves into powerful muscular fibres, the mucous membrane actively generates cells, and the uterus rapidly enlarges to meet the wants of its increasing contents.

When the period of pregnancy is terminated by labor, and diminution of the enlarged uterus proceeds in accordance with given laws, the organ chiefly concerned in the process is left in a state of perfect health. But a variety of accidents may occur which will entail disease upon it. The fœtus may be expelled or become atrophied, and the membranes continue to grow; even a small portion of retained chorion may undergo cystic or hydatidiform degeneration; or the child being born at full term, the uterus may not return to its original size, or may diminish too much and become atrophied.

The diseases resulting from such abnormal conditions are—

Moles;
Hydatids;
Subinvolution;
Superinvolution.

Uterine Moles.

Definition.—By this term is meant the existence in the cavity of the uterus of a fleshy mass which cannot be classed among tumors or polypi.

[1] Prof. C. D. Meigs.

The appellation of mole is neither elegant nor appropriate, but it is sanctioned by use for so great a length of time that it is difficult to alter, and impossible to discard it.

History.—Ancient medical literature teems with theories, hypotheses, I might almost say fables, upon this subject. It would be unprofitable even to enumerate the extravagant and baseless surmises indulged in upon it, but as an example I will mention that Aristotle,[1] Hippocrates, Galen, and the Latin authors regarded moles as due to want of virtue in the seminal fluid, or to a superabundance of menstrual blood.

A certain superstition has attached to them even in modern times; thus Capuron quotes Mahon for the following very curious assertion. "The housewives believe that moles not only take the forms of certain animals, but that they even walk, run, fly, try to hide themselves, even to re-enter the womb from which they came; indeed, if no obstacle be offered, they will kill the woman just delivered of them." Levret pointed out the fact that they are only the retained fœtal shell, which, by the establishment of a low grade of nutrition, continues to exist.

Pathology.—As the fœtus passes into the uterus it is enveloped by its proper membranes, the amnion and chorion, and these are surrounded by a prolongation of the hypertrophied mucous lining of the organ, called the decidua reflexa. Between the end of the second and the end of the third month the placenta is formed and the villi of the chorion not engaged in its development become atrophied. Before that time the fœtal shell is quite thick, and is everywhere in close communication with the uterine walls.

Many adverse influences may destroy the life of the fœtus, and generally, as a result, the whole of the products of conception are swept away by uterine contraction. But sometimes the shell of membranes clings to its attachment, and for an unlimited period holds its position in utero. This, absorbing nourishment from the uterine vessels, becomes to a certain extent organized, and constitutes the disease under consideration. When expelled from the uterus a mole is usually found to be somewhat ovoid in shape, and to resemble the product of conception at the second month. It differs from this, however, in its deep brown color and apparent lack of vitality.

[1] Capuron, Mal. des Femmes, p 268.

Causes.—There are many intra-uterine growths and collections which, being cast off, may be mistaken for moles, as, for example, masses of coagulated blood, polypi, decidual membranes, &c., but it is very doubtful whether a true mole ever exists except as a result of conception. Why the fœtal investments should be cast off in some cases, while in others they remain and undergo degeneration, it is impossible to say.

Symptoms.—The condition generally announces itself by these symptoms:—

Menorrhagia or metrorrhagia;
Hypogastric weight and uneasiness;
Uterine tenesmus;
Slight constitutional disturbance;
Cessation of signs of pregnancy.

Physical Signs.—Vaginal touch will reveal the fact that the uterus is enlarged, and the uterine probe may assure us that its cavity contains some solid substance, but neither these nor any other means at our command will enlighten us as to its character. Hence the diagnosis of uterine moles is very obscure and always uncertain. When a patient who has exhibited all the signs of pregnancy suddenly ceases to do so and presents those just enumerated, it may be suspected. A more accurate diagnosis than this can rarely be attained unless a piece of the mass be obtained for examination. The condition being suspected, the cervix should be dilated by tents, and uterine action excited by ergot in order to settle the question.

Differentiation.—This disease may be confounded with—

Fibrous tumor;
Cancer of the body;
Subinvolution.

From all these conditions the differentiation may be accomplished in one way and one way only, dilatation of the cervix by tents, and careful exploration of the cavity of the uterus.

A fibrous tumor is hard, smooth, and resisting, while a mole is soft, spongy, and yielding to the touch.

Cancer will be known by its peculiar feel, its fetid discharges, and the constitutional implication attending it.

Subinvolution demonstrates upon exploration the fact that the uterus is empty. It also follows delivery while a mole rarely does so.

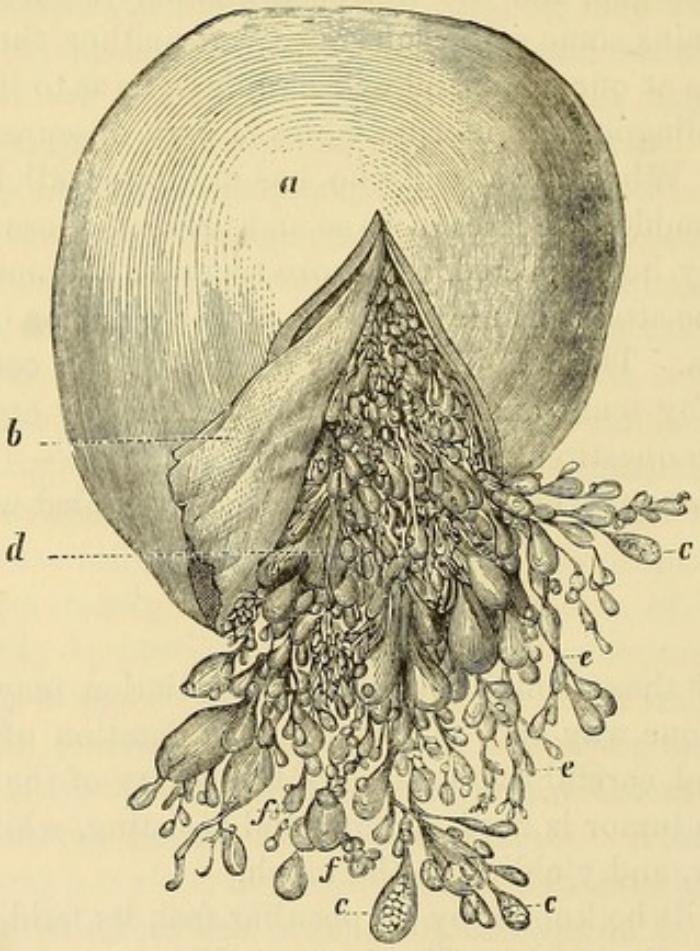
Prognosis.—The prognosis is favorable.

Treatment.—The cervical canal should be fully dilated by tents, and an effort made to arouse uterine contraction by persistent use of ergot. Should this fail, the mass should be cautiously removed by the curette, or by traction by means of the placental forceps.

Cystic Degeneration of the Chorion, or Uterine Hydatids.

Definition.—The chorion remaining attached to the uterine walls after expulsion or death of the embryo, sometimes undergoes a peculiar metamorphosis which receives this appellation. True hydatids, that is cysts due to the presence of the acephalocyst, are very rarely met with in the uterus. Their extreme rarity

Fig. 184.



Cystic degeneration of chorion. (Boivin and Dugès.)

may be judged of from the fact that Rokitansky declares that he has never discovered them but once. Dr. Graily Hewitt[1]

[1] Op. cit., p. 75.

believes that when they exist in the uterine cavity, it is probable that they are discharged into the peritoneum from rupture of a cyst in the liver, and thence pass through the uterine wall. Not only do the grape-like cysts, making up what is commonly known as uterine hydatids, differ from true hydatids in absence of the acephalocyst, they are also unlike in their appearance and formation. The former consist of little sacs in a series, as if strung together; the latter are closed sacs, one within another.

Synonymes.—The affection has been described under the names already given, and under those of vesicular mole, in contra-distinction to fleshy mole just investigated, hydatidiform mole, and hydatid pregnancy. In most works it is described as only a variety of mole.

Pathology.—It is probable that after the end of the third month, no such degeneration can occur in the secundines—for after that period the placenta is formed, the villi which existed at its site become vascular, and those over other parts of the surface of the fœtal sac undergo atrophy. It is true that at the period of parturition, masses of these sacs have, in rare instances, been expelled, but in such cases it is probable that some portion of the chorion had begun to degenerate at an early period of conception.

Remaining in connection with the uterine walls after the expulsion of the fœtus, and absorbing nourishment which it no longer appropriates, the villi undergo a kind of dropsical swelling, which results in the grape-like bodies styled hydatids.

Causes.—We know of no influences which excite this form of degeneration in a retained chorion.

Symptoms.—Sometimes the disease demonstrates its presence by all the signs of pregnancy, abdominal enlargement being one of the most prominent. Suspicion of the existence of something abnormal is very generally excited at an early period by some or all of the following signs:—

Discharge of clear or bloody water;
Hemorrhage;
Uterine tenesmus;
Constitutional disturbance;
Discharge of little cysts.

Physical Signs.—Vaginal touch will reveal the uterus enlarged, and the os patulous, as if the cavity of the organ were filled with

something, and conjoined manipulation would prove this to be fluid and not solid.

If with these signs, the fact could be ascertained, that cysts had been discharged, the diagnosis would be complete. If not, the cervix should be dilated by tents, in order that the cavity of the body may be explored by touch, or that a portion of the mass may be removed.

Differentiation.—It might very readily be confounded with—

Pregnancy;
Polypus;
Cancer of the body of the uterus.

From pregnancy it could generally be distinguished by the very rapid development of the uterus, the presence of watery and bloody discharges, and the absence of quickening, ballottement, and other signs of that state.

From polypus a differentiation could readily be made by tents, and the uterine sound.

Cancer would be known by fetid discharge, great constitutional decadence, and the much smaller size of the uterus than in hydatids.

Prognosis.—If the case were one of true hydatids due to the acephalocyst, the prognosis would be very grave. If it were proved to be one of cystic degeneration of the chorion, it would be favorable.

Treatment.—The treatment should consist, 1st, in full dilatation of the cervical canal by tents and Barnes's dilators; and 2d, in causing the expulsion of the mass by the administration of ergot, or the introduction of the curette, a looped wire, or other appropriate instrument into the uterus.

Subinvolution of the Uterus.

Definition.—By this term is signified the fact that the retrograde metamorphosis, by which the uterus, enlarged from pregnancy, returns to its original size, stops short of completion, and leaves the organ larger than it should be.

History.—It is only within the past twenty years that we have understood the processes by which the uterus, an organ measuring three inches, in the short space of nine months enlarges so as to contain a child or even two or three children, and then within two months after delivery, undergoes so rapid an absorption as to

return to its original size. The credit of elucidating the subject belongs chiefly to Germany, for it is to Virchow, Franz Kilian, Hesch, Kölliker, and Retzius that we are most indebted.

The important practical bearing of the subject was developed by Sir James Simpson, who, in 1852, published the first article which drew especial attention to it. His article was entitled, "Morbid Deficiency and Morbid Excess in the Involution of the Uterus after Delivery." Since that period these have become generally recognized as uterine states of no great infrequency.

Pathology.—After delivery the fully developed fibres of the uterus undergo a fatty degeneration; the fat thus formed is absorbed, and the organ rapidly diminishes. Certain untoward influences may retard or check this process, and the uterus remain flabby and large, when it is said to be in a state of subinvolution.

Causes.—The most prominent of these are the following:—

Metritis or Endometritis;
Uterine congestion;
Uterine atony.

Inflammation of the uterine parenchyma, or mucous membrane, whatever be its cause, retards and checks involution, and is the most frequent source of subinvolution.

Congestion is often induced after delivery by too early exertion, abuse of coition, and constipation.

Uterine atony, by allowing the sinuses of the uterus to remain open after labor, favors a sluggish circulation, a lax fibre, and tends to produce the disorder which we are considering.

Symptoms.—The disease presents the following symptoms:—

Menorrhagia or metrorrhagia;
Leucorrhœa of watery character;
Pain in the pelvis, back, and thighs.

Prognosis.—The prognosis as regards the life and health of the patient is good, but is not so favorable as to rapid recovery. To a certain extent it will depend upon the patient's ability to yield to treatment, and allow the means at our command a fair opportunity to exert their influence.

Results.—Unless it be cured, subinvolution will very likely result in displacement and metritis, with their long list of discomforts.

Treatment.—It should be the first care of the practitioner to discover the influence checking the necessary physiological process, and to remove this. If sensitiveness upon pressure, slight

febrile action, and leucorrhœa, lead to a belief in the existence of metritis, this should be treated by leeching the cervix or perineum, by perfect rest, and by fomentations, and laxatives. Should congestion be found to exist, it should be treated in the same manner, at the same time that its cause should be removed. Atony of the uterine fibres should be removed by ergot, strychnine, the shower-bath, electricity, sea bathing, &c.

Superinvolution of the Uterus.

Definition.—This term has been applied by Prof. Simpson to an excessive involution, which, by causing too great absorption, produces atrophy of the uterus.

Pathology.—Little need be said on this point. The disorder consists merely in the excessive performance of the physiological process by which the parturient uterus is restored to its original size, and which, when kept within proper limits, is essential to a healthy state of this organ.

Causes.—These are not clearly defined, but it is probable that derangement of involution by inflammatory action is the chief.

Symptoms.—At times the uterus becomes so atrophied that complete amenorrhœa is the result. At others great diminution in the freedom of the menstrual discharge is caused. In either case those numerous and grave symptoms dependent upon non-performance of the menstrual function may develop themselves and prove extremely annoying. Even epilepsy may be thus engendered.

Physical Signs.—Upon vaginal examination the uterus is discovered high up in the pelvis, very small, and so light that it may be lifted by the slightest touch. Conjoined manipulation will probably fail to detect the organ, or if it do so will demonstrate its small size. When the speculum is introduced and the cavity of the uterus measured by the probe, it will be found to be very much diminished. Sometimes, from the os externum to the fundus, the organ will measure only two inches. Ocular demonstration will likewise be afforded that the cervix is much smaller than is normal and its canal less capacious.

These means will usually be sufficient to determine the question of diagnosis. Should any doubt still remain, the uterus may be fixed by a tenaculum passed through the speculum into

the tissue of the neck, and touch be practised by the rectum. This will define very perfectly the volume of the body.

Differentiation.—Superinvolution can be confounded with no other condition than undeveloped uterus, and from this the rational history will at once differentiate it. The former comes on after perfect performance of menstruation and after parturition. The latter is associated with a long history of amenorrhœa or emansio-mensium, and does not connect itself as a sequel with parturition.

Results.—The great evils resulting from this condition are the imperfect performance or absence of menstruation and their accompanying train of symptoms; nervous derangement, hysteria, neuralgia, &c.

Treatment.—This consists in local mechanical means calculated to develop the atrophied uterus, and general measures directed towards putting the system into as robust a state as possible.

Once or twice a month a tent of sponge or sea tangle should be introduced and allowed to distend the uterus to its utmost capacity, in order to stimulate its growth. After this has been done for some months the probe will show an increase of length of the cavity, and an attempt at menstruation may be noticed at each period of ovulation. An intra-uterine galvanic stem may then be introduced and worn constantly, if it should not produce too much irritation.

When the galvanic pessary is resorted to the instrument should be removed and examined at least as often as once a month to avoid the occurrence of incrustation.

If it be possible to recognize the periods at which ovulation is accomplished, the sympathetic process of menstruation should be excited by passing a strong current of electricity through the uterus and ovaries, the use of irritant enemata, and the application of warmth and moisture to the pelvis and feet by means of hip-baths and pediluvia.

CHAPTER XXXV.

FUNCTIONAL DISORDERS OF THE UTERUS.

THERE are several functional disorders of the uterus which, though in themselves not diseases, but rather symptoms, claim especial notice on account of their importance. Those which will occupy our attention are—

Dysmenorrhœa;
Menorrhagia;
Metrorrhagia;
Amenorrhœa;
Sterility;
Leucorrhœa.

Dysmenorrhœa.

Definition.—The process of menstruation accomplishes itself by two stages: first, great congestion and rupture of the vessels of the circumference of the ovaries and at the same time of those of the uterine and tubal mucous membrane; second, escape of the blood thus collected in utero through the cervical canal into the vagina.

When all the elements connected with this process are in a perfectly normal state, both these parts of it occur without creating other discomfort than a sense of fulness about the pelvis, slight pain in the back and loins, and a general sense of lethargy. But if an abnormal condition should exist, either in the structure from which the blood pours into the uterus, in any of the surrounding parts or organs which undergo congestion, or in the canal by which it passes into the vagina, menstruation often becomes excessively painful, and in some cases undermines the health by the intensity of suffering which it induces. This state receives the name of dysmenorrhœa, a term derived from δυς, difficult, μην, a month, and ρεω, I flow.

Pathology.—Any condition, whether general or local, affecting the structure of the uterine walls, the ovaries, or the surrounding

areolar or serous tissues, so as to render the nerves supplying these parts morbidly sensitive, may produce pain in connection with the first part of the process. Anything impeding the escape of blood from the uterus or vagina may produce it by interference with the second part. For example, a general condition resulting in neuralgia of the uterine or pelvic nerves, or a local inflammation altering their state might readily create pain in the first stage, while either a natural or acquired stricture of the cervix would probably complicate the second in the same way.

Varieties.—Dysmenorrhœa has been divided into—

Neuralgic dysmenorrhœa;
Congestive "
Inflammatory "
Obstructive "
Membranous "

Seat of Pain in Dysmenorrhœa.—Upon this point our knowledge is not certain. It is probable that in the first three varieties the pain is seated in the uterus, in the ovaries, or in the cellular tissue or peritoneum surrounding the pelvic viscera. Some of the most intractable cases with which I have met have been due to pelvic peritonitis or cellulitis, which, even after inflammatory action has subsided, has left the nerves supplying these parts in so sensitive a state that pain is excited in them by the process of menstrual congestion. It is often very difficult to decide as to the exact seat of pain. Even a physical exploration instituted during the period may fail to enlighten us.

The practitioner who regards dysmenorrhœa as a disease, and applies to every case a uniform plan of treatment, will rarely meet with success in its management. Each case should be viewed as a symptom of an abnormal condition which should, as far as possible, be discovered and removed. Although even when acting thus, instances will occur in which he may be baffled, it will be gratifying to perceive how rare these will be. The great importance of differentiating the varieties mentioned, and adopting appropriate plans of treatment, calls for a separate study of each.

Neuralgic Dysmenorrhœa.

This variety depends upon no appreciable organic disorder of the uterus or its appendages, but merely upon a peculiar state of

the nerves, which, under the stimulating influence of congestion, produces pain.

Causes.—There is a variety of agencies which at times so alter the healthy state of the nerves of the stomach as to produce in them, at each period of digestion, pain, which is called gastralgia or gastrodynia. Similar agencies may occasion neuralgia of the nerves of the eye, or of those supplying the tissues of the head and face. In like manner they may affect the uterine nerves whenever these are inordinately excited from menstrual congestion. The same patient who from slight excitement or fatigue develops supra-orbital neuralgia, will often, from the same causes, suffer from neuralgic dysmenorrhœa.

The causes which generally induce it are—

The neuralgic diathesis;

Chlorosis or plethora;

Certain toxæmiæ as malaria, gout, and rheumatism;

Luxurious and enervating habits;

Habits deteriorating the nervous system, as onanism or excessive venery.

Symptoms.—Pain may show itself before the flow has been established, and disappear as soon as it comes on; or it may continue with varying intensity throughout the duration of the menstrual discharge. The patient usually complains of a sharp, fixed pain over the pelvis, down the loins, or in some distant part of the body. I once saw a patient who during each period suffered intensely from neuralgic pain on the outer side of one little finger, and I have one now who before the flow is established experiences for several days a violent pain at the root of the nose.

Differentiation.—When the pain is felt in the uterus, it presents nothing expulsive in its character; the flow of blood is steady, and not interrupted, and no clots are discharged by spasmodic efforts. These facts distinguish neuralgic from obstructive dysmenorrhœa.

From the congestive form it is differentiated by absence of constitutional disturbance and suddenness of occurrence, and by its being habitual and not exceptional. It may be distinguished from the inflammatory variety, by absence of the ordinary signs of metritis, endometritis, ovarian and peri-uterine inflammation. There is also absence of leucorrhœa, pain, &c., as well as of the physical signs of inflammation, in the intervals of menstruation.

Prognosis.—If a patient affected by neuralgic dysmenorrhœa be able and willing to effect a decided alteration in her mode of life, the prospect of recovery is good. Should no such change be attainable, it is decidedly unfavorable.

Treatment.—The first duty of the physician should be to discover the cause of the development of neuralgia in the performance of the menstrual function, and the second to endeavor to remove this. Neuralgia of the face and head is rarely a primary affection, and consequently resists remedies directed especially to it. It generally results from some focus of irritation, as, for example, a decayed tooth, or a plug of hard wax in the ear, or from some blood poisoning; and when the cause is removed it disappears. So with the disorder which we are investigating.

If the rheumatic or gouty diathesis exist, it should be treated by colchicum, guaiac, and vapor baths. The skin should be kept warm and active by wearing flannel over the whole body in winter, and a mild, equable climate should be chosen during the cold months of the year. Should a delicate state of the nervous system have been engendered by habits of luxury, indolence, or dissipation, the patient should be sent to the country where an out-of-door life, horseback exercise, early hours of retiring, and plain, wholesome food may exert a decidedly alterative influence. Chlorosis and plethora should be treated, the one by ferruginous and nervous tonics, fresh air, food and cheerful surroundings; the other by strict diet, venesection, cathartics, and other depleting means. Malarial toxæmia should be treated by change of residence, quinine, and iron. A sea-voyage will often accomplish an excellent result in neuralgic dysmenorrhœa by its alterative influence, whatever be the cause of the neuralgic state.

In addition to these general means, benefit may be obtained from the use of some which are local. The occasional passage to the fundus of the uterus of a uterine sound or silver catheter, the retention in utero of the galvanic pessary, which will be described when speaking of amenorrhœa, and the use of tents of sponge or sea tangle, will often prove very serviceable.

Parturition often accomplishes an excellent result, and in many cases cures the affection entirely.

Congestive Dysmenorrhœa.

Definition.—At each menstrual epoch an active congestion occurs in the mucous membranes of the Fallopian tubes and uterus as well as in the ovaries, and, probably, to a less degree in all the pelvic tissues. When any abnormal influence renders this excessive, it naturally produces pain in the nerves intervening between the distended vessels. This has received the name of congestive dysmenorrhœa, which has been synonymously described as accidental dysmenorrhœa.

Causes.—It may result from the following causes:—

Plethora;
Exposure to cold;
Sudden mental disturbance;
Sluggishness of portal circulation;
Displacement of the uterus;
Fibrous tumors.

Any one of these causes, without exciting true inflammation, may keep up a state of hyperæmia in the uterine vessels, which, being augmented at menstrual epochs, creates pressure upon the neighboring nerves and consequently pain.

Symptoms.—A patient who has previously menstruated painlessly is seized during a period with severe pelvic pain accompanied by diminution or cessation of the discharge and considerable constitutional disturbance. The pulse becomes full and rapid, the skin hot and dry, and the eyes suffused. There is severe pain in the head, with nervousness, restlessness, and sometimes, though rarely, a little delirium. There may be in addition rectal and vesical tenesmus and diarrhœa.

Differentiation.—The constitutional disturbance and suddenness of the attack will mark its difference from the neuralgic and obstructive forms, as the absence of signs of inflammation in the intervals will do from the inflammatory.

The membranous has, of course, its distinctive sign in the cast of the uterine cavity.

Prognosis.—Unless the cause of the disorder be the existence of an obstinate displacement or of a fibroid, the prognosis is always favorable.

Treatment.—As in the neuralgic variety, the source of the evil should be carefully ascertained before remedial measures are

adopted. If it be due to plethora, the lancet, cathartics, strict diet, exercise, and fresh air will be indicated. Should the attack be accidental and have occurred from exposure to cold and moisture, opiates, diaphoretics, and sedatives will give speedy relief. In case a sluggishness of the portal circulation exist, this should be stimulated to greater energy by mercurial cathartics and a change in the habits of life from sedentary to active. A displaced uterus is often kept in a constant state of congestion, which can be relieved only by properly sustaining the organ. If a fibrous tumor be the cause, a cure will depend upon its susceptibility of removal.

Inflammatory Dysmenorrhœa.

Definition.—In a great many cases inflammation of the uterine mucous membrane or parenchyma is the cause of dysmenorrhœa. The existence of disease in these parts causes, perhaps, little pain until the erethism engendered by menstruation occurs. Then great local excitement takes place and dysmenorrhœa shows itself.

Causes.—It may result from almost any pelvic inflammation. More especially it is connected with—

Endometritis;
Metritis;
Peri-uterine cellulitis;
Pelvic peritonitis;
Ovaritis.

Symptoms.—As the flow begins, or before that time, the patient suffers from dull, heavy, fixed pelvic pain, which lasts until the process is ended, and often even after it has done so.

Differentiation.—It may be differentiated from the other varieties alluded to, by pain during the intervals, leucorrhœa, inability to make exertion, and absence of the positive signs attending the other forms.

Prognosis.—This will depend upon the prognosis of the inflammation which has given rise to it. If that can be removed, the dysmenorrhœa, which is one of its symptoms, will disappear; if not, it will continue without material diminution.

Treatment.—Little need be said upon this point, for treatment must be directed not to one symptom but to the disease which produces the whole train. If the root of the evil be metritis or

endometritis of neck or body, appropriate treatment must be directed to these affections. If ovaritis or cellulitis be the apparent cause of the difficulty, these diseases must receive attention.

Obstructive Dysmenorrhœa.

If after the collection of blood in the uterus, any obstruction exist which prevents its escape into and through the vagina, a violent spasmodic pain is excited which often amounts to uterine tenesmus. To this form of painful menstruation the name of obstructive dysmenorrhœa has been applied. The obstruction may exist in the os or cervix uteri, in the vagina, or at the vulva, where that canal is partially closed by the hymen.

Pathology.—If any organ be filled with fluid beyond the point of tolerance, as, for example, the bladder, stomach, or large intestine, violent contractions of the distended fibres which make up its walls are excited, and spasmodic efforts, which have received the name of tenesmus, are established. If evacuation result from these, relief is obtained; if not, they continue for a long time. When occurring in the uterus, they present the symptoms which make up the affection which now engages us.

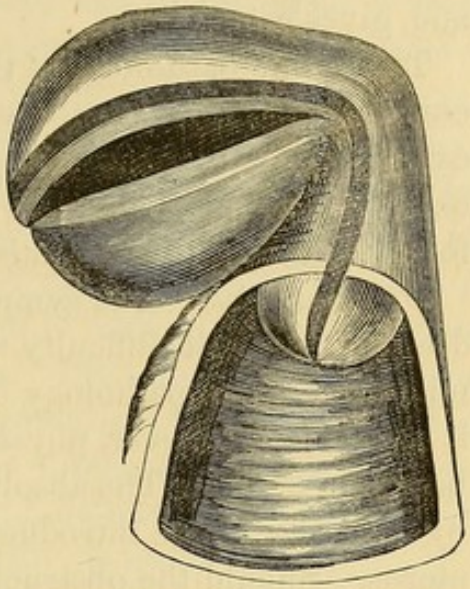
Causes.—The special causes of such obstruction are—

Contraction of the cervical canal:
Flexion or version of the uterus;
Vaginal stricture;
Small polypus in utero;
Obturator hymen;
A fibroid in the parenchyma of the neck.

Any one of these causes may produce the result by partially occluding the cervical canal, so as to allow an escape of fluid imperfectly and painfully. Contraction of the cervix may be congenital, or may result from inflammation of the mucous lining of the canal, diminution of its calibre by contraction of lymph poured out into the parenchyma, or from the use of strong caustics within the os. The last cause is a prolific one, the condition seldom failing to result from the passage of the actual cautery or potassa cum calce into the canal of the cervix. Flexion obstructs the canal by creating an angle in its course. Let a tube of gutta-percha be slightly curved and no obstruction will exist, but if it be sharply bent upon itself, complete occlusion will occur. Fig. 185 will make the action of this cause clear.

Versions much more rarely produce the difficulty, but sometimes, the os being, by reason of the displacement, pressed very firmly against one wall of the vagina, a partial obstruction is produced.

Fig. 185.



Flexion productive of dysmenorrhœa. The canal of the cervix is occluded at the os internum.

Some months ago a young girl presented herself at my clinique, at the College of Physicians and Surgeons, declaring that at every menstrual epoch she suffered from the most intense bearing down pains, which exhausted her greatly. Upon examination I found a partial closure of the vagina, the result of sloughing during typhus fever, which had produced an accumulation of blood above it. This excited uterine contraction, and each effort caused the expulsion of a small amount of the fluid collected above the stricture. In like manner the hymen may prevent free escape and produce uterine tenesmus.

Sometimes a small polypus comes down to the os internum and rests upon it, obstructing the egress of fluid, but permitting the passage of a probe into the uterine body. It acts upon the principle of the ball valve, and by so doing produces the worst features of obstructive dysmenorrhœa.

Symptoms.—After menstruation has continued for some hours, and sufficient blood has been collected in the uterus to distend it, a severe spasmodic pain occurs over the pelvis, which has been styled "uterine colic." This rapidly passes into a violent expulsive effort like the contractions attending miscarriage, which in time causes the passage of a certain amount of blood. Then all pain ceases for a time, until further obstruction and distension occur, when the process by which the uterus empties itself is repeated.

It will be clear to the observer that the difficulty develops itself by these steps:—

1st. Some obstruction causes collection of blood in the uterus;

2d. This excites uterine contraction by distension;

3d. Uterine contraction, to a limited degree, frees the uterus and gives ease.

This is the pathology of the condition, whether the obstruction exist in the vagina, at the vulva, or in the cervical canal. If it exist at the latter point, the efforts of the uterus will generally expel first a small clot, and then a gush of imprisoned blood will follow, much to the patient's relief.

Differentiation.—The symptoms just related are so marked and decided that little difficulty will generally be experienced in determining as to the pathology of the case. Before such a decision is arrived at, however, physical exploration must place the matter beyond a doubt. The absolute obstruction must be demonstrated by difficulty in the introduction of a probe into the cavity of the uterus. Should the obstruction exist in the vagina, the finger will detect it, and if in the cervix, the probe will do so with almost as great precision.

Prognosis.—This will depend entirely upon our ability to overcome the mechanical obstacle. Should it not be possible to remove this, the constantly repeated distension of the uterine cavity and consequent effort required for emptying it, will frequently result in endometritis.

Treatment of Cervical Constriction.—Should it be discovered that the cause of difficulty consists in congenital or acquired constriction of the cervical canal, the condition may be remedied by two methods, dilatation and incision, the means for accomplishing which may be thus presented at a glance:—

Dilatation.
- By sounds;
- By tents;
- By expanding instruments.

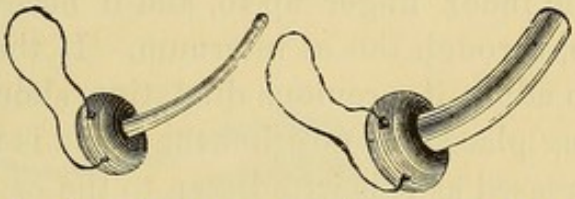
Incision.
- Simpson's method;
- Sims's method;
- Combined method.

In cases of cervical constriction the narrowing of the canal is much more marked at the os externum than at any other part, though in some instances the cavity of the neck may be constricted even up to the os internum.

About the year 1832, Dr. Mackintosh, of Edinburgh, established the practice of dilating such canals by metallic rods, as is done

in stricture of the urethra. His plan was to introduce a very small sound, leave it for a short time in position, and then follow it by others gradually increasing in volume. He declares, in reporting upon the practice, that out of twenty-seven cases, twenty-four cures were effected. The sounds by which dilatation may be best accomplished are represented by Fig. 186. They consist of hard rubber, are of twelve graduated sizes, and may, by boiling in water, be bent to any curve which is found desirable to effect an entrance through the os internum. Dilatation by their means should be slowly and cautiously accomplished. A sound being passed should be left in position for fifteen or twenty minutes, and upon its removal another should be inserted, until the distension deemed practicable at one sitting is attained.

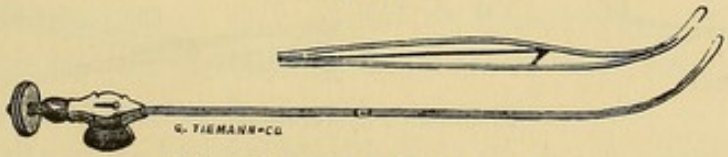
Fig. 186.



Sounds of hard rubber or metal for dilating the cervix.

There can be no question as to the efficacy of this plan, though it is probable that some of the cases relieved by Dr. Mackintosh were instances of neuralgic and not obstructive dysmenorrhœa. Although it may be effectual I should not recommend its general employment, because it is tedious, painful, and uncertain, and because we have other methods which are far superior to it. Should it be determined to essay dilatation, the use of tents of sponge or sea tangle is preferable to the plan just alluded to. They should be employed once a week until the required dilatation is attained.

Fig. 187.



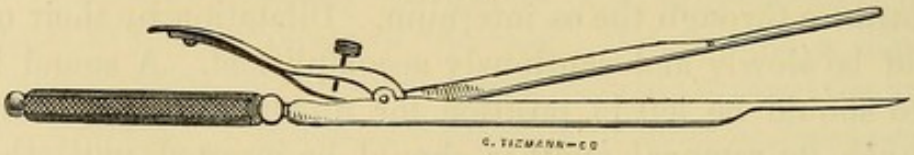
Priestly's dilator for the cervix.

But even this means fails very generally, and in place of it rapid dilatation by instruments, which are represented by that of

Dr. Priestly, Fig. 187, has been advised. Their action is too injurious to the tissues, however, to be safe, and they are by no means so promising of good result as the use of cutting instruments.

In 1843 Prof. Simpson, of Edinburgh, advocated and practised cutting through the walls of the cervix, and thus gaining space without dilatation. He employed a single-bladed hysterotome, represented in Fig. 188.

Fig. 188.

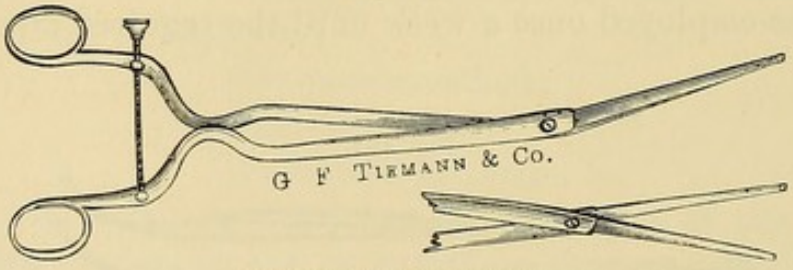


Simpson's hysterotome.

This instrument is introduced without a speculum, the patient lying on her left side. The hysterotome, with its blade concealed, is guided by the index finger up to, and if necessary, as is very rarely the case, through the os internum. If the cervical canal be too small to admit it, previous dilatation should be practised by tents. Being placed in position the blade is thrown out, the force being increased as it is withdrawn to the os externum. By thus increasing the pressure upon the handle of the blade, the incision is made wider at the lower than at the upper part of the canal. The instrument is then reintroduced and the other side incised in a similar manner, and the surface is brushed over with the solution of persulphate of iron.

To accomplish the incision of both sides simultaneously, Mr. Stohlman, of this city, has added a second blade, as is represented in Fig. 189.

Fig. 189.



Stohlman's hysterotome.

Since Dr. Simpson introduced this plan of treatment a variety of procedures has been recommended, but very little improvement had been attained until the introduction of Dr. Marion Sims's method. This consists in the following steps:—

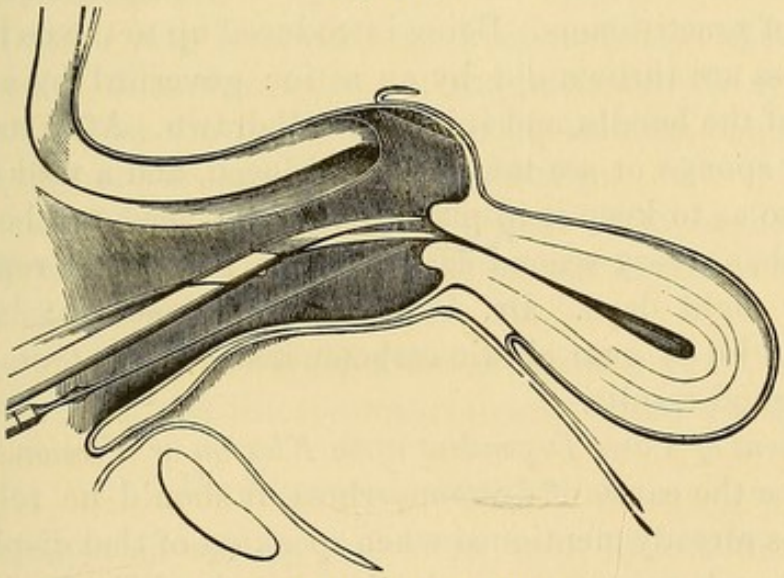
1st. The patient is placed on the left side and the speculum introduced.

2d. The uterus being fixed by a tenaculum, one wall of the cervix is cut with a pair of long scissors, one blade of which is passed into the cervical canal until the other reaches nearly to the vaginal junction. In like manner the other wall is incised.

3d. The blood being washed away by sponge probangs, a blunt-pointed knife, which can be placed at different angles with its handle by a movable joint, already shown in Fig. 143, is passed up, the tissue above the reach of the scissors cut, and the os internum severed on each side.

4th. A roll of cotton saturated with glycerine is put into the wound, and a vaginal tampon applied. The operation is shown in Fig. 190.

Fig. 190.



Cervical hysterotomy. (Sims.)

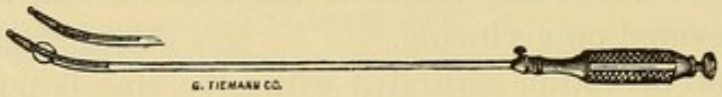
The patient is kept in bed for ten days after the operation. In twenty-four hours the tampon should be removed, and on the third day the lips of the wound should be separated by a sound, and the cotton and glycerine dressing reapplied. This should then be done daily, or the cervix will rapidly contract and become as small as before the operation.

The results of incision of the cervix, when practised in suitable cases, are generally very gratifying. Where lymph has been poured out into the parenchyma, from cervical metritis, however, it is

often impossible to keep the canal pervious. It gradually contracts in spite of all that can be done to oppose its doing so.

A very simple and useful modification of the two operations described is to make an incision through the submucous layers of the parenchyma from the os internum through the whole course of the canal, and then dilate by sponge or sea-tangle tents. This may be done by introducing Sims's knife, or by such a hysterotome as that represented at Fig. 191.

Fig. 191.



White's hysterotome.

This instrument was invented ten years ago by Dr. Octavius White, of this city, and has been frequently employed since by a number of practitioners. Being introduced up to the os internum, two blades are thrown out by an action governed by a screw at the end of the handle, and it is then withdrawn. After its removal a tent of sponge or sea tangle is introduced, and a wad of cotton applied so as to keep it in place. The tent need not be renewed oftener than every second day, and this should be repeated for seven or eight days. Dr. Arango informs me that he always employs a bit of gum elastic catheter instead of a tent, and with equally good results.

Treatment of Cases Dependent upon Flexion or Version.—Should version be the cause of dysmenorrhœa, it should be relieved by the means already mentioned when speaking of that displacement. If, as is much more commonly the case, the difficulty be due to flexion, and more particularly to anteflexion, two indications offer themselves for its relief: 1st, to straighten the bent canal by keeping the body of the uterus erect; 2d, to effect the same end by surgical operation. The first of these indications is practicable only by the use of the intra-uterine stem pessary, which is often too dangerous to be admissible, and hence the second alone is usually at our command.

If a uterus be flexed, as represented in Fig. 185, it is evident that obstruction to the menstrual flow will occur at the point of flexure, and equally evident that an incision through both sides of the canal would not overcome this by straightening it, while a

single incision through the posterior wall would do so. In 1862 Dr. Sims conceived and practised such an operation successfully. This will be found described in Fig. 144. It is unquestionably the procedure most applicable to the relief of dysmenorrhœa due to flexion, and although usually resorted to for anterior displacements it may, by cutting the anterior wall, be employed for those which are posterior. Retroflexion is commonly the consequence of metritic inflammation and the danger of reëstablishing this will sometimes contra-indicate the operation, but Dr. Nott informs me that he does not hesitate to incise the anterior lip for that condition or even to take out of it a V shaped piece.

Treatment of Vaginal Stricture.—This condition, which may be congenital, or induced by syphilitic or cancerous disease, or by sloughing, if so complete as entirely to obstruct the canal, produces amenorrhœa. If it be a pervious stricture, it may result in dysmenorrhœa.

The affection may be treated by three methods: dilatation by large bougies, dilatation by tents, and incision. If syphilis be ascertained to be the basis of the local disorder, constitutional means should at the same time be resorted to.

Treatment of Dysmenorrhœa from Polypus.—Should the presence of a small polypus be discovered, the cervix should be dilated by tents and the growth removed.

Treatment of Obturator Hymen and Fibroids.—The first should be freely incised, and the second removed if possible.

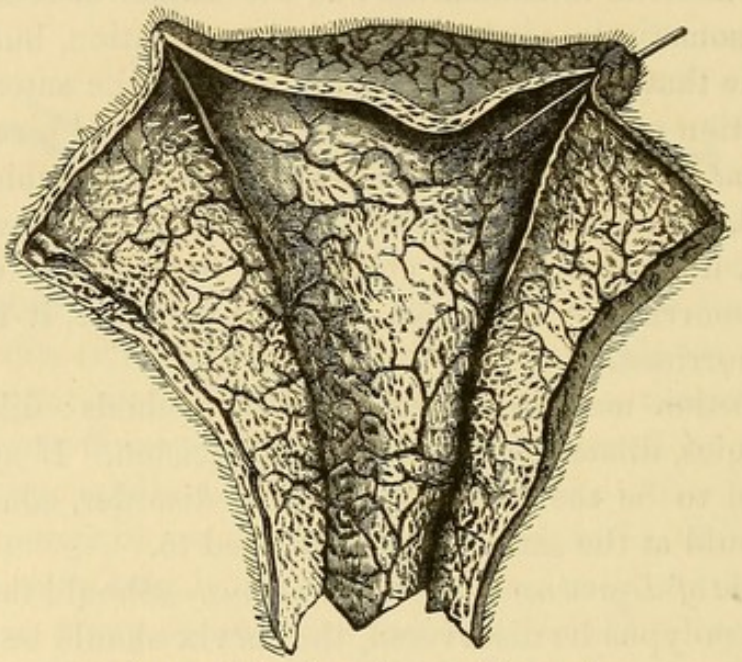
Membranous Dysmenorrhœa.

Concerning this variety we know very little with reference to etiology, course, or treatment. Our want of precise knowledge depends upon the fact that the true pathology of the condition is not settled. Some, with Oldham and Tilt, regard it as a result of ovarian disease; others, with Raciborski,[1] Lebert, Handfield Jones, and Simpson, look upon it as a pure desquamation or exfoliation of the uterine mucous membrane for which no cause can be assigned; while Klob and others are convinced that it is an exudation, the result of endometritis. I have met with it but twice. In one case endometritis existed very severely; in the other no uterine or ovarian disorder was discoverable.

[1] Simpson, Dis. of Women, p. 101.

Symptoms.—The pain comes on in the commencement of menstruation, and ends only with the discharge of the exfoliated membrane. This membrane is pathognomonic of the kind of dysmenorrhœa which exists, and serves to differentiate it clearly from all other varieties. The appearance of the membrane is represented in Fig. 192.

Fig. 192.



Dysmenorrhœal membrane. (Simpson.)

Prognosis.—The prognosis as to cure is extremely unfavorable.

Treatment.—Uncertain as we are as to the pathology of the disorder, little can be said of treatment. If uterine or ovarian inflammation be detected, it should be treated in accordance with general rules. If no such cause for the exfoliation be discovered, applications of alterative character may be made to the uterine mucous membrane, as tincture of iodine, chromic or carbolic acid, nitrate of silver, or solution of persulphate of iron.

CHAPTER XXXVI.

MENORRHAGIA AND METRORRHAGIA.

Definition.—The first of these terms is employed for the designation of a profuse and excessive flow of blood at the menstrual periods; the second for any flow of blood, whether profuse or not, during the intervals. A patient who menstruates too profusely is said to suffer from menorrhagia, while one who loses blood not only at menstrual periods but in the intervals is said to suffer from metrorrhagia.

Frequency.—Both of these conditions are necessarily frequent, for they are both symptomatic of a large number of organic affections of the uterus.

Pathology.—Anything which induces a state of active or passive congestion of the parenchyma or mucous membrane of the uterus, or any growth, which having a vascular connection with that organ, allows a flow of blood from its own surface, may produce one of these disorders.

Causes.—The conditions which most frequently occasion both these forms of uterine hemorrhage are—

Congestion;
Inflammatory engorgement or hypertrophy;
Polypus;
Ulceration;
Fibrous tumors;
Cancer;
Retained products of conception;
Fungous degeneration of uterine mucous membrane;
Inversion of the uterus;
Hæmatocele;
Subinvolution.

Congestion of the uterus is very common at the period of the menopause, or as a result of violent muscular efforts. It may likewise occur as a consequence of abortion, an impeded hepatic circulation, commencing metritis or inflammatory hypertrophy.

Retention of some of the products of conception is very frequently a cause. The placenta may remain unaltered, the fœtal envelope may become a mole, or the chorion may undergo degeneration, and uterine hydatids, as they are erroneously called, collect within the uterus.

Fungous degeneration of the lining membrane of the uterus is not an infrequent source of both varieties of hemorrhage. The vegetations thus created, which consist in an hypertrophy of the mucous membrane, were described by Récamier, who advised and practised scraping them off by means of a steel instrument. M. Aran, who has written a most excellent article upon them in his work on the *Diseases of the Uterus*, thus describes them. "They present themselves in two entirely different forms. In the first and most common form they are tumors, ordinarily sessile, continuous with the mucous membrane by a base sometimes as large as themselves. They vary in size from that of a grain of wheat or a little pea to that of a large pea and even of a small strawberry or a large raspberry. The last are often pediculated." These are styled cellulo-vascular vegetations, and may exist in any part of the cavity of the uterus. Generally they do not exceed two or three in number, and are found in the cavity of the body. "In the second form they are a species of pediculated vegetations resembling in appearance those follicular polypi which are so common in the neck of the uterus. They vary in size from that of a grain of wheat to that of a pea." These are called cellulo-fibrous vegetations. Both varieties generally result from chronic inflammation of the mucous lining of the uterus, and their presence has given rise to the appellation of hemorrhagic metritis, as descriptive of certain forms of uterine inflammation attended by metrorrhagia.

It is astonishing how profuse and constant a flow will sometimes result from very small and apparently insignificant vegetations. Some years ago I had an opportunity of examining post-mortem a patient of Dr. Louis Elsberg, of this city, of whom this history was given. The patient had suffered for years from menorrhagia and occasionally from metrorrhagia. On many occasions Dr. Elsberg had resorted to the tampon, and on several had been forced to plug the cervix with considerable force to prevent death from the excessive flow. Upon inspection I found nothing to account for the condition but three fungous projections, which were situated just above the os internum. They resembled

somewhat the warty growths sometimes seen upon the glans penis, except that their papillary character was not so marked. Unfortunately they were destroyed before they could be examined by the microscope. It may be suggested that some other cause might have existed, but none such was discovered upon careful investigation. The uterus, ovaries, and pelvic tissues appeared to be in a perfectly normal condition.

Differentiation.—This is at once the most important and most difficult of the physician's duties in reference to the symptoms which we are considering. If he be too easily persuaded to look upon the loss as one of the results of the "change of life," or even of primary idiopathic congestion, much time may be lost before his error is corrected. Should he forget that he is dealing with a symptom, and look upon the condition as a disease, he will often not merely lose time, but, in the end, entirely fail in giving relief; for the empirical practice of confining such patients to bed and relying upon astringents, cold applications, and narcotics will commonly be found to be ineffectual.

In every case, unless the cause be palpable, it is advisable to examine systematically the entire uterus and its surrounding tissues in the following manner:—

1st. The cervix should be investigated by touch, the speculum, and the uterine probe;

2d. The anterior and posterior walls, and the fundus and sides of the uterus, should be examined by conjoined manipulation, palpation, and rectal touch.

3d. The whole pelvis should be explored by conjoined manipulation, rectal touch, and palpation;

4th. The cervix should be dilated by tents, and the cavity of the body explored by the introduction of the index finger and by the uterine probe.

In many instances a diagnosis can be made only by these means; but by their aid, if fully developed, very few cases will baffle research.

Tents offer us a most valuable means for diagnosis and treatment, but the practitioner must be very sure to open the os internum by them so that the finger may pass to the fundus. In many cases when it is supposed that a full investigation of the uterine cavity has been made, the os internum has never been

passed by the finger, which consequently explores only the cervical canal. It will not infrequently require three and even four tents to open the cavity of the body fully to the finger.

Prognosis.—This will depend upon the cause of the affection. Should this be clearly ascertainable and curable, it will, of course, differ very much from what it would be if the opposite facts obtained.

Results.—Menorrhagia, and more markedly still, metrorrhagia, if unchecked, may result in—

Sterility;
Hydræmia;
Hysteria;
Dyspepsia;
Extreme emaciation;
Death.

Treatment.—This is palliative and curative. The treatment of a profuse flow of blood from the uterus, as from any other part of the body, should always consist primarily in checking it.

In a case of menorrhagia, the patient should be kept perfectly quiet upon her back; cloths wrung out of cold water should be laid over the uterus, vulva, and thighs; cold, acidulated drinks should be given freely; and the ingestion of all warm fluids strictly interdicted. In addition, the apartment should be kept cool, the nervous system quieted by opium, or an appropriate substitute, and all conversation prohibited.

In mild cases this may suffice, but in severe ones it will not. Then the speculum should be introduced, a sponge tent passed into the cervix and the vagina filled with a tampon. This will rarely fail. But in certain cases, as, for instance, those of cancer of the neck, the tent will not be admissible. Under these circumstances a soft sponge or wad of cotton should be saturated with solution of the persulphate of iron, laid upon the cervix, and the tampon placed against it; or a small linen bag may be filled with powdered alum, placed in contact with the cervix, and held in place by a tampon; or two drachms of tannin may be left free against the part. To these means almost all cases will temporarily yield, more especially if the use of the tent be admissible.

Before a case of menorrhagia is subjected to this course of management, this point must be carefully considered: some women naturally flow very freely at menstrual epochs, and are not injured by the loss. It is their peculiarity, and not an evi-

dence of an abnormal state, and it should be decided whether or not treatment be required.

In reference to metrorrhagia, it is equally important to bear in mind that some women, during the early months of pregnancy, have a steady flow of blood, and before a tent is employed, or probing the uterus is resorted to, this state should be carefully eliminated.

If the existence of congestion, polypus, ulceration, fibroids, cancer, inversion, hæmatocele, retention of products of conception, subinvolution or inflammatory hypertrophy, be ascertained to be the cause of the hemorrhage, the curative treatment of the symptom should be entirely subordinate to that of the disease which produces it, and as those affections have been elsewhere investigated, the reader is referred to other parts of the work for rules for their management. It may be well to state here that in the case of subinvolution, the free use of ergot will be found a valuable adjuvant to the means already enumerated for palliative treatment, and that it may prove serviceable in that which is curative. In the treatment of congestion the occasional use of an active mercurial purgative or the systematic and steady employment of the same class of medicines in small doses will often prove highly beneficial.

Treatment of Fungous Degeneration of the Uterine Mucous Membrane.—If this condition be clearly diagnosticated, not surmised, but fully determined upon by rational or physical signs, the whole uterine canal should be fully dilated at intervals of about a week, in the hope that pressure from the tents will cause an atrophy of the morbid growths. Should this plan, persisted in for a reasonable time, fail, full dilatation should be secured and the whole mucous lining of the uterus scraped gently by one of the curettes,

Fig. 193.



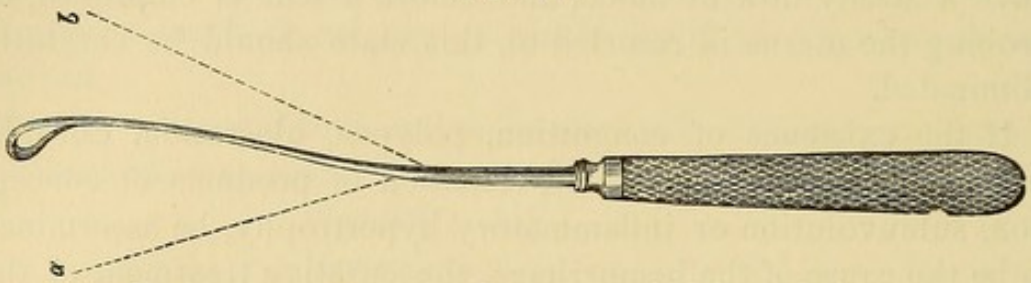
Récamier's curette.

represented in Figs. 193 and 194, until touch proves it to be entirely free from vegetations.

After this, at intervals of a week, the cervix should be dilated and the whole cavity painted freely over with solution of persulphate of iron; a strong solution of nitrate of silver; or the tincture of iodine, according to Dr. Churchill's formula. After dilatation

of the neck it is not dangerous to inject into the cavity of the body any of the fluids just mentioned, as they flow out immediately, and this plan may be resorted to. Even when employed

Fig. 194.



Sims's curette, representing the angles at which it may be bent.

with this precaution, however, the fluid injected should not be thrown from the syringe in a jet, but be allowed to flow from it drop by drop. Thus applied, the solution of iron and tincture of iodine should be diluted with one-half or two-thirds of water.

Empirical Treatment of Menorrhagia.—Sometimes we are called upon to treat this condition empirically, in consequence of the fact that all our efforts have failed to enlighten us as to its cause. At the same time that I would inveigh against such a course being inconsiderately followed, I deem it best to point out the general plan of management which would be most appropriate under such circumstances.

The patient should be required to lead a plain, simple life, to keep as much as possible in the open air, and to avoid stimulating food and beverages. Should plethora exist, the blood should be attenuated by diet, exercise, and the lancet. The bowels should be kept perfectly regular and the skin active. The whole uterine canal, from os to fundus, should be repeatedly dilated, in the hope of producing an alterative action upon the mucous membrane, and subsequently injected or painted with tincture of iodine, solution of persulphate of iron, tannin and glycerine, or nitrate of silver. This should be repeated at appropriate intervals. At the same time astringents and acids should be administered, and in case of uterine enlargement ergot should be given. One after the other the vegetable astringents, as, for example, tannin and gallic acid; and those of the mineral kingdom, as sulphuric, nitric, and muriatic acid, should be faithfully tried internally, in the hope that their hæmostatic powers may arrest the flow by acting through the general circulation.

CHAPTER XXXVII.

AMENORRHŒA.

Definition.—Amenorrhœa, a term derived from α, privative, μην, "a month," and ρεω, "I flow," implies an absence of the menstrual flow in a woman in whom it should naturally exist. Such an absence before puberty, after the menopause, or during pregnancy and lactation, is the normal condition, and hence does not come within the definition.

Frequency.—It is an affection of great frequency among women who lead luxurious and indolent lives, and disorder the nervous and sanguineous systems, by neglect of those habits which keep them in a state of health. Hence it is very frequently encountered among the members of the higher classes of civilized society all over the world.

Varieties.—If the habitual monthly discharge be suddenly checked, the disorder is styled suppressio-mensium, and if the discharge have never appeared in a woman who ought to menstruate regularly, it is called emansio-mensium.

Pathology.—That the discharge of blood, which occurring at monthly periods constitutes menstruation, is a true hemorrhage dependent upon the process of ovulation, is now regarded as a settled fact by most progressive physiologists. In accordance with a law of nature which we recognize in its effects but cannot explain, once in every twenty-eight days one or more ovules in each ovary burst their envelopes, and entering the Fallopian tubes pass downwards to the uterus. This eruption of ovules produces in the ovaries congestion and nervous exaltation, which continue until the process is completed.

No sooner are these organs thus affected than, through the instrumentality of the ganglionic system of nerves connecting them with the uterus, that organ sympathetically undergoes congestion likewise. The whole uterus becomes heavy and descends perceptibly in the pelvis: its mucous membrane is swollen and

turgid, and the vessels which supply it dilate under an excessive hyperæmia, as do those of the conjunctiva in conjunctivitis; then a rupture occurs and relief is obtained by hemorrhage. For the proper performance of the function three elements must exist in a perfect state of integrity: 1st, the uterus, ovaries, and vagina must be perfect in form and vigor; 2d, the blood must be in its normal state; and 3d, the nervous system governing the relations between the uterus and ovaries must be unimpaired in tone.

Any influence disordering one or more of these may check ovulation, the great moving cause of the function; prevent the degree of sympathetic congestion necessary for rupture of uterine vessels; or oppose the discharge of blood which has been effused.

The non-performance of the function of menstruation was formerly, and even now is by some, regarded as productive of many constitutional evils, as, for example, chlorosis, phthisis, dropsical effusions, &c. It is highly probable that in these deductions the effect has been mistaken for the cause. The impoverished blood, and nervous derangement attendant upon these affections, result in failure of the function. No proof exists which can substantiate the view that amenorrhœa ever induces serious organic lesion of any organ in the body.

Causes.—After what has been already stated, the causes of the affection may be tabulated without fear of confusing the reader.

Amenorrhœa may result from any of the following conditions:—

Abnormal states of organs of generation.

Absence of uterus;
" " ovaries;
Rudimentary uterus or ovaries;
Occlusion of uterus;
" " vagina;
Metritis or endometritis;
Superinvolution;
Pelvic peritonitis;
Atrophy of both ovaries;
Cystic degeneration of both ovaries.

Abnormal states of the blood.

Chlorosis;
Plethora;

Blood state of phthisis;
" " of cirrhosis;
" " Bright's disease, &c.

Abnormal state of ganglionic nervous system.

Atony from mental depression;
" " indolence and luxury;
" " want of fresh air and exercise;
" " constitutional diseases, as phthisis, &c.;
Absence of stimulation from non-performance of ovulation.

Complete absence of the internal organs of generation is very infrequent, though a rudimentary condition is less rare. With reference to absence of the uterus, Scanzoni remarks: "On carefully analyzing the reported cases of entire absence of the womb, we find that almost always some rudiments of this organ still exist, so that authenticated and unquestionable instances of this anomaly are extremely rare." He further declares that he has never been able to authenticate a single case. I have seen one instance presented by Prof. I. E. Taylor to the Obstetrical Society of this city, in which no trace of the uterus could be detected upon the closest scrutiny of the parts removed post-mortem.

Absence of both ovaries is quite rare. They are more frequently found to be in a rudimentary condition resembling their fœtal state.

The vagina may be occluded by an obturator hymen, contraction from inflammation and sloughing, or from congenital or acquired atresia.

So likewise may the canal of the cervix uteri be congenitally or accidentally closed.

What I have styled atony of the nervous system, has been well described by Prof. Hodge, of Philadelphia, under the name of sedation. It consists in a decrease of the excitability, vigor, and activity of the nervous agency which controls the functions of different organs, and has for its cause physical and moral influences, some of which have been enumerated. Some of the functions which are under the control of the ganglionic system, are the action of the heart, digestion, peristalsis, and regulation of animal heat. In one leading a natural and healthy life, in the country, for example, all these are likely to be normally performed; but if the same individual remove to a crowded city,

lead the life of a student, exhaust his nerve power by late hours, bad air, and mental efforts, all of them rapidly become deranged. He suffers from palpitation of the heart, dyspepsia, coldness of hands and feet, and constipation. This change usually occurs slowly, but sometimes it does so rapidly, as from a sea voyage or any very violent mental strain. In a similar manner the processes of ovulation and menstruation are affected by it, in some cases gradually, in others with great rapidity.

Differentiation.—Before treatment is instituted for this condition, it must be carefully differentiated from—

Pregnancy;
The menopause;
Tardy menstruation.

The first will be readily recognized by its characteristic signs, if suspicion be awakened, and they be investigated. Very often no such suspicion arising, the criminal desires of some women are gratified, and the hopes of others blighted through the unintentional induction of abortion by the treatment adopted.

The law with regard to the menopause is, that it should occur between the ages of forty and fifty, but it is sometimes delayed until sixty or seventy, and at others takes place at a very early age. It may occur as early as the twenty-first year, and in twenty-seven out of forty-nine cases of early cessation collected by Dr. Tilt,[1] it took place from the twenty-seventh to the thirty-ninth year. The absence of sensations of discomfort at the periods when the menses should occur, will help to lead the practitioner to a correct conclusion as to the character of the case.

Sometimes mothers will be much alarmed by absence of the function in girls of seventeen and eighteen years. It should be remembered that it is not very rare for it to be delayed until the twentieth or twenty-first year. Differentiation should be accomplished in this case as in the last.

Treatment.—From what has been already said, it is manifest that amenorrhœa is not a disease, but a symptom of some local or general disorder, and it follows that all efforts directed simply to re-establishment of the absent function, must necessarily be empirical. The cause should be discovered, and, if possible, re-

[1] On Uterine and Ovarian Inflammation, p. 54.

moved. Should it be susceptible of removal, the method appropriate for accomplishing this will be evident, while if it depend upon an incurable condition, scarcely less benefit will be gained by the avoidance of means previously practised in the vain hope of establishing the flow, and by our ability to place the mind of the patient beyond the harassing influence of suspense.

If the uterus be found to be absent, all that can be done will be to abstract a sufficient amount of blood from the arm by venesection, if necessary, to relieve the urgent symptoms attending each epoch.

Should metritis, endometritis, or peritonitis exist, they, and not this one symptom which may attend them, should be treated.

Occlusion of the vagina or cervix should be treated by surgical means, the barrier being overcome by the knife, scissors, or trocar.

In case a rudimentary or atrophied uterus, or superinvolution be discovered as the source of the affection, the uterus should be developed by local stimulation and distension. Once every week or every two weeks it should be fully distended by a tent, in order that an increase of nutrition and consequent increase of volume and capacity may be excited. When this plan is not in operation, an intra-uterine galvanic pessary may be kept in utero for the furtherance of the same end. It is astonishing how much development may be obtained by a persevering practice of this plan. In many instances it will restore the uterus to its original size, and cause a return of the menstrual flow. But it often requires considerable time to bring about so favorable a result; even years may elapse before it is fully attained.

If it be decided that the non performance of the function is due to plethora, anæmia, or chlorosis, these states should be treated, the first by venesection, strict diet, exercise, and a life in the open air; the second and third by change of air, rich food, exercise, and ferruginous tonics. In plethora, Prof. Bedford speaks highly of the abstraction of blood from the arm at intervals of a month, the abstraction being performed between the menstrual epochs.

Should some grave constitutional condition like tuberculosis or the others mentioned, be found to be the main morbid state, it, and not its resulting symptom, should attract attention.

An atonic state of the nervous system governing menstruation should be treated by resort to a general tonic course. Among

the means applicable to its removal may be especially mentioned, exercise on foot and horseback, rowing, calisthenics, sea-bathing, nutritious food, and nervous tonics of medicinal character, as nux vomica, strychnine, quinine, and the general use of electricity. It is in this class of cases that many drugs and prescriptions styled emmenagogue have often succeeded in restoring the function even when used empirically. A state of general nervous atony is frequently attended by chlorosis and always by constipation. The nervous disorder and two of its resulting symptoms may be favorably affected by the stereotyped combination of aloes, iron, and myrrh or nux vomica; and the sluggish nerve power may be temporarily excited to the performance of its duties by the administration of tansy, rue, ergot, or savine. But it is not through desultory means of this character that a cure can be anticipated with any confidence. A more comprehensive plan directed to the improvement of the patient's constitution should be adopted and systematically pursued. As general means those already mentioned will always be found highly useful. If the patient while at home cannot be prevailed upon to practise sufficient self-denial to avoid what is injurious, or be made to develop the energy necessary to follow a course which requires effort, she may, with great advantage, be placed for a time in a well-regulated hydropathic establishment, where the early hours of retiring, simple food, exercise, society, pure air, and bathing will accomplish a roborant effect which will prove of great value in the cure of the affection.

But not merely should constitutional means be adopted. After the general condition has been improved, local stimuli may be resorted to with great benefit. Those which will be found to be most efficient are:—

Passage of the sound;
Tents;
Cupping;
Electricity;
Stimulating enemata;
Baths.

In their action these means probably exert an influence not only on the uterus but sometimes by their stimulating influence excite the process of ovulation. The sound should be passed up to the fundus once every day for three or four days before the

expected flow, or if the process of ovulation do not demonstrate its existence, it may be passed once a week throughout the month. At the same periods tents of sponge or sea tangle may be used; the former of which, from their irritating influence on the uterine mucous membrane, are preferable.

The cervix uteri may, by the application of an exhauster or dry cup, have a marked hyperæmia excited within it, which extends to the uterine body and replaces that which should have occurred from physiological causes. A very simple method for producing it is to inclose the cervix within the mouth of the cylinder of hard rubber represented in Fig. 195, and then exhaust the air by withdrawing the piston.

Fig. 195.



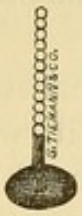
Syringe for dry cupping the cervix.

Before the introduction of this instrument the uterus should be exposed by means of the cylindrical speculum. In this way I have repeatedly drawn, without effort, one or two drachms of blood through the mucous lining of the neck.

Electricity is a means of some value. One pole of a battery may be applied over the lower portion of the spine and the other passed over the hypogastrium, placed in contact with the cervix, or even carried, by means of a wire covered, except for its terminal three inches, with a gum-elastic catheter, up to the fundus of the uterus. For the purpose of keeping up a mild but steady current within the uterus, Prof. Simpson has advised a stem composed of copper for one half its length and zinc for the other half, which is passed up to the fundus. It has an ovoid disk at its lower extremity upon which the cervix rests. Dr. Noeggerath has made an improvement in this by having the stem composed of two parallel pieces of copper and zinc, instead of two short pieces of these metals united at the centre of the stem. As these instruments must be left in place while the patient walks about, there is always danger of their injuring the walls of the uterus and exciting inflammation. To avoid this I have employed a stem composed of alternate beads of copper and zinc, held together by a copper

wire, which passes through the centre of each, and is secured to the uppermost and to the vaginal disk below. This may, by any movement of the uterus, be bent at the required angle, and consequently can do no injury. (Fig. 196.)

Fig. 196.



Galvanic pessary.

As an excitant of the menstrual flow, enemata of very warm water impregnated with chloride of sodium, aloes, or soap, constitute a valuable resource. Not only does the medicinal substance irritate the uterine nerves, but the warm fluid brought into close contact with the uterus excites a flow of blood to it. Hip-baths and pediluvia have long been resorted to for the purpose of exciting menstruation. They should be prolonged, and as warm as the patient can bear them. In addition to these means, copious injections of warm water may with benefit be thrown into the vagina, one or even two gallons being, by means of a proper syringe, projected against the os uteri.

Reasoning from analogy and from our knowledge of the physiology of menstruation, we are unquestionably warranted in the deduction that in a certain number of cases amenorrhœa is due to non-performance of the function of ovulation. It would be difficult to give clinical evidence of the fact, but it might be strongly surmised, when none of the symptoms usually attendant upon this present themselves at monthly periods. The means by which it should be treated are those already advised, for any of the causes mentioned may produce that variety of the affection which is due to non-performance of ovarian functions, in the same manner that they give rise to that form depending upon the incapacity of the uterus.

CHAPTER XXXVIII.

LEUCORRHŒA.

Definition.—This affection, the name of which is derived from λευκος, "white," and ῥεω, "I flow," consists in a whitish, yellowish, or greenish mucous discharge from the vagina.

Synonymes.—It has been, in modern times, described under the names of fluor albus, blennorrhœa, pertes blanches, fleurs blanches, and whites. In ancient literature the variety of names which was applied to it may be judged of when it is stated that over fifty appellations were at different times employed in designating it.

Frequency.—No disease or symptom in the whole list of female ills is so common. Probably no woman ever goes through life without at some period, and for a variable time, suffering from it. It is only when it becomes annoying by its constancy, abundance, or irritating properties, that it attracts attention and causes the patient to seek assistance.

History.—In the earliest writings of the Greek school and throughout Roman and Arabian medical literature, abundant descriptions of this disorder may be found. Hippocrates described it, pointing out as among its symptoms, puffiness of the face, paleness, and enlargement of the abdomen. He evinces a familiarity with its treatment by an admission of the difficulty of curing it. Aretæus of Cappadocia, in the first century, mentioned the varieties of leucorrhœa, as to color, quantity, &c., and Aëtius and Paul of Ægina speak of two forms of the affection, red and white flux. For the latter, Aëtius recommends gestation, vociferation, walking, &c. The Arabians, Haly Abbas, and Alsaharavius, wrote upon the subject, but advanced nothing new.

As in ancient times, so also in modern, it has attracted a great deal of attention, and until the establishment of the present school of Gynecology by Récamier, was treated of as a disease rather than as a symptom. Even long after this period it was commonly regarded as a disease; the result of constitutional debility, or the index of an impure blood state. For the views which are

now entertained concerning it, we are indebted to no one so much as to Dr. J. H. Bennet, of London, who, by his forcible reasoning, supported by clinical evidence, clearly demonstrated its dependance as a symptom upon some local lesion. Dr. Tyler Smith, in an elaborate essay upon the subject, has also done much to elucidate certain points in its pathology, which before his time had been undeveloped.

Pathology.—As a discharge of mucus or muco-pus is a symptom of urethritis, bronchitis, nasal catarrh, and faucitis, so is it a symptom of inflammation of the vagina and lining membrane of the uterus and Fallopian tubes. Whatever influence is capable of creating it elsewhere may give rise to it here, and in this position it is, as it is elsewhere, only an isolated sign of a pathological state. It is not by any means, however, always an evidence of inflammatory action. As many individuals upon exposure to cold will freely discharge mucus from the nostrils without any inflammation existing, so will many women suffer from leucorrhœa from any cause producing a temporary congestion of the mucous membrane. But in these cases the disease is temporary, following or preceding the menstrual congestion, or arising from fatigue or exhaustion. When it becomes permanent and the discharge grows profuse or acrid, its connection with a morbid state is rendered probable. At such times it is always a symptom of some abnormal condition of the uterus, Fallopian tubes, or vagina, and its presence should lead to an investigation of these organs.

Any agency which moderately increases vascular activity in a secreting organ, tends to augment the amount of its secretion. I say moderately increases, because an excessive turgescence, such as attends upon acute inflammation, checks secretion entirely. Such an influence being exerted upon any part of the mucous covering of the generative canal of the female, an excessive flow of plasma, together with a rapid exfoliation of epithelial cells and the formation of pus-corpuscles results.

Varieties.—Leucorrhœa is divided into two varieties, according to its origin, vaginal and uterine. Either of these may exist separately, or the two may coexist. If it be vaginal, it may continue as such for a length of time, or pass upwards into the uterus and tubes. If the inflammatory action producing the discharge be confined to the uterine mucous membrane, it may remain so without complicating the vagina, but that canal receiving the

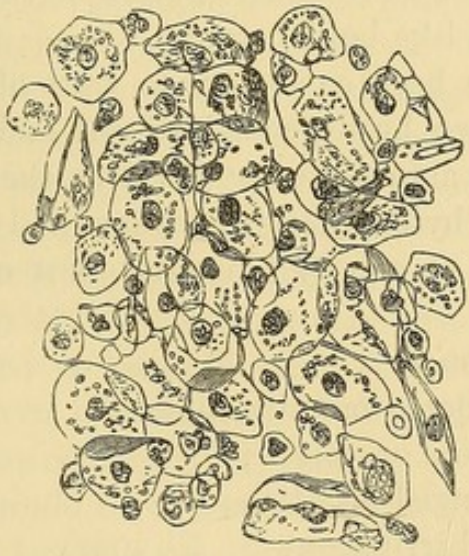
products of uterine secretion is generally excited into morbid action. A similar result may frequently be observed in nasal catarrh in children, the upper lip being bereft of its epithelial investment, and a papular or vesicular eruption excited over the neighboring parts of the face.

Vaginal leucorrhœa consists of a white, creamy, purulent looking fluid, which is composed, according to Dr. Tyler Smith, of the following elements:—

Acid plasma;
Scaly epithelium;
Pus-corpuscles;
Blood-globules;
Fatty matter.

Under the microscope it appears as represented in Fig. 197.

Fig. 197.



Vaginal leucorrhœa under the microscope. (Smith.)

That arising from the canal of the cervix is thick, tenacious, and ropy, like the white of egg, and consists of—

Alkaline plasma;
Mucous corpuscles;
Altered cylindrical epithelium;
Pus-corpuscles;
Blood-globules;
Fatty particles.

Examined by the microscope it presents the following appearance (Fig. 198).

That arising from the body of the uterus resembles the cervical

Fig. 198.



Cervical leucorrhœa under the microscope. (Smith.)

form, except that it is less gelatinous, less ropy, and more likely to be tinged with blood. But the secretion of uterine leucorrhœa, when acted upon by the acid secretion of the vagina, assumes a curdy appearance like boiled starch.

Causes.—It has been customary to treat of the causes of this affection under two heads, constitutional and local. They may be more correctly appreciated by dividing them into those causes which produce it by creating congestion, and those causing it by inflammation, for no agency can result in it except by these two methods.

Causes by congestion.

Disordered menstruation;
Fibroids or polypi;
Prolonged lactation;
Rectal irritation;
Vesical irritation;
Gestation;
Parturition;
Excessive coition.
Anæmia.

Causes by inflammation.

Endometritis, corporeal or cervical;
Granular degeneration;
Ulceration;
Fibroids or polypi;
Epithelial cancer;
Gonorrhœa;
Inversion of the uterus.

It will thus be seen that the disorder may in some instances be a trivial matter, which, by a judicious combination of general and local means, will rapidly disappear, while in many others it is merely an attendant circumstance of some grave pathological state of the uterus or vagina.

Prognosis.—This will depend in great degree upon the cause. If this can be readily removed, the prognosis will be favorable; while if it be connected with some serious organic lesion, it will not be so.

Results.—Uterine leucorrhœa often results in—

Sterility;
Vaginitis;
Pruritus vulvæ;
Vulvitis.

Dr. Tyler Smith, in the work just referred to, declares that it is even the cause of parenchymatous inflammation, granular degeneration, and hypertrophy. It is much more probable that the endometritis which results in the discharge also produces, by extent of inflammation, the other diseases mentioned.

Treatment.—The treatment of leucorrhœa should consist in the treatment of the disorder which has induced it. It should never be dealt with empirically. If a vaginal discharge exist, and an astringent injection be employed, it may effect a cure—but let the practitioner bear in mind in using it, that he is treating by it either congestion or inflammation of the genital tract, and not one of the symptoms of these affections.

The first care should be to determine whether the disorder is due to congestion or inflammation; the second whether it is uterine or vaginal. If it be vaginal, it may be relieved by injections; if uterine, injections will do no good except in preventing vaginal implication. Should it be decided that the affection results from vaginal disease of inflammatory type, the ordinary treatment for vaginitis, which has been elsewhere described, should be adopted. If it be regarded as due to a chronic congestion of the vaginal mucous membrane, tone should be given to its weakened and distended vessels by astringent substances employed by injection. The best astringents for this purpose are the persulphate of iron, alum, tannin, infusion of oak bark, zinc, and lead. In cases in which astringents do not appear to effect a good result, emollients, as glycerine, boiled starch, infu-

sion of linseed, slippery elm, or similar substances dissolved in water, will often prove beneficial.

Should the attack be due to uterine congestion, that condition should be as far as possible removed by appropriate means. In case investigation proves that some uterine lesion, as, for example, endometritis, or granular degeneration, has given rise to it, the existing disorder should receive attention.

In the treatment of chronic inflammatory states of the uterus, it will often be found of benefit to use astringent injections. These act not only by securing cleanliness, but by hardening the vaginal mucous membrane and rendering it less liable to disease. To enter more minutely into the treatment, would be to defeat the main object which I have had in view, that of subordinating the consideration of the disorder to that of the diseased states which produce it.

CHAPTER XXXIX.

STERILITY.

Definition and Synonymes.—This term, which is derived from στερεος, "barren," and implies an incapacity for conception, is synonymously entitled Barrenness and Infecundity.

History.—Throughout medical literature, from the earliest periods to the present, it has attracted special attention, and been the subject of dissertations by all authors who have touched upon the affections peculiar to females. The frequent reference made to it by Biblical writers as a great misfortune to women, is too well known to require special mention.

Causes.—To comprehend the pathology of sterility, the physiology of conception must be clearly understood. In the act of coition the male organ, being introduced into the vagina, projects into and against the cervix a fluid, consisting of a thick, watery portion, holding in suspension large numbers of ciliated cells which have the power of moving by ciliary action. The bulk of this fluid pours down into the vagina, but many of the cells which it contains pass upwards into the body of the uterus, and through the Fallopian tubes as far as the ovaries. Should they come in contact with an ovule, inpregnation may take place in the ovaries, Fallopian tubes, or uterus. When the impregnated ovule is received in the uterus, the mucous membrane of this organ undergoes exuberant development, and throws around it an envelope called the decidua reflexa. Further than this, the process does not concern us, for conception has now followed impregnation, fixation of the impregnated ovum having occurred.

These facts being kept in mind, it becomes evident that a variety of influences may interfere with the performance of this delicate and subtle process. For its accomplishment three things are necessary—

1st. The possibility of the entrance of seminal fluid into the uterus;

2d. The possibility of the entrance of an ovule into the uterus;

3d. The absence of influences destructive to the vitality of the semen and preventive of fixation of the ovule upon the uterine wall.

Should these three conditions exist, no woman will be sterile. She may not bear children, but the incapacity may attach to the male and not to her; or having conceived, she may have suffered from consecutive abortions, which have been mistaken for attacks of menorrhagia.

The special causes of sterility may be thus presented:—

1. *Absence of some essential organ.*
   - Ovaries;
   - Tubes;
   - Uterus;
   - Vagina.
2. *Interference with passage of semen into uterus.*
   - Obturator hymen;
   - Vaginismus;
   - Atresia vaginæ;
   - Occlusion of cervical canal;
   - Conical shape of cervix;
   - Cervical endometritis, or metritis;
   - Polypi or fibroids;
   - Displacements.
3. *Interference with passage of ovule into uterus.*
   - Obliteration of tubes;
   - Displacement of tubes.
4. *Interference with vitality of semen, or fixation of ovule.*
   - Corporeal endometritis;
   - Membranous dysmenorrhœa;
   - Menorrhagia;
   - Metrorrhagia;
   - Abnormal growths;
   - Vaginitis.

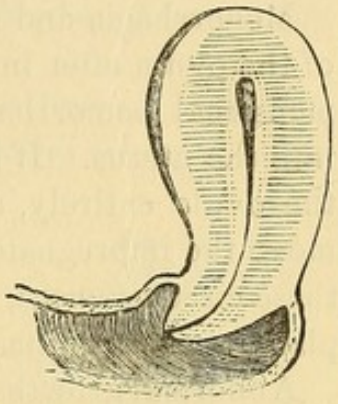
The mode of action of most of these causes is so self-evident as to make anything more than their mention unnecessary. Some of them, however, require special explanation.

Vaginismus is an appellation which has been given of late years to a hyperæsthetic state of the ostium vaginæ, which results in spasm of its sphincter. This interferes with the entrance of

the male organ, and consequently of seminal fluid into the vaginal canal; indeed, in aggravated cases it entirely precludes sexual approaches. The affection is by no means rare, and is a fruitful source of sterility.

An abnormal shape of the cervix has been pointed out by Dr. Sims as a frequent cause of infecundity. If this part be too long, so as to curl or bend upon itself, it is evident that it may not admit seminal fluid through its canal. But even a slighter degree of elongation, in which the cervix has a conical shape, has been observed to be frequently followed by that condition. My own experience leads me very positively to the conclusion that, excepting endometritis, this is the most common of all the causes, and fortunately one of the most remediable. Fig. 199 represents the variety of conoid cervix, generally met with as productive of sterility.

Fig. 199.

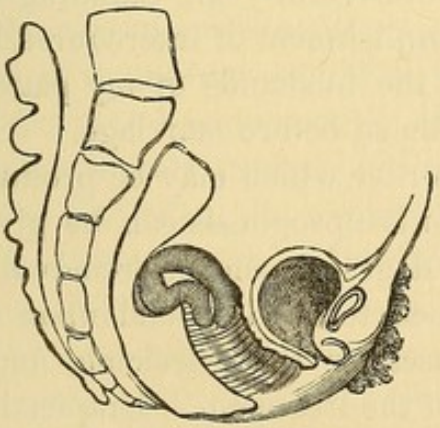


Conoid cervix. (Sims.)

Endometritis, whether it be cervical or corporeal, fills the uterine canal with a thick, tenacious mucus, which often prevents the entrance of seminal fluid.

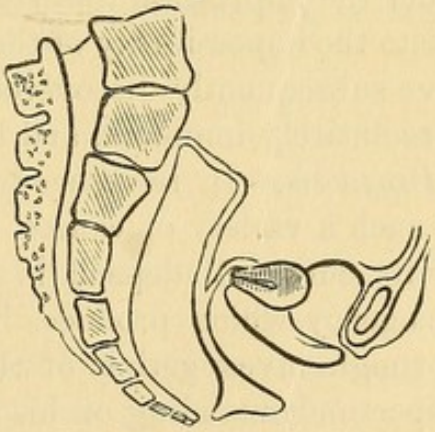
Flexions of the uterus, by producing bending of the cervical canal, and versions, by pressing the os against one wall of the vagina so as to close it as if by a valve, may entirely obstruct the

Fig. 200.



Flexion a cause of sterility.

Fig. 201.



Version a cause of sterility.

passage to the uterus. Figs. 200 and 201 exhibit this very clearly.

Obliteration and displacement of the tubes frequently result from

pelvic peritonitis, and thus that affection often entails sterility of the most irremediable character. The second stage of the disease consists in effusion of lymph, which in time undergoes contraction, and either closes these canals or draws them out of place.

Membranous dysmenorrhœa, or rather the tendency to exfoliation of uterine mucous membrane which characterizes it, so alters the uterine surface as to render it inapt for the fixation of the ovum.

Menorrhagia and metrorrhagia may result in the washing away of the ovum after impregnation and before fixation. The normal menstrual hemorrhage occurs before the entrance of the ovule into the uterus. If it be excessive and prolonged, it may remove the ovule entirely, and in the same way metrorrhagia may remove the impregnated ovum. An abortion does not occur under these circumstances, for although impregnation may have taken place, conception has not done so.

Abnormal growths of any form which fill the uterine cavity, as, for example, fibroids, polypi, hydatids, or moles, may so interfere with the attachment of the ovum to the uterus, as to prevent conception even when impregnation has occurred.

Differentiation. — Before it is determined that a woman is sterile, the sexual capacity of the husband should be ascertained. Men are averse to the confession of impotence, and will often allow the supposition of sterility on the part of their wives to be maintained rather than admit the truth. In two cases I have used an anæsthetic, ruptured the hymen, and distended the vagina, under the impression that sterility of several years' standing was due to the impossibility of the accomplishment of intercourse, and have subsequently discovered that the husbands of my patients were entirely impotent, and had been so before marriage.

Prognosis.—In reference to a disorder which may be produced by such a variety of causes, no positive prognosis can be given, for its cure will depend in great degree upon the removal of the agency which produces it. Much too will depend upon the thorough investigation of the causes by the physician, and a proper understanding on his part, of the treatment. Unquestionably a large proportion of sterile women might, by appropriate treatment, be made fruitful.

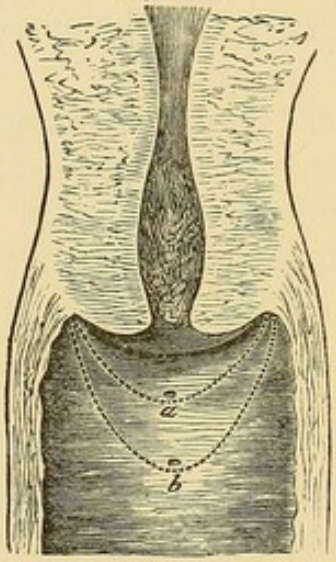
Results.—No physical results are produced by sterility, but its existence will frequently depress the spirits and sadden a disposi-

tion which, under other circumstances, would have been cheerful and equable. The married woman has always regarded and will forever view this incapacity as a reproach to her womanhood, and no amount of argument can make her accept it with resignation.

Treatment.— The treatment of sterility consists in the removal of its causes. Many of these are not susceptible of remedy, while the means of treating others are so evident that special mention may be confined to a few. Obturator hymen, vaginismus, atresia vaginæ, and occlusion of the cervical canal should be treated by the surgical operations appropriate to each.

In case the vaginal cervix should, to only a limited extent, be too projecting or conical, the bilateral operation for its enlargement should be practised after the method advised by Prof. Simpson for dysmenorrhœa. If a slight constriction of the cervical canal appears to be the cause of the condition, dilatation by tents may be essayed in place of a surgical procedure. In an aggravated case, when the neck projects markedly and is decidedly conoidal in shape, both these means are insufficient; amputation then becomes necessary. The diagram (Fig. 202) shows the amount of tissue which should be removed. After this has been recovered from, the bilateral operation for cervical hysterotomy is often necessary before cure is effected. In this connection the chapters upon dysmenorrhœa and amputation of the cervix should be referred to.

Fig. 202.



The dotted lines show the excess of tissue in the cervix. (Sims.)

Metritis and endometritis, whether of body or cervix, should be appropriately treated, and abnormal growths should be dealt with as if sterility did not exist.

If a displacement be discovered and replacement and retention be possible, they should be practised. But if in case of flexion this be impossible, the uterine canal should be rendered as straight as is practicable, by the cervical incision recommended by Dr. Sims for dysmenorrhœa. Menorrhagia and metrorrhagia should be treated upon the plan recommended in the chapter upon those subjects, and the patient be advised to keep very quiet and to avoid warm and stimulating beverages during menstrual epochs.

A remark made in connection with the treatment of leucorrhœa may, with propriety, be repeated here, namely, that to enter more minutely into the study of special remedial measures would tend to divert the mind of the reader from a point which I regard as of paramount importance, namely, that this affection is only a symptom which should be reached through the malady which induces it.

CHAPTER XL.

AMPUTATION OF THE NECK OF THE UTERUS.

UNDER certain circumstances where it is impossible to overcome morbid conditions of the cervix uteri by caustic and alterative applications, amputation of this part is practised. As a description of the operation has not been called forth by any division of our subject which has thus far been treated, it will be well to allot a place to it here before leaving the consideration of uterine and taking up that of ovarian diseases.

History.—Ambrose Paré[1] was the first surgeon who advised amputation of the cervix. He recommended it in malignant growths of the part, to which, he says, "we may apply the speculum matricis, in order to see more easily." It is reported upon insufficient authority, to have been performed as early as 1652 by Tulpius, of Amsterdam, and in 1766 by La Peyronie. Daniel Turner,[2] of London, in 1736, reported an instance in which the neck of a prolapsed uterus was amputated by means of a razor in the hands of the patient herself, who was insane. The recovery of the woman was evidently regarded as a wonderful circumstance. In 1802 the operation was systematized by Osiander, who performed it twenty-three times, and after this it was resorted to by Dupuytren, Récamier, Hervez de Chegoin, and others. It was, however, in the hands of Lisfranc that it attracted special attention, and in consequence of his enthusiasm, it was for a time regarded as a means which was destined to accomplish a vast deal of good. His reports of its results were most favorable, and he described its dangers as slight. But soon after his publications upon it there appeared a counter-report from the young physician[3] who took charge of many of his cases and was familiar with all, which cast discredit upon all the master's statements. By Pauly,

[1] Œuvres d'Ambroise Paré, lib. xxiv. p. 1012.

[2] N. Y. Med. Journ., vol. v. No. 5.

[3] Pauly, Maladies de l'Utérus, Paris, 1836.

the truth was, as Becquerel expresses it, "brutally revealed," and it was entirely at variance with the representations of Lisfranc. Since that time the operation has to a great degree fallen into disrepute, but is still resorted to in appropriate cases, and has now as advocates Simpson, Huguier, Sims, and others of equal eminence.

Dangers.—The dangers of the procedure are the following:—

Primary hemorrhage;
Secondary hemorrhage;
Peritonitis;
Cellulitis.

The statistics of the operation have not as yet been carefully collected. Lisfranc reported 99 operations and only two deaths, but these statements Pauly renders more than doubtful. Huguier reports 13 operations and no deaths; Sims over 50 operations and one death; and Simpson 8 operations and one death.

Conditions Demanding Amputation.—The conditions which usually demand the operation are the following:—

Cancroid tumor of the cervix;
Epithelial cancer of the cervix;
Cancer strictly localized;
Great induration from cervical metritis;
Longitudinal cervical hypertrophy;
Conical and projecting cervix.

One of these conditions, longitudinal cervical hypertrophy, not having previously received special mention, requires it here. The cervix may be congenitally very much elongated, either above or below the vaginal junction. Generally it undergoes hypertrophic elongation from a low grade of cervical metritis or endometritis, congestion long kept up, or prolapsus in the third degree. Under these circumstances the neck grows very long, so as to rest between the labia or even to project for a number of inches from the body, and has in some instances been mistaken for the penis. By means of the touch, conjoined manipulation, the speculum, and the probe, a diagnosis can readily be made. It was this condition which M. Huguier, some years ago, maintained deceived practitioners into the belief in prolapsus uteri.

Varieties of the Operation.—In some cases, as in cancer, for example, it is necessary to remove the entire cervix and even as much tissue as possible from that portion of the organ above the

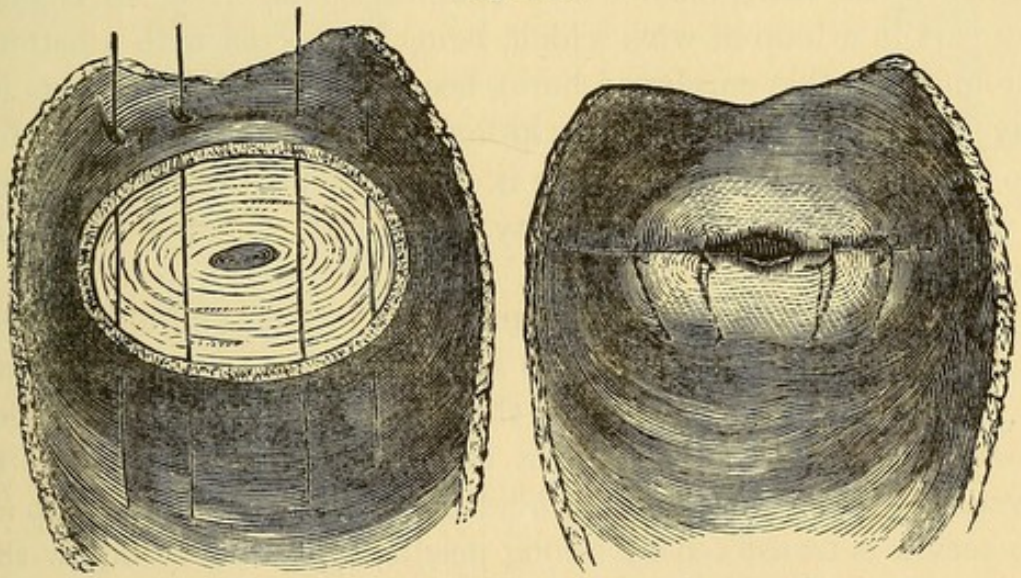
vaginal attachment. In others, only half of the vaginal portion requires ablation, while in still another set of cases, only the removal of a thin section of the hypertrophied lips is called for.

Methods of Performance.—The operation may be performed by the following methods:—

By the bistoury or scissors;
By the écraseur;
By the galvano-caustic.

Operation by Bistoury or Scissors.—When performed by the first method, the patient should be placed upon the left side and Sims's speculum employed. The cervix being slit bilaterally, one lip is seized and cut off as near the vaginal junction as is deemed advisable, and then the other is removed in a similar manner. Formerly the operation was completed at this point, but Dr. Sims has introduced the practice of drawing down the mucous membrane and stitching it, as shown in Fig. 203, with silver sutures so as to

Fig. 203.



Covering stump of cervix with mucous membrane. (Sims.)

cover the stump as that of the arm or thigh is covered by skin after amputation of those parts. The scissors most advantageous for the purpose, will be found to be those bent at a right angle, as represented in Fig. 204.

When the stump is covered by mucous membrane, after the plan of Sims, recovery is much more rapid than when granulation is allowed to accomplish the cure.

Operation by the Écraseur.—In operating by this method, if the uterus be prolapsed, or if the degree of longitudinal hypertrophy

Fig. 204.



Uterine scissors, bent nearly at a right angle.

be so excessive as to cause full protrusion of the cervix, or if such protrusion be attainable by moderate traction, the patient may be placed on the back. If the uterus be high up in the pelvis and strong traction be necessary to depress it, the best position will be found to be that advised when scissors or the bistoury are employed, the speculum being used. The passage of the chain will be found to be very simple, and the part should be slowly cut through.

In using the écraseur for this purpose, great care should be observed not to allow of too great dragging of the chain upon the neck without cutting. If attention be not given to this point, the peritoneum may be opened.

Operation by the Galvano-Caustic.—The galvano-caustic consists simply of an instrument which enables the operator to engage any part in a loop of wire which, being connected with a battery (Grennett's is that employed here), becomes white hot and cuts its way through. For the description which follows, as well for the diagrams which accompany it, I am indebted to the kindness of Dr. B. F. Dawson, of this city. Figs. 205 and 206 represent the instrument.

The patient having been put under the influence of chloroform or ether, is placed in a position similar to that for the operation of perineal section; a sound is then introduced into the bladder in order to ascertain the extent of coexisting cystocele, and to reveal the exact limits of the bladder. Then the anterior lip of the cervix is transfixed by a long needle, immediately below the limits of the bladder, the point of the needle being directed somewhat obliquely, so as to penetrate into the cervical canal a few lines above its point of entrance. The finger of the left hand being introduced into the rectum to ascertain the degree of rectocele present, the needle is then passed through the posterior lip in an opposite direction to its line of entrance, and as near as possible to the limits of the rectocele. After the cervix is thus transfixed, it is seized by a pair of Muzeux's forceps, and the wire loop of the machine is then passed around it, immediately in front of the transfixing needle, and moderately tightened. Before

Fig. 205. Fig. 206.

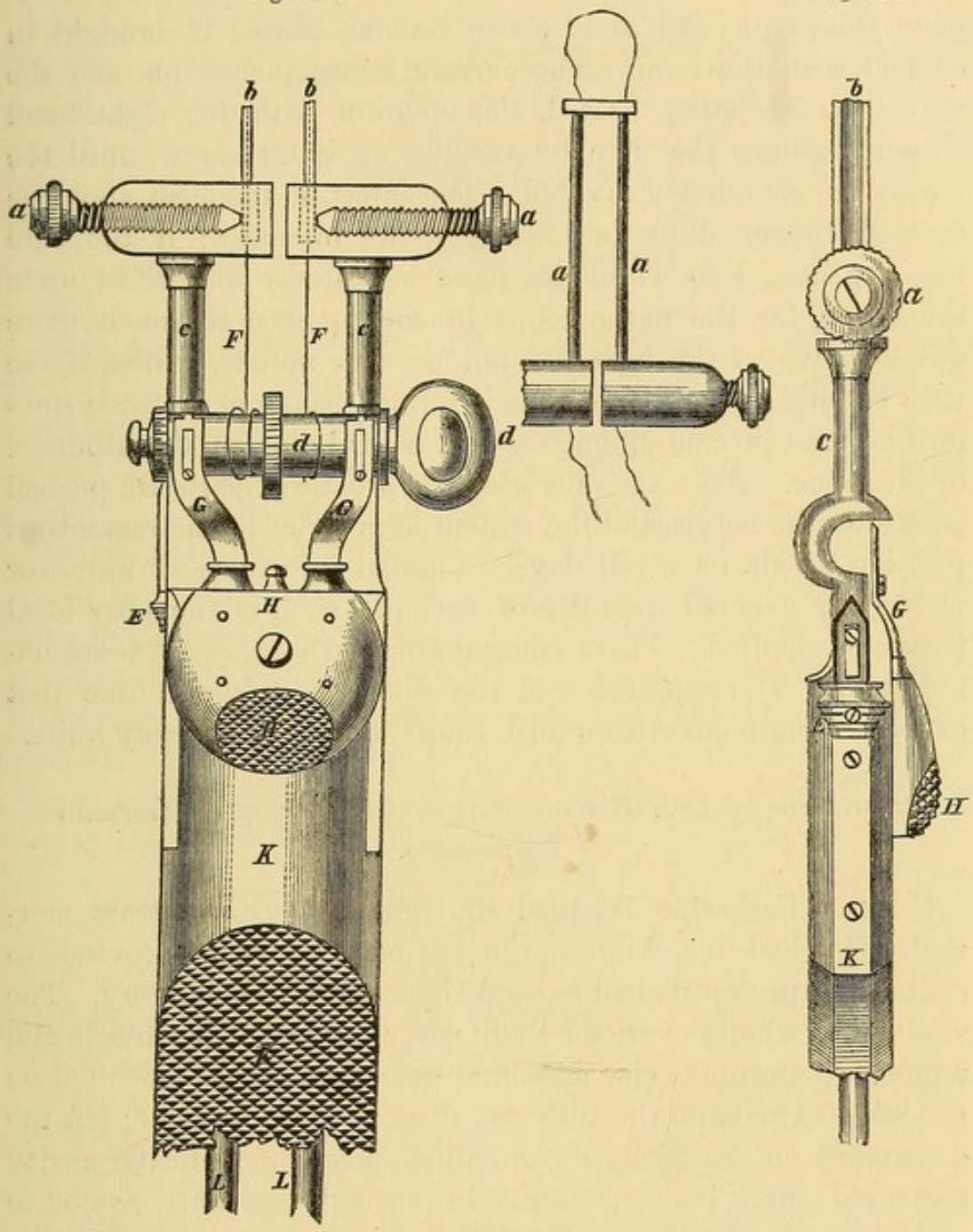


Fig. 205.—Galvano-caustic apparatus. *b b*, wire loop. *a*, *a*, canulæ. *a*, screw to fasten the canulæ in place. *b*, canulæ through which the wire passes. *c*, metallic supports. *d*, ivory screw around which the wire is wound to diminish the loop. *E*, brake to ivory screw. *F*, wire forming the loop. *G*, springs for connecting the supports and canulæ with the battery current. *H*, thumb slide to connect or break current. *K*, bone handle through which pass the connecting wires, *L L*.

The wire loop is connected with the battery by passing through two metallic canulæ, which are inserted in the cross-pieces and fastened in place by the screws *a*. A bone handle enables the operator to hold the instrument without interfering with the current, and by means of the thumb slide *H*, he may connect or disconnect the wire with the battery.

Fig. 206.—Side view of the galvano-caustic apparatus.

connecting the wire loop with the battery it is advisable to remove the needle, as it is likely to become heated if brought in contact with the loop. The current being turned on, and the wire loop becoming heated, the operator with his right hand slowly tightens the wire by turning an ivory screw, until the tissues are completely divided. The effect of the heat upon the divided tissues, differs according to its intensity; if the wire becomes heated to whiteness, there is scarcely any effect upon the tissue, for the parts being in consequence so much more quickly divided the heat has not time to radiate, whilst, if the wire be only red hot, an eschar is formed from one to three lines in thickness, in consequence of the coagulation of the albumen of the tissue. After the operation the prolapsed parts are pushed back into the pelvis, and the patient kept quiet in the recumbent position for six or seven days. Vaginal injections of water, or water and a small quantity of carbolic acid, is the only local treatment applied. There being no hemorrhage, styptics are unnecessary. The appearance of the divided surface is like that of a raw potato cut with a dull, rough, and slightly rusty knife.

Operations by Drs. J. Kammerer and Guleke, at the German Dispensary.

Case 1. Catherine D., aged 43, German, fourteen years married. Has had five children, the last one two years previous to operation; prolapsus had existed since her fourth delivery. The vagina was wholly everted; there was considerable cystocele and rectocele; uterine cavity measured over five inches; operated on the 8th of April; on the 16th was allowed to walk about; left the dispensary on the 25th; examination May 18th; uterine cavity measured three inches; uterus in normal position; cystocele entirely gone; anterior wall of the vagina tense; posterior wall somewhat relaxed; slight rectocele still existing.

Case 2. Amelia S., aged 40, German, fifteen years married. Has had four children, the last one two years previous to operation. There was eversion of the vagina, cystocele, and rectocele; uterine cavity measured five inches; operated on, on the 17th of May; four weeks after the operation the uterus was retroflexed; there was no prolapsus or rectocele, but a slight cystocele still remained.

CHAPTER XLI.

DISEASES OF THE OVARIES.

History.—Ancient literature is singularly barren upon the subject of ovarian diseases. That the functions of these organs were known to early anatomists, there is no doubt—for as early as 200 B.C. the operation of castration of female animals is alluded to by Aristotle, and in the second century A.C. they were described by Galen under the name of "testes muliebres." As to the influence exerted by them upon menstruation, they were not informed—for they attributed that process, according to Aristotle, to a superfluity in the blood, an opinion which was entertained even by Hippocrates. The works of Aëtius make no mention whatever of ovarian disorders, and those of Paul of Ægina are equally silent. When it is borne in mind that the ovular theory of menstruation dates back for its origin to the labors of Négrier, Gendrin, Lee, Bischoff, Pouchet, and others of our own time, and that the operation of ovariotomy was never systematically performed before the year 1809, it will be appreciated how recently the profession even in modern times has fully grappled with the subject.

During the past ten or fifteen years full amends have been made for this delay in progress, for since that time no portion of the field of Gynecology has received more attention or been more thoroughly investigated than that which now engages us. Not only have most of the diseased conditions of the ovaries been satisfactorily investigated, and the diagnosis of them reduced to a scientific system; for the most frequent and important of them surgical means have been instituted with such success as to have given procedures of the most appalling character and undoubted dangers, the position of legitimate and justifiable operations. The recent literature of ovarian pathology and surgery is now enriched by the contributions of so many capable observers, that it is almost invidious to particularize the most prominent. It

may be stated, however, that Tilt, Wells, Clay, and Farre, in England; Négrier, Pouchet, Coste, and Aran, in France; Scanzoni, Kiwisch, and Rokitansky, in Germany; and McDowell, Atlee, Peaslee, and Dunlap in America, are they to whose labors we are most indebted. Unfortunately there is one set of ovarian affections with reference to which these statements are not true—those of inflammatory character. Our means of diagnosis of ovaritis, both acute and chronic, is, in spite of all the labors alluded to, so elementary and unreliable that the result is discordance of views, and uncertainty as to pathology and therapeutics. It was probably the contemplation of this fact which led Scanzoni to open his article upon diseases of the ovaries with the following sentence. "If we felicitate ourselves upon the progress which has been made during the last few years, in the diagnosis and treatment of the diseases of the uterus, we should, on the other hand, remember that the labors of gynecologists in respect to the diseases of the ovaries have been almost fruitless in practical results."

Anatomy of the Ovaries.—The ovaries are two follicular glands about the shape and size of small almonds, situated one on each side of the uterus. So dependent are they upon the position of the uterus and surrounding viscera that they have really no fixed place. They are usually found in the lateral and posterior parts of the true pelvis, about an inch from the uterus, and just below the point where the Fallopian tubes enter that organ, the left being in close proximity with the rectum. Each ovary is covered over by peritoneum, which connects it with adjacent structures, and is firmly united with the uterus by means of a fibrous cord arising from the horn of each side.

The Fallopian tube of each side is connected with the ovary by one fimbria, and acts at periods of ovulation as an excretory duct. Except at its attached margin the ovary is invested by peritoneum, beneath which is its own proper tunic of fibrous tissue called the tunica albuginea. Within this is a peculiar, soft, fibrous tissue or stroma of very vascular character, which contains a number of small, round, transparent vesicles called Graafian follicles. By the naked eye from ten to twenty of these are discernible, but by the aid of the microscope an immense number are seen. Removed from the stroma and examined with care by the microscope, each one of these vesicles is found to consist of a sac, called the tunic, which is filled with fluid, the liquor folliculi,

in which is contained the ovum or egg, which is the female contribution to conception.

It is now an accepted fact with most physiologists, although still contested by some, that the periodical discharge of blood from the uterus, which is called menstruation, is merely a uterine symptom of the discharge of one of the ova from the ovary by rupture of a follicle. After the period of puberty has arrived, one or more of the follicles of each ovary burst every month by the following process: a congestion or hyperæmia occurring in the ovary for some reason beyond our comprehension, causes an excessive secretion by the walls of the follicle, in which a miniature dropsy takes place. This goes on to rupture, and escape of the liquor folliculi, blood, granular cells lining the ovisac, and the ovum. The nervous supply to both uterus and ovaries is excited by this, and one of the results of such excitement is a rupture of the bloodvessels of the mucous membrane of the uterus and escape of blood. The ovisac being emptied a clot of blood soon forms within it, then an hypertrophy of the cells lining it occurs, and the corpus luteum is formed.

If the examiner hold up one of the broad ligaments between himself and the light, a small plexus of white, crooked tubes will be seen forming a cone, the apex of which is directed towards the hilus of the ovary. It measures about an inch in breadth, and consists of about twenty tubes which are filled with a clear fluid. This is the organ of Rosenmuller, which has recently been minutely described by Kobelt under the name of the par-ovarium, and is supposed by him to be an exaggeration of the Wolffian body. The exact location of the par-ovaria is this: they lie beneath the ovaries and between the ultimate folds of the peritoneum covering the fimbriated extremities of the Fallopian tubes, which have received the name of the alæ vespertilionum.

The ovaries are supplied with blood through the spermatic arteries, which, upon arriving at the margin of the pelvis, pass inwards between the layers of the broad ligaments, and thus reach their lower border. Their nervous supply is not extensive, and is derived from the renal plexus.

Varieties of Ovarian Disease.—Any one or all of the tissues just described may be affected by disease, or the position of the ovary may be altered to such an extent as to constitute a disease. The

following table presents a list of the disorders of these glands which will now receive special attention :—

Absence;
Imperfect development;
Atrophy;
Hypertrophy;
Apoplexy;
Inflammation;
Tumors.

Absence.

One or both of the ovaries may be congenitally absent, but such a condition is very rare. When it does exist, it is generally only a part of a complete want of genital development which is manifested not only by these organs but by the parts making up the vulva, the vagina, and the uterus. Kiwisch declares that it has been most frequently observed in the bodies of newly-born infants who were not viable on account of complicated deformities.

When the ovaries are removed from a fully matured woman her whole aspect changes. The breasts become flat, the features and voice masculine, and beard appears upon the face; or rather, such have been the results in the few instances in which the experiment has been tried, as, for example, in the celebrated case in which Percival Pott extirpated both ovaries which were lodged in the inguinal canals. But where there is congenital absence, such is not the case; the woman is generally small in stature, her figure undeveloped, as if the period of girlhood were abnormally prolonged, and the genital system imperfect, as already mentioned.

Although a certain diagnosis can only be arrived at post mortem, a legitimate deduction may be drawn during life which may guide us in prognosis and treatment. Indeed, one of the greatest benefits which can accrue from a correct conclusion will consist in the avoidance of all efforts which, being vainly addressed to exciting the performance of the functions of the ovaries, deteriorate the state of the patient. Should the general condition of the patient, the undeveloped state of the vulva, vagina, and uterus, and the entire absence of the menstrual crisis combine as evidences of the condition, a diagnosis is admissible.

Imperfect Development.

This condition, which consists in persistence of the fœtal state of these organs after the period of puberty when rapid development should have occurred, is by no means so rare as that just mentioned. It may exist on one side only, though it generally affects both. As in the case of absence, a certain conclusion is not easy, and as in that case, also, we draw a presumptive conclusion from want of development in the other organs of generation, absence of the usual signs of the menstrual crisis, and lack of general constitutional vigor and development.

As examples of cases susceptible of such an explanation I record the histories of two with which I have recently met. The first is that of Miss F., referred to me by Dr. Rodenstein, of Manhattanville. She is twenty-four years of age, and yet has the appearance of a girl of thirteen. Indeed, it is difficult to believe the statement that she is more than that age. The features, limbs, mode of expression, and general deportment are those of a child. She has never menstruated nor shown any evidences of a tendency to do so. Physical exploration shows the vulva in the state of early girlhood, the mons veneris destitute of hair, the labia thin, and the vagina so small and narrow that the little finger only can be introduced, and that causes great suffering. The canal being short as well as narrow, the uterus can be touched, and is found like a little nut in the vagina, so light that its weight is scarcely perceptible.

The second case is one which I occasionally see with Prof. W. H. Thompson. The patient is eighteen years old, and has never menstruated. Previous to the treatment established by Dr. Thompson, she suffered greatly from epileptic seizures, which have evidently impaired the force of her intellect, but during the past two months she has been free from them.

The girl is slow in her movements, childish in manner, and stupid in replying to questions. Upon physical exploration, the vulva, vagina, and uterus are found fully and perfectly developed, the latter giving by measurement with the uterine probe, two and a half inches. Nothing can be elicited with reference to the ovaries by physical means, but the rational signs mentioned, together with the fact that all the appearances of girlhood are combined with entire absence of any apparent effort at ovulation, render the

supposition that the ovaries are undeveloped, or fœtal, highly probable.

Sometimes cases will be met with in which masculine development, emansio-mensium, and sterility will lead to a diagnosis of absence of the ovaries, but which will subsequently undergo a change and give all the evidences of the presence and efficiency of these organs. One such case, which occurred in the practice of Dr. Metcalfe and myself, is worthy of record. Mrs. B., a large, muscular, and handsome woman, had menstruated very irregularly and scantily for ten or fifteen years. Sometimes the menstrual discharge would be entirely absent for months, then it would at long and irregular intervals show itself for a day. Her health was not affected by this in any way. She presented, however, many signs of masculinity; the voice was harsh, the breasts flat, and the chin covered with a sparse beard. After having been married for years she became pregnant, and in due time bore a child, subsequent to which she menstruated more regularly and plentifully, and has since borne two children.

Treatment.—Should the ovaries be congenitally absent, it is evident that art can do nothing to remedy the evil. Should they exist in an undeveloped or fœtal state, it is possible that by a proper stimulus applied to them by the most direct means in our power, growth and maturity may be fostered, unless the condition be one of aggravated arrest of development. The means which are most likely to accomplish this are:—

General tonics;
Uterine irritation;
Electricity;
Marriage.

The sanguineous and nervous systems should both be brought into as perfect a state of health as possible by ferruginous and bitter tonics, fresh air, exercise, change of scene, and a general observance of the laws of hygiene.

The most direct method for irritating the ovaries is through the uterus, with which so close a sympathy exists. For this purpose tents may be occasionally resorted to, as often, for instance, as once or twice a fortnight or month. This not only prepares the uterus for its part of the process, menstruation, but causes a hyperæmia in the ovaries, which we know to be the physiological forerunner of ovulation.

Electricity may be employed by placing one pole of a battery over the spine and one over the ovaries, or, as is better, by carrying a sound, protected where it touches the vagina, to the fundus uteri, connecting this with a battery and passing the other pole over the ovaries. An intra-uterine galvanic pessary may likewise answer a good purpose.

The ovarian irritation and congestion incident to the marital act will sometimes excite ovulation, not at the moment of coition, as was formerly supposed, but remotely.

Atrophy of the Ovaries.—At a period, varying from the fortieth to the forty-fifth year, the ovaries are destined to undergo atrophy. They diminish in volume, become wrinkled, the Graafian follicles disappear, and the stroma becomes dense and non-vascular. This is a physiological process, and marks what is termed the menopause, or period of menstrual cessation. Sometimes this process sets in at a very early period, owing to some abnormal condition which has excited it, and produces the same results as those following it when it takes place at the normal time.

Causes.—With regard to the special causes of this occurrence very little is absolutely known, further than the fact that it sometimes occurs from pelvic inflammations. It is probable that acute ovaritis may produce it, and it is certain that, at times, it results from pelvic peritonitis and cellulitis.

The following case which presented itself at my clinique a few weeks ago is illustrative of this fact. Mary G., a healthy young Irish woman, aged 24 years, stated that she had a miscarriage at the third menstrual period, five years ago in Albany. Three days after the product of conception had been cast off, she was taken with a chill, violent pain over the abdomen, and was declared by her physician to have inflammation of the bowels. Of this attack she nearly died, but after a confinement to bed for six weeks grew better. For two years after this she had irregular, painful, and profuse menstruation. As she expressed it, whenever she became fatigued or excited, flooding would come on. After this time the menstrual periods disappeared, and she now applied for relief on account of amenorrhœa of three years' standing. Physical exploration revealed the uterus in normal position though diminished in size to about two inches. Nothing could be ascertained about the ovaries.

The view which I took of the case was that pelvic peritonitis

and acute ovaritis originally existed; these left the parts in such a state that for two years metrorrhagia and menorrhagia occurred; then subsequent contraction occurring in the effused lymph in and around the ovaries, atrophy resulted with its usual consequence, amenorrhœa.

The peculiarly destructive influence exerted upon the ovaries by pelvic peritonitis will be impressed upon any one who makes an autopsy in a patient who has died of that affection, or who reads the reports of others. Very often the ovaries cannot be discovered in the mass of "putrilage" which occupies their site.

Treatment.—An attempt may be made, by the means recommended in the treatment of undeveloped ovaries, to excite ovulation in any part of the glands which may still be capable of performing the function. But it should not be persisted in if not at once attended by good results, for inflammatory action may be excited by it. When these means are essayed, great caution should be observed and their influence developed only to a limited degree.

Hypertrophy of the Ovaries.

When from prolonged congestion, or a low grade of inflammation which does not go on to the production of suppuration, the nutrition of the ovarian tissues is kept up to a maximum degree, these organs undergo enlargement from increase in the amount of their parenchyma, and hypertrophy is said to exist. Kiwisch declares that under these circumstances complete atrophy of the follicles always occurs, and thus ovaries which appear excessively developed may evidence the same functional disability as those which are entirely atrophied. There is a marked difference between this state and that enlargement which results from mere effusion of lymph, a consequence of inflammatory engorgement. The latter is only one of the stages of inflammation: but if the excess of nutriment which reaches the part become organized, appropriated, as it were, by the organ in which it exists, as one of its component parts, then the case belongs to the former category. Although, then, hypertrophy is not an immediate, it may be a remote result of inflammation, as has been pointed out by Kiwisch. Rokitansky disposes of the subject in a few words,

merely stating that this condition may be one of the results of hyperæmia, and Wedl makes no allusion to it.

Dr. Bright describes an instance of this affection in which the ovaries were as large as kidneys, and of solid, fleshy consistence, unlike malignant disease. The symptoms attending this case are given below.

The symptoms of ovarian hypertrophy are very obscure, and very little is known concerning the clinical history of the affection. A sense of weight in the iliac regions and groins, discomfort upon locomotion, and disorders of menstruation may be assumed to be symptomatic of its existence so far as rational signs are concerned. To go further than this would be risking the admission of mere theory, where only clinical facts should have weight. The following is the history of Dr. Bright's case. "The woman had borne children, and when past the menstrual period of life, was seized with pains which were referred to the uterus. These continued more or less acute for two months, when a considerable, indurated substance was perceptible in the regio pubis, referable, as was considered, to a morbid state of the uterus. After this time a difficulty in making water added greatly to her suffering; indeed it amounted to inability in the erect position of the body, but the recumbent posture sensibly removed the only impediment to its discharge. From anxiety, which her intolerable pain induced, or from a combination of circumstances, she became the most emaciated object I ever witnessed. Jaundice supervened, attended with ascites, and in this precarious situation, some one being consulted, took up the idea of its being a scirrhous liver, and recommended a moderate ptyalism to be raised and supported. The hardened substance before mentioned was considered by him as a continuation of the liver. Mercury, however, was only given in small quantities; and soon after she began its use, death closed the scene."

This history is given for what it is worth. It is certainly a remarkable one, supposing that Dr. Bright was correct in regarding the disease as being non-malignant; but it cannot be looked upon as typical of the course of an affection, the prognosis of which is by no means unfavorable.

As the rational signs of hypertrophy are so meagre, it is fortunate that those which are physical are much more reliable. The increase of size and weight dependent upon the disease, very

often displaces the ovary, when it is discovered by conjoined manipulation as a slightly sensitive body, usually about the size of a walnut, in Douglas's cul-de-sac, or by the side of the uterus. Even if the ovary or ovaries affected keep their normal position, careful manipulation will, unless the patient be very fat, discover their enlargement. Should they be fully within reach of investigation by touch, and doubt exist as to the nature of the tumor felt, the facts of their becoming very turgid and sensitive during menstrual epochs, and diminishing in size and sensibility after these periods have passed, will serve to settle the question.

Treatment.—An attempt should be made to stimulate absorption by the persevering use of iodine, in the form of tincture or ointment, over the hypogastrium and over the whole surface of the vagina, where it may be painted through the speculum; and irrigation per vaginam by warm water holding in solution iodine, chloride of sodium, or iodide of potassium. The use of the iodides internally, of sea bathing, and of mineral waters internally and externally, and observance of quietude during menstrual periods, when congestion adds itself to the existing disease, also constitute useful measures.

Ovarian Apoplexy.

Definition.—The word apoplexy is very loosely employed in reference to sanguineous effusions in all the organs of the body, some signifying by it sudden vascular rupture, while others apply it to interstitial hemorrhage occurring even very slowly. This has created confusion of description, and certainly added difficulty to the clear comprehension of the pathological states to which it has been synonymously applied. Thus, in describing ovarian apoplexy, Kiwisch[1] divides it into primary and secondary, considering as examples of the latter, hemorrhage from the walls of a cyst which fills it slowly with blood, or hemorrhage the result of tapping. The two conditions should be regarded as essentially different, and I would offer this as the proper definition of our subject. Apoplexy of the ovary consists in a rapid effusion into its tissue of blood which results from sudden rupture of one or more of its larger vessels.

[1] Op. cit., p. 232.

The ovaries present the only example in the animal economy, of apoplexy occurring as a physiological act. At each menstrual period, as an ovule leaves its nidus, an apoplexy from the vessels of the tunic of the ovisac occurs as a necessary consequence. It is this which, upon subsequent alteration, constitutes the corpus luteum. Generally these hemorrhages are self-limiting, and their effects rapidly disappear; in some cases, however, the bleeding continues too long or returns after cessation, and then the collection of blood sometimes reaches the size of a man's fist or of a child's head.[1] In some instances the tunica albuginea of the ovary is completely ruptured, when the effused blood pours into the most dependent portion of the pelvic cavity, constituting pelvic hæmatocele.

Symptoms.—The occurrence of apoplexy is often ascertained only in autopsy, no signs existing during life by which it can be positively diagnosticated. The symptoms which will usually point to its existence, are sudden and violent pain over the region of one ovary, with sense of great exhaustion, nausea, and vomiting. These symptoms, if combined with enlargement and tenderness of one ovary, as ascertained by conjoined manipulation, will be sufficient to render a diagnosis warrantable if the patient's health has previously been good.

Prognosis.—The great danger from the accident is peritonitis, arising either from implication of the visceral layer as it covers the ovary, or from rupture of the tunica albuginea and occurrence of hæmatocele.

Treatment.—Should there be symptoms of peritonitis, leeches should be applied, and followed by poultices or a blister. Beyond this, all that can be done is to keep the patient quiet in the recumbent posture, and prevent all muscular effort until absorption occurs.

Displacement of the Ovaries.

The extreme mobility of these glands and the laxity of their supports have already been remarked upon. Any influence which increases their weight, draws upon them directly, or acts upon them by traction through a neighboring organ, may cause them to leave their position, and even in rare cases to pass out

[1] Kiwisch, op. cit., p. 232.

of the pelvis in the form of hernia. For example, they may be displaced by inflammation, hypertrophy, ovarian fœtation, &c., which cause increase of weight; or they may be acted upon by contractions of effused lymph, resulting from pelvic peritonitis; contraction of the ovarian ligament, &c., drawing them out of place; or they may be affected by displacement of the uterus, pregnancy, or hernia of any of the abdominal viscera acting upon them by means of traction. A hernia of the ovary alone is very rare; it is almost always attended by hernia of the Fallopian tube, or some portion of the intestines or omentum.

The ovaries often fall when their weight is increased, into the cul-de-sac of Douglas. More rarely they pass into the inguinal canals, or through them into the dartoid sacs of the labia majora. Here they show a monthly intumescence, which creates great local disturbance and keeps the part swollen, heated, and tender until ovulation is passed. Deneux[1] declares that they may enter the femoral, umbilical, and ischiatic openings, or form a part of ventral hernia, and Kiwisch has reported a case in which one entered the foramen ovale. The accident is rarely important in its results except in reference to excluding the suspicion of other forms of tumor and avoiding the danger of surgical interference under a mistaken diagnosis.

Treatment.—The treatment consists in returning the displaced part by taxis, and keeping it *in sitû* by a properly constructed truss, pessary, or bandage. Should the gland be bound in its false position by strong membranes, the propriety of its removal might be considered, in case serious inconvenience resulted from the displacement.

Ovaritis.

Definition.—By this term is meant an inflammation of the tissue comprising the ovaries, which has been described by some authors under the name of Oophoritis. A dogmatic treatise upon ovaritis in the non-puerperal woman is, in the present state of science, impossible. So much concerning the disease is unsettled, and such utterly discordant views are entertained upon it by the most reliable authorities, that too great caution cannot be observed in treating of the subject, lest theories constructed upon analogi-

[1] Recherches sur la Hernie de l'Ovaire.

cal reasoning be made to pass current in the mind of the reader for facts faithfully observed at the bedside and in the dead-house. No writer should attempt its description without determining, as Aran did, when he penned the following sentence: "I leave out of consideration all the fantastic descriptions of ovaritis which have been constructed in the library by physicians who were more remarkable for brilliancy of imagination than knowledge of the disease." Our knowledge of the subject is at least so far advanced as to make a *thesis* upon it entirely inadmissible.

Varieties.—Ovaritis may be either puerperal or non-puerperal. The first does not concern our present investigation, and we put it out of consideration. The non-puerperal form of the disease has been divided into acute and chronic, which will in order now engage us.

Acute Ovaritis.

This affection, though very common as a result of parturition or abortion, is quite rare in the non-puerperal woman. Mme. Boivin[1] even goes so far as to say that, "it would be difficult to point to a single well authenticated case out of the condition of pregnancy." Dr. West[2] remarks that "acute inflammation of the substance of the unimpregnated ovary is of such rare occurrence that no case has come under my own care, and but one has presented itself to my observation." Prof. Fordyce Barker[3] says, "I doubt very much if I have ever seen a clear, well-marked case, and I have been for years looking for its existence in the dead-house." There can be no question of the truth of these statements as regards pure, uncomplicated inflammation of the ovary, but ovaritis of acute character going on to suppuration or production of a diffluent state of the stroma, is by no means rare as a complication of pelvic cellulitis or peritonitis. One of the greatest dangers to be feared from these diseases is injury or destruction of the ovaries, and it is probable that few cases of cellulitis and none of peritonitis run their course without involving them to a greater or less extent. It is likewise probable that pelvic peritonitis is frequently excited by some trouble originating in the ovaries, which are closely enveloped by peritoneum continuous

[1] Op. cit. [2] Op. cit., p. 473.
[3] Bul. N. Y. Acad. Med., vol. i. p. 549.

with that making up the broad ligaments and covering the pelvic roof. The intimate relation of these three parts, the ovaries, the pelvic peritoneum, and the pelvic areolar tissue, accounts for the fact that uncomplicated acute ovaritis is rarely met with.

In proof of this statement let me point to the condition of the ovaries in the autopsies of peri-uterine cellulitis reported by Aran. In almost all instances they were diseased, and they generally contained pus. So common was this lesion that Aran was persuaded that "the purulent collections which, as a consequence of peri-uterine inflammation, discharge themselves into the peritoneum or into the organs in the neighborhood of which they are placed, rectum, bladder, vagina, &c., sometimes even by the surface, belong more particularly to the ovary or tube."

Authors have divided acute ovaritis into parenchymatous, follicular, and peritoneal, but in an affection, the mere recognition of which is so difficult, it is hardly wise to refine upon its peculiarities. The form of the affection here styled peritoneal is really not ovaritis but peritonitis of the very character of which we are speaking; from which to parenchymatous and follicular disease there is only one step. As an example of ovaritis complicated with peritonitis in a non-pregnant woman, I avail myself of the kindness of Dr. Roth, and record the following history prepared by him:—

"M. S., æt. 35, married ten years, had a miscarriage nine years ago. Since that time has suffered from dysmenorrhœa and gastric disorder, which was styled dyspepsia. Two years ago she applied to me, and I found her suffering from profuse fluor albus and retroflexion of the womb. Under use of caustics and tonics she improved very much, and treatment was stopped. I did not see her again until August 1st, 1866, when I found her in a convulsion. After it had passed off she vomited constantly, complained of great pain in the bowels, was very thirsty, and the pulse was near a hundred. Opium was freely administered. On the next day the pulse was over one hundred; skin hot and dry; and she complained of severe pain in back and loins, and over left iliac fossa. I made a vaginal examination by touch, but could discover nothing except that the vagina was very hot and dry. Aug. 3. No great change, except that the abdomen became tympanitic. Aug. 4. She lost about five ounces of blood per vaginam; symptoms unchanged. Aug. 6. She was seen in consultation by Prof Thomas, who diagnosticated pelvic peritonitis with probable

acute ovaritis on left side, and anticipated formation of an abscess near or in the ovary. By his advice a large blister was applied over the hypogastrium, and opium given in very large doses. The case went on in this way until Aug. 11th, when she suddenly vomited a large amount of bile, became collapsed, and died that night.

"*Autopsy eighteen hours after death.*—The peritoneum covering the pelvic viscera was covered with a recent lymph, and between the organs a great deal of puriform serum existed. Abdominal peritoneum healthy. The left ovary, which was agglutinated to the intestines, tubes, and uterus, was about the size of a hen's egg. In its removal it was broken, and several ounces of pure pus escaped. No evidences of cellulitis could be discovered upon careful dissection. Other organs healthy."

The interest of the following case, for the history of which I am indebted to Dr. Jerome C. Smith, will warrant its introduction:—

"M. A., aged eighteen, first menstruated at the age of thirteen years. Had not been in good health for a year previous, having every four weeks violent headache, flushed face, pain in back and abdomen continuing about twenty-four hours. Her physician ascribed it to the expected appearance of the catamenia, and prescribed a chalybeate. The catamenia appeared on an occasion of her receiving a very severe fright, and was profuse, lasting about six days. This condition, with no inconvenience except slight pain in the back, occurred at each regular period for five months. At this time, while menstruating, she took a river bath of fresh water, which occasioned immediate suppression with violent pain. Domestic remedies were used, producing a slight reappearance, but on all subsequent occasions the menses were very scanty, never lasting more than four days, and accompanied with considerable pain. The character of the discharge was also altered. From this period there were irregularities, and at one time, a year later, complete suppression for four months. Dewee's tincture of guaiac was administered, and not proving efficacious, chalybeates were used with benefit.

"The patient menstruated July 4, 1865, which for the first time was a few days premature. July 22d, while on a visit in the country, she took a long walk, and then going in a small boat took the oar and rowed two miles, an exercise to which she was entirely unaccustomed. While rowing, the catamenia appeared—

only eighteen days after her last period—and continued less than two days. The next appearance was August 16th, three days premature, and continued until the morning of the 17th, when there was a sudden suppression accompanied with violent pain. Warm drinks and brandy were administered, and the feet immersed in hot mustard water. Domestic remedies failing, the family physician was called and arrived in the evening. She then complained of an aching sensation in the limbs, and there was some fever. The physician ordered ice to be applied along the spinal ganglia, to be constantly renewed until the catamenia reappeared, and gave her some 'fever mixture.' After midnight, the patient feeling very uncomfortable and desiring to sleep, the ice was discontinued until the doctor's morning visit, when he ordered it to be reapplied for two hours and then taken off, allowing the patient to rest for two hours, and this course to be continued till the flow should appear, with the addition, if there should be pain, of the application to the abdomen of cloths wrung out of hot water, during the two-hour intervals when the ice was not applied. This was done faithfully until the menses appeared very scantily, disappearing when the ice was discontinued, and reappearing again on another application, still scantily. Her physician regarded her then as requiring no other medical treatment further than a cathartic, and discharged the patient directing that he should be sent for if she should not be as well the next day. The cathartic produced numerous evacuations during several successive hours. The following day, as she had considerable fever, the physician was sent for, and ordered quinine pills and renewed the fever mixture. When she complained of pain, the nurse put the feet in hot water, or applied hot cloths to the abdomen.

"On Monday, the fifth day, she complained of considerable pain, and the doctor was again sent for; and ordered every two hours pills containing opium gr. ss, pulv. ipecac. comp. gr. ij, which constipated the bowels. A cathartic was given, producing active diarrhœa with tenesmus. The discharges soon became mucous and tenesmus increased, and pills containing hydrarg. chl. mitis gr. ¼ opii gr. ⅓, plumbi acetat. gr. iss, were ordered. The mucous discharges continued thereafter with some variation and great tenesmus. Oleum ricini, with tr. opii, was directed to be given in the evening. There was no tympanites. Pain and fever in-

creased to an alarming extent. The castor oil and laudanum were given as ordered. At midnight the patient was seized with an agonizing pain in the abdomen, and immediately became slightly delirious.

"From this time the countenance changed, the extremities grew cold, and could not be warmed, though vigorous means were resorted to by her nurse. In the morning the physician was astonished to find her moribund. He now, for the first time, discovered the serious nature of the disease. The most vigorous measures were unavailing. It may be here remarked that the patient was a very heroic girl, and did not manifest the amount of pain she suffered. She died at twelve o'clock on the tenth day of the disease.

"*Autopsy forty-eight hours after death.*—The abdomen was opened and revealed agglutination of the intestines everywhere, with an effusion of several ounces of pus mixed to a greater or less extent with serum. An abundance of organized lymph lined the pelvic cavity and elsewhere. Raising the right ovary, *in sitû*, upon the finger a quantity of pus escaped from a rupture of the organ, sufficient to flow over in every direction. When the uterus was removed with its appendages there was found to be a dilatation of the right Fallopian tube, at one point as large as a man's thumb, filled with pus. The left ovary contained two corpora lutea in a recent state. Both Fallopian tubes were pervious. The uterus was healthy. The rectum contained a large quantity of mucus."

Pathology.—This is not clearly made out, though it appears safe to accept the stages described by Mme. Boivin: first stage, congestion, with increase of weight and rotundity; second stage, size of organ double, triple, or quadruple the normal size, tissue soft and infiltrated with yellow and violet colored serum, with slight effusion of blood; third stage, suppuration, pus infiltrated or collected in spots; fourth stage, gray softening, disorganization, the gland becoming diffluent.

Causes.—The causes of the disease may be thus enumerated:—

Pelvic peritonitis;
Peri-uterine cellulitis;
Gonorrhœa;
Disturbance of menstruation.

Any of the causes which have been spoken of as sufficient to

cause the first two diseases mentioned may through them produce ovaritis. A form of ovaritis called blennorrhagic is admitted by most authors as corresponding with blennorrhagic orchitis in the male. It is difficult to see how even the progress of gonorrhœal inflammation along the tubes would cause disease of an organ not connected with the extremities of these tubes, but let it be remembered that gonorrhœa is in this way one of the most fruitful sources of pelvic peritonitis, and an explanation of ovaritis as a secondary result will suggest itself. Suppression of menstruation, or any sudden and violent shock given to the ovaries while ovulation is progressing and the walls of the organ are about being broken through, may likewise induce it.

Symptoms.—The symptoms of this affection are so intimately associated with those of peritonitis and cellulitis that it is impossible to separate them. There is severe pain in one or other iliac fossa, with increase of heat, fever, and perhaps chill. Pressure shows the most exquisite sensitiveness, and when the part is examined by conjoined manipulation this is excessive. By that means the ovary is felt enlarged and generally depressed in the pelvis. These symptoms may subside upon the occurrence of resolution in four or five days; or pus forming within the gland may be discharged into the peritoneum, the rectum, the vagina, or the bladder.

Differentiation.—This is generally impossible. The association of the disease with those which have been mentioned as being at times its causes, at others its consequences, is usually too intimate for its distinction from them. Should conjoined manipulation discover the ovary as a round ball, very sensitive, and unassociated with fixation of the uterus, a diagnosis would be admissible. I have never met with such a case of acute character, nor is it likely that it often occurs, though as a sign of subacute or chronic ovaritis it is common.

Prognosis.—The prognosis is favorable, though never free from an element of doubt.

Treatment.—Leeches should be promptly applied around the anus, over the diseased organ, or at the groin. Should its weight not give pain, a poultice should then be placed over the hypogastrium, and opium freely administered by mouth and rectum. The patient should be kept perfectly quiet, and not allowed to rise from her bed even for relief to the calls of nature. This should

be especially attended to if it be supposed that suppuration has occurred, for then a very slight effort might cause a rupture of the abscess into the peritoneum.

Chronic Ovaritis.

That chronic inflammation may affect the ovaries there is no good reason for doubting, though very little has been ascertained as to the frequency of the disease. So great is the sympathy existing between the uterus and these organs, that uterine disorders excite ovarian pain very commonly, and give rise to many symptoms which are regarded by authors as characteristic of this disease. Again, it is a well ascertained fact that slight attacks of chronic pelvic peritonitis are extremely common, and unfortunately we possess no certain means for distinguishing such a disorder, in the vicinity of an ovary, from chronic ovaritis.

In the great majority of cases of uterine disease the patient will complain of pain of dull, aching character over one or both ovaries, and this will very likely be augmented by menstruation. But it is by no means to be concluded that this sympathetic pain, even if dependent, as it very often is, upon congestion, is due to chronic ovaritis. As well might it be believed that mammary pains excited in the same manner are due to mammitis. But it cannot be denied that we sometimes meet with cases of chronic ovaritis, which may be recognized by the following symptoms:—

Symptoms.—Fixed pain without uterine disease;
Increase of this at menstruation;
Tenderness upon pressure;
Detection of an enlarged ovary by conjoined manipulation and rectal touch.

These are the symptoms which warrant a belief in the existence of the disease. In addition we may find great prostration after an alvine evacuation, especially when the left ovary is affected; excessive weariness after exertion; a disturbance of the nervous system amounting to hysteria; and depression of spirits.

Prognosis.—The prognosis is always favorable, though cure is often difficult of accomplishment.

Treatment.—Rest should be prescribed during menstrual epochs, when the diseased gland is congested and in a state of nervous excitement. Severe exercise, or fatiguing occupations should be avoided, and all influences calculated to depress the vital forces

carefully guarded against. Counter-irritation by means of small blisters, tincture of iodine, or issues of nitric acid, should be kept up over the diseased organ for months at a time, and once or twice a week the cervix uteri and whole upper part of the vagina should be painted over with tincture of iodine. Every night and morning the patient should be directed to use copious injections of warm water into the vagina in the manner already explained on p. 239. For the various symptoms which accompany the affection the bromide of potassium in scruple or half drachm doses will be found very beneficial.

Ovarian Abscess.

One of the ordinary results of acute ovaritis is formation of pus. This may discharge itself rapidly, become encysted, or discharge for a length of time, a pyogenic sac being formed which fills, and empties itself at intervals. Kiwisch asserts that as a result of inflammation abscesses may originate either in the parenchyma or in one of the follicles of the gland, and that the non-puerperal form generally has the former and the puerperal the latter origin. In either case depots may be established which will contain an incredible amount of pus. Kiwisch has seen them contain as much as sixteen pounds, and Dr. Taylor,[1] of Philadelphia, reports an instance in which an ovary contained twenty pints of pus. In a piliferous ovarian abscess which I saw in the practice of Prof. A. C. Post, at least half that quantity must have been evacuated by incision. As a rule, however, no such amounts are reached, from twelve to sixteen ounces being generally a large accumulation.

Causes.—Ovarian abscess may result from

Acute ovaritis;
Tubercular deposit;
Retention of debris of a fœtus;
The scrofulous diathesis;
Piliferous or dermoid cysts;
Inflammation of walls of ovarian cyst.

Tubercular deposit is very rarely found in the ovaries, as may be judged from the fact that Rokitansky[2] declares that he has

[1] N. Am. Med. and Surg. Journ., 1826.

[2] Path. Anat., vol. ii. p. 252. Am. ed.

never met with it, and is forced to deny its occurrence. Mme. Boivin's plates,[1] however, so fully illustrate one instance that its authenticity cannot be doubted. In a specimen presented me by Dr. Janeway, and which was exhibited to my class two years ago, tubercles existed in the lungs, liver, spleen, peritoneum, uterus, tubes, and, I think, ovaries, since the cheesy mass contained in these organs resembled precisely that in the other parts. Dr. Nott reports a case with which he met accidentally in the dissecting rooms in Baltimore in which the ovaries were as large as limes, and full of tuberculous abscesses.

The product of ovarian pregnancy is sometimes extruded by the process of suppuration not only from the gland but from the body. Mme. Boivin was the first to suggest the occurrence of suppuration in the walls of ovarian cysts, as a cause of abscess. Her theory is now accepted by pathologists as correct,[2] and explains instances of multilocular abscesses which have been sometimes seen.

Symptoms.—Should ovarian abscess be the result of ovaritis, it will be marked by severe pain, chill, fever, throbbing, and the signs already mentioned. If it result from causes which produce no sudden excitement of circulation and nervous supply, no symptoms other than dull pain, discomfort upon motion, and occasional fever may point to the lesion. It is only when a circumscribed tumor giving evidence of fluctuation is discovered that a diagnosis is warranted.

Differentiation.—Even then it is often difficult, except in cases due to ovaritis, to distinguish the disease from the following:—

Ovarian cyst;
Pelvic abscess;
Ovarian pregnancy;
Distension of Fallopian tube by fluid.

Abscess may be differentiated from cystic degeneration of the ovary in most instances by signs, perhaps very obscure, of inflammatory action; tendency to chill and fever; pain upon pressure; and discomfort in certain attitudes. Pressure by conjoined manipulation will almost invariably cause pain, while in cystic disease it must be very severe for it to do so.

From pelvic abscess a diagnosis is always difficult and very

[1] Plate xvi.

[2] See Farre, Hewitt, &c., opera citata.

often utterly impossible. Kiwisch tells us to rely upon the immobility, excessive pain, and less defined boundaries of pelvic abscess, but where a certain amount of adhesive inflammation has been excited in ovarian abscess which has bound it to the surrounding part the difficulty becomes insuperable. I have very recently had two cases, one seen with me by Drs. Emmet and Elliot, and the other by Dr. Metcalfe, in which a decision was entirely impossible, although, in both cases, the fact that the accumulation was purulent was placed beyond doubt by free and constant discharge of pus through a small opening in the vaginal wall.

Ovarian pregnancy being marked by all the ordinary symptoms of conception, vomiting, mammary signs, cessation of menstruation, &c., will generally be suspected.

From distension of the Fallopian tubes by watery mucus, blood, or pus, it will generally be impossible to make a diagnosis with any degree of certainty. In some cases it may be accomplished by attention to the shape, configuration, and mobility of the tumor, as will be mentioned when speaking of dropsy of the Fallopian tubes.

Treatment.—The suppurative process should in the beginning be encouraged by poultices over the hypogastrium and irrigation of the vagina by warm water. So soon as the purulent mass has made its way to the surface of the abdomen, or of the vagina or rectum, it should be evacuated by a bistoury, or trocar and canula. Then the strength of the patient should be sustained by quinine, brandy, beef-tea, milk, &c. Should the process of pus formation and discharge go on for too great a length of time, or should symptoms of septicæmia set in, the cavity of the abscess should be promptly injected with solution of tincture of iodine, persulphate of iron, permanganate of potash, or carbolic acid.

CHAPTER XLII.

FLUID OVARIAN TUMORS.

THE ovaries may be affected by three forms of tumor:—

1st. Fluid tumors;
2d. Solid tumors;
3d. Composite tumors.

The first class comprises those which are formed of one or more sacs filled with fluid contents only; the second, those which are purely solid; and the third, those which are composed of both solid and fluid elements.

Strictly speaking, only those fluid tumors originating within the structure of the ovaries should be enumerated under this head, but since there are others which develop in the immediate vicinity and which cannot be differentiated, it will be of advantage for clinical purposes to consider them all as ovarian.

The fluid tumors occurring in the ovaries are:—

Hydatid cysts;
Ovarian cysts;
Cysts of the broad ligaments.

Hydatid Cysts.

Hydatid cysts may develop in the ovary, though the occurrence is so rare as to make an extensive consideration of them unnecessary. The literature of the subject is very meagre, and in few of the works devoted to ovarian disorders is any mention of them made. In Dr. Bright's work upon Abdominal Tumors, fifteen instances of hydatid tumors in the abdomen are recorded, in one of which a hydatid tumor the size of a very large hen's egg, was connected with one ovary. Cruveilhier reports an instance discovered on the cadaver. Roux and Deneux believed that they had operated upon such cases, the first by the rectum, the second upon a tumor imprisoned in the inguinal canal. Dr. Arthur Farre

refers to a very large ovarian cyst, contained in the Museum of King's College, which consists of an immense aggregation of cysts, many of which are stuffed full of hydatids. Graily Hewitt believes that when hydatid disease of the ovaries exists, the echinococci are derived from the liver, and Kiwisch, who has never met with an instance, evidently suspects the authenticity of the reported cases, thinking that "torn off secondary cysts have been taken for acephalocysts." Too little is known of such cysts to warrant further remarks upon them.

Ovarian Cysts.

This variety of disease consists of the formation of one or more large sacs, developed within the substance of the ovary.

Pathology.—Pathologists are still somewhat at variance with reference to the origin of ovarian cysts. "It was formerly very generally supposed," says Wedl, "that the cysts in the parenchyma of the ovary originated in the Graafian follicles, but no direct proof of this was ever given."[1] On the other hand, Courty sums up the matter thus: "In a word, these cysts are dropsies, simple or complicated, of the Graafian follicles."[2]

There are probably two entirely different pathological processes by which they are generated. 1st. The follicles of De Graaf undergo a species of dropsy. The liquor folliculi, which they normally contain, becomes excessive, and distending the tunic and the discus proligerus which lines it, gradually creates a cyst. Cazeaux[3] once styled the Graafian follicles ovarian cysts in miniature, an aphorism which aptly illustrates this view. 2d. The development of cysts may occur in the stroma, or upon the surface of the ovary, without connection with the follicles. To enter into a minute study of such cystic degenerations would be out of my province, and to avoid discussion and theories concerning them, I will adopt the view advanced by Wedl, which recommends itself on account of its simplicity and plausibility. This view supposes, that "the cyst consists in an excessive augmentation of volume of the areolæ of the areolar tissue and of the papillary new formations composed of connective tissue."

[1] Wedl's Path. Histol., p. 462.

[2] Op. cit., p. 925.

[3] Thèse pour l'Agrégation.

Every cyst has three coats, one external and serous, made up of the peritoneal lining of the ovary; another, fibrous and vascular, made up of the enveloping stroma, considerably altered; and still a third, thin and shining, composed of fibrous structure, epithelial cells, and sometimes a deposit of cholesterine from the contents of the sac. Cases are on record in which the cyst wall has been an inch or an inch and a half thick.

Generally upon the excessive development of cysts the ovary undergoes atrophy, but sometimes, instead of so doing, it becomes hypertrophied and superadds itself to some part of the sac, leading to an erroneous opinion that the mass is cancerous.

The fluid contained within these cysts differs greatly in chemical and physical characters. Sometimes it is a clear, albuminous serum of light straw color; sometimes it is thick, viscid, and adhesive; while at times it is a dirty brown and semifluid material. An analysis made by Dr. O. Rees, of four specimens: 1st, clear, light straw color, alkaline; 2d, dark-colored, muddy, and neutral; 3d, like white of egg, alkaline; 4th, clear straw colored, yielded in varying proportions the following elements:—

Water;

Albumen with traces of fat;

Albuminate of soda;

Alkaline chloride and sulphate of soda from decomposed albuminate;

Extractive, soluble in water and alcohol;

Chloride of sodium with carbonate, from decomposed lactate of alcoholic extract. In all the four specimens, albumen was detected.

Varieties.—Fluid ovarian tumors may assume a variety of forms. Those which serve as types for classification are the following:—

Unilocular;
Multilocular;
Multiple.

The unilocular tumor consists of a simple dilatation of a Graafian follicle. This may go on until the size of the uterus in the ninth month of pregnancy is reached. Kiwisch[1] has met with one whose contents weighed over forty pounds; but such a develop-

[1] Op. cit., p. 102.

ment is exceedingly rare, as they seldom remain simple after passing the dimensions of an adult head.

Such cysts are much less likely than others to contract adhesions to the viscera of the abdomen, and they consequently constitute the most curable of all the varieties of ovarian tumor.

Multilocular Cysts.—It has long been observed that from the walls of ovarian cysts, smaller cysts are likely to grow and project into the sac, or, more rarely, to develop externally and jut into the abdominal cavity. To this process of cyst growth Mr. Paget has given the names of endogenesis and exogenesis, and thus we speak of a tumor showing the former variety of growth, as an endogenous tumor, and of one showing the latter, as exogenous. Every cyst thus produced constitutes a loculus or cell, and gives to the previously simple sac the features of a multilocular tumor.

Various theories have been advanced to explain this secondary cystogenesis. That which appears most plausible is that in the middle coat of the unilocular cyst, which is composed of stroma, undeveloped Graafian follicles exist. These, by the same process as that which resulted in the primary cyst, develop, and project inwards or outwards. Should they prove exogenous, they may subsequently rupture and create peritonitis, while if endogenous, their walls may give way and a communication be established with other vesicles originating as they did. These secondary cysts are likewise created by cell growth, which results in sac-like projections from the walls of the parent cyst. At first resembling warty growths, they jut farther forwards, increase in size, and become large cysts.

Multiple cysts, as they have been aptly styled by Dr. Farre, are simply the development, side by side, of a number of Graafian follicles, or of cysts developing independently as Wedl asserts. These are bound together in the same envelope, and really constitute one tumor, although at the same time they are composed of a number of cysts which are perfectly independent of each other. It is true that intercommunication may take place, but this is an accidental occurrence due to rupture of the cyst-walls.

The fluid contained in multilocular and multiple ovarian tumors is not generally so clear as that of the simple or unilocular variety. It is often as tenacious as honey or white of egg, so thick, indeed, that it will not flow through a large canula, and

may assume very dark hues. At times it is colored by cholesterine, blood, or pus, and is brown, red, or like coffee-grounds.

The size to which these cysts will grow is truly wonderful. It has been already stated that unilocular or monocystic tumors rarely attain a great size as such; they become, as they increase, multilocular or polycystic, and then their growth may become excessive. Instances are on record of tumors containing over one hundred pounds of fluid, and Dr. Copland, in the *Dict. of Pract. Med.*, tells of an instance in which five hundred pints of fluid were drawn off by repeated tappings, in twelve months.

One or both of the ovaries may be affected, the right being that most frequently selected by the disease. The comparative frequency with which the right and left ovary are affected is shown by the following table:—

Authority.	No. of cases.	Right side affected.	Left side affected.	Both sides
Safford Lee	93	50	35	8
Chéreau	215	109	78	28
Scanzoni	41	14	13	14

Causes.—Very little is positively known upon this subject. The predisposing causes which are generally admitted are the following. It should be borne in mind that even as to some of these there is doubt and variance of opinion among Gynecologists.

Age;
Child bearing;
Chlorosis;
Scrofulous diathesis;
Menstrual disorders.

The great predisposing cause is age, the affection showing itself almost invariably during the period of ovarian activity, and very generally during that of the most vigorous activity. It is rare under twenty and over fifty, the most common period of its occurrence being between twenty and forty. It may, however, occur as early as thirteen or fourteen, and as late as sixty, and a slight degree of cystic degeneration has been seen in infancy.

Scanzoni records 97 cases, 70 of which were from 18 to 40.
Chéreau " 230 cases, 133 " " " " 17 to 37.
Lee " 135 cases, 82 " " " " 20 to 40.

Of Scanzoni's cases five were between fifty-five and sixty; of Lee's one hundred and thirty-five cases, eighty-eight were married, thirty-seven unmarried, and eleven widows. With reference to the propriety of admitting the other causes there is much doubt.

The uncertainty existing as to the exciting causes is even greater than this. All those influences which theoretically would be likely to excite cystic growth, as ovaritis, blows, checking of menstruation, excess of coition, libidinous desires without gratification, have been advanced by authors as scientific certainties. But proof is wanting, however plausible the theoretical reasoning appears, and they cannot in the present state of science be admitted. "Our knowledge," says Graily Hewitt, "of the pathology of cystic disease, as ordinarily witnessed in the ovaries, seems reduced to this: that it is the business of the ovary to secrete cysts—the Graafian follicles; that this process of secretion is occasionally disturbed and deranged, and that one result of this is the production of large cysts of pathological character." This is reducing our knowledge to almost nothing, and yet such appears to be its true position at present. Certainly nothing can with safety be predicated beyond this, that it is probable that those influences which keep up and intensify ovarian congestion, and interfere with rupture of the follicles of De Graaf, tend to produce cystic and follicular degeneration.

Symptoms.—The symptoms which develop themselves in the course of the disease are due to three separate and distinct agencies: disorder in the diseased ovary, mechanical inconvenience from the abdominal mass, and complications caused by its presence. The first demonstrates itself by dull pain over the iliac fossa, and a sense of fulness or throbbing. The second gives rise to dragging pains, dysuria, rectal disorder, and local fatigue after exertion. The third shows the ordinary signs of local peritonitis, which may become quite active and then subside. None of these, except the last, which is an intercurrent accident, are generally very marked. They are usually only sufficient to suggest physical examination, by which reliable signs will probably be discovered, and the diagnosis be made complete.

Physical Signs.—These are of the greatest importance, and the

full capacity of physical exploration should in every case be developed, for to it we must look for answers to the following questions:—

1st. Does a tumor exist?
2d. If so, is it ovarian?
3d. If it be ovarian, what is its type?
4th. If a fluid ovarian tumor, is it multilocular?
5th. Is it adherent to surrounding parts?

Does a tumor exist?—To decide this question, the patient should be placed upon her back upon a flat, resisting surface, the abdomen uncovered, all stricture removed from the waist, and the knees drawn up so as to relax the abdominal muscles. It is of primary importance that she should be calm, and give herself up to the examination in the full desire of aiding the physician in arriving at a diagnosis. In some cases the patient, from nervousness, in some from pain created by pressure, and in others from a desire to mislead and deceive, will not be able or willing to do this, but, by suddenly contracting the abdominal walls, will place a serious, perhaps insurmountable, obstacle in his way. Under such circumstances ether should be employed as an anæsthetic, and full investigation made. The abdominal muscles being entirely relaxed, careful palpation and deep pressure should be made by both hands over the whole abdomen, and especially over the pelvic region. By this means a hard, resisting mass may be discovered, which produces an abdominal enlargement visible upon inspection.

Thus far very little has been learned; merely that an abnormal enlargement exists in the abdomen. It may not deserve the significant name of tumor, but be due to one of these states:—

Adipose deposit in abdominal walls;
Œdema of abdominal walls;
Tympanites.

Very little experience will enable one to eliminate the first from consideration. An equable, smooth mass will be felt spread over the whole abdomen, yielding upon percussion slight resonance, which comes from air in the subjacent intestines. The most certain method of recognizing the condition will consist in lifting in the fingers or hands a large fold of the mass.

Œdema will be known by pitting upon pressure, by existence of the same condition in the areolar tissue of the feet or face, and by its generally attending uræmia, chlorosis, or cardiac disease.

Tympanites will be readily recognized by extreme resonance upon percussion over the whole abdomen.

It having now been decided that the patient has an abdominal tumor, or, in other words, an abdominal swelling due to a morbific cause of serious nature, it next becomes important to decide, not as to the character of this tumor, but whether it be ovarian or not.

Is the tumor ovarian?—It has been already stated that any abdominal tumor may, unless careful means of differentiation are adopted, be confounded with ovarian growths. The truth of this will be appreciated by reference to the valuable tables of Dr. John Clay, the translator of Kiwisch on the ovaries. He has collected twenty-three cases of attempted ovariotomy in which the operation was abandoned because the tumor proved not to be ovarian. The tumors were of the following characters:—

12 were uterine;
2 " omental;
2 " results of chronic peritonitis;
2 " not discoverable;
1 was tubal pregnancy;
1 " obesity;
1 " mesenteric;
1 " splenic;
1 " not stated.

This part of our subject would be uselessly prolonged by an examination of the means of differentiating all forms of abdominal tumor, as, for example, enlargements of the liver, spleen, &c. All that I conceive it necessary to do is to enumerate those affections likely to be confounded with ovarian tumor by a practitioner of reasonable capacity, and point out the reliable means of distinguishing these. The following is a list of them:—

Fecal accumulation;
Extra-uterine pregnancy;
Normal pregnancy;
Uterine fibroids;
Ascites;
Hydatids;
Distension of uterus by fluids.

Fecal matters sometimes accumulate to a great extent in the caput coli, and even along the course of the large intestine. A little care will generally serve to distinguish such a tumor from

one connected with the ovary. One or two fingers made to impinge with force upon it per vaginam, while it is steadied by the other hand placed on the abdomen, will reveal its plastic, "boggy" nature. Should any doubt exist, a course of catharsis would remove it.

Pregnancy, whether uterine or extra-uterine, affords abundant evidences of its existence in the rational and physical signs of that state. Should doubt exist here, a little delay will decide the diagnosis fully. Error is likely to arise in reference to differentiating this state, either from the possibility of its occurrence being lost sight of, or from the examiner placing reliance upon the asseverations of a woman who has every inducement to deceive him.

To state that there are many difficulties attending the differentiation of uterine fibroids from ovarian tumors, would be to leave on the mind of the inexperienced practitioner a very imperfect and erroneous impression. It is not only difficult but often utterly impossible, even for the most capable and accomplished diagnostician to arrive at a certain conclusion. Quite a number of cases are now on record where experienced operators have not only opened the abdominal walls under an erroneous impression as to the nature of the tumor, but absolutely removed the morbid growth and the uterus from which it grew before a diagnosis was made. Fortunately this obscurity is exceptional. In most cases the origin of the tumor may be determined by the following means:—

In Uterine Fibroids.	In Ovarian Tumors.
1st. There is usually menorrhagia;	1st. Menorrhagia does not exist as a symptom;
2d. The uterus, measured by the sound is enlarged;	2d. Uterus is not enlarged;
3d. Mass felt per vaginam is irregular and continuous with uterus;	3d. Mass felt per vaginam is smooth and not continuous with the uterus;
4th. There is generally leucorrhœa;	4th. There is no leucorrhœa;
5th. Sound placed in utero and made to move the uterus, the tumor felt by hand on abdomen moves also;	5th. The uterus may be moved without the tumor moving;
6th. The uterus is generally displaced;	6th. The uterus is not so markedly displaced, although it may be somewhat so;
7th. There are often several tumors;	7th. There is generally only one tumor;
8th. The tumor is always hard.	8th. The tumor, if of fluid type, fluctuates.

From abdominal dropsy or ascites a differentiation is often extremely difficult, and always so important that a careful consideration is necessary.

In Ovarian Dropsy.	In Ascites.
1st. A small, round tumor will have shown itself in the beginning in one iliac fossa;	1st. The enlargement will have shown no small tumor at any point;
2d. In supine posture a rotundity is observed in the abdomen;	2d. In supine posture the fluid gravitates to sides of abdomen, and the abdominal surface is flattened;
3d. Percussion made in supine posture gives dulness over surface of abdomen;	3d. Percussion gives resonance over abdominal surface because the intestines float on the fluid;
4th. Change of posture alters line of dulness but little;	4th. Change of posture greatly alters line of dulness;
5th. No pouching and fluctuation are noticed by vaginal touch of Douglas's cul-de-sac;	5th. Douglas's cul-de-sac is pouched by fluid which fluctuates;
6th. No evidences of cardiac, renal, or hepatic disease exist;	6th. Evidences of cardiac, renal, or hepatic disease almost always exist;
7th. Skin is normal as to color, moisture, &c.;	7th. Skin, in majority of cases, gives evidences of cirrhosis by its parchment feel and jaundiced hue;
8th. Patient rolling in bed, no wave will be detected by inspection.	8th. Patient rolling in bed, a wave will be detected in the abdomen;
9th. Œdema of the feet is absent until a late period when the patient has become exhausted.	9th. Œdema of the feet exists as an early sign.

From hydatids in the abdomen, the diagnosis of ovarian tumor will generally be practicable only by explorative incision, unless those growths be developed only upon the organs in the upper part of the abdomen. If the mass collect above the ovaries, if the patient be not a menstruating woman, or if such a development have been detected elsewhere in the system, all these considerations will, of course, prove of great weight in deciding the point. Dr. Bright, in his work upon *Abdominal Tumors*, gives illustrations of this affection, the differentiation of which from ovarian tumors would have been entirely impracticable unless the cases had been seen early and kept under observation.

The tumor being ovarian, what is its type?—It must, of necessity, be either a fluid tumor, a solid tumor, or one of composite character. Should it be of the first form, its character will be ascertained by fluctuation being yielded perfectly over all its surface, and also by vaginal palpation, which is performed by placing one

finger on the tumor where it rests against the roof of the pelvis and tapping with the other hand upon the abdominal wall. Should it be solid, the sense of resistance everywhere felt and the absence of fluctuation would proclaim the fact. A composite tumor, or one solid in some parts and fluid in others, would be recognizable by a union of the features mentioned as characteristic of each of the other varieties.

These are the means by which a classification of the tumors must be made, but let it not be supposed that the task is always an easy or even a practicable one. There are certain forms of cancer, the medullary, for example, which yield, to all appearances, the character of fluidity and yet contain solid elements. This is the case even with cystic sarcoma. About a year ago I saw, in consultation with Dr. Peaslee, whose name as an ovariotomist has become so justly celebrated, a lady from Texas, in whose abdomen there existed a large and apparently fluctuating tumor which we supposed to be ovarian. It was exposed by incision by Dr. Peaslee and found to be a cystic sarcoma connected with the uterus. The case ended fatally, removal of the tumor proving impossible.

I once saw, with Dr. John O'Reilly, an immense tumor, evidently of the ovary, in which fluctuation was clear, yet upon removal a cystic sarcoma was discovered to have yielded the delusive sign.

On another occasion I had a patient presenting all the usual signs of fluid ovarian tumor so perfectly that Drs. Peaslee, Loomis, Budd, and myself had no doubt as to the diagnosis. Upon incision and tapping no fluid flowed, and I removed a cystic sarcoma of fourteen pounds weight. As it lay upon the table after the operation it was examined by a number of physicians, and nothing could convince them even then that its contents were not fluid, except section of the mass.

Wherever doubt exists there is one, and but one, means by which it may be entirely removed, and that is an explorative tapping. This may be done through the vaginal or abdominal walls by a small exploring trocar, and sufficient information obtained to put the question at rest. Such an exploration is in these cases always legitimate, for it is not attended with great risk, and yields important results.

Is the tumor, which is now regarded as fluid ovarian, multilocular? —We need not stop to inquire very closely into the means for ascertaining whether it be hydatid ovarian cyst, true ovarian cyst, or Wolffian cyst, for at the bedside these questions do not often suggest themselves. The reason for this is, that hydatid cysts of the ovaries are merely curiosities thus far in professional experience, which have been seen by very few even of the most experienced ovariotomists. Wolffian cysts and dropsies of the Fallopian tubes do not, as a rule, grow as large as ovarian cysts, but otherwise there are no means except explorative incision which can differentiate them. The same remark is especially applicable to areolar cysts of the broad ligaments, between which and true ovarian cysts no diagnostic signs exist except those obtainable after incision.

The question as to the tumor being unilocular or multilocular is of importance, for the prognosis of the former is more favorable with reference to operative procedure than that of the latter. The following signs will be our surest guides to a determination of this question:—

Should a polycystic tumor be exogenous, the cysts outside of the original parent cyst may be felt by palpation. Should it be endogenous, however, this means would fail us.

Although in a few instances large unilocular tumors have been seen; for example, one by Kiwisch weighing forty pounds, almost all ovarian cysts after passing the size of the adult head become multilocular.

If explorative tapping give a tenacious or honey-like fluid, the tumor is probably multilocular; if a clear, straw-colored liquid, it is probably unilocular.

Is the tumor adherent to surrounding parts?—In many cases this can be determined only by explorative incision, but in a certain number it may without this be decided with an approximation to certainty that firm adhesions do or do not exist. The following are the grounds upon which an opinion may be based:—

If the case have developed very rapidly and be believed to be unilocular, there are probably no adhesions.

If there have been symptoms of peritonitis, there are probably adhesions. If the case have been painless, there are probably none.

Should the abdominal walls roll freely over the tumor, the patient lying upon her back, and should the tumor fall low in

the abdomen as she suddenly sits up, there are probably not anterior adhesions. But posterior ones may exist and not be suspected from this examination.

If, upon vaginal examination, the uterus and base of the tumor exhibit immobility such as is found in pelvic peritonitis, and if, upon change of posture from erect to supine, these parts do not retreat from the finger in the vagina, there are in all probability strong pelvic adhesions.

All these signs are unreliable, however, and disappointment will surely follow any great degree of confidence which is reposed in them, but a compensation is to be found in the fact that even firm adhesions do not contraindicate removal.

Natural History.—Ovarian dropsy develops either by one or by a number of cysts. In the first case the cyst may become fully distended by fluid, reach a point where its growth ceases and remain quiescent, only annoying the patient by the mechanical results of its presence and the apprehension that it may increase and create trouble. There are no grounds for doubting the evidence that such tumors may remain without increase for even forty or fifty years, but such cases are rare exceptions to a general rule. "Much mischief has resulted, however," says Dr. Graily Hewitt,[1] "from looking on such cases as the typical ones, while the large majority of the cases, the end of which is naturally death in a much shorter time, have been considered as the exceptional ones."

We now and then meet with pulmonary tuberculosis which goes on to formation of a large cavity, and then for some unaccountable reason ceases to advance. The cavity, which is distinctly discernible, remains quiescent, and the patient may live for years. As this is an exception in the natural history of phthisis, so is the tardy course of ovarian dropsy just alluded to, an exception to the usual course of that affection. Generally the monocyst, as it grows, develops the power of cysto-genesis and becomes polycystic. If its type be originally multiple, the tumor advances even more rapidly, certainly, and uncontrollably than in the case just mentioned. The prognosis of ovarian dropsy not interfered with by art, and by this we mean surgical art, as medicine has no controlling or curative power in the disease, is always unfavorable. In the great majority of instances unilocular disease changes its

[1] Op. cit., p. 585.

character to multilocular, and the average duration of the cases of both is supposed by the best modern authorities to be about three years of life after the inception of the affection.

Mr. Safford Lee[1] has collected the statistics as to the duration of the disease in 123 cases, not subjected to any curative surgical treatment.

In 38 the duration was	1 year.
" 25 " " "	2 years.
" 17 " " "	3 "
" 10 " " "	4 "
" 4 " " "	5 "
" 5 " " "	6 "
" 4 " " "	7 "
" 3 " " "	8 "
" 17 " " "	9 to 50

From this it will be seen that out of 123 cases 80 terminated within three years, and 94 within five. At the same time it must not be lost sight of that 17 out of 123 cases lasted over nine years, and that some, the number of which is not stated, terminated at the end of fifty. Sometimes nature effects a cure in the following ways. The cyst may discharge into the peritoneum and absorption occur. Of this accident Dr. Tilt has collected 71 cases, of which 30 recovered, 19 were improved, and 21 died. I have met with two instances of rupture, both of which proved fatal by peritonitis. The cyst walls may undergo calcareous degeneration which checks advance. The cyst may discharge externally by the abdominal or dorsal surfaces, or into the rectum, bladder, vagina, or uterus, by means of the Fallopian tubes. Instances of the last occurrence are mentioned by Morgagni, Frank, Follin, and Boivin, and Richard records five cases. Again, palliative surgical means may prove curative. There are a limited number of cases on record in which paracentesis has produced a favorable result.

With reference to nature's power alone, or aided by absorbents, to remove the accumulated fluid, Kiwisch[2] declares, " We must express our dissent from the opinion of those practitioners who assume that an ovarian cyst can be completely removed by simple absorption. So far as we know, this process has not been satisfactorily demonstrated by a single case." M. Courty, however, relates two instances in which he thinks that cure was effected by medical means.

[1] G. Hewitt, op. cit., p. 584.

[2] Op. cit., p. 119.

There are several modes in which ovarian dropsy produces its usual fatal results when unchecked by surgical means.

1st. A cyst may rupture and produce peritonitis.

2d. The patient may die from exhaustion, the result of functional derangements.

3d. Organic diseases produced by mechanical agency of the tumor may destroy life.

4th. The opening made by tapping may give exit to a discharge which exhausts the patient by its long continued drain.

Before leaving this part of the subject it may be well to sum up the grounds upon which a prognosis may be safely made:—

If the patient be young, the prognosis as to rapidity and certainty of growth is bad;

Unilocular tumors are most favorable;

Slow antecedent growth is favorable;

Solid matter in tumor is favorable as to growth, unfavorable as to cure.

The occurrence of the menopause is favorable;

Interference with surrounding organs, as the rectum, bladder, kidney, or stomach, is highly unfavorable;

A tumor firmly bound in the pelvis causes an unfavorable prognosis.

Treatment.—The medical treatment of ovarian dropsy by diuretics, hydragogue cathartics, diaphoretics, mercurials, absorbents, mineral waters, &c., has now been faithfully tested and found to be inefficacious. After a careful search through the records of the subject, one is forced to the conclusion, that an extremely small number of cases exists substantiating the possibility of the accomplishment of absorption by these means. All that can be anticipated in these cases from medication, is sustaining the nervous and sanguineous systems by tonics and stimulants; overcoming disordered functions by diaphoretics, cathartics, diuretics, and anti-emetics; and relieving local inflammations by the ordinary means usually resorted to under such circumstances. I am the more urgent in insisting upon the fact of the inefficacy of constitutional treatment, because I rarely meet with a fully developed case of ovarian dropsy at my clinique which does not bear evidence of a variety of attempts by cupping, leeching, blistering, inunction, painting with iodine, and correspondingly active internal treatment, to dissipate the accumulation. There

is but meagre proof extant that such means have effected cures, and there is nothing more certain than that they lower the tone of the system and depreciate the vital forces. A recognition of this fact led Dr. W. Hunter,[1] before the introduction into practice of the present methods of surgical treatment, to say that "the patient will have the best chance of living long under it, ovarian dropsy, who does the least to get rid of it."

It is to surgery that we must look for aid, and the following list represents the means at our command. It does not by any means represent all the measures which have been proposed and practised, for such a list would encumber the mind of the reader with much that would be of no practical importance. Only those methods are recorded which are to-day regarded as well recognized and reliable procedures:—

Tapping;
Drainage;
Incision;
Injection of the sac;
Partial excision;
Ovariotomy.

Tapping.—The operation of paracentesis, or tapping, consists of the introduction of a trocar and canula through the walls of a sac containing fluid, and allowing this to flow away. Of all the operations for relief of ovarian dropsy this is the oldest, and the one most frequently performed. The advantages which it offers are, facility of performance, quickness of relief, and immunity, to a certain extent, from the dangers which attend other surgical procedures adopted in these cases. It likewise enables us to decide with greater certainty concerning the diagnosis of the disease.

It is, however, attended by serious disadvantages, and although in a limited number of cases it has proved curative, it should never be practised with any reliance upon its doing so, for in the great majority of instances it is purely palliative. Furthermore it is attended by the immediate dangers of hemorrhage and peritonitis, and by the more remote one of exhausting discharge from the sac which may continue so long as to wear out the patient's strength. M. Courty collates one hundred and thirty cases

[1] Baker Brown, op. cit.

treated in this way by Kiwisch, Lee, and Southam, of which these are the results:—

46 died after the 1st tapping.
10 " " 2d "
25 " " 3d to 6th tapping.
15 " " 7th " 12th "
13 " " the 12th "

Of 20 of these cases by Mr. Southam, 4 died within a few hours after the operation, 3 within the first month, and 14 within nine months. Kiwisch lost nine out of 64 within twenty-four hours after the first tapping. Dr. Fock,[1] of Berlin, gives the following table, displaying the dates at which death occurred after first operation in 132 patients:—

25 died within a few days.
24 " " 6 months.
22 " " 12 "
21 " " 24 "
11 " " 36 "
29 only were alive at end of last date.

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It will thus be seen that reliable statistical evidence places this procedure in the position of a palliative means which is generally followed by advance of the disease, and not rarely by immediate evil results. Still it must not be lost sight of that death may be warded off by the operation, many existing evils alleviated through the course of a period, varying from ten to twenty-five years, and that, in a few cases, complete cure has been effected. Dr. Ramsbotham records an instance in which one hundred and twenty-nine tappings were performed in eight years, and four hundred and sixty-one gallons of fluid removed; and Dr. Martineau another, in which eighty operations evacuated in twenty-five years seven hundred and twenty-nine gallons.

In stating, on a previous page, that a limited number of cases attested the curative results of tapping, I would not be understood that such cases are in themselves very rare. They are really not so; it is only in proportion to the cases tapped that they are few in number. Prof. Simpson reports two cases, and Prof. Scanzoni three, in which a single tapping was followed by complete recovery. A similar case has been reported to me by

[1] Simpson, op. cit., p. 347.

Dr. Finnell, of this city, as having occurred in the practice of Prof. Bedford. Mr. Baker Brown thinks that most of such cases were instances of Wolffian or Fallopian sacs, and not actually ovarian dropsy. But such sacs are usually not large, and probably some of the instances on record were not of those forms. Take, for example, the following by Kiwisch: "We saw this favorable result set in after the second puncture of a collossal ovarian cystoid, which Prof. Pitha performed in such a manner that the tumor which had previously contained more than sixty pounds of fluid, became shrivelled to the size of a child's head, and for six years caused the patient no inconvenience at all, who had formerly been reduced to the last extremity, but now is very well."

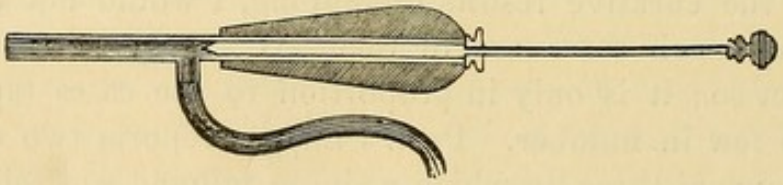
The circumstances which indicate the propriety of paracentesis are, rapid accumulation which interferes with some important function; coexistence of ovarian disease with pregnancy; solitary character of the cyst; firm adhesions which bind the tumor down so as to prohibit a more radical procedure; great doubt as to diagnosis; or constitutional debility which prevents the tolerance of a more serious operation. The operation may be performed through the abdominal, vaginal, or rectal wall.

Tapping through the abdominal wall.—The patient being placed upon the side, a many tailed bandage, such as is employed in paracentesis abdominis, is passed around the body. Its ends being held by assistants, traction upon them makes firm pressure, evacuates the tumor, and prevents syncope. By means of a bistoury, a small incision, a quarter of an inch in extent, is made upon the linea alba, midway between the symphysis pubis and umbili-

Fig. 207.



Fig. 208.



cus. A large and long trocar is then plunged through the two layers of peritoneum and the wall of the cyst. Through the canula

thus introduced a flow of fluid will take place which, if such an instrument as that represented in Fig. 207 be employed, will be conducted by an India rubber tube attached to the canula into a tub placed by the side of the bed upon which the patient lies. Should this tube not be employed, a convenient vessel may be held under the stream and emptied into a larger one when it is filled.

Should other cysts be felt through the abdominal walls after emptying the main one, the trocar may be again introduced and the canula made to empty them.

In performing the operation the practitioner should remember that one of the greatest dangers resulting from it is the occurrence of peritonitis. It is highly probable that this is excited not by the puncture but by subsequent escape into the peritoneum of fluid from the sac. To prevent this all the fluid should be removed which can possibly be got out before removal of the canula. Dr. Peaslee suggests washing out the sac with tepid water, and practises it in all his cases where the fluid is viscid. When the tumor is emptied of its contents, the abdominal wound should be closed by one or two silver sutures, the bandage tightened, a full dose of opium administered, and the patient kept quietly upon her back for at least a week. During this time the bowels should be kept constipated, the bladder evacuated by the catheter, and every influence which could excite peritonitis carefully guarded against. The dangers which follow the operation have been mentioned; those which attend its performance are perforation of the bladder, injury to the uterus or one Fallopian tube, and wounding the epigastric artery, or some large vessel of the cyst. The last cannot be helped, while the means for avoiding the first three accidents are self-evident. Kiwisch asserts that there is seldom union between the wound in the cyst and the abdominal wall as a result of the operation.

Tapping through the wall of the vagina.—This operation has been more or less in vogue for a long time. According to Kiwisch, it was first performed by Callisen in 1775, but has received little notice until modern times. Velpeau[1] declares that he advised it in 1831, and that it was adopted a few years afterwards by Nonat, Neumann, and Récamier. In Germany it has of late

[1] Dict. de Méd., tom. xxii. p. 589.

years been frequently resorted to, and Scanzoni gives the following reasons for preferring it to abdominal paracentesis. It "more often produces a radical cure than the other method just considered, and that especially because the cyst, opened in its lowest part, can empty itself more completely. If the puncture by the vagina were always possible, the abdominal puncture would soon entirely disappear from chirurgical practice; but unfortunately, this is not the case—for the conditions necessary for this operation are met with in but few patients; in fact, it is rare that the lower portion of the tumor descends sufficiently low into the pelvis to be accessible to the vaginal touch, and, furthermore, in many cases where the tumor can be reached, it does not present in its lower portion any cavity filled with liquid, but only solid masses of a sarcomatous, colloid, or cancerous nature." Kiwisch declares that he "unconditionally" prefers it to abdominal tapping, whenever it is practicable.

The advantages of this operation will be appreciated from the following considerations. The wound made by the trocar in the walls of the abdomen is readily united by suture, but that in the cyst wall remains open, and allows fluid to pour into the peritoneum. If this be of a bland character, it is readily taken up and eliminated by the emunctories; but if it be of an irritating nature, it creates peritoneal inflammation which may go on, as has been shown, to a fatal issue. It is very evident that if the puncture be made in the most dependent portion of the peritoneal sac, the danger resulting from this condition will be diminished.

The operation is thus performed: the bladder and rectum having been carefully emptied, and the patient anæsthetized, she should be placed upon a table in the position for lithotomy. The operator then introducing the index, or, as is better, the index and middle finger of the left hand, places them against the most dependent and accessible part of the tumor. Upon the finger or fingers, a canula ten inches long is passed up and pressed against the tumor, the point of the trocar being drawn in a little. The operator then plunges the trocar through the vaginal walls into the tumor, and withdrawing it allows the fluid to flow away through the canula. The patient is then put to bed, quieted by opium, and guarded against all influences which might induce inflammation as long as such an accident is probable.

Tapping through the rectum.—Should the surface of the tumor

be more accessible through the rectum than the vagina, or if for any other reason, as, for example, constriction, atresia, or inflammation of the vagina, it be deemed best to pierce the rectal wall, there is no objection to doing so. If a choice be admissible, however, no special reason pointing to the rectum as the proper point of approach, it would be best to operate through the vagina. From this canal, fluids escape without effort on the part of the patient, and with less annoyance to her, while from the rectum they can pass only by a voluntary act which exhausts her strength, and annoys her by the necessity of frequent repetition.

Thus far we have considered the operation of paracentesis ovarii merely as a palliative procedure, proving curative only exceptionally. The evil which is most uniformly active in preventing its curative effects, is rapid reaccumulation of fluid in the cyst. Indeed, the operation often seems to give vigor to this process, and as each accumulation robs the blood of some of its nutritious elements, a repetition of the act of emptying the sac rapidly exhausts the patient's strength. The observation of this fact has led to the adoption of the method of which we come next to speak.

Drainage.—It has long been noticed that in a small number of cases ovarian cysts empty their contents through the rectum or vagina, and continuing to discharge, either never refill, or become obliterated. The following instance is worthy of record as an example of how much benefit may result from this effort on the part of nature to effect a cure:—

Johanna Smith, æt. 46, married seventeen years, sterile; came to my clinique at the College of Physicians and Surgeons. The patient was in good health up to 1859, when she noticed a tumor over the right ovary. This grew to an immense size; so that for three months she could not turn in bed without assistance, and suffered from dyspepsia, œdema pedum, and other signs of pressure.

In June, 1861, a large amount of sero-purulent fluid passed per rectum, and this flow continued for two months. She states that after this time she left her bed, a mere skeleton, but with no abdominal enlargement.

The tumor refilled in 1866, and discharged in the same way in 1868. Since that time only a small tumor has existed, and the discharge by the rectum has gone on steadily.

She is now not very much emaciated, and suffers from nothing but dyspepsia and constipation. She very frequently feels a desire to evacuate the contents of the bowels, but only sero-purulent matter escapes.

Vaginal touch shows the uterus pushed towards the left acetabulum and slightly anteflexed. Upon conjoined manipulation a tumor the size of a cocoanut is discovered in the right iliac fossa. Rectal touch reveals, as high up as the index finger can reach, a stricture which prevents fœcal matter from passing, but allows the escape of fluids. Between this stricture and the sphincter ani a large amount of fluid is found.

The operation to which we apply the name of drainage is an imitation of this process, with the addition of the injection of disinfectant and alterative fluids into the sac.

The operation consists merely of vaginal or abdominal paracentesis, enlargement of the opening made by the trocar, and the introduction and retention of a tube in the canal thus created, by which fluid can flow out and injections be thrown in.

The proposition of vaginal paracentesis already mentioned as claimed by Velpeau, in 1831, was not confined to evacuation of the sac, but comprehended its drainage by means of a tube left in sitû, if such a procedure should be deemed necessary. In more recent times the gynecologists of Germany have systematized the operation, and rendered it subservient to the best practical results. It presents, of course, all the advantages of evacuation of the contents of the sac by vaginal opening, while at the same time it obviates the chances of failure resulting from reaccumulation and redistension. Statistics with reference to it are not yet sufficiently complete or full to enable us to speak with entire confidence of it, but thus far its results have been of the most favorable character in a certain kind of case. No one claims for it an extended field of usefulness. Even Kiwisch, its introducer and strongest advocate, speaks thus guardedly on this point: "In our opinion it is only of use in moderately large, simple cysts; because, in very large cysts, the extensive decomposition must be very exhausting to the system, and compound cysts do not allow of a proper shrivelling of the open sac, as we experienced in a fatal case in which two cysts were in juxtaposition, and only one could be punctured."

Scanzoni has operated in this way fourteen times; eight cases

were cured; two relapsed in a few weeks; three were lost sight of, and one died of typhoid fever two months after the operation.

In America, the operation has been frequently resorted to by Dr. Emil Noeggerath. His success has not been encouraging thus far, but he is favorably impressed in regard to the plan, and attributes his unfavorable results to the fact that the cases upon which he has operated have most of them been complicated by malignant or other serious disease. Dr. Schnetter has had two cases which have proved entirely successful.

Kiwisch's method of practising drainage.—The operation of paracentesis vaginalis is performed as already described. The fluid of the cyst having flowed off, a director without a handle is passed into the sac through the canula, and held in position while the canula is removed. A long probe-pointed bistoury is then passed by means of the director, and an incision is made, sufficiently large to introduce the index finger. The bistoury and director are then withdrawn, and a long flexible tube inserted which is allowed to hang out of the vagina, being fastened by a T bandage at the vulva.

After the operation the patient should be kept in bed. On the second or third day symptoms of inflammation generally manifest themselves by severe reaction, and for ten or twenty days there is often an ichorous discharge and great pain in the surrounding parts. In favorable cases the ichorous discharge generally gives place to one which is purulent, and which disappears in from five to seven weeks, when shrivelling and perfect obliteration are to be expected. As long as there is any discharge from the cyst it should be washed out twice a day by an injection of lukewarm water, or, what is better, of warm water holding in solution persulphate of iron or carbolic acid. At the same time copious vaginal injections should be used to prevent irritation of the vagina.

The tube should be kept in place until discharge ceases and diminution of the sac has occurred.

Schnetter's method.—Dr. Schnetter, of this city, has modified this procedure in the following manner: the canula being introduced and the trocar withdrawn, a little knife, one inch and a half long in the blade, fixed upon a handle constructed according to the curve and dimensions of the canula, but longer than it, is passed through it. As the handle of the knife is longer than the

canula, this admits of a protrusion of the cutting surface beyond its mouth. In withdrawing both canula and knife an incision is made by the latter which opens the way for the finger and the drainage tube. Scanzoni, who has twice employed Schnetter's method, prefers it to that of Kiwisch, on account of its greater simplicity.

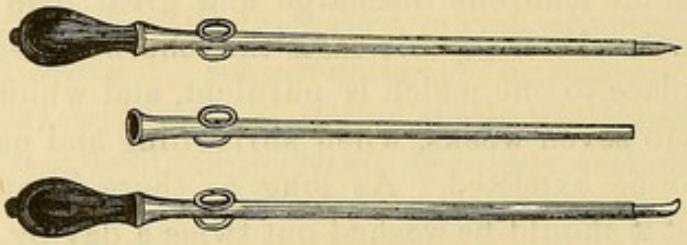
West's method.—Still another method has been recommended by Dr. West, of London, which is simpler than either of those mentioned. The trocar and canula being plunged into the cyst, the former is removed and the fluid allowed to flow away. Then a No. 12 gum-elastic catheter is passed through the canula, the canula withdrawn, and the catheter fixed in its place by a T bandage. I adopted this plan in a case which I am now attending with Dr. O. H. Smith, of Williamsburgh. The operation of West was performed six weeks ago. The patient has not done, and is not doing well. The flow from the cyst is steady and of rather offensive character; constant gastric irritability has harassed her; the pulse is quick; the skin dry, and the mucous membrane of the mouth and lips parched and cracked. It is very evident that the case will end fatally.[1]

The cyst may be opened by Scanzoni's long trocar and canula or by a long bistoury.

Fig. 209.

Fig. 210.

Fig. 211.



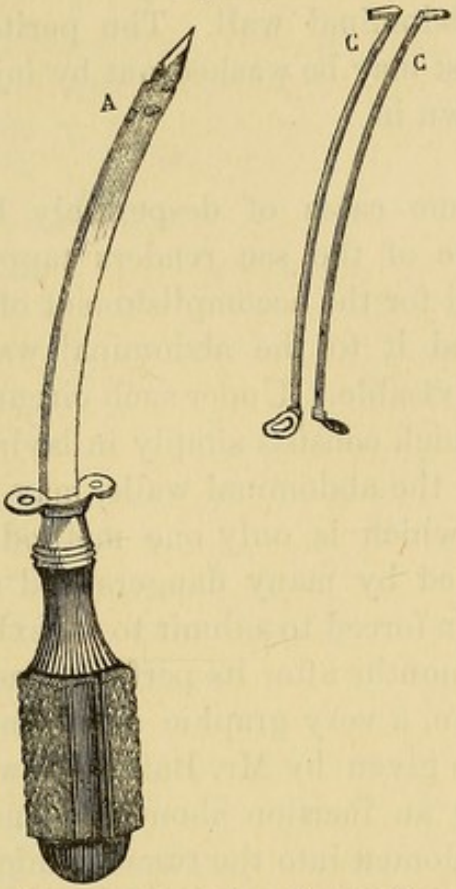
Scanzoni's trocar and canula.

The most ingenious apparatus which has been invented for the accomplishment of drainage by the vagina is represented in Fig. 212.

Drainage, as has been already intimated, may be practised through the abdominal walls, either by a stiff or elastic tube. Figs. 213 and 214 represent a trocar and canula which I have employed for the purpose in one case. Although the case ended fatally, I had every reason to feel satisfied with the instrument

[1] This patient subsequently died of peritonitis resulting from ulceration of the cyst wall which penetrated the peritoneum.

Fig. 212.



Maisonneuve's trocar and permanent canula. A, curved trocar with lancet point, with canula pierced at its extremity by three openings; through one, after removal of the trocar, fluid pours, while through those on the sides the bent extremities of the elastic wires C C are projected so as to prevent the escape of the canula. (Wieland and Dubrisay)

with which the operation was performed. The instrument, being passed through the abdominal walls, closed as in Fig. 213, the

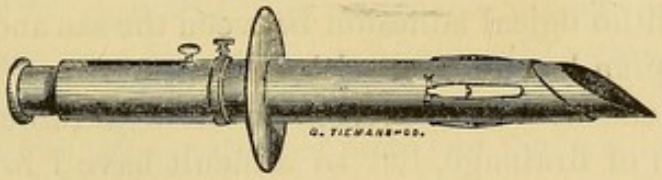


Fig. 213.

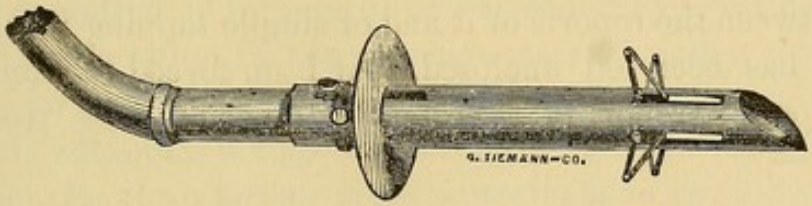


Fig. 214.

Trocar and canula for drawing cysts through the abdomen.

outer tube or canula is slid down upon the inner or trocar. This movement throws out arms which engage the cyst wall. The circular disk seen above is then slid down, fastened by a small

screw, and the anterior wall of the cyst is clamped firmly to the peritoneum and abdominal wall. The peritoneal cavity being thus closed, the cyst may be washed out by injections, and alterative fluids be thrown in.

Incision.—In some cases of desperately bad character, the multilocular nature of the sac renders tapping, drainage, and injection ineffectual for the accomplishment of cure, while extensive adhesions bind it to the abdominal walls so firmly that extirpation is unadvisable. Under such circumstances the operation of incision, which consists simply in laying open the tumor by cutting through the abdominal walls, may be resorted to.

This operation, which is only one method of accomplishing drainage, is attended by many dangers and annoyances to the patient, who is often forced to submit to an exhausting and offensive discharge for months after its performance. It was first performed by Le Dran, a very graphic and minute description of whose procedure is given by Mr. Baker Brown. He performed it in 1836, making an incision about four inches long through the walls of the abdomen into the tumor, which he kept open for five months with pledgets of lint and a canula of sheet lead. Should it be found advisable after abdominal incision to adopt this method, if complete union do not exist between the cyst and abdominal peritoneum, the lips of the former may be sewed to the latter; a method advised by Mr. Baker Brown. Before making the abdominal opening, it has been advised by Récamier, and more recently by Tilt, to cause, by means of caustic issues, pathological adhesion between the sac and abdominal wall, but the plan has not met with success.

I had endeavored to present a statistical table of the results of this plan of drainage, but so difficult have I found it to distinguish between the reports of it and of simple tapping in which the opening has been left unclosed, that I am forced to offer it only as an imperfect report of a certain number of cases treated by incision:—

Operator.	No. of Cases.	Cured.	Died.
Le Dran	2	2	0
I. B. Brown	3	0	3
De Laporte	1	0	1
Velpeau	1	1	0
Portal	1	1	0
Bonnemain	1	1	0
Ray	1	1	0
Bainbridge	2	1	1
Mussey	1	1	0
Prince	1	1	0
Djondi	1	1	0
Galennowsky	1	1	0
Buhring	3	1	2
Pagenstecher	1	1	0
Ollenroth	1	1	0
Douglass	1	1	0
Clay	2	2	0
Farrell	1	1	0
Hutchinson	1	0	1
Paget	1	0	1
Trowbridge	1	1	0
Weber	1	0	1
Thomas	2	0	2
	31	19	12

In some of these cases the entire sac was filled with pledgets of lint saturated with caustic solutions; in some, threads of worsted or other substances were rolled into balls, dropped into the sac, and the ends allowed to hang out of the incision; in some, tents were introduced; while in others, drainage tubes were employed. The time during which the escape of fluid continued, varied very much. Sometimes it ceased in a few weeks, while in other cases it continued for a period varying from eight to twelve months.

Although from the presentation of facts just made it is evident that the operation of incision is one attended by great dangers, it must not be forgotten that in a certain class of cases it may render valuable service. When, for example, the tumor is multilocular and firmly adherent, it may be resorted to with two good results: first, it enables the operator more perfectly than any other method to reach successive cysts; and second, it offers a chance of permanent cure, without removal of the sac, almost equal in proportion to two out of three. The emptying of one large cyst will be better accomplished by simple drainage, but in case a number of cysts exist, that plan will generally fail.

Injection into the sac.—The insufficiency of simple tapping of ovarian sacs led Denman,[1] Bell, Hamilton, and others, to inject into them solutions of sulphate of zinc and other substances, but without effect. In 1846,[2] Dr. Alison, of Indiana, U. S., essayed the injection of tincture of iodine with a successful issue after repeated trials on the same patient. Although others in France and Germany employed the method after this time, it was not systematized and placed upon the footing of a recognized procedure until it received the attention of M. Boinet, of Lyons. This practitioner, bringing a great deal of enthusiasm to the work, soon accumulated a large experience.

He employs for the purpose iodine and iodide of potassium, in the following manner:—

℞.—Tr. of iodine	100 parts.
Iodide of potassium	4 parts.
Water	100 parts.—M.

From four to ten ounces of this solution are injected, allowed to remain for some minutes, and then removed.

The injection is simply and perfectly accomplished in this way. A trocar and canula being passed, the fluid is removed from the cyst. A flexible catheter is then passed through the canula, deep into the cyst, and by means of a hard rubber syringe the fluid is injected through this. After having been retained for ten or fifteen minutes it is allowed to escape, or may be drawn off by the syringe. The catheter is kept in position for some days or weeks, and through it a solution twice as strong in iodine is soon used. Then as the cyst lessens considerably, pure tincture is employed. Mr. I. B. Brown employs the pure tincture of the Edinburgh Dispensatory.

Sometimes, as, for example, in a case published in the Sydenham Society's Year-book for 1861, by Lowenhardt, the pain resulting from this procedure is excessive, and the shock to the nervous system so great as to destroy life. Boinet declares that so long as the injected fluid is confined to the sac, pain and tendency to collapse do not occur, they being due to its entrance into the peritoneum. This view is sustained by Lowenhardt's case, in which a post-mortem examination was made, and revealed a "small amount" of iodine in the peritoneum. The reporter

[1] Simpson, op. cit., p. 362. [2] Peaslee, Ovar. Tumors, p. 11.

lays no stress upon this, and yet the symptoms of which the patient died were just those witnessed after passage of fluids through the Fallopian tubes.

As to the statistics of the operation, it is difficult to speak positively. The following are probably the most reliable which have been published :—

Author.	No. of cases.	Cures.	Failures.	Deaths.	Doubtful.
Boinet	45	31	5	9	
Cazeaux	62	48	11	3	
Gunther[1]	158	32	61	59	
Simpson	40 or 50 (?)	—	—	1	
Scanzoni	4	—	—	4	
West[2]	10	3	6	1	
Tyler Smith	12	2	9	1	
Peaslee	6	1	3	1	1

A certain degree of doubt seems to attach to some of these statistics. Those of Prof. Simpson are evidently too loosely reported to be depended upon, and Courty reviews those of Boinet in the following words: "According to this honorable practitioner, they, the injections, produced a cure in three out of five cases, and always a remarkable improvement. It is to be regretted that these fortunate results have not been reproduced in such satisfactory proportions in the experience of the majority of physicians who have had recourse to the same method." "At present," he continues, "the profession shows a strong tendency to abandon this treatment, the dangers of which are often manifested by fatal results." It is difficult, however, to regard this criticism as just, when we see so reliable an authority as Velpeau reporting, as he did in a discussion in the Academy of Medicine, one hundred and thirty cases, not operated upon by himself, as yielding sixty-four cures and thirty deaths. Even the statistics of Dr. West, whose extreme accuracy as an observer is well known, prove the fact that the operation of injection of iodine is not as dangerous as M. Courty appears to imagine. Dr. Peaslee draws from existing evidence the following conclusions: if restricted to patients previously tapped, which he regards as an important point, and to unilocular sacs, unattended by inflammation, and not containing a thick, tenacious fluid, the mortality would probably be one in ten, and the cures one in three.

[1] In six the results were not stated.

[2] In two of these cases one cyst was cured and another was in progress.

Dr. Peaslee's rules for selecting cases applicable for this plan are the following:—

1. Reject all *polycystic tumors*, excepting cases in which we only expect to diminish for a longer or shorter time, a single one of the sacs.

2. Reject all monocystic tumors also, whose contents are *dense*, *viscid*, and *albuminous*, as a general rule; the exceptions presenting themselves in some cases where ovariotomy is out of the question.

3. Reject also all single sacs whose contents are made up in part of *inflammatory products*.

4. There remains, then, for the iodine injection, only the simple sac, with clear, serous contents, and this should have been tapped once at least, previously, as a general rule. Adherence to this last precept also enables us to decide, before we determine to use the iodine, whether we have a single sac, or more—a very difficult thing to determine before tapping, in many cases.

Even should a sac collapse under the injection of iodine, the practitioner must not be too sanguine as to the result, for, even after remaining in this state for years, they often refill, and require a repetition of this operation or the performance of some other.

Partial excision.—It has already been remarked that when an ovarian cyst is broken in consequence of any accident, and empties itself into the peritoneum, complete recovery may take place by absorption of the effused fluid, and collapse of the emptied cyst. Of seventy cases of this accident reported by Dr. Tilt, forty, over half, recovered. The operation which we are now describing has for its object an imitation of this pathological result, and consists in opening the sac so that its contents may pour into the peritoneal cavity without escaping from it through the abdominal walls. It was first performed by Guérin[1] and Bainbridge, from a suggestion by Dr. Blundell, according to Prof. Simpson; while Mr. Baker Brown ascribes it to Jefferson, West, and Hargraves.

The method is liable to these objections: 1st, the large vessels ramifying upon the sac may be cut, and hemorrhage excited; 2d, a species of fluid may be evacuated, which will excite peritoni-

[1] Simpson, op. cit., p. 353.

tis; 3d, the tumor may be multilocular, and only one cyst be evacuated. Its sphere is therefore limited to cases in which the character of the contained fluid is ascertained by tapping to be of a bland, unirritating nature, and free, or almost free from albumen, and in which a monocystic tumor is supposed to exist. If the case be one of a character favorable for this procedure, the risks of peritonitis, inflammation of the sac, and septicæmia from absorption of its putrefying contents, which often result from simple tapping, are avoided on the one hand, and those of ovariotomy on the other. It was very recently resorted to in this city, by Dr. W. L. Atlee, of Philadelphia, in the case of a very large cyst, the contents of which were found by chemical examination to be free from albumen; but the cyst subsequently refilled, and the patient died.

There are three methods in which it may be performed. If the monocystic character of the tumor and the innocuousness of its contents have been fully ascertained by previous tapping and physical examination, the cyst may be again emptied by a large quadrangular trocar, four-fifths of the contents drawn off, and the abdominal opening closed. Then each day a little of the fluid still remaining should be expressed from the tumor by compression with the hands, in order to keep the wound in the sac from uniting. This is the method of Prof. Simpson. Under the same circumstances an incision of an inch in extent may be made down to the tumor, a portion of this seized with clawed forceps or tenacula and excised, and the outer wound united.

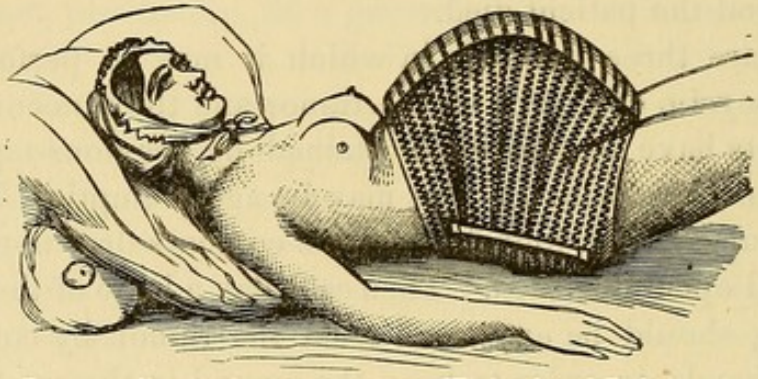
Should any doubt exist as to the character of the tumor and its contents, everything should be prepared for the operation of ovariotomy in case these be found adverse to partial excision. Then by an incision two or three inches long the surface of the cyst should be exposed, a large piece of this cut out, and the abdominal wound closed. In this way all large bloodvessels may be avoided, as sight and touch are brought to the operator's aid, and a sufficient portion of the sac is removed to prevent reunion.

Prof. Byford refers to a fact which in some cases must have an important bearing upon the success of this operation. It is that the contents of an ovarian cyst which are first evacuated may be clear and apparently bland, while that portion of fluid which comes forth last is thick, grumous, and acrid.

Other methods which have been advised, in addition to those alluded to, are the creation of an abdominal issue by use of caustic potash, by Dr. Tilt; ligation of the pedicle, by Dr. Tanner; pressure after tapping, by Mr. Baker Brown; "aspiration" or suction, by M. Buys; the seton; electricity; acupuncture; and a number of others, a description of which is not deemed necessary in the present essay.

In some cases, continuous pressure, after the plan of Mr. Brown, has effected not only amelioration but cure. The best method for accomplishing it is by the elastic apparatus of Bourjeaud, represented by Fig. 215.

Fig. 215.



Bourjeaud's elastic compressor. (Wieland and Dubrisay.)

Résumé.—We have now considered the following surgical means for the cure of fluid ovarian tumors:—

Tapping;
Drainage;
Incision;
Injection;
Partial excision.

It is evident, upon consideration, that each of these possesses certain advantages and disadvantages. These have already been spoken of; nevertheless it may not be useless to recapitulate those which are common to all the methods thus far treated of.

1st. All of them are applicable chiefly to unilocular tumors, success attending their employment in multilocular cysts very rarely indeed.

2d. Their employment is confined entirely to fluid tumors, so that if an error of diagnosis should have been committed, these operations cannot, as ovariotomy may, be turned to good account.

3d. One of the greatest dangers attending all of them is peritonitis, which should be carefully guarded against by complete evacuation of the contents of the sac, washing it out with warm water, and strictly insisting upon the recumbent posture.

4th. Two other great dangers are, inflammation of the cyst walls and absorption of the decomposed contents remaining within the sac, which are most surely prevented by the use of antiseptic injections repeated at short intervals, preceded by complete emptying of the cavity.

5th. In monocystic and even in polycystic tumors which are bound down by false membranes of such strength as to render removal of the cyst impracticable, these procedures hold out the only hope for the cure of the patient.

CHAPTER XLIII.

OVARIOTOMY.

Definition.—This term, derived from ωαριον, "the ovary," and τομη, "incision," signifies simply the removal of the ovary by surgical procedure.

History.—The history of the operation goes back only to a very recent date. It has become customary for those who have written upon it to cite ancient authors to prove that even as long ago as the time of the early Greeks the ovaries were often removed in the inferior animals as is done in our own time. The writings of Aristotle put this beyond question. It is even asserted that among the Lydians castration of the human female was practised in order to enable them to serve as eunuchs. In more recent periods, we are told by Wierus, that a Hungarian swineherd, incensed by the lasciviousness of his daughter, removed her ovaries, in hope of reformation, after the manner in which he was in the habit of spaying his swine. Towards the close of the eighteenth century both ovaries, which had descended into the inguinal canals, were removed by Dr. Percival Pott, of England. But all this, though interesting as a matter of physiology, has little to do with the operation of ovariotomy, according to the true signification of the term. In the one case a minute and healthy gland, which is sparsely supplied with blood, was removed from a healthy peritoneal cavity. In the other a huge sac which is supplied by large bloodvessels, and has in many instances contracted adhesions to a diseased peritoneum, requires extirpation.

The idea of removing large ovarian cysts, even, is not new, since it was discussed in 1685 by Schorkopff, in 1722 by Schlenker, in 1731 by Willius, in 1751 by Peyer, and in 1752 by Targioni. In 1758 Delaporte even went so far as formally to propose the operation to the Royal Academy of Surgery, and in 1781 Laumonier, of Rouen, through an error of diagnosis, absolutely removed

the diseased ovary. Subsequent to this period, frequent suggestions of the operation as now performed were made; among others by John Hunter in 1787, and later still by Wm. Hunter. In 1798 Chambon ventured to prophecy that it would in time become a recognized resource in surgery, and in 1808[1] Samuel d'Escher, a student of Montpellier, proposed a specific plan for its performance based upon the teachings of one of his masters, M. Thumin.

Thus, as we advance from more remote periods to the beginning of the nineteenth century, we find the minds of physicians being gradually prepared for the reception of ovariotomy as its consummation was step by step approached. But all that we find accomplished up to this time is the promulgation of ideas, prophecies, and propositions, and the performance of accidental operations, or of those upon healthy ovaries.

In 1809[2] the first real case of ovariotomy ever undertaken was successfully performed by Dr. Ephraim McDowell, of Kentucky. His first case was successful, the patient living twenty five years afterwards. Subsequently he operated thirteen times, with eight favorable results. In 1821 Dr. Nathan Smith, of this country, operated successfully. In 1823 Dr. Lizars endeavored to introduce the operation into Scotland, and operated four times, but his results were bad. In one case the tumor was uterine and was not removed, in one no tumor could be discovered after abdominal section, and one of the two cases upon which ovariotomy was performed died.

Since this period, Atlee, Peaslee, Kimball, and Dunlap have been most influential in establishing the operation in America. In England, Dr. Charles Clay, in 1840, pressed it upon the notice of the profession, and he was soon ably sustained by Lane, Wells, Baker Brown, and many others, whose names have become famous in connection with it.

In Germany the operation was performed in 1819 by Chrysmar, and subsequently by Dieffenbach, Heyfelder, Kiwisch, Siebold, and Langenbeck. But the results in that country have

[1] Wieland and Dubrisay, op. cit.

[2] Mr. Baker Brown's historical sketch of this operation commences, "I do not pretend to give a history of the operation of ovariotomy." The necessity for this declaration will be fully appreciated when it is stated that nowhere in his notice is the name of McDowell, Atlee, or any other American surgeon to be found.

been singularly unfortunate, so markedly bad, indeed, that Scanzoni, writing in 1856, says, "We consider ovariotomy a surgical temerity * * * * It results from what precedes that we ought completely to reject ovariotomy, and that we will renounce the glory of having successfully performed such an operation, until facts come to demonstrate that it does not terminate as frequently by death as we now think." It is hardly just to quote such a passage, ten years after it was written, in regard to an operation which has so rapidly grown in favor as this. Whether the facts furnished by English and American ovariotomists have caused the eminent German Gynecologist to reverse his conclusion, as they have Drs. Charles West, Tyler Smith, Savage, Hall Davis, and many other candid searchers after truth, I am unable to say. Prof. Scanzoni's work was translated in this country by Dr. A. K. Gardner, in 1861, who annotated it, "with the approval of the author," and no renunciation is there made.

Into France the operation was introduced, or as some French[1] writers express it, "reintroduced," by Dr. Woyerkowski, in 1844. It was subsequently performed by Vaublegeard, in 1847, and later still by Nélaton, Maisonneuve, Jobert, Demarquay, and other surgeons of Paris. The results of these attempts, however, had the effect of casting discredit on the operation from which it is only now emerging, thanks to the writings of Jules Worms, Ollier, Labalbary, Vegas, and more especially to those of Koeberlé, of Strasbourg. When it is stated that all these writers have published since 1862, it will be appreciated how recent is the favorable reception of the operation in France.

M. Boinet has just read an essay[2] before the Academy of Medicine, strongly advocating it, and "reprobating the timidity of French surgeons who have so long recoiled before it."

In conclusion, it may be said that the conception of the operation in all its steps is over an hundred years old, and is of European origin; that for its accomplishment we are indebted to what M. Piorry once styled, "une audace Américaine," which was supplied by Dr. McDowell; and that many of the important improvements which have since been introduced, we owe to Great Britian. Pre-eminently an Anglo-American procedure, it has, even at the

[1] Wieland and Dubrisay, the French translators of Churchill.

[2] N. Y. Med. Record, July, 1867.

present day, not assumed its legitimate place in France and Germany.

Varieties.—There are no varieties of the operation, except as it is accomplished by the long or short abdominal incision. Incomplete cases, or those in which only a portion of the sac is removed, have also been grouped under this head, but very improperly so, for less than complete removal constitutes an entirely different operation, which has already been described as partial excision.

Advantages.—The advantages of the operation are these: it enables us to remove solid and polycystic tumors which are curable by no other method, and to extirpate those of unilocular form which have resisted all other procedures. Great as are the dangers of the operation, it often offers a better prospect for recovery than any of the other plans mentioned, and in case of their failure it always remains as a reasonable hope for the patient, whose life will probably terminate in three or four years, if art do not interfere.

Dangers.—The dangers which attend it are numerous and grave. The following table, constructed by Dr. Peaslee upon the post-mortem evidence of 50 cases, will exhibit them at a glance.

Peritonitis	12	Strangulation of intestine in wound	1
Septicæmia	9	Diarrhœa	1
Shock or collapse	7	Erysipelas	1
Exhaustion	7	Tetanus	1
Shock and septicæmia	1	Ulceration through bladder	1
Hemorrhage	9	Unknown	9

It will be seen from this that peritonitis destroys one-quarter of all who die from the operation and septicæmia, or absorption of putrid material, one-sixth. After these causes follow those directly resulting from the depressing influence of the operation upon the nervous system.

Dr. John Clay makes the following analysis of the causes of death in 150 fatal cases, reported in his tables.

Shock or collapse	25
Hemorrhage	24
Peritonitis	64
Phlebitis	1
Tetanus	2
Intestinal affections	6
Abscess	3
Chest diseases	4
Congestion of brain	1
Diabetes	1
Not stated	19
	150

Here also peritonitis appears as the most frequently fatal sequel of the operation, then come shock or collapse, and hemorrhage. After these there are no causes which are especially operative.

It may be stated as a fact, that peritonitis and septicæmia occurring after the operation, are not due to exposure of the peritoneum to air or to any special tendency of the vessels of the stump to absorption of putrid matters. It is, to say the least, extremely probable that both result from—

1st. Putrefaction of blood and the contents of the sac left in the peritoneum, or oozing into it from the small vessels of broken adhesions.

2d. Putrefaction of the stump beyond the ligature securing its vessels.

3d. Phlebitis set up by ligation of the veins of the stump.

4th. Pouring of pus into the peritoneum from incomplete closure of the peritoneal lips of the abdominal incision.

5th. Irritation of the peritoneum by foreign substances (ligatures), left within it.

If these propositions be true, the indications suggesting themselves for the avoidance of danger will be—

1st. To leave no fluid susceptible of putrefaction in the peritoneum.

2d. To prevent secondary hemorrhage by carefully checking all flow, before the abdominal wound is closed, by ligatures, torsion, the actual cautery, and persulphate of iron.

3d. To avoid collection of pus in the peritoneum by uniting the abdominal wound on both its cutaneous and peritoneal aspects.

4th. To avoid as much as possible leaving foreign substances

within the peritoneum, and to employ the most innocuous substances as ligatures when these are necessary.

Statistics of Ovariotomy.—The time has passed when in an essay upon this subject the question need be asked as to the propriety of recognizing ovariotomy as a legitimate resource in surgery. The operation has to-day not only the verbal indorsement of the first obstetric surgeons of the world; it has the more positive testimony of their resorting to it in dealing with cases requiring its aid. So lengthy is the list of eminent names giving it their sanction, and so thoroughly has the ground been investigated by recent writers, that I deem it unnecessary to examine it more minutely. But besides this the results and rapid spread of the operation in Great Britain and America may be pointed to in reply to such a question, results which are fully as favorable as those of other important capital operations.[1] "Take, for example, hernia. Sir A. Cooper records 36 deaths in 77 operations; and Dr. Inman 260 deaths in 545 cases. Or ligature of the large arteries, of which Mr. Phillips has collected 171 cases, of which 57 died; Dr. Inman 199 cases, of which 66 died. Of 40 cases of the subclavian artery 18 proved fatal."[2]

An approximative idea of the rapidity with which ovariotomy has been accepted, may be obtained from the statistics collected by different writers during the past ten years:—

In 1856 Dr. Lyman[3]	collected	212 cases.
In 1860 Dr. J. Clay[4]	"	425 "
In 1864 Dr. Peaslee[5]	raised the number to	787 "

In presenting the statistics of the subject it is difficult to do so with perfect justice. The operation is a recently employed procedure, and although simple in its details depends for success so much upon little, and at first sight apparently insignificant, points, that the statistics of inexperienced operators cannot with justice be admitted. A proof of this is offered by a comparison of the earlier and more recent results of the most eminent ovariotomists as given by Prof. Simpson:—

[1] Remarks by Mr. Erichsen in Lancet for 1862, p. 688.

[2] Dr. Churchill's review of Dr. Lee on Ovarian and Uterine Diseases.

[3] Prize Essay, Mass. Med. Soc.

[4] Translation of Kiwisch on Ovaries.

[5] On Ovariotomy, trans. Acad. Med., N. Y.

Dr. C. Clay	in his	first	20	operations	lost	1	in	$2\frac{1}{2}$
"	"	second	"	"	"	1	"	$3\frac{1}{3}$
"	"	third	"	"	"	1	"	4
Mr. S. Wells	"	first	50	"	"	1	"	2
"	"	second	"	"	"	1	"	3
"	"	third	"	"	"	1	"	4
Dr. Keith	"	first	20	"	"	1	"	$3\frac{1}{3}$
"	"	second	"	"	"	1	"	$6\frac{2}{3}$
Dr. Atlee	"	first	101	"	"	1	"	$2\frac{2}{3}\frac{5}{8}$
"	"	following	78	"	"	1	"	$3\frac{5}{7}$

Between the statistics collected in Germany and those in Great Britain and America, there is so marked a discrepancy that one cannot but agree with Dr. Atlee,[1] of Philadelphia, in this opinion: "The German mortality is excessive, and there must be a fault somewhere. Their great dread of making a free opening in the abdominal cavity, and their method of managing the pedicle, may have much to do with their want of success." Simon declares that out of sixty-one operations only twelve completely recovered; and Scanzoni,[2] in giving his reasons for not accepting it, speaks of it as "a procedure by which Langenbeck has lost five patients out of six, and Kiwisch four out of five."

As it is not my intention to present full statistics upon ovariotomy, which would be out of place in a work of the character of this, but merely to give the practitioner certain facts which will enable him to decide in favor of, or against, the operation at the bedside, I shall content myself with stating the results obtained by operators who have become eminent in connection with it during the past ten or fifteen years. Of the following list, those who have operated in Europe are quoted on the authority of M. Courty; those in America chiefly from personal testimony. The statement in all cases is brought up to May, 1866.

Operator.	Residence.	No. of operations.	Recovered.	Died
I. B. Brown,	London	92	59	33
Spencer Wells,	"	166	112	54
Ch. Clay,	Manchester	117	80	37
Tyler Smith,	London	17	14	3
Keith,	Edinburgh	40	31	9
Koeberlé,	Strasbourg	27	18	9
Kimball,	Lowell, U. S.	72	43	29
W. L. Atlee,	Philadelphia	162	70 per cent.	30 per cent.
J. L. Atlee,	Lancaster, Pa.	27	23	4
Peaslee,	New York	9	7	2
A. Dunlap,[3]	Springfield, O.	37	28	9

[1] Gardner's Notes to Scanzoni, p. 255. [2] Op. cit., p. 471.

[3] Am. Journ. Med. Sci., July, 1868, p. 177.

Circumstances rendering a resort to the operation unadvisable.—Should an ovarian tumor grow very slowly, give no serious inconvenience to the patient, and not depreciate her general health, nor require tapping to secure her comfort, a resort to ovariotomy is not advisable. Though its results have been most gratifying, they are not sufficiently good to admit of interference in such a case as we are supposing. The following circumstances would strengthen this conclusion—

Presence of much solid matter in the tumor;
Its existence after the menopause;
The patient being in robust health;
Relief having been afforded by paracentesis;
Non-albuminous fluid having been withdrawn.

The opposite of all these circumstances will call for it, unless one of the other operative procedures which have been mentioned be preferred.

Conditions favorable to the operation.—Clearness and certainty of diagnosis;
Good constitutional condition;
Patient being hopeful and desirous of operation;
Unilocular character of cyst;
Absence of solid matter in its structure;
Abdominal walls not very thick;
Absence of adhesions and ascites;
Small amount of albumen in fluid of cyst.

The possibility of error in diagnosis has been already sufficiently dwelt upon. The importance of clearly understanding the nature of the tumor cannot be over-estimated. The operator should, by repeated, prolonged, and most careful examinations alone, and afterwards aided by others, endeavor to determine all the features of the case, not merely the fact that a tumor exists, but that it is ovarian and not uterine, that pregnancy does not exist with it, that it is not cancerous, that its contents are fluid, and that the fluid felt is all ovarian and none of it abdominal. In two cases I have, in company with a number of others who consulted with me, been greatly deceived. In one case, when upon the point of operating upon a large, multilocular tumor, the patient lying on the table, I discovered the coexistence of pregnancy in the fifth month. In another, which I supposed to be a large ovarian tumor, upon cutting through the abdominal walls,

an immense amount of fluid escaped, leaving for removal an alveolar cyst of the ovary not larger than the adult head. When the reader is reminded that in a number of instances the most accomplished diagnosticians have cut through the abdominal walls when no tumor whatever existed, this point will be sufficiently impressed.

The constitution of the patient should be good, but not robust; some, indeed, as for example, Drs. Peaslee, Atlee, and Tyler Smith, prefer to wait for impairment of the health. The following table constructed by Dr. J. Clay, of 229 cases in which the general health was ascertained, displays the remarkable fact that even emaciation does not produce a very unfavorable result:—

Class of cases.	Health good.	Health impaired.	Much emaciated.	Complicated	
				With other diseases.	With pregnancy.
Successful	21	17	47	21	2
Unsuccessful . . .	21	25	46	27	2
Total	42	42	93	48	4

The mental state of the patient has so marked an influence on the result that operators agree that a depressed and apprehensive mind generally produces an unfavorable issue.

The greater the amount of solid matter in an ovarian tumor, the more favorable will be the prognosis as to rate of growth and the more unfavorable as to cure.

The following is Dr. Clay's table in reference to the character of the tumor:—

Class of cases.	Monocystic.	Polycystic.	Solid.	Small.	Medium.	Large.
Successful	19	66	8	4	14	30
Unsuccessful . . .	25	106	13	3	17	48
Total	44	172	21	7	31	78

The greater the thickness of the abdominal walls the more extensive will be the surface which must unite to effect closure of the abdominal opening, and the greater the probability of suppuration occurring between the lips of the wound and pus pouring into the peritoneum.

The presence of adhesions greatly complicates the case, but as

this can be determined only after abdominal section, its consideration will be postponed until that point in the description of the operation is reached.

Mr. I. B. Brown first pointed out the importance of an abundance of albumen as a prognostic sign in ovarian cysts. "Believing as I do," says he, "that the highly albuminous condition of the fluid exhausts the system in a similar way to that of albuminuria from disease of the kidneys, I consider that it contraindicates an operation as clearly as the latter disease. The nature of the contents may be readily discovered by withdrawing a little by an exploring needle." I give this quotation, not for the purpose of indorsing the view, but to show how strongly Mr. Brown feels in reference to the matter. The two states between which he draws a parallel are evidently different in this, that in one case the drain of albumen ceases with the operation, while in the other it continues unabated. In two of my own cases, the fluid removed by tapping after abdominal section was gelatinous, and yet the sac being removed, the patients rapidly recovered without an unfavorable symptom. That an abundance of albumen gives an unfavorable, as its absence gives a favorable, prognosis, however, cannot be denied.

Conditions unfavorable to the operation.—The following circumstances, although unfavorable to the operation, do not contraindicate it unless they exist in the most exaggerated degree:—

Obscurity as to diagnosis;
Great constitutional impairment;
Gastric or intestinal disorder;
Depression of spirits;
Multilocular character of cyst;
Presence of solid matter in tumor;
Highly albuminous character of contents;
Presence of extensive and firm adhesions;
Complication with other diseases.

Grounds upon which a choice of operative procedures should be based.—Before proceeding to describe the operation of ovariotomy, it will not be out of place to examine this question.

Tapping is not a curative but a palliative operation, and need not detain us.

Drainage.—When it is ascertained that a small cyst is unilocular, and more particularly, when by explorative incision it

is known to be adherent, this operation may be resorted to either by the vagina or abdomen.

Injection is applicable to unilocular cysts filled with clear and slightly albuminous fluid, or even to those containing pus or blood. It has not been found to produce good results in those containing thick, unctuous, and fatty matters. This plan may be combined with drainage.

Incision.—This method of draining the cyst has its limited sphere in those unfortunate cases of multiple and polycystic sacs which, on account of firm adhesions, cannot be removed, and from their multilocular character are not susceptible of treatment by drainage or injection.

Partial Excision.—It is known that when a cyst containing a clear, straw-colored, non-albuminous fluid discharges itself into the peritoneum, recovery may take place, the effused fluid being eliminated and the sac contracting. Partial excision should be reserved for such cases and never employed in others, for where the contents of the sac are tenacious and albuminous it is more fatal in its consequences than ovariotomy itself. Dr. Clay has collected 24 instances in which the operation was performed. 10 patients recovered and 14 died, and of the 10 spoken of as recoveries only 7 were radically cured.

Ovariotomy.—This operation is applicable to cases between those desperate ones of cystic disease susceptible of treatment only by incision, and those not susceptible of cure by injection or drainage. It also offers the only hope in cases of composite and solid tumors.

Preparation for the Operation.—We know that the septic endometritis, which is the starting point of those symptoms which grouped together constitute puerperal fever, is often excited by the miasm attaching to the medical attendant from an autopsy, a case of erysipelas, typhus fever, or hospital gangrene. Although the fact that these miasms will exert a similar baneful influence on the parts exposed in this operation is not proved, it is at least so probable that no operator should expose a patient to the test. It is true that in the one case a mucous membrane altered by pregnancy and parturition is involved, and in the other a serous sac; nevertheless there is sufficient probability that evil might accrue, to make us careful to avoid these sources of disease. Previous to the operation the patient should be put upon a tonic

course. Generous diet, iron, quinine, fresh air, cheerful surroundings, and gentle exercise should, unless impracticable from some peculiarity of the case, be prescribed. Drs. Simpson and Atlee speak highly of the use of the persulphate of iron as a tonic. A visit to the country or some quiet watering place will prove of great advantage. Above all things, the mind of the patient should be made calm and cheerful, and every hope as to the result of the operation encouraged. After a candid statement of the chances of success has been rendered her as material upon which to base her determination to accept or reject the operation, no doubt ought thenceforth to be expressed as to the result by physician or friends.

The operation should be performed in a locality where the air is pure and salubrious—never in the wards of a crowded hospital, and if a choice be offered, in the country rather than the city. The day selected should be clear, and neither very hot nor very cold. If the weather be cool, the temperature of the apartment should be kept at from seventy-eight to eighty, and the atmosphere moistened by evaporation of water. A thoroughly experienced nurse should be in readiness to take charge of the patient.

Two days before the operation a cathartic should be administered, in order to evacuate the bowels completely, and for three or four nights an opiate should be given at bedtime. This not only quiets the nervous system, but tests the patient's capability of tolerating the medicine. One hour before the operation, Dr. Atlee gives a dose of opium. The skin should be put into good condition by warm baths employed daily for a week or more, and its temperature kept equable during the operation by flannel drawers, as suggested by Mr. Brown. As the time for its commencement arrives, the bladder should be carefully evacuated, the patient anæsthetized by sulphuric ether, and laid upon her back upon a table of suitable height and strength, which is covered by folded counterpanes or blankets and placed before a window affording a good light.

The operator will require at least four assistants, one to administer the anæsthetic, one to stand opposite to him and aid in manipulating the tumor and abdominal wall, one to take charge of the instruments, and one to apply ligatures, the actual cautery, &c. A fifth, to be at command in case of need, will always be of advan-

tage. Two or three pints of Peaslee's artificial serum, composed after the following formula, may be kept in readiness.

℞.—Sodii chloridi, ʒiv.
Albuminis ovi, ʒvj.
Aquæ, Oiv.—M.

The Operation.—Although this operation has of late years been so fully discussed, and so free an interchange of sentiment concerning it has been afforded, there is not one point connected with it upon which operators are agreed. The extent of incision, management of pedicle, closure of wound and the other steps which will be alluded to, are still subjects upon which great variety of opinions exist. I shall avoid discussions, and hoping to be pardoned for any appearance of dogmatism which may result from so doing, give such a description as will, according to my view, best meet the requirements of practice.

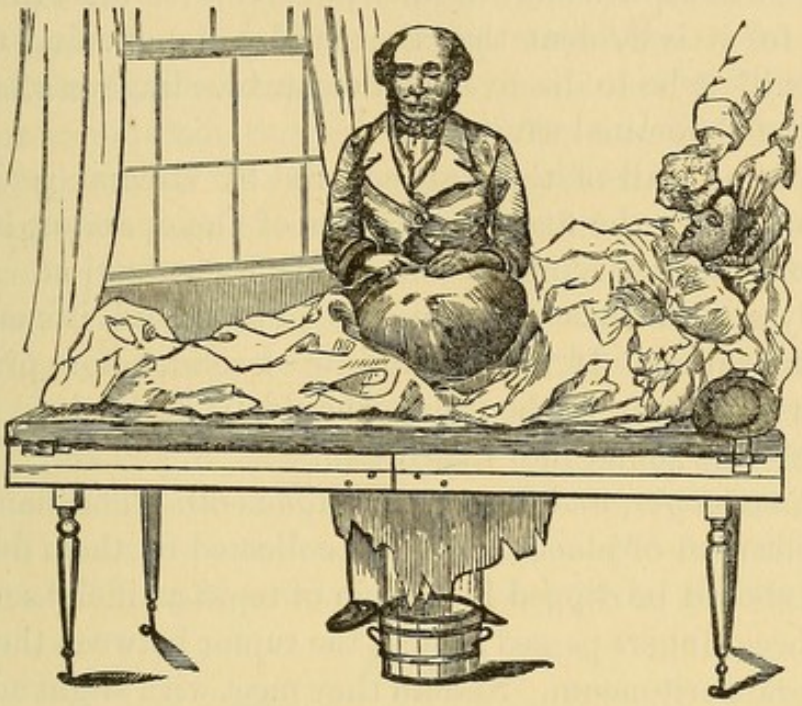
The steps of the operation are these:—

1st. Incision;
2d. Examination for, and rupture of adhesions;
3d. Tapping;
4th. Removal of the sac;
5th. Securing the pedicle;
6th. Cleansing the peritoneum;
7th. Closing abdominal wound.

The incision is made by a bistoury held by the operator, who stands at the right side of the patient. It should pass directly through the linea alba, and should extend from a little above the symphysis pubis, upwards for two or three inches. Passing through the skin and adipose tissue, layer by layer, it is continued until the operator sees the fibrous sheath of the recti muscles. Sometimes it is difficult to distinguish this from the peritoneum. If any doubt exist, it should not be incised until exposure to the air and pressure by forceps, fingers, or sponges, have checked the venous flow occurring from the vessels exposed by the abdominal incision. Then the fibrous structure should be caught by a tenaculum, snipped with scissors, and a grooved director passed under it, upon which it may be slit. If this expose the belly of one of the recti, it will be evident that the linea alba has not been struck by the incision. To reach it, a director should be pushed under the sheath across the muscle, and it will be arrested at the linea, where the incision may be

made. All hemorrhage having now ceased, the parietal peritoneum should be lifted, snipped, and slit upon the director for the length of the incision.

Fig. 216.



Position of operator. (Simpson.)

At this point a slight flow of straw-colored serum will usually take place, after which either the shining wall of the sac will be exposed to view, or, as will sometimes be the case, a thin layer of omentum will be found spread out over its surface. This should not be cut, but lifted like an apron and put aside. Sometimes, in addition to omentum, a loop of intestine may be found over the anterior face of the tumor, as happened in one of Mr. Baker Brown's cases, where it would have been incised had the operator not slit the peritoneum upon a director with scissors.

Mr. Brown has laid down, in reference to the abdominal section, this important rule: it should always be regarded originally as an explorative incision. If any condition contraindicating the removal of the sac be found to exist, it may then be closed without exposure of the patient to great danger, while if it be found advisable to enlarge it to proceed, this may be done to any necessary extent. Mr. Wells has removed one sac by an incision of one inch and a half, and rarely resorts to one of over five inches. On the other hand, Dr. Clay, whose favorable statistics have been alluded

to, prefers the long incision. The great dread which has always been entertained of cutting into and exposing the peritoneum, lends a degree of fascination to the short incision. When, however, it is borne in mind that it is to putrefaction of retained fluids that peritonitis and septicæmia are chiefly due, this feeling will diminish in force, for it is evident that the smaller the opening the more difficult will it be to discover and close bleeding vessels, and to cleanse the abdominal cavity.

The shining wall of the cyst, covered by visceral peritoneum, being now under the fingers and eyes of the operator, he has an opportunity of verifying his diagnosis by palpation. If it be positively settled that the tumor is purely fluid, it may be regarded as ovarian. If it be composite or solid, before proceeding further its relations to the uterus should be determined by passing the uterine sound into that organ.

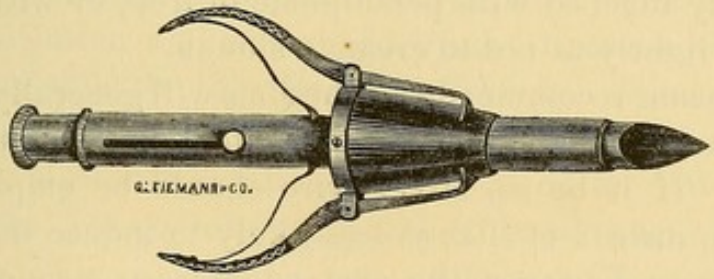
Examination for, and Rupture of Adhesions.—The hands being rapidly cleansed of blood which has collected on them during the incision, should be dipped in a basin of tepid artificial serum, and two or three fingers passed around the tumor between the parietal and visceral peritoneum. Should they meet with slight adhesions, these should be gently broken; if none be reached, a large steel sound, previously dipped in warm serum, should be swept around the tumor as far as the pedicle. Special attention should be given to attachments to the liver, large intestines, uterus, and bladder, which are of far greater moment than those to the abdominal walls. This exploration, like that by the fingers, may be made to rupture slight adhesions, but those which are strong and well organized should be left for careful examination and section after the incision has been prolonged. If such be found, the short incision of two to three inches should be prolonged upwards into the median incision of five to seven, or the long incision of ten to twelve, the judgment of the operator deciding as to which is needful. If by a short incision, and the means of exploration already mentioned, the absence of adhesions can be decided on, nothing more is necessary, for this step of the operation is complete; but if it be found necessary, the incision should be prolonged, and the whole hand passed into the peritoneal cavity, in order that all the relations of the tumor may be clearly ascertained.

The long incision having been made, as soon as all flow from the severed vessels has ceased, the operator should break all

adhesions within reach by carefully peeling off their attachment to the tumor. Great care must be observed not to tear the cyst wall, lest escape of its contents or hemorrhage should occur into the peritoneum. In this way only moderate adhesions should be broken. Those of very firm and vascular character, should be dealt with after tapping. The patient should then, after the suggestion of Dr. Hutchinson, be turned on one side in order to cause the tumor to protrude through the incision, and fluid removed by tapping, to pour out of and not into the abdomen.

Tapping.—If doubt exist as to the character of the contents of the tumor, a portion should now be drawn off with an exploring trocar, for if a clear, watery fluid containing no albumen be removed, the operation may be given up, and partial excision made to replace it; while, on the other hand, a tumor supposed to be fluid may thus be proved to be solid or composite, without involving flow of blood into the peritoneum. If this explorative puncture prove the tumor to contain fluid, a large trocar like that of Spencer Wells, represented in Fig. 217, may be plunged in, fixed

Fig. 217.



Spencer Wells's trocar and canula.

to the wall of the cyst by its wings, and the fluid allowed to pour out into an appropriate vessel through a caoutchouc tube attached to the mouth of the canula.

While the fluid is pouring out, compression of the abdominal walls against the tumor should be made by an assistant, who places one hand on each side of the abdominal incision, and the sac kept from collapsing by strong tooth forceps made to grasp its lips.

When the first sac is emptied, the canula should be removed and the index finger introduced in order to ascertain the existence of other cysts, endogenous, exogenous, or multiple. These should be tapped in a similar manner, an incision, if needed, being made in the cyst wall for the purpose of facilitating the

process. All the large cysts being emptied, the operator should at once proceed to the removal of the sac.

Removal of the Sac.—The sac being now drawn out by the tooth forceps, tenacula, or pincers, which have been fixed in it to prevent its collapse, is seized by the fingers of the operator or assistant, and gently drawn forth through the incision. If an adhesion which has resisted the manual efforts already made to rupture the attachments, hold it in the abdomen, this should be severed by detaching it from the cyst wall by the fingers, which will now reach it readily; by the actual cautery, as suggested by Mr. Brown, if it be long enough to avoid cauterization of the abdominal wall; by scissors, if a cutting instrument must be used; or by a small écraseur, if it can be applied. No rule can be given as to the best method, for each case will require the plan specially adapted to its peculiar features. This maxim must be constantly borne in mind—that plan is best which severs the attachment without injuring viscera or leaving bloodvessels open, for these are the two evils to be feared. If a flow of blood follow the severance of the adhesion, the vessel should be exposed, freely touched with persulphate of iron, or with the actual cautery so lightly as not to create a slough.

By the means recommended, adhesions will generally be severed without the application of ligatures, but now and then this is necessary. If it be so, silver wire should be employed when practicable, instead of silk, as less likely to induce inflammation. In some cases, however, the cyst adheres so strongly to some viscus that it cannot be separated. Under these circumstances a portion of the cyst wall should be cut out and allowed to remain upon the surface to which it so pertinaciously clings. M. Boinet[1] points out the propriety of removing the secreting surface of such a piece before leaving it. The tumor being freed from attachments is now drawn forth, and the pedicle seized in the fingers.

Securing the Pedicle.—This, which constitutes one of the most important steps of the operation, is at times easily and satisfactorily accomplished, while at others it is invested with great difficulties. Unless the pedicle be excessively short, the sac may be drawn outside of the abdomen and this part grasped in the

[1] N. Y. Med. Record, July 1, 1867.

fingers. It may then be managed after one of the two following methods:—

1st. It may be secured against hemorrhage and left between the lips and outside of the wound—

a. By being transfixed by a double hemp ligature, one strand of which ties one half the stump and the other the other half, and fixed in wound by harelip pins. (*Duffin.*)

b. By compression by a clamp. (*Hutchinson.*)

c. By amputation by the écraseur. (*Atlee.*)

2d. It may be secured against hemorrhage and returned to the abdomen—

d. By being secured by double ligature, as mentioned in *a*, returned, and ligatures allowed to hang out of lower angle of wound. (*Clay.*)

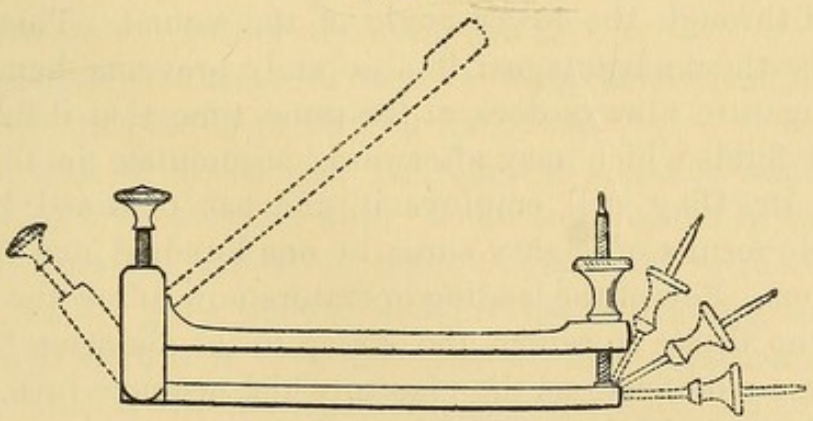
e. By being tied, cut short, and returned to abdomen. (*Tyler Smith.*)

f. By being temporarily constricted by a metallic wire. (*Koeberlé.*)

g. By severance by the actual cautery. (*Baker Brown.*)

The prevention of hemorrhage by the ligature and clamp, *a* and *b*, are evidently identical in principle. The clamp, however, has the advantage of being simpler and more easily applied. The clamp most commonly used is that of Mr. Wells, though many others are equally applicable. It is thus applied: the

Fig. 218.



Spencer Wells's clamp.

pedicle or neck of the tumor being held in the fingers, the clamp, Fig. 218, is adjusted so that one limb passes over one,

and the other over the other side of it; the two branches are then closely approximated so as to obliterate the vessels, and the sac is amputated above this by a bistoury. The clamp is then laid flat upon the abdomen and the incision closed.

Another very effective clamp is that of Koeberlé, represented in Fig. 222. The pedicle is included by it in the space represented in black and constricted by action of the screw which is seen below it.

When the ligature is employed, the sac is amputated and the stump placed between the lips of the wound and transfixed by harelip pins, or the sutures which close this part of the incision.

Writing to Dr. A. K. Gardner, in 1860, Dr. Atlee says of these methods: "The great objection to the ligature is that it not only strangulates the peritoneum, but it leaves a sloughing stump, both of which are constant foci of irritation. By means of the écraseur and the styptic, persulphate of iron, all ligatures are avoided." When amputation is thus performed, the stump may be fixed in the wound by pins or sutures. This method is peculiarly applicable to small and non-vascular pedicles, but all appear afraid to trust to the hæmostatic powers of the écraseur in other cases.

The plan by which Dr. Clay returns the stump to the abdomen is practised in the following manner: a double ligature is passed through the centre of the pedicle and then cut so as to leave two ligatures in position. One half of the pedicle is then tied with one and one with the other. The sac is then amputated, the pedicle returned to the abdomen, and the ligatures allowed to pass out through the lower angle of the wound. This method possesses these advantages: it absolutely prevents hemorrhage, as the ligature always does, at the same time that it furnishes a vent for fluids which may afterwards accumulate in the peritoneum. Dr. Clay still employs it, and has obtained by it the favorable results of eighty cures in one hundred and seventeen operations. Few of the leading operators now follow the method; those who desire to return the stump to the abdomen following with some modifications the plan to which we now turn.

Dr. Tyler Smith has lately succeeded in rendering popular a method which was practised, according to Dr. Peaslee, as long ago as 1829 by Dr. Rogers, and afterwards by Dr. Billington, of this city. It consists in ligating the stump, cutting both ligature and

pedicle as short as possible, returning them to the abdomen, and closing the abdominal incision. In this way Dr. Smith has operated upon seventeen cases, and lost only three patients. Dr. Peaslee,[1] whose success as an ovariotomist has been remarkable, says of the method: "I now again refer to Dr. Tyler Smith's method of treating the pedicle as the best of all methods, and the one to which all others will, in my opinion, ere long give place."

Koeberlé, of Strasbourg, employs the clamp when the pedicle is long, but when short, he compresses the stump by a species of constrictor which tightens a metallic wire that surrounds the pedicle. Fig. 219 will explain the mechanism of this instrument, which passes into the abdomen, the shank remaining in the wound.

Fig. 219.



Fig. 220.



Koeberlé's constrictor.

Baker Brown has of late practised amputation of the tumor by means of the actual cautery, and claims the astonishing results of twenty-nine cures in thirty-two operations. It is highly probable that this method will accomplish a great improvement in the operation, and assume the position of a means of great value. Thus far it has not been extensively tried.

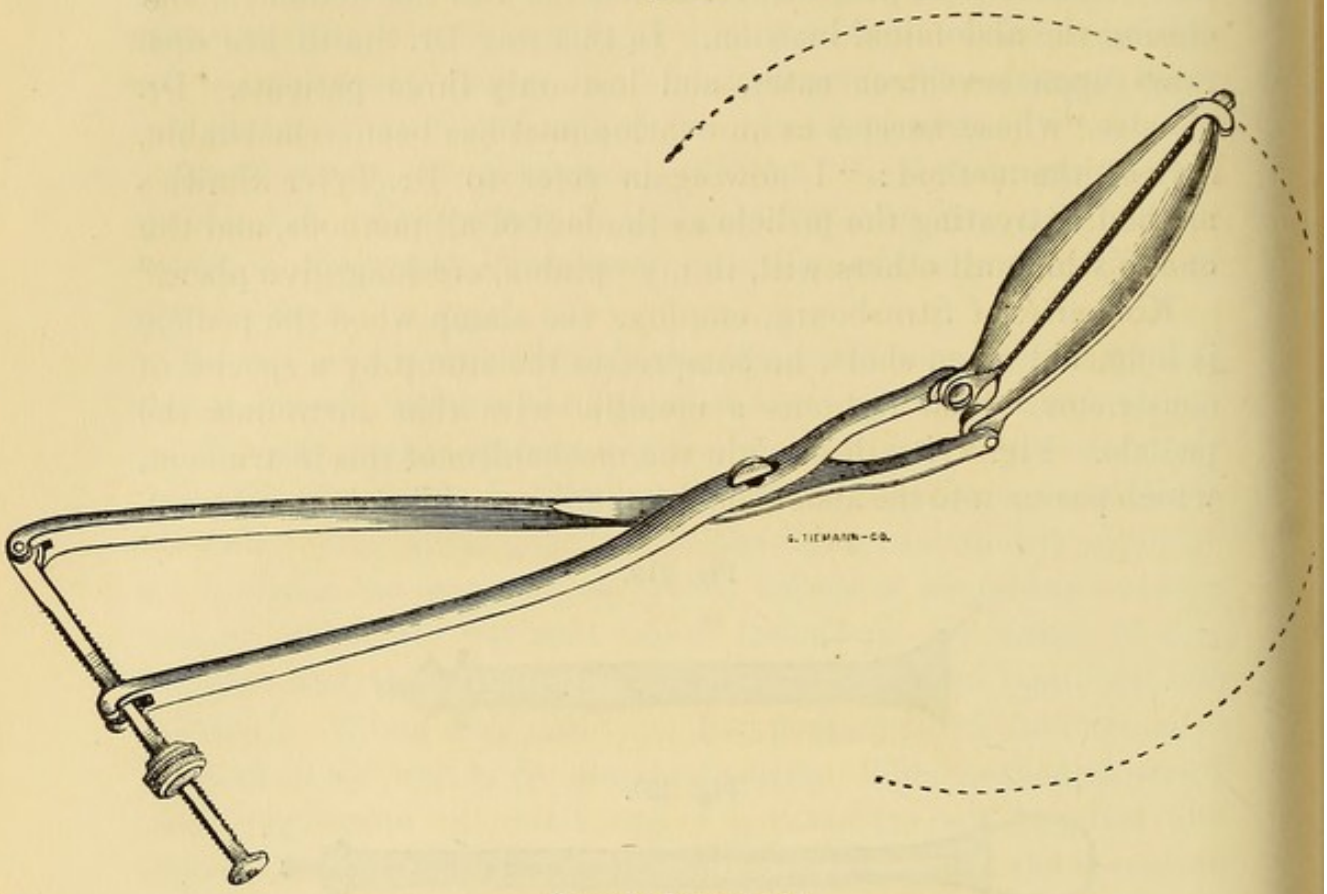
In employing this method, Storer's clamp shield would answer an excellent purpose in protecting the parts.

No rule can be given with reference to a choice between all these methods other than this:[2] when the pedicle is long and slender it does not appear to matter very much which plan is selected, for all have yielded and are daily yielding, excellent results; but when it is very short the external does not promise nearly so well as the internal method of managing the stump.

[1] Op. cit., p. 83.

[2] In Lond. Med. Times & Gaz., Nov. 28, 1868, Mr. Wells reports thirty-six operations and five deaths. Thirty were clamp cases and *none* died; six were treated otherwise and five died.

Fig. 221.



Storer's clamp shield.

As to the special cases for applying the first and second plans the following suggestions (not rules) may be of service:—

a. The clamp is applicable to long pedicles, requiring powerful ligation, and presenting a large amount of tissue for suppuration and decay.

b. The écraseur may be relied upon where the pedicle and vessels are small.

c. Clay's method is eminently adapted to cases in which considerable suppuration is anticipated, and a vent for pus is required; as, for example, where many adhesions have been broken.

d. Tyler Smith's method may be resorted to with confidence where the pedicle is small in volume, where no great disturbance of the peritoneum has occurred, and where we have no reason to anticipate suppuration. In my fourth case of ovariotomy I employed it with complete success.

e. Koeberlé's constrictor is applicable to just the same class of cases as the method of Dr. Clay, and for the same reasons.

f. The severance of the stump by the actual cautery presents

many advantages, and may be used in any case except where the vessels are very large.

The statement just made as to its being immaterial whether the pedicle is returned or not, in ordinary cases, is based upon the comparative results of Wells, Brown, and others who do not return it, with those of Tyler Smith and other operators who do.

The following analysis of a large number of cases is given with reference to this point by Dr. J. Clay:—

Class of cases.	Stated left within the abdomen.	Inferred left within the abdomen.	Kept without by various methods	Tied in two or more portions.	Simply ligatured.	Stitched in wound.	Ecraseur used to divide it.
Successful	113	76	20	122	22	3	2
Unsuccessful.	58	97	25	57	26	3	1
Total	171	173	45	179	48	6	3

The methods just enumerated are those by which hemorrhage from the vessels of the pedicle is prevented. The means by which the pedicle is sustained between the lips of the wound so as to keep its putrid extremity outside the body are these: it may be transfixed by one or two of the sutures or pins closing the abdominal wound; it may be held up by a transverse rod of steel, as is done by Koeberlé: or it may be sustained by the clamp and two pins or sutures which do not transfix it but pass on each side in close contact with it.

Obstacles to Removal of Sac which may be discovered as the Operation proceeds.—There may be no pedicle, especially in cases of solid or semi-solid tumors, an indissoluble union existing with the body of the uterus. At other times the sac is in part bound down so that it cannot be removed, while part of it can be drawn out of the abdominal incision. When this is so, that portion which is drawn out should be removed, the lips of the part remaining stitched carefully to the abdominal walls, and the incision closed except at its lower angle, which should be kept free by the insertion of lint, or a caoutchouc tube by which disinfecting fluids may be thrown in to prevent septicæmia, as in ordinary drainage. This procedure is a modification of the operation of incision already alluded to. The omentum may be adherent to such an extent that its removal becomes necessary. When this involves considerable rupture of its bloodvessels, it may be cut

off by the écraseur and its bleeding extremity touched with persulphate of iron or the actual cautery; or it may be amputated and brought outside the wound as is done in case of the pedicle.

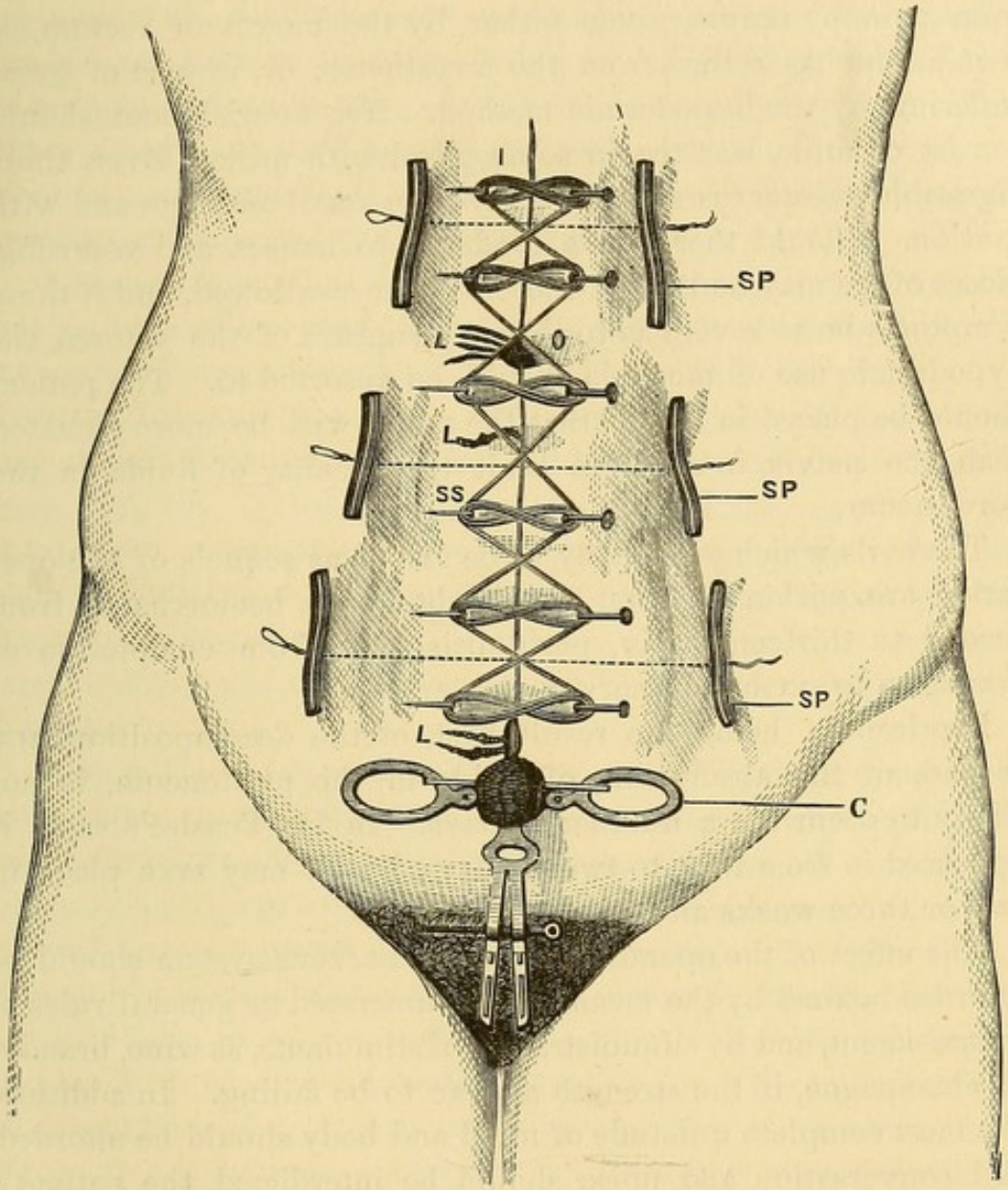
Before proceeding to the next step of the operation the remaining ovary should always be carefully examined as to the existence of disease, for if cystic degeneration exist, it ought at once to be removed. If very minute cysts exist, not larger than marbles, for example, they should be incised, but if large ones are found, secretion from the walls of which might cause sufficient flow into the peritoneum to excite peritonitis or septicæmia, they should be removed, for the great dangers of the operation have already been incurred, and it would be unwise to leave the seeds of another tumor to develop.

Cleansing the Peritoneum.—The sac having been removed and hemorrhage checked, all fluids contained in the peritoneal cavity should be carefully removed by soft sponges squeezed out of warm water. Not only the intestines and abdominal walls, but especially the pelvis should be completely and thoroughly cleansed. This is a point of great importance, and may decide the issue of the case. Every particle of fluid left will undergo decomposition, and expose to the great dangers of septicæmia and peritonitis. So momentous does this appear to some operators that Koeberlé,[1] after cleansing the peritoneum, always makes an opening through the recto-vaginal space to allow drainage of fluids which may collect, employing tubes of glass as drainage tubes.

Closing the Wound.—This is accomplished by two sets of sutures, the deep and superficial. The first, composed of silver, are passed in the following manner: a thread of silver wire is passed at each of its extremities through a long and stout straight needle. One of the needles being grasped by strong needle-forceps is passed through the peritoneum of one abdominal flap near the edge of the incision and made to emerge through the skin one inch from the edge. Then the other needle is seized and passed through in a similar manner. The suture is then secured by twisting. If it be desired to use quilled sutures, it can be accomplished by passing a doubled silver thread after the same method. These deep sutures, placed at the distance of half an inch apart, will bring the whole incision into contact from

[1] Courty, op. cit.

Fig. 222.



Closure of the abdominal wound after Koeberlé's plan. C shows the clamp grasping the mummified pedicle. (Wieland and Dubrisay.)

the peritoneum to the skin, and favor healing by first intention. Koeberlé employs the quilled suture as represented at Fig. 222.

Besides these, superficial sutures or pins like those employed for harelip should be used, which pass through the skin and areolar tissue, but do not involve the peritoneum. Around them thread is wrapped in figure of 8.

After this a long pledget of lint soaked in cold water should be applied over the surface of the wound, a bandage of flannel employed to keep this in place, a full dose of opium given, the patient put quietly to bed, covered warmly, and warmth applied to the feet.

After-Treatment.—The patient should be kept quiet and free from pain by opium, given either by the mouth or rectum, so soon as she has rallied from the anæsthetic; or, in case of great suffering, by the hypodermic method. Her nourishment should consist of milk, beef-tea, or some gruel with milk. Even these digestible substances should be given in small amounts and with caution. Should there be a tendency to nausea and vomiting, pieces of ice may be held in the mouth or swallowed, and if these symptoms be so severe as to threaten rupture of the sutures, the hypodermic use of morphia should be resorted to. The patient should be placed in bed so that the trunk will be more elevated than the pelvis, in order to limit the locality of fluids in the peritoneum.

The evils which are chiefly to be feared as sequels of the operation are, within the first forty-eight hours, hemorrhage; from second to thirteenth day, peritonitis; and from completion of operation to sixth day, nervous prostration.[1]

Septicæmia, being the result, first, of the decomposition, and second, of the absorption, of fluids in the peritoneum, is not likely to occur for a number of days. In Dr. Peaslee's cases it appeared in from four to twelve days, but it may take place in two or three weeks after the operation.

The effect of the operation upon the nervous system should be guarded against by the means just enumerated as general rules of management, and by administration of stimulants, as wine, brandy, or champagne, if the strength appear to be failing. In addition, the most complete quietude of mind and body should be afforded. All conversation and noise should be interdicted, the patient's hopefulness excited and fostered, and all muscular effort avoided. For four or five days the sigmoid catheter should remain in the bladder and the bowels be kept constipated by opium for ten days or a fortnight. The avoidance of cathartics during this time is essential to safety, a neglect of this precaution often producing a fatal issue. About two years ago I was present at the removal of an immense cystic sarcoma by Dr. John O'Reilly, who made an incision extending from the xiphoid cartilage to the symphysis, and after detaching many adhesions extirpated the mass. The

[1] This calculation of periods is based upon one of Dr. Clay's tables constructed from one hundred and fifty cases of these accidents.

patient did perfectly well for a week, and was in a fair way to recover. She was, however, very urgent that her bowels should be moved, and the doctor refusing to comply with her solicitations, she took surreptitiously a full dose of bitartrate of potash. This acted as a hydragogue cathartic, but its action was not limited as it usually is. Diarrhœa, and soon dysentery, supervened and destroyed the patient's life.

After the seventh or eighth day, tympanites may call for an alvine evacuation, which may be effected by an ordinary injection of soapsuds or an infusion of anise, chamomile, or fennel.

Should hemorrhage be ascertained to be taking place, all dressing should be at once removed, and the stump, if out of the abdomen, securely ligated or touched with the actual cautery. If it have been returned to the abdominal cavity, there is but one course available, that is, opening the wound, ligating the bleeding vessel, and cleansing the peritoneal cavity. Such a necessity is very unfortunate, yet this course holds out the only prospect of success.

Peritonitis, which proves the cause of death in about one-quarter of all who die from this operation, is best avoided by leaving few or no ligatures in the cavity, by removal of all putrefactive matters, and by keeping the abdominal viscera at rest by preventing vesical and rectal actions and applying a bandage. Should it occur in spite of these preventive means, it should be treated by full doses of opium, and if the patient's strength will bear it, the application of leeches and fomentations over the hypogastrium. Koeberlé is in the habit of applying a bladder of ice on each side of the incision for a number of days after the operation, for the prevention of hemorrhage and peritonitis, but this plan is not followed by English or American operators.

Septicæmia, which is, next to peritonitis, the most frequent cause of death, is, when once fully established, an almost hopeless state. It is ushered in by dizziness, excessive muscular prostration, anorexia, great pallor, small, rapid, and very weak pulse, sometimes a low delirium, dry tongue, and a sweetish odor of the breath. It is probably this condition which is so often alluded to as a "typhoid state" after operations, and one cannot but suspect that many, if not most, of those cases quoted in Dr. Clay's tables as shock or collapse, occurring as late as the fifth, sixth, seventh, and tenth days, were really instances of this affection.

In one of my fatal cases, already alluded to as alveolar cancer, the patient was doing quite well on the evening of the seventh day. On the morning of the eighth I was struck by her wild, maniacal expression and cadaverous countenance; upon examination I found all the symptoms of septicæmia present, and she very soon succumbed to them.

The gravity of this sequel has rendered all operators anxious to possess the means to avoid or remedy it. Most of the methods of avoidance have been already stated, the importance of the subject will, however, excuse my again referring to them as—

1st. Completely cleansing the peritoneum;

2d. Checking all hemorrhage before closing the abdominal wound;

3d. Establishing drainage through Douglas's cul-de-sac, should septicæmia appear imminent;

4th. Establishing drainage at lower angle of the wound;

5th. Mummifying the stump by persulphate of iron.

To secure ready escape of fluids from the peritoneal cavity, Koeberlé adopts two methods. The first consists in making an opening through the recto-vaginal space into the peritoneum, and leaving in it a glass drainage tube. The second, which is adopted when he returns the stump to the cavity constricted by the garotte, consists in introducing, down to the pedicle, a "dilator composed of two branches of lead, each of which is formed of two parts, one horizontal, destined to be applied on the skin, the other perpendicular, in the form of a gutter with a concavity within. These two valves, introduced separately into the wound, are kept apart by two transverse rods arranged upon a very simple plan."[1] He highly esteems the use of this instrument for drainage, which is kept in place after an operation until all discharge from the pelvis ceases.

Drainage from the cavity is likewise effected by Dr. Clay's method, and by introduction of tubes of caoutchouc through the lower angle of the wound.

Koeberlé adopts the plan of mummification of the pedicle of the sac, and the omentum, if he has had to cut this off, by free application of strong solution of persulphate of iron, believing that this prevents putrefaction and absorption. These are pre-

[1] Wieland and Dubrisay, op. cit.

ventive means. When the accident is at hand and its symptoms recognized, one of them has likewise been used as a curative measure by Keith, of Edinburgh. M. Courty thus reports it: After the clamp had been removed, peritonitis with effusion of fluid set in. On the sixteenth day after the operation a puncture was made through the recto-vaginal cul-de-sac, and a fetid fluid poured away with relief to the symptoms. In this case the operation was resorted to for prevention of peritonitis. It may upon stronger grounds be employed for septicæmia.

The most valuable suggestion with reference to this matter has emanated from Dr. Peaslee, who has unquestionably placed at the disposal of the ovariotomist a method which robs the operation of much of its danger. It consists in washing out the peritoneum with disinfectants. I cannot do better than describe it in his own words. "I first injected a solution of chloride of sodium (℥j to Oj), into the peritoneal cavity of a patient much prostrated by septicæmia, in February, 1855. I began with one quart of the solution, and then drew out the same amount of fluid with the syringe; though I soon found I could inject that or a larger amount, even two quarts, through a flexible bougie, and then changing the position so as to bring the free extremity to a lower level than the one in the peritoneal cavity, convert it at once into a siphon through which all the fluid would freely flow out. The immediate relief from the first injection was very striking; the dizziness and stupor at once disappearing, though to return again in from eight to twelve hours. I repeated the operation twice daily, and then once daily for a week, when the returned fluid no longer presented any odor of decomposition. When the fluid was unusually fetid, I used a solution of the liquor sodæ chlorinatæ (℥ij to Oj). The patient recovered rapidly from the time when the fetor of the fluid was overcome."

"In September, 1862, I again resorted to the same practice in a second case of septicæmia after ovariotomy." * * * *

"A third case of septicæmia, produced by blood oozing from the omental vessels after ovariotomy, occurred in my practice in September, 1863. The symptoms appeared in this case on the fourth day, and the injections were commenced on the seventh. The same kinds were used as in the preceding case, the solution of liquor sodæ chlorinatæ, even ℥j to ℥iv of water sometimes, and it was found necessary to use them three times daily for twenty

days, to keep the patient from sinking; then twice daily for twenty-one days, and once daily for thirty-three days more; making one hundred and thirty-five injections in all, in seventy-eight days. I found it better to inject a large quantity rapidly, and let it flow away immediately, usually injecting as much as the cavity would receive (one to two quarts at first). For the encouragement of others who may resort to this treatment, I should also add that it was persevered in, in the second case for four weeks, and in the third for three weeks, before any amendment in the character of the decomposed fluid could be perceived." A recognition of the importance of the principle demonstrated by these cases has induced me to give them full space.

It would be at once simple and effectual to combine the curative treatment of Peaslee[1] with the preventive measures of Keith and Koeberlé. Probably an excellent disinfectant would be found in carbolic acid greatly diluted.

As to the time at which the sutures are to be removed no fixed rule can be given, for it will depend upon the rapidity and perfectness of union. Should union by first intention occur, some of them may be removed on the fifth, sixth, or seventh day. But great care should always be observed, and only those at points where the union is strong should be withdrawn. After withdrawal the lips should be firmly approximated by adhesive plaster. The clamp, if employed, or the ligature, if passed out through the wound, should be removed when they lose their hold by reason of sloughing, and drop away. No traction should be applied to them.

The patient should be cautioned against rising too early after convalescence; and even after she is able to go about she should be very careful not to make any violent efforts.

[1] Peaslee introduced a tube (as Keith afterwards did), at the time of the operation in the first case, still septicæmia occurred.

CHAPTER XLIV.

FLUID OVARIAN TUMORS—CONTINUED.

Cysts of the Broad Ligaments.

Definition and Varieties.—It was stated in the first chapter devoted to ovarian tumors that they all belonged to three classes—fluid, composite, and solid; and that the fluid ovarian tumors were of these varieties—hydatid cysts, ovarian cysts, and cysts of the broad ligaments. The first two of these varieties have been already investigated; we come now to consider the last. Cysts contained in the broad ligaments are really not ovarian tumors, and classing them thus might with some reason be styled a misnomer. But clinically we have no means of distinguishing them, so that, while in a work on pathological anatomy a strict classification would be proper, it would here only give an appearance of accuracy which would prove unreliable and delusive at the bedside.

For the pathologist, all tumors, filled with fluid and existing over the site of the ovaries, are susceptible of absolute classification, for in his studies he cuts through the abdominal walls, and by sight and immediate touch learns the characters and relations of the morbid growths. But with the practical physician the case is different. For him, deprived as he is of the pathologist's means of observation, as a general rule, fluid tumors existing over the site of the ovaries are ovarian tumors until explorative incision teaches him otherwise.

There are three forms of cyst which are found in the broad ligaments, that is, between the folds of peritoneum making up those ligaments:—

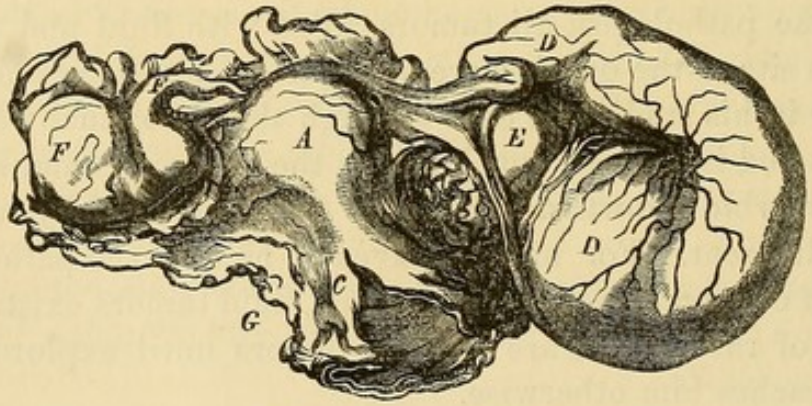
Tubal dropsy;
Wolffian cysts;
Areolar cysts.

Tubal Dropsy.—This condition, which is described under the

names of hydrops tubæ and hydrosalpinx, consists in the distension of the Fallopian tubes by muco-serous fluid. It arises in this manner: some influence, for example, acute or chronic salpingitis, pelvic peritonitis, or cellulitis, occludes both extremities of the tube. The inflammation of the mucous membrane of the tube creating a muco-serous fluid, the canal is distended by this, generally irregularly, to the size of the finger or small intestine. Thus far the affection does not concern our present investigation, for there is no probability that such a growth would resemble ovarian tumor so closely as to lead to an error in diagnosis. As this distension goes on, the mucous lining of the tube takes on the physical and physiological characters of a serous membrane, and secretes plentifully a serous, straw-colored, and slightly flocculent fluid. At times the distension of the walls of the tube proceeds so far that the fluctuating tumor which results gives all the physical signs of ovarian dropsy.

The testimony of authorities is almost unanimous that between this condition and ovarian dropsy there are no means of diagnosis. M. Aran sounds the key-note to the general belief when he declares that,[1] "the tube distended by liquid, I am perfectly assured, does not give a sufficiently clear sensation to allow us to diagnosticate its existence." Prof. Simpson, however, assumes a

Fig. 223.



Tubal dropsy. (Hooper.)

different position.[2] He declares that, although "in practice this form of tumor is usually altogether overlooked or is mistaken for some other kind of tumor," it is really diagnosticable by the following means: "1st, its free and independent mobility; 2d, its

[1] Op. cit., p. 633.

[2] Op. cit., p. 432.

elongated form; and 3d, its wavy outline." Let any one examine the shape of a large tubal dropsy, like that represented at Fig. 223, for instance, and he will see that both the shape and wavy outline will fail him. When it is remembered that the affection frequently results from pelvic peritonitis, the freedom of motion will evidently be often delusive. "The diseased tube,"[1] says Courty, "is rarely free and without alteration at its periphery: generally it bears signs of old inflammation, which is adhesive, and this fixes it to the neighboring parts." I have met with the affection four or five times in autopsies, and this statement has always been sustained.

The means of diagnosis just mentioned would be applicable to slight tubal distension, which is rarely productive of symptoms calling for examination. Few instances of diagnosis are on record, and even in cases where tapping has been supposed to substantiate it, it is by no means sure that such a disease existed. Prof. Simpson reports but one case in his extensive experience in which he was able to come to a conclusion. He denies the possibility of great enlargement of these tumors, declaring that they rarely grow larger than a fœtal head, and that we may justly be allowed to be skeptical as to cases reported as being much larger. Dr. Arthur Farre,[2] however, willingly admits the well-known cases of Bonnet and De Haen; the first of which contained thirteen pounds of fluid and the second thirty-two pounds. Scanzoni circumstantially reports an instance in which the sac attained the size of the head of a child of ten years of age.

Wolffian Cysts.—Within the external margin of the broad ligament where the two walls of the peritoneum pass from the fimbriæ of the tubes to the ovaries, exists the body of Rosenmuller, parovarium, or Wolffian body, to which allusion has already been made as consisting of a number of little tortuous cords, some of which are perforated by canals. The slight secretion occurring from the walls of these tubes sometimes becomes greatly increased, and the containing walls becoming proportionately distended, a tumor is created. These cysts rarely attain a size greater than that of a large orange, and their distension generally stops short even of those dimensions.

Numerous instances of this form of tumor are reported by

[1] Op. cit., p. 987. [2] Supplement Cyc. Anat. and Phys., p. 619.

authors. Dr. Bright, in his work on *Abdominal Tumors*, delineates two striking examples, and in Mr. Spencer Wells's recent work, an instance is mentioned where the tumor was observed close to the uterus and was incised and emptied.[1] It is curious to observe how uniformly in describing them they are likened to an orange.

Areolar Cysts.—Cystic degeneration is much more likely to occur in those organs which have as component parts of their structure, minute cavities lined by epithelium. Thus, the kidneys and ovaries are peculiarly liable to be affected in this way. But this kind of degeneration is by no means limited to such structures. It may occur in areolar tissue anywhere, and those organs, which, like the thyroid and mammary glands, are prone to production of new growths having areolar tissue as their basis, are likewise especially liable to it.

It is believed by pathologists,[2] that under these circumstances the cyst is merely an expansion of the areolæ of the areolar tissue. In various parts of the abdominal cavity such cysts are found under the peritoneum and classed, by Dr. Graily Hewitt, under the head of subperitoneal cysts. Mr. Safford Lee reports one case of a tumor which filled the abdomen, after having lasted for twenty-five years, and destroyed life. On post-mortem inspection a large cyst was found behind the peritoneum, which had originated under the pancreas. He reports another which began on the right side of the abdomen, was tapped forty-eight times, and was found by autopsy to be omental.

Throughout the literature of the subject of ovarian tumors, allusions, generally very obscure, will be frequently found to a kind of cyst, not ovarian and yet not Wolffian, which is occasionally met with in the broad ligaments. As no special name has been applied to this variety I have ventured to style them areolar cysts, which appellation designates them as different in origin from the other two forms, and points to their relation to the areolar tissue. Two instances of such cysts are mentioned by Mr. Spencer Wells, one in Case XCIII. and the other in Case CXI. The latter is thus minutely described by Dr. Ritchie, who examined it: "Between the folds of peritoneum, which connected this with the tumor, appeared a little, clear vesicle, one fourth of an inch in

[1] Case XXX.

[2] Wells, op. cit., p. 84.

diameter. It moved freely between the folds, and, having no apparent connection, could, by careful manipulation, be pressed from one part by the broad ligament to another. * * * The Wolffian body surrounded it; but the most careful dissection failed to show that it was connected with it, or that the cyst was, as might have been supposed, a dilatation of one of the tubules of that body." Dr. Ritchie was at a loss to account for the cyst, and suggests the possibility of its being a partially developed ovum.

The other case was examined by Dr. Wilson Fox. It was a large cyst, about twice the size of the adult head. The ovary was healthy and not connected with the cyst.

Scanzoni commences his article upon "Cysts formed between the folds of the broad ligament," thus: "Cysts are sometimes formed by a collection of liquid in the canals of the organ of Rosenmuller; sometimes they are completely independent."

I know of no other pathological proof, such as that afforded by the evidence taken from the work of Mr. Wells, that these cysts ever assume very large dimensions. The largest with the record of which I have met is that described by Dr. Fox, which was twice the size of a man's head. Nevertheless, it appears to me that, from the clinical evidence before us, we may assume that they sometimes become very voluminous. Dr. Peaslee tells me that he has met with several large ovarian cysts filled with clear, non-albuminous fluid, which were cured by tapping. This would probably not have been the case had they been developed in the proper tissue of the ovaries. He states, likewise, that in conversation he understood Mr. Spencer Wells that he had had the same experience.

Mr. Baker Brown accounts for many if not most of the cures of ovarian cysts effected by one tapping upon this supposition, and the confidence of Dr. Washington L. Atlee in the belief may be judged of by the following instance. About four months ago I saw Dr. Atlee cut down upon a sac which held a number of gallons of fluid, tap it by an exploring trocar, and await the chemical test of the liquid drawn off. While this was being made, he stated to the large concourse of physicians present, that should the fluid prove non-albuminous, he would view the cyst as one developed in the broad ligament, and not in the ovary; and instead of performing ovariotomy, he would then cut out only a small portion of the cyst wall in order to secure the dis-

charge of its contents into the peritoneum, and close the abdominal wound. The fluid was found clear and non-albuminous, when the operator did as he had proposed, and the wound was closed.[1] In a communication upon this subject which I have received from his brother, Dr. John L. Atlee, the following views are expressed concerning these growths:—

"It is very difficult, previous to tapping, to distinguish cysts arising from the broad ligament from true ovarian cysts. The former are invariably, in my experience, unilocular, and do not displace the uterus to the same extent as the ovarian, although in these latter there is sometimes but little displacement. The cyst wall is thinner, and the impulse on palpation is more sensibly felt. The absence of albumen in the fluid removed, its resemblance to ascitic fluid, its translucency, and slightly *purplish* tint when exposed to the sun's rays, are very strong indications that the cyst is peritoneal. These cases, of which I have had six or seven, perhaps more, get well by tapping, alterative treatment and counter-irritation, with pressure. They sometimes burst from external violence, and the fluid is absorbed, and are erroneously called spontaneous cures of ovarian cysts. It is in these cases, as in hydrocele, that iodine injections have done good; in true ovarian cysts, in my opinion, seldom or never."

Prognosis.—The prognosis of cysts of the broad ligament is, if their character be recognized after explorative incision, very favorable. It is not a rare occurrence for them to undergo spontaneous cure, the cyst undergoing rupture from violence, and discharging into the peritoneum.

Treatment.—No medical treatment has any efficacy. The surgical treatment consists in tapping by the vagina or abdomen, drainage, injection of iodine, and partial excision, so as to allow escape of the contents of the cyst into the peritoneum. The method proposed by Prof. Simpson, of tapping, closing the abdominal puncture and daily pressing fluid from the tumor into the peritoneum, would likewise be very appropriate. In no case would ovariotomy be necessary.

This completes the subject of fluid ovarian tumors.

[1] This cyst subsequently refilled and the patient died.

Solid Tumors of the Ovary.

This class comprises those ovarian tumors, the structure of which is entirely solid—no cysts or other collections of fluid matter entering into their composition as a characteristic feature.

Varieties.—The following list represents the varieties of this form of disease:—

Histoid tumors.[1] { Dermoid; Pileous; Adipose.

Fibrous tumors.

Cancerous tumors.

Histoid Tumors.—Tumors containing fat, hair, teeth, bones, skin, in fact all the harder textures of the body, are not unfrequently found in the ovaries. For these, from the close resemblance of their contents to the normal texture of the animal economy, the name of histoid tumors (ιστος, "organic texture," and ειδος, "like,") is appropriate.

It was formerly supposed that these developments were always dependent upon conception, the product of which, instead of passing into the Fallopian tubes, had been retained and undergone increase in the ovaries. But this view is fully contradicted by the fact that such tumors have been frequently discovered in other organs than the ovaries, in undeveloped females, and even in males. Cruveilhier accounts for them upon two hypotheses; 1st, by ovarian pregnancy, followed by death of the fœtus and proliferation from the skin, which thus becomes analogous to the blastodermic membrane of the impregnated ovum; 2d, by what the French style, "inclusion parasitaire," or, as we would term it, fœtal intussusception. This consists in the following occurrence: as a fœtus develops, a fructified ovum becomes enveloped in some part of its structure. The more advanced ovum goes on growing, and in time makes the future being. The smaller one also undergoes development, but, being placed under unfavorable circumstances, soon ceases to advance according to fixed laws, and its tegumentary envelope produces

[1] I am forced to create this term, from the fact that no name exists for this family of tumors.

some of the textures of the body. It is manifest that the first of these hypotheses is tenable only upon the supposition that conception has once occurred; the second is so without it.

M. Pigné has analyzed eighteen cases with reference to the period of life at which they were found, with the following results:—

5 existed in virgins under twelve years;
6 " " children from six months to two years;
4 " " the female fœtus at term;
3 " " fœtuses cast off at eighth month.

Both the theories here advanced in explanation of this singular phenomenon are highly unsatisfactory. Opposed to the first are the following considerations: there is never in the tumor any trace of secundines; they occur in undeveloped females and males; and they exist in other parts of the body than the ovaries.

Against the second view appear these facts: such tumors are more common in the ovaries than in any other part, and only a portion and not all of the tissues of the body are represented.

To meet the want felt for an explanation, Lebert has advanced the theory that from the elements present, spontaneous generation of a portion of skin occurs, and this being given, we have, as Dr. Farre expresses it, "the basis out of which many of these products spring."

Histoid tumors vary in size from that of a hen's egg to that of the adult head, but very rarely grow larger. They are hard and generally globular. One ovary is usually affected, and by only one tumor; but instances are on record where a single ovary contained a large number. They usually consist of fat, long hairs, teeth, skin, and traces of bone intermixed. The teeth are usually imbedded in the cyst wall or attached to pieces of bone, and are sometimes very numerous. Schnabel[1] records a case in which they exceeded one hundred in number, and Ploucquet[2] one in which they amounted to three hundred.

When the predominating element of the mass is hair, these tumors are called pileous or piliferous; when fatty matter, adipose; and when skin, dermoid cysts.

Histories of such cases are so rare that I transfer the following from Prof. Kiwisch's work: "A girl, seventeen years of age, was

[1] Kiwisch, op. cit. [2] Becquerel, op. cit.

attacked with a swelling of the left ovary which, after twenty-one years, measured four ells in circumference, and reached below the knee. After her death, which took place in her thirty-eighth year, it was found that the sac alone of the ovary weighed fourteen pounds, and contained forty pounds of a thick, adipose, honey-like mass, which was mixed with many hairs of different lengths, among which curls were found two inches long, and as thick as a thumb, very like elf locks; the internal surface of the sac was set with short hairs. There were also found eight bony concretions of irregular shape, one of which was seven and another ten inches long, and about two inches broad; the form of one of these bones was polygonal, and set with six molar teeth and one incisor, and nine separate bones were present besides. The teeth had the size, perfectness, and firmness which they generally have in a girl twenty years of age."

Histoid tumors are harmless, except in so far as they mechanically interfere with the surrounding parts in different movements of the body. Very often they are discovered by accident only. Physical exploration reveals a hard, round mass, painless upon touch, and unless its size prevents it, perfectly movable.

Although in themselves innocuous, and not likely to increase rapidly or to attain any great development, they sometimes set up very serious and even fatal disturbance by one of three methods: by creating suppuration and abscess on account of the irritation kept up by a foreign mass; by perforation and discharge into the peritoneum; or by the cyst which contains the histoid elements secreting fluid and changing its character to that of a fluid tumor.

No treatment is required, a fortunate circumstance, since none would be at all effectual except extirpation. This would be eminently inadmissible, since there are not sufficient dangers attendant upon the tumor to warrant a resort to so hazardous a procedure. Dr. Graily Hewitt[1] refers to an instance in which Dr. Alexander Simpson injected one with iodine, but says that the result was not such as to encourage a repetition of the plan in future.

Fibrous Tumors.—This form of tumor is rarely met with in the ovary, and never attains a very great size. Kiwisch reports two

[1] Op. cit., p. 577.

cases, one the size of a child's and the other the size of a small adult head. When it is borne in mind that uterine fibroids are strictly homologous with the organ from which they spring, and that they absolutely contain as structural components the peculiar muscular fibre of the uterus, it will be appreciated why such growths are much more rare in the ovaries which contain no muscular fibres whatever. Dr. Farre discredits the reports of large ovarian fibroids which are upon record, and believes them to have been in reality either cancerous tumors or growths connected with the uterus which so encroached upon the ovaries as to seem to have sprung from them. When the disease does affect the ovary it differs in no essential degree from the same affection of the uterus, except that pediculation does not occur as in the latter organ, and that the growth of the tumor is much more limited.

The reader must be reminded that these remarks apply to the pure fibroid and not the fibro-cystic ovarian tumor, which will often attain an immense size, and is always to be regarded as a serious disease. They likewise apply to the development of this tissue into true fibrous tumors, for in the walls of cystic and cystoid growths fibrous tissue is commonly developed. Very often even a portion of the wall of a simple cyst contains a dense mass which is thus composed.

No medical treatment accomplishes anything in this disease, and surgical means are not called for.

Kiwisch describes enchondromatous and osseous tumors of the ovary, but since no other pathologist has met with them, except as the latter has been confounded with calcareous degeneration, and since Scanzoni has examined the only two cases with which Kiwisch ever met, and differs entirely with him as to their character, they may well be left without further mention. As the statement made above as to the rarity of fibroids was limited to the formation of tumors, so this remark must not be understood as applied to cartilaginous and calcareous, commonly called osseous, formations in this organ, but only to tumors properly so called. Such formations are by no means rare in the walls of cysts and intermixed with cancerous growths.

Cancerous Tumors.—Solid cancerous tumors of the ovary are either scirrhus or medullary. The former, in which the fibrous element of cancer predominates very largely over the cellular, is

very rare, and even the latter is by no means common as a pure and distinct solid tumor. It generally exists as a composite tumor in combination with cystic degeneration.

When unassociated with cystic degeneration they very rarely grow to a large size; thus scirrhus rarely grows larger than a child's head; but when combined with fluid accumulations they sometimes attain as extensive dimensions as ordinary cystic disease.

All cancerous affections of the ovary are likely to be associated with the same kind of degeneration in the uterus or some neighboring part, though in rare cases they are primary. With reference to the etiology, course, and prognosis of ovarian cancer there is nothing more to be said than that there is no difference between them when the affection is ovarian and when it has its seat in some other organ of the body. The tendency of the malady is in all cases to a rapidly fatal termination, very few cases extending beyond a year. The deposit of the cancerous elements is not always the same; at times it is infiltrated throughout the organ, whilst at others it is confined in loculi disseminated through it.

The most frequent complication is peritonitis, and ascites resulting from chronic inflammation of the peritoneum is often present.

The circumstances which point to the disease are the following:—

An ovarian tumor of rapid growth;
" " accompanied by ascites;
" " with lancinating pains;
" " " chlorosis and œdema pedum;
" " " great constitutional enfeeblement;
" " " cachectic appearance.

In its incipiency the affection is so insidious that either no symptoms appear, or they exist to so slight an extent that a diagnosis is often impossible until the disease has advanced. Treatment, both medical and surgical, is of no avail in these cases.

Composite Tumors of the Ovaries.

This class includes all those tumors which are composed of both solid and fluid elements. In some cases where there is a great

deal of fluid and very little solid, or considerable development of solid material and very little fluid, it is difficult to draw the line of distinction, but for clinical purposes the recognition of this as a distinct class will prove of signal service. The following are the varieties of the affection :—

Cystic sarcoma;
Cystic cancer;
Alveolar or colloid degeneration.

Cystic Sarcoma.—In speaking of the pathology of ovarian cysts, it was remarked that there exist two theories upon which their occurrence was explained, one a dropsy of the Graafian follicles, another, the dilatation of the areolæ of the stroma and effusion of fluid within the spaces thus created. In a manner similar to the latter of these, cysts form likewise in the connective tissue of fibrous growths, and the combination of the two elements has received the appellation of cystic sarcoma, derived from κυστις, "a bladder," and σαρξ, "flesh." As the name implies, this form of tumor consists of fibrous tissue combined with cysts. Dr. Hewitt quotes the report of a microscopial examination made of a specimen shown at the London Pathological Society, as follows: "It consists of a delicate, fibrous stroma, forming round, or oval alveoli, the latter lined by densely grouped epithelial cells forming a zone, inclosing an area loosely packed with cellular elements of a similar form."

Kiwisch believes that even in this form of tumor the cystic portion may be due to Graafian dropsy, but this view is not shared by other pathologists.

The cysts often grow to a very large size. In Mr. Wells's ninety-first case of ovariotomy the operation was preceded by tapping, which removed thirty eight pints of thin, dark fluid, containing much cholesterine. Dr. Fox, who examined the tumor, states that the cysts which were emptied by tapping represented one-half the bulk of the mass, which, even after this, weighed thirteen pounds. The structure of the solid portion of the tumor was very complex, the cysts being of every variety of size and grouped together in great confusion. In some the fluid was clear, and in others like pea soup. The proportion between the cystic and fibrous elements governs the character of these masses to such an extent that it is often difficult to classify them. When the former is much in the ascendency, the growth resembles a

fluid tumor: when the latter predominates, it appears perfectly solid.

The contents of the cysts may be colloid, purulent, serous, or sanguinolent, and blood is sometimes effused between the fibrous interstices so as to cause a rapid increase in size. The cystic sarcoma sometimes attains very large, or, as Kiwisch expresses it, "colossal," dimensions.

In Mr. Wells's case, just alluded to, the tumor filled the whole abdomen, and extended two inches above the ensiform cartilage by its upper margin, but its growth was not nearly so rapid as that of pure cystic disease. This case had lasted for seven or eight years, slowly increasing until 1863, when it developed at the following rate; June to July, one inch, July to August, one inch, August to September, one inch, September to October, half an inch, October to November, one inch.

The tendency of these growths is to death, by exhaustion of the vital forces, by menorrhagia, or by interference with the functions of the abdominal viscera. In rare cases, however, a well developed tumor may undergo absorption, a fact which I have recently had impressed upon me by the following case.

On the eighth of September, 1866, Dr. Wohlfarth requested me to see, in consultation with him, Mrs. W., who had been under his care since April of the same year, for a solid tumor of the right ovary, which had been rapidly increasing in size. The patient was a florid, handsome German woman, of 28 years, and married. Upon examination I found a hard, globular tumor, larger than the adult head, in the abdomen a little to the left side. It was slightly movable, evidently not connected with the uterus, as proved when this organ was moved by the sound, and obscurely fluctuating in spots. I diagnosticated a cystic sarcoma of right ovary. Having an appointment to examine a case in a few days with several physicians, I requested Dr. W. to have his patient meet me then. Accordingly she was a short time afterwards carefully examined by Professors Chas. A. Budd, Foster Swift, and Drs. Finnell, Roth, Wohlfarth, and myself, with the unanimous verdict of cystic sarcoma. I am thus particular, because I desire to remove all doubt as to the diagnosis. All agreed that operative procedure was not indicated or advisable, although the patient urgently demanded it.

In the succeeding month of December, the patient fell while

walking, and was so much stunned as to be taken up and carried home insensible. A severe and almost fatal attack of peritonitis, with a slight attack of pleuro-pneumonia followed, from which she recovered in three weeks. Some weeks after this Dr. Wohlfarth examined, and was amazed to find that the tumor had disappeared. I saw her on June 28th, and upon careful examination discovered only a tumor at the site of the left ovary, the size of a goose's egg.

This case was fully and minutely examined, was in itself a very plain and unmistakable one, and there exists in my mind no doubt whatever that the injury done to the tissue of the sarcoma by a violent blow caused its removal by absorption.

Should one or more large cysts be detected, relief to many of the symptoms arising from mechanical interference may be obtained by tapping. The results of the operation are, however, more dangerous than in fluid tumors, hemorrhage and subsequent inflammation often taking place in consequence of it. Another disadvantage attending it is that the operator is more limited as to choice of the point to puncture. Besides this means our efforts at palliation must consist in relieving symptoms as they occur, in giving support to the mass by an abdominal bandage, and in enjoining quietude during menstrual epochs.

The only curative treatment with which we are acquainted that avails anything for this form of tumor is removal by ovariotomy. The operation is not so promising as in case of cystic degeneration, and should not be undertaken until the evil results of the disease and its tendency to destruction of life are fully manifested. It requires, generally, the long abdominal incision, and is very likely to be complicated by adhesions; still, the prospect of success is such as to render the operation in many cases of grave prognosis not only admissible, but incumbent upon us.

Cystic Cancer.—The formation of fluid collections may occur with cancer of the ovary in three ways: 1st, cysts may develop in the structure of scirrhus and medullary cancers, as they do in that of sarcomata; 2d, a fluid or cystic tumor, primitively benign, may develop malignant material in its cyst wall; 3d, a large medullary cancer may, by disintegration at its centre, form within itself a mass of fluid, or putrilage, as it has been termed. The condition may consist then in cancer complicating cystic degene-

ration or in cystic degeneration complicating cancer. According to Scanzoni, the cancerous mass may develop in the tissue of the cyst walls and project either internally or externally, or it may grow from the walls by pediculated or sessile tumors filled with medullary material, which are soft, tumefied, and very vascular. In the same tumor both colloid degeneration and medullary cancer may be met with.

The ovarian limits do not always confine these fatal growths. At times they surpass them, and affect the peritoneum or other neighboring parts. This tendency to eccentric development accounts for the protuberances, the size of the fist, so often serving as means of diagnosis of ovarian cancer.

The distinguishing characteristic of cystic cancer is its rapidity of development. In a few months it often attains a size which sarcoma or even cystic degeneration would not attain for several years.

The frequency of these and other ovarian tumors may be judged of from reference to some statistics accumulated by Scanzoni and which have been already referred to:—

Number of cases examined[1]	1823
" ovarian tumors among them	97
" cases submitted to autopsy	41
" fluid tumors	25
" colloid tumors	9
" cysto-sarcomata	5
" cystic cancers	2

From this it will be seen that the affection which we are now considering is rarer than sarcoma and very much rarer than colloid or alveolar degeneration.

No treatment, either medical or surgical, holds out any hope of cure. If such tumors be removed, their return is inevitable, and the operation of ovariotomy is too grave a procedure to be adopted merely for the prospect of a few years of life depending upon its success.

The prognosis of this disease is graver and the limit of life shorter than in any other affection of the ovaries.

Alveolar or Colloid Degeneration.—For a long time the generally

[1] To avoid confusion in the mind of any one examining the original table, I would remark that Prof. Scanzoni applies the term "composite" not as I do, but as I employ "multiple."

accepted opinion with reference to colloid (κολλά, "glue," and εἶδος, "like") or jelly-like tumors was that they were of cancerous nature, but both in their minute structure and in their clinical features they are so far removed from true malignant disease that the belief is becoming very prevalent that they are not of that character. This view is now adopted by Drs. Farre, G. Hewitt, Kiwisch, Collis,[1] Becquerel, and most of the more recent writers upon the subject. In speaking of ovarian colloid tumors Dr. Hewitt remarks: "The latter designation (colloid cancer) is not a good one, for an attentive consideration of the facts leads to the conclusion that the affection is not cancer at all." M. Becquerel[2] seems to have placed the question in its proper light when he says, "Several diseases have been confounded under the indefinite name of colloid cysts; it is therefore essential, before advancing, to distinguish these different varieties. We shall now endeavor to do this after them (Virchow and Scanzoni), previously remarking that under the name of colloid matter some have not at all intended to signify a cancerous product, while others have assigned it such an origin." Virchow[3] evidently alludes to this fact when, in speaking of the difference between the form and nature of growths, he says, "You may therefore say, colloid cancer, colloid sarcoma, colloid fibroma. Here colloid means nothing more than jelly-like." He then goes on to remark that no confusion should exist between such growths as colloid cancer and colloid degeneration of the thyroid gland as to pathological significance.

Virchow's description of the condition is thus quoted by Becquerel: "Small pouches, which are filled with gelatinous matter and whose walls are lined by a layer of epithelium, are found in the parenchyma of the ovary. These vesicles develop in every direction, but more especially at the periphery of the ovaries where they form masses of irregular shape. Some of them are isolated, while others are grouped together in the following manner. The walls of these vesicles disappear by atrophy of cellular tissue, when they are only formed by their epithelial lining. This becomes infiltrated with fat, and the walls forming the connection are easily ruptured. Those of the large cyst remain intact and become hypertrophied. * * * In other cases

[1] Op. cit., p 205.
[2] Op. cit., p. 226.
[3] Cellular Pathol., p. 512.

the vesicles rupture by over-distension; from this results hemorrhage, and blood is found in the vesicles." Kiwisch describes it as a breaking up of the stroma of the ovaries into the cellular cavities, alveoli, closely aggregated together and inclosing a jelly-like, semifluid mass. By others it has been likened to a sponge or a honeycomb.

It is safe to conclude, from the present aspect of the subject, that, while colloid deposit may coexist in the ovary with encephaloid cancer, the peculiar breaking up of the stroma into alveoli which we have just described, is not a malignant affection, but one which seems to constitute a connecting link between cancer and the benign degenerations.

Alveolar degeneration frequently complicates cancer, sarcoma, and fluid tumors. "We have observed," says Kiwisch, "alveolar degeneration of considerable extent remain in the system for a long series of years, without any remarkable bad effects." Nevertheless the prognosis of the affection is always grave.

Should a large cyst be discovered anywhere, and the size of the tumor require diminution on account of interference with surrounding parts, paracentesis may be practised; but in a pure alveolar tumor, no such accumulation will be discovered. Under these circumstances, if the disease steadily advance and the constitution suffer in consequence, we should be encouraged by recognition of its non-malignant nature to practise ovariotomy.

CHAPTER XLV.

DISEASES OF THE FALLOPIAN TUBES.

THE following diseases of the Fallopian tubes will now be considered:—

Inflammation;
Stricture;
Distension;
Displacements.

Inflammation of the tubes, or salpingitis, consists in inflammation of their mucous membrane, and may be either acute or chronic.

The acute variety generally results from puerperal endometritis, or from gonorrhœa, which has extended through the uterine mucous membrane. I have twice seen this disease almost destroy life by attacking the uterine mucous membrane, and subsequently producing pelvic peritonitis, doubtless reaching the peritoneum by traversing the tubes.

Chronic salpingitis is one of the sources of uterine leucorrhœa, and often a cause of tubal obstruction and dilatation.

The great danger of both varieties is pelvic peritonitis, which may spread and destroy life. This arises from escape of the contents of the inflamed tubes into the peritoneum.

Of the symptoms very little can be said. The chronic variety may continue for years, and result in dilatation of the tube with no symptoms which arrest attention; while the acute form so quickly produces local peritonitis, that its symptoms are lost in those of that affection.

No special treatment is applicable to it except the adoption of means to prevent peritonitis, as rest, opiates, leeches, and strict avoidance of sexual intercourse.

The great obscurity of the diagnosis of tubal diseases renders the subject one upon which it is not profitable to speak further, although as a pathological study it is one of great interest.

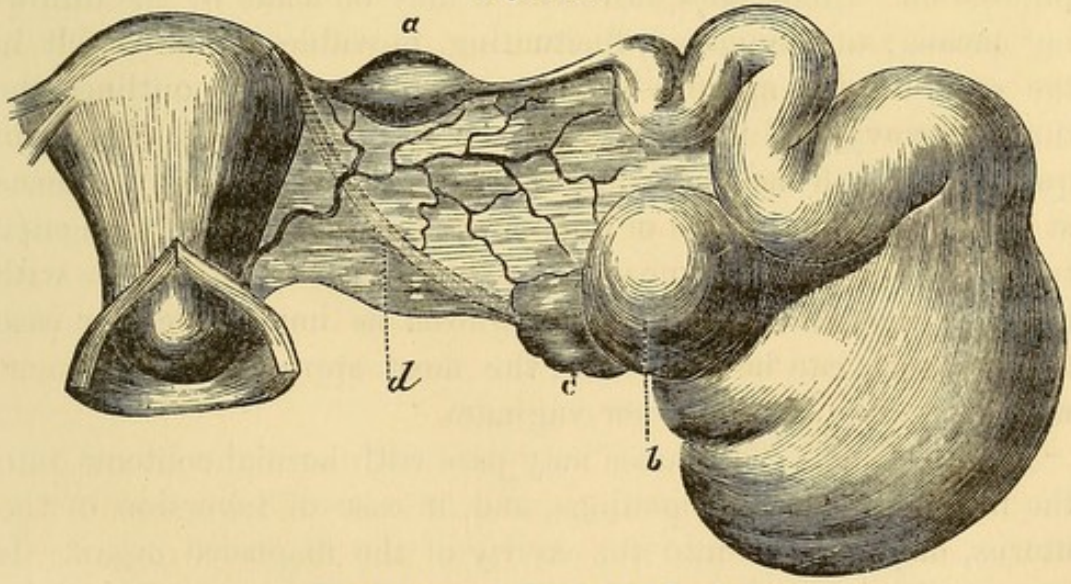
Stricture.—The Fallopian tubes, which are often imperfect or wanting when the uterus is absent or undeveloped, may, even after full development, be affected by stricture. The condition may be produced by these causes:—

Calcific deposit;
Senile atrophy;
Salpingitis;
Pelvic peritonitis;
Tubercle or fibrous tumors.

Partial obliteration of the canal results in sterility if it affect both sides simultaneously, and sometimes, by causing the accumulation of fluids, it produces tubal dropsy. It is not rare for rupture of the tubes and consequent hæmatocele and peritonitis to result from imprisonment of menstrual fluid in them. M. Puech analyzed two hundred and fifty-eight cases of congenital atresia of the genital organs, and found that in fifteen cases the Fallopian tubes were dilated, and in five were ruptured. The condition is rather a study for the pathological anatomist than for the gynecologist, for it can neither be diagnosticated nor relieved by treatment.

Distension.—The tubes may be distended by accumulation of mucus, pus, menstrual blood, or a muco-serous material secreted

Fig. 224.

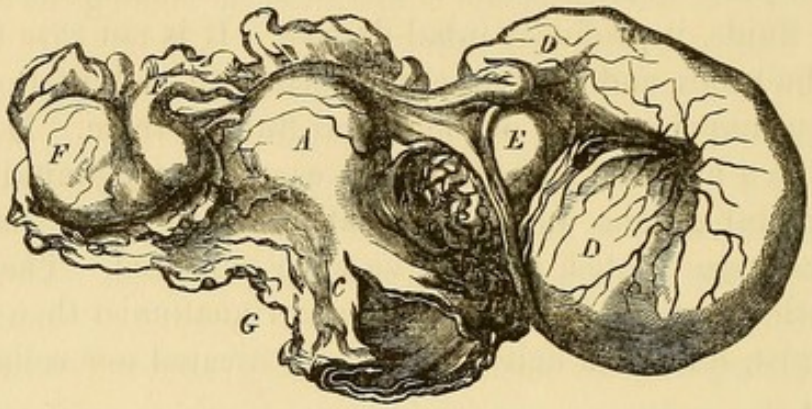


Tubal dropsy. (Boivin and Dugès.)

by the altered mucous membrane accompanying great and prolonged distension. This condition owns invariably as its moving

cause, stricture, which prevents the tube from emptying itself into the uterus. When very great distension takes place, the accumulated fluid either forces its way out of the uterine extremity, constituting the profluent dropsy of Rokitansky, or passes out of the fimbriated extremity into the peritoneum, or a rupture of the tube occurs. Such an accumulation may produce a tumor equal in size to the head of a child of ten years, and some say even much larger, though there is doubt as to the authenticity of the latter cases.

Fig. 225.



Tubal dropsy. (Simpson.)

The diagnosis in advanced cases, where, for example, the tumor has developed to the extent just mentioned, is difficult and often impossible. Sometimes, however, it may be made by the following means; an elongated, fluctuating, movable tumor is felt in the retro-uterine space a little to one side; in its outlines the tumor is wavy, and it can be separated from the uterus. Scanzoni quotes Kiwisch as declaring that, in such cases, the presence at the side of the fundus of a mammillated, elastic, and elongated tumor, justifies the diagnosis of tubal dropsy, but he differs with him, and regards the positive diagnosis as impossible. In case the diagnosis can be arrived at, the most appropriate treatment would consist in tapping per vaginam.

Displacements.—The tubes may pass with hernial contents into the inguinal or crural openings, and, in case of inversion of the uterus, may descend into the cavity of the displaced organ. It is generally in company with the ovary that the tube leaves its place, but at times it descends alone. Dr. Scholler[1] reports an

[1] Courty, op. cit.

instance in which, in a child who died twenty days after birth, a tumor was discovered which extended from the inguinal region to the right labium, and contained the Fallopian tube, which was non-adherent. A crural hernia of the tube alone which ended fatally is likewise recorded by M. Berard.

Prof. Rokitansky,[1] and Dr. Turner of Scotland, have both recently drawn attention to severance of the tube from the ovary by traction from increased weight of the latter or from false membranes. The former cites twelve instances in support of the fact.

Other Diseases of the Tubes.—In addition to these diseases the tubes are sometimes affected by cancer, tubercle, fibrous tumors, abscess, and accumulation of blood in their canals from hemorrhage from the mucous membrane. There is so strong an analogy between these disorders and the same in other organs, that it is not deemed necessary to enter upon their consideration.

[1] Sydenham Soc. Year-Book, 1861.

CHAPTER XLVI.

CHLOROSIS.

Definition and Synonymes.—This disease is probably a neurosis of the ganglionic system of nerves. Disordering the control which this system exerts over the functions of organic life, it produces, as symptoms of its existence, impoverishment of the blood, constipation, dyspepsia, palpitation, and menstrual derangements and irregularities.

Although it has been stated that it may occur in the male as well as the female; that it is sometimes met with in women who have passed the age of puberty, and as an exceptional occurrence has been known to affect young children, the ordinary period of its invasion is the time of puberty, when the dormant functions of the ovaries are being aroused, and the girl is rapidly passing into the state of womanhood. This fact has led many observers to suppose that it is dependent upon some derangement in ovulation and menstruation, but it is more probable that torpidity of the uterus and ovaries is, like the peculiar blood state which is so characteristic of the disorder, merely a symptom of functional disease in the sympathetic system of nerves.

Chlorosis has been described under a variety of names, as, for example, Anæmia or Spanæmia, a kindred disorder with which it has been commonly confounded by writers; Chloro-anæmia, Green Sickness, Cachexia Virginum, Morbus Virgineus, and many others.

Frequency.—It is an affection of great frequency in all civilized and refined communities. The greater the tendency developed by a society to luxurious and enervating habits the more frequently is it encountered. Thus in large cities and the higher walks of life it is of much more frequent occurrence than in country places, and among the lower classes, where a more natural and healthy existence is passed.

History.—The characteristic feature of the disorder being

readily recognizable, and of such a nature as to excite not only attention but anxiety, it has, from the remotest times, received some attention at the hands of physicians. Although, however, allusions to it will be found even in the writings of Hippocrates, Valleix declares that F. Hoffman,[1] who wrote in the middle of the eighteenth century, was the first who ever gave a full and satisfactory description of it. Sydenham,[2] who flourished in the middle of the seventeenth century, describes "The Green Sickness," but disposes of the whole subject, symptomatology and treatment, in exactly ten lines. During the last century the subject has attracted great attention, and, thanks to the investigations of Andral, Becquerel, Rodier, and many others, our knowledge of the pathology of the condition is fully equal to that of other diseases.

Pathology and Symptoms.—Before approaching this part of our subject special allusion must be made to a fact which has been already mentioned, that chlorosis and anæmia are frequently treated of as identical affections under the latter appellation. The pathological condition found to exist upon chemical analysis of the blood in the two diseases is often the same, a diminished amount of red corpuscles and in time diminution of all the solid elements of the blood. Many of their symptoms are also the same, as, for example, pallor, palpitation of the heart, dyspnœa, the existence of a loud systolic cardiac murmur, &c. In spite of these facts it will be noticed that even those writers who treat of the two conditions under the name of anæmia are forced to note the circumstance that there is a peculiar form of the disease which occurs about the period of puberty, to females only, and which has characteristics not displayed under other circumstances. Prof. Flint,[3] in treating of the etiology of anæmia, says, "The obvious causes may be arranged into the three classes just stated, viz: *First*, causes which involve an actual loss of red globules, as in hemorrhages; *Second*, causes involving a defective supply of material for assimilation; *Third*, causes which occasion expenditure of those constituents of the liquor sanguinis on which the production of red globules is dependent.

[1] De Morb. Virgin.

[2] Syd. Soc Ed. of Works, vol. ii. p. 288.

[3] Flint's Practice of Med., 2d ed., p. 62.

"The causes are not always apparent. Anæmia is apt to occur in females at or near the age of puberty, when there has been no loss of blood, no deficiency in alimentary supplies, and no unusual expenditure of blood plasma. Under these circumstances it constitutes the affection to which the name Chlorosis was applied before the anæmic condition was fully understood. If the name be retained, it should be considered as denoting anæmia occurring under the circumstances just stated."

I have introduced this quotation not merely for the purpose of citing the views of the eminent author from whom it is drawn, but as illustrative of the position of those who look upon these disorders as identical as to pathology, and differing only in the period of life at which they are developed. As I proceed with the description of the symptoms, course, and treatment of chlorosis, I hope to be able to justify myself in following the example of Becquerel, Valleix, and many other French writers in looking upon them as essentially and entirely different in nature.

Several French pathologists, under the lead of Becquerel, of Paris, have of late years advanced the view that chlorosis differs from anæmia mainly in this; that the latter is merely a blood state, while the former is a disease of the nervous system which may or may not produce the latter.

The most striking differences between the two diseases may be thus contrasted:—

ANÆMIA	CHLOROSIS
Is merely impoverishment of the blood from want of nourishment, from some drain upon the system, or from some poison in the blood.	Is a disease of the nervous system, and may occur with or without the production of its most common symptom, anæmia.
Can usually be accounted for by discovery of some special cause.	Cannot usually be accounted for by discovery of special cause.
Occurs at all periods of life, to men, women, and children.	Occurs in true type only to girls about time of puberty.
Is readily curable by removal of cause, good diet and administration of iron.	Is affected favorably only by remedies which act upon the nervous system, as alteratives and tonics.
Is always characterized by impoverishment of blood.	Sometimes exists without impoverishment of the blood.
Produces a puffy and pale appearance.	Produces a light green color.
Does not produce sadness or great nervous disquietude.	Produces sadness and nervous disquietude.

ANÆMIA	CHLOROSIS
Is unaccompanied by visceral neuralgia.	Is constantly accompanied by visceral neuralgia.
Fibrin diminished in blood.	Fibrin increased in blood.
No special affection of solar plexus of nerves.	Pain, uneasiness or distress commonly referred to solar plexus.
Iron always does good.	Iron often increases discomfort.
Symptoms of ovulation will be noticed without menstruation.	Neither symptoms of ovulation nor menstruation will be observed.
The cause of the disease being removed, patient will rapidly improve.	If supposed cause be removed, patient will often improve but slowly.

The period of development by which the girl becomes a woman and the boy changes to the man is at once one of the most striking, important, and interesting physiological processes which take place in the animal economy. The special alterations occurring at this time do not need enumeration here. All that it will be necessary to say is that all this change is coincident with the development of the ovaries in the one case and the testicles in the other, so that the former set of organs becomes capable of casting off matured ovules, and the latter of secreting fructifying zoosperms. If any accident occur so that growth and development do not take place in ovaries or testicles, the result is that the girl never becomes a fully developed woman, and the boy grows up a shrill-voiced, beardless, effeminate eunuch.

In the lower order of animals, and more especially in the males of many species, interference, by castration, with development at puberty, gives us still more remarkable results. If two colts be bred in the same stable and from the same stock, and one be castrated and the other left entire, the former will develop into the gentle, slender gelding, while the latter will grow into the strong-necked, majestic, and vicious stallion. A still more striking contrast will be found to exist between the ox and the bull.

This process of development, which we term puberty, is under the control of the ganglionic, or sympathetic system of nerves, which, at that time, must necessarily be in a condition of excessive susceptibility. It is probable that in that state of exaltation, it is, in the female, often affected by a functional derangement which creates the collection of symptoms to which we give the name of Chlorosis. I say it is probable, for I freely confess that the theory which I have here stated is merely an hypothesis suggested by clinical observation of such cases, and not supported by post-mortem or other physical evidence.

To state this view in other words; at the critical age of puberty, when a series of important and peculiar changes are being effected through the instrumentality of the sympathetic system of nerves, this system seems, in the female, to be liable to a morbid influence, which, in great degree, paralyzes it, and impairs its functions. Sadness, nervousness, and irascibility mark its onset; then neuralgia develops itself in the limbs, the head, and the viscera; the appetite is impaired; digestion becomes weak, and dyspepsia, flatulence, and depraved tastes are encountered. The young girl craves the most unpalatable and innutritious substances, as, for example, chalk, clay, slate, and other articles of alkaline character; while, at other times, the taste prompts her to consume acids, as vinegar, lemon-juice, pickled vegetables, &c. Usually the process of blood-making is soon disordered, and anæmia sets in, coincidently with amenorrhœa, constipation, palpitation of the heart, sensitiveness along the spine, distress in the solar plexus of nerves, coldness of the hands and feet, and irregular and excessive flushing of the face.

Upon pressing along the spine, a point of great sensitiveness will usually be found near the seventh cervical vertebra, and others are often discovered above and below this. Auscultation reveals a loud basic systolic cardiac murmur, and along the arteries the bruit de souffle can be detected. It is not rare to find the sternum and clavicles very sensitive to pressure, as, likewise, the intercostal spaces.

Most of these are symptoms which mark the effect of the disease upon the nervous system. The peculiar blood state usually engendered, has, however, received special attention, and been, by many excellent authorities, regarded as the main element of the disease. Becquerel,[1] in his excellent article upon this subject, thus sums up the changes which are ordinarily effected in this fluid.

1st. The water of the blood is notably augmented, which diminishes the density of this fluid. The amount is represented by the same figures as in anæmia.

2d. The proportion of the globules is diminished.

3d. The fibrin is usually found to be normal in amount.

4th. The fatty and saline constituents retain their normal proportions, as does usually the albumen. In very severe and obstinate cases, however, the albumen is diminished, when we see dropsical swellings as a result.

[1] Mal de l'Utérus, t. ii. p. 490.

Mode of Development.—Chlorosis generally develops itself very insidiously. In a girl who has previously been in good health, languor, sadness, and aversion to company usually first attract attention. These are followed by palpitation of the heart after exertion, scantiness of the menstrual flow, and a characteristic pale or greenish complexion. Alarm is ordinarily excited by these evidences of approaching disease, and careful scrutiny soon discovers others which have been already alluded to. According to my observation, the first suspicion which usually takes possession of the minds of the friends of the patient, is, that pulmonary consumption, or heart disease, is about to develop itself. In some cases, an effusion of serum takes place into the areolar tissue of the body, into the pleural cavities, or into the peritoneum, when even the medical adviser is deceived and fears that dropsy from Bright's disease, cardiac disease, or chronic peritonitis, is about to show itself.

If an error in diagnosis lead to neglect of appropriate treatment, or if, still worse, the symptoms of the disease be mistaken for those of plethora, as I have more than once known them to be, the gravest features of the affection will show themselves, and a most critical condition be established.

Causes.—The predisposing causes are well known, sex and age; but those which absolutely excite the disorder, are not so easily ascertained. The causes which are here recorded, are probably those which most frequently prove active; but it must be specially stated that, in the majority of cases, no cause whatever can be assigned for the disease.

Great grief, or mental anxiety;
Depressing home influences;
Great fear suddenly excited;
Deprivation of pure air, exercise, and light;
Disappointment in love;
Erotic excitement without gratification;
Prolonged watching and loss of sleep;
Nostalgia;
Excessive mental labor.

The most marked instances of the disease which have fallen under my observation, have occurred under the influence of great grief for the loss of a relative, disappointment in love, or home-sickness. Dr. W. H. Hammond, in an interesting article upon

this subject published in the *Psychological Journal* for July, 1868, records a striking instance arising from sudden and extreme fear.

Before leaving this part of the subject, it is proper that I should state that Becquerel, who has done more for the advancement of our knowledge of this interesting affection than any other modern authority, admits these causes with considerable reserve. They "can, if they do not produce, at least favor the development of chlorosis," says he in reference to most of those causes which I have recorded.

Varieties.—I know of no good reason for dividing chlorosis into varieties. In one set of cases, certain symptoms are predominant; in others, a different set of signs assume the ascendency. It may, however, prove useful to the reader to lay before him the six forms which have been adopted by Becquerel. They are as follows:—

1st form, simple chlorosis;
2d form, chlorosis with predominance of cephalalgia;
3d " " " " " dyspnœa and palpitation;
4th " " " " " gastralgia;
5th " " " " " menstrual disorder;
6th " " " " " general feebleness.

Differentiation.—An aggravated case of this disease may be confounded with anæmia, cardiac disease, tubercular pleuritis or peritonitis, or even with the first stage of tubercular phthisis. From all these a careful and intelligent search for the evidences of organic lesions will usually distinguish it in time; but without watching the progress of the case for a considerable period, it is often impossible to decide as to the diagnosis.

The physician is often deterred from arriving at a positive conclusion as to the existence of chlorosis, by imagining that the disorder is identical with anæmia. Drawing from the veins of the patient a drop of blood, he puts it under the microscope, and to his surprise finds it to contain red globules in normal amount, and concludes that his suspicions were incorrect. It is a well-known fact that the disease may exist in aggravated form with little or no blood change.

Complications.—Chlorosis may be complicated by hysteria, hypochondriasis, hypertrophy of the heart, and tuberculosis. In one case which I now have under treatment, chlorosis developed

itself with most unmistakable symptoms, and then violent chorea showed itself, which has lasted for five months.

Prognosis.—Unless some serious disorder complicate it, the prognosis is always good; but the course and duration of the disease cannot be predicted. If all the surroundings of the patient, both social and physical, be altered, and all causative influences removed, recovery will usually be rapid and complete; but if these circumstances cannot be brought about, the affection may last for an indefinite time.

Treatment.—Treatment should consist, not in fruitless attempts to overcome one, or even two of the results of the disease, amenorrhœa and anæmia, for example, but in a systematic effort to accomplish these three ends:—

1st. To remove the cause of the disorder;

2d. To cure the neurosis itself;

3d. To repair the damage which it has effected in the system.

If any of the causes which have been enumerated be found to exist, it should as far as possible be promptly and entirely removed. In many cases the cause cannot be discovered, and in many, if discovered, cannot be removed; but if search be always made for it, a sufficient number of successes will occur to reward the effort.

Even where the special cause cannot be detected, recovery may be accomplished by removing the patient from home, and sending her to a distance from objects and people connected with the sadness and depression attendant upon the inception of the attack. A visit to some agreeable watering place or lively country resort, if the patient live in a city; or to some large and busy city, if she inhabit the country, will often do more in the way of cure, than can be effected by any amount or kind of medication. A sea-voyage and visit to a foreign country will often produce a most excellent result, and sometimes cause complete cure.

Well-regulated exercise in the open air is of great importance. Horseback exercise, rowing, bowling, walking, playing at ten pins, &c., constitute some of our best nervous tonics. Sea-bathing, and more particularly surf-bathing, is very useful, and should, when attainable, be faithfully tried. All of these are, however, inferior in value to cheerful, congenial, and new society. This accomplishes a change in the nervous system which nothing else so surely effects.

In the mean time, nervous tonics of medicinal kind should be freely given. The best of these are the preparations of arsenic, strychnine, and quinine. Should the patient bear it well, the continuous electric current should be employed, and general electrization, as practised by Drs. Beard and Rockwell, of this city, often proves very beneficial.

As anæmia is usually a complication of the disease, iron is generally indicated. Some of the best preparations are, the saccharated carbonate, iron by hydrogen, and the bitter wine of iron. A very excellent combination is offered by the following prescription:—

℞.—Ferri vini amari, ℥vijss;
Tr. nucis vomicæ, ℥iv;
Solut. potassæ arsen. ℥ij.—M.
S.—A dessertspoonful, in a claret-glassful of water just after each meal.

The diet should be extremely nutritious, consisting of meat, milk, animal broths, eggs, and vegetables, with wine, whiskey, or malt liquors, if these appear necessary on account of great exhaustion.

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