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ON SOME

DISEASES OF WOMEN

Admitting of Surgical Treatment.

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BY

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MDCCCLIV.

TO

CHARLES LOCOCK, M.D.

FIRST PHYSICIAN-ACCOUCHEUR TO THE QUEEN,

THE FOLLOWING PAGES

ARE INSCRIBED,

AS A TRIBUTE OF RESPECT TO HIS HIGH PROFESSIONAL STANDING,

AND AS A GRATEFUL ACKNOWLEDGMENT OF THE

MANY ACTS OF KINDNESS AND ASSISTANCE SHOWN BY HIM

DURING NEARLY TWENTY YEARS,

TO HIS FAITHFUL AND OBLIGED FRIEND,

THE AUTHOR.

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PREFACE.

THERE is no branch of Surgery more open to improvement than that which relates to those accidents and diseases incident to the female sex, which admit of no relief except from the hand of the surgeon. In the standard works on Midwifery and the Diseases of Females, these surgical diseases are for the most part but imperfectly discussed, and their treatment is often described in few words, and without any suggestions to direct the surgeon through the difficulties and dangers of the more important operations proposed for their relief. Nor has there yet been published in this country any work specially devoted to the consideration of these difficult, and, for the most part, exceedingly distressing cases.

On some of the diseases in question, it is true, we have not only admirable articles, scattered over the pages of our periodical literature, but also full and well-written treatises; and to the authors of these I gladly acknowledge my obligations. With regard to other diseases, however, of not less urgency and importance, I have sought in vain for any useful information in books, and have been thrown, of necessity, on my own resources. It is to the diagnosis and treatment of the latter class of cases, that the bulk of this volume is devoted; although the former are not passed over with neglect, especially where I felt able to add

any details of practical importance to what is already known concerning them. The treatise makes no pretensions to completeness. The subject is by no means exhausted. I have, however, endeavoured to present a clear and practical description of all the more recent improvements in this branch of Surgery; and I take leave of the subject, not without the hope that much greater advances will soon be made by abler hands than mine.

I. B. B.

16, *Connaught Square, Hyde Park,*
1854.

ON SOME

DISEASES OF WOMEN

ADMITTING OF SURGICAL TREATMENT.

PRELIMINARY OBSERVATIONS.

The subjects treated of in the following pages, I divide into two sections. I.—Diseases or accidents which result directly or indirectly from parturition. II.—Diseases or accidents of the female organs occurring independently of pregnancy.

I.—Under the *first section* are classed operations for

1. Rupture of the Perinæum.
2. Prolapsus Vaginæ.
3. Prolapsus and Procidentia Uteri.
4. Vesico-Vaginal Fistula.
5. Recto-Vaginal Fistula.
6. Lacerated Vagina.

II.—Under the *second section* are classed operations for

1. Polypus Uteri.
2. Stone in the Female Bladder.
3. Vascular Tumour of the Meatus Urinarius.
4. Imperforate Hymen.
5. Encysted Tumours of the Labia.
6. Diseases of the Rectum resulting from certain conditions of the Uterus.
7. Ovarian Tumours.

With regard to the *first class*, the lamentable results of

difficult labours, so appalling to the hapless victim, so injurious to her health and spirits, so obstructive to conjugal intercourse, driving the sufferer from the society of her friends, and rendering life all but intolerable,—I trust that the cases and suggestions which will be found under this section will be of essential service in removing this fertile source of human affliction, and may be the means of relieving many females who have hitherto kept their sufferings secret, without even the alleviation of hope. In regard to one of these afflictive conditions—viz., ruptured perinæum, I have not confined myself to the limits of a mere practical essay on the surgery of the case, but have endeavoured to give a full history of all the various methods of treatment recommended by surgeons of this and other countries; and I trust the chapter will be found useful to my medical brethren for reference. I have been induced to present an elaborate treatise on this subject, even at the risk of tediousness, because the notices of it to be found in works of British surgery and obstetricy are very meagre.

With regard to the *second class* of ailments;—much has been written, and well written, on the methods adopted for removing polypi of the uterus; I have, however, offered some suggestions which I hope may be found improvements in the mode of operating. The chapter on affections of the rectum will, it is hoped, be serviceable in calling attention to their uterine complications. In the chapter devoted to ovarian tumours (a subject which has occupied my anxious attention since 1830), I have endeavoured to expound and elucidate, step by step, in as comprehensive and practical a manner as possible, the real and comparative value of the various expedients which, in modern times, have been adopted for the destruction of a distressing, and ultimately fatal disease, formerly considered beyond the reach of surgical skill; and I take this opportunity of explaining my views, and of briefly recapitulating what I have published on the subject during the last ten years.

In the year 1830, I read a paper at the Physical Society of Guy's Hospital, on "Extirpation of Ovarian Cysts." This paper was a translation (by Mr. Hilton) of a paper sent to that society from Wilna, in Poland. Since that period I have been

endeavouring to devise means by which this disease might be destroyed without an operation dangerous to life. Most of these expedients have been, to a certain extent, successful; but as there are cases in which the most simple means are the most eligible and valuable, so there are others in which the operation for ovariotomy is requisite and justifiable.

In the year 1844, I published in "The Lancet" my first paper "On the Successful treatment of Ovarian Dropsy, without the Abdominal Section." In discoursing on the various plans for extirpation of the tumour, in the introduction to this paper, I expressed the opinion, that I did not think any of these severe operations were justifiable till this, or a similar plan of treatment, had been tried. It will, therefore, be seen that I have never condemned extirpation, partial or entire, but have only endeavoured to draw attention to other plans less hazardous before resorting to that extreme procedure.

In the same year I published further remarks on the same subject, in reply to objections which had been brought against my views.

In the year 1848-9, I wrote a series of four papers, in which I took a review of all the cases, successful and unsuccessful, which had occurred in my practice; and, as I think, completely refuted certain misstatements which had been made in order to depreciate the value of my cases by discrediting the facts; an attempt as weak as it was uncandid, for it happened that one or more of my professional brethren whom I met in consultation on the cases, *were eye-witnesses of every fact which I had published.* Attempts, not less disingenuous and discreditable, were likewise made to throw doubts on the correctness of my diagnosis, which proved equally abortive.

The next two papers (published in 1850) were "On the Diagnosis of Ovarian Dropsy;" and, in November of the same year, I published a paper "On the Treatment of Ovarian Dropsy, by the production of an Artificial Oviduct;" and, in 1852, some papers "On the Treatment of Ovarian Dropsy, by excising a portion of the Cyst."

It will be seen that in the following pages I have endeavoured to institute an impartial examination of the comparative merits

of these methods of treatment, and the conditions of disease which may render each, or any of them, specially applicable. I have also added a practical account, with cases, of the operation of extirpating the whole tumour; and have endeavoured to show in what cases, and under what circumstances, this formidable operation is justifiable.

Several of the lesions considered in the following pages have been so thoroughly treated of by others, that I have deemed it unnecessary to enter into detail respecting them; and have accordingly restricted myself to the practical suggestions I have to offer as to their causes, diagnosis, and treatment. This will, for instance, account for the apparently superficial description of the varieties of prolapsed uterus, polypus uteri, &c., lesions which are considered mainly with reference to the peculiar plans of operation I propose for their cure.

I would here acknowledge the great advantage I have derived from the able work of Dr. Fleetwood Churchill on "Diseases of Women," and would refer my readers to it for those particulars which the peculiar character of my present work excludes.

CHAPTER I.

LACERATION OR RUPTURE OF THE PERINÆUM.

This is doubtless one of the most distressing accidents of labour, and needs not the aid of many words to recommend itself to our best attention; and although, thanks to the skill and science of modern accoucheurs, it is an accident of comparatively infrequent occurrence, yet I presume, few, if any medical men fail to meet with it, in greater or less severity, in the course of their practice.

The frequency of the accident.—What is its relative frequency among parturient females I have no data to show. The slighter degrees, which demand no particular treatment, are certainly common, especially in *primiparæ;* and I apprehend that the severer forms are more frequent than is generally supposed, often being, from the natural modesty of women and from despair of obtaining relief, kept secret with the sufferers. Of the twenty-four instances of the severer forms of ruptured perinæum, given in the following pages, twenty-one happened in the first, two in the second, and one in the eighth labour. Though the number of examples are limited, no doubt can be entertained of the particular proclivity of *primiparæ* to the accident; and this is what might naturally have been predicted: at the same time it is seen to be not strictly peculiar to them.

The frequency of the lesion relative to the age of the patients cannot be safely predicated from so small a number of cases. However, the mean of the reported ages of that number is about twenty-eight; an age, in an obstetrical point of view, at which an increased difficulty would attend parturition in first confinements, which the great majority of the number in question were.

However this may be, rupture of the perinæum is a sufficiently common lesion, and its consequences so grievous as to make it imperative on every practitioner to thoroughly acquaint himself with it, and to study the best means for its relief.

Structure of the Perinæum.—Without entering into anatomical details, it is as well to describe briefly the general structure of the *perinæum*. This extends from the fourchette of the vagina to the anus, and varies in length, from an inch to an inch and a half, in the quiescent state; but it will measure from four to five inches when put on the stretch during labour, so extensible are its tissues. It consists of skin, fascia, and muscular fibre; the last made up of the constrictor vaginæ, transversalis perinæi and sphincter ani muscles, all of which meet at, and, in fact, have their common insertion at the centre of the perinæum. By this arrangement it follows that, when divided in the line of their common centre, as is the rule, they must by their contraction draw asunder the sides of the fissure. More deeply seated are the deep fasciæ and the levator ani muscle. From their attachments the fibres of this muscle will evidently also assist in separating the edges of a perineal laceration. The firmness of the perinæum depends on the tonicity of the muscles, the elasticity of the skin, and particularly on the strength of the fascia.

Varieties of the Ruptured Perinæum.—According as the perinæum alone, or one or both of the mucous canals in relation with it are involved, we are presented with the several varieties, or degrees of laceration. I make four varieties:—1. That in which the perinæum is torn to the extent of an inch or less from the fourchette. This degree of injury is of no great moment, is little marked when the parts return to their quiescent or normal state, and requires no special treatment;—2. Where the perinæum is torn between the constrictor vaginæ and sphincter ani, those muscles remaining intact. This is actually a perforation of the perinæum, and, in some rare cases, has given passage to the child;—3. Where the laceration occupies the entire length of the perinæum but does not penetrate the sphincter ani; and 4. Where it extends so as to divide the sphincter ani, and even the recto-vaginal septum. It is this

last form which constitutes so heavy a calamity to the patient, and has hitherto been found so little amenable to treatment.

M. Velpeau remarks,* that two different lesions are generally confounded together under the title of rupture of the perinæum—viz., perforations and fissures; the former (*perforations centrales*) existing where the circumference—the sphincters of the anus and vagina—is unbroken; the latter (*fentes vulvaires*) where the sphincters are involved and the fissure invades more or less the rectum. Laceration of the perinæum is peculiarly an accident of childbirth; yet it may possibly occur from external violence, but then its treatment will be the same. Some may imagine that such an accident at parturition ought not to occur in the hands of a careful practitioner, an inference, however, not countenanced by the records of obstetric medicine. It has occurred in the practice of the best accoucheurs, and some of its causes we can neither obviate nor remove.

The causes of laceration may be divided into *exciting* and *predisposing*. The former comprise:—1. Sudden and violent expulsive action of the uterus before the os externum is properly dilated; 2. Moderate or natural pressure with an abnormal condition of the perinæum, or a very large child; 3. Improper or injudicious employment of instruments, manual force, clumsy manipulation in aiding the passage of the shoulders, or the want of assistance. Of these three divisions of exciting causes the last is the most fruitful of the accident. In twelve of the twenty-four cases hereafter described, the use of instruments was the cause—viz., in five the forceps, in one the vectis; in one (Case III.), according to the patient's statement a boot-hook was used, it is to be supposed in the absence of a proper instrument; in the other five the particular instrument employed was not ascertained. In Cases II. and XIV. the accident was due to the sudden onset of active uterine contractions during the application of instruments, forcing forward the head and instrument together. In two of the three cases of M. Verhaeghe,† manual violence in

* De l'Art des Accouchements.

† Mémoire sur un nouveau procédé opératoire pour la guérison des Ruptures complètes du Perinée. Bruxelles. 1852.

rude attempts to facilitate the delivery of the head or shoulders was the immediate cause.

Predisposing Causes of Rupture.—The predisposing causes of rupture, or those conditions of the parts concerned in delivery which concur with, or favour the action of the exciting, are:—1. An undilated state of the os externum when the child is driven forwards by the active contractions of the uterus, as happens in precipitate labour, instanced in Case XII. 2. An unnatural rigidity of the perinæum, which is dry, hot, thin, and unyielding, as occurred in Case XIV. 3. A structural peculiarity, in which the perinæum is thick, undilatable, and readily torn, the muscular tissue of the patient generally being flabby, as seen in Case X. 4. A peculiar conformation of the perinæum, which, in some women, is so lengthy, that is, extending so far forward, that it is distended by the advancing head like a bag, the os externum meanwhile remaining nearly quiescent; in other words, the propulsive efforts of the womb drive the child's head against the broad surface of the perinæum instead of towards the external outlet. 5. Other malformations of the pelvis may, in particular cases, conduce to the accident, so also may a misplaced uterus. 6. Parturition at an early age, will, from the state of the tissues, favour the occurrence of rupture. Again, predisposing causes may be found in conditions affecting the child, such as an abnormal position or presentation, or any state involving an increased bulk; as, for instance, hydrocephalus, twins, as in Case XV., &c.

As the question has been mooted how far ergot of rye is a cause of laceration of the perinæum, I may reply that that drug, injudiciously administered, may certainly be an indirect or remote cause of the accident, by inducing violent uterine contractions, and a too rapid expulsion of the child. In a like manner other medicinal or physical agents, or the age, or various conditions of health of the mother, may interfere with parturition, and act as remote causes of rupture; the description of such, however, would involve details unsuitable to the present treatise, and are, moreover, well given in the works of various accoucheurs.

Prevention of Rupture.—It happens that there is considerable

difference of opinion amongst accoucheurs with respect to the management of the perinæum during the last stage of delivery. The old authors on midwifery all recommend supporting the perinæum with the hand alone, or with a napkin; others, and especially my accomplished colleague, Dr. Tyler Smith, in his excellent work on the "Physiology of Parturition," object to this plan, as causing a reflex nervous action from the perinæum to the uterus, whereby the latter is excited to greater expulsive efforts, and, consequently, to the exertion of greater tension on the perinæum. This objection, no doubt, in a great measure, holds good; for it is certain that frequent interference to support or press against the perinæum, or to examine *per vaginam*, does keep up an injurious excitement of the uterus, and increase its expulsive efforts. Yet it is equally true that, where the head is pressing downward and backward, *i. e.*, on the rectum and perinæum, the hand should be steadily applied, so as to guide the head forwards under the arch of the pubes through the external parts.

Where rigidity of the perinæum opposes the advance of the child, various remedies have been proposed to overcome it, as, bloodletting, tartar emetic, warm fomentations, and greasy substances; but since the introduction of chloroform into practice, I have never resorted to any of them, because I have found that in ten minutes, in the very worst cases, the parts have become dilatable when that agent is administered by inhalation.

In those instances of elongated perinæum in which the head distends that structure like a bag, and cannot be driven forward, it is necessary not only to support the perinæum with the greatest care, but also to introduce the thumb and fore-finger of the right hand as far as the vertex, so as to be able to give a forward direction to the head, and to guide it through the external parts, whilst at the same time the fourchette, where rupture is most apt to occur, is thereby defended from the excess of pressure.

Where, lastly, the contractions of the uterus are so violent as to threaten precipitate delivery, the passages being unprepared, the uterine action must be restrained by the inhalation of chloro-

form, or, where this is contraindicated, by the administration of opium. Having these resources at hand, I would consider blood-letting inadmissible, and tartar emetic a means of reducing uterine power not to be recommended.

In cases where rupture seems inevitable during delivery, Dr. Blundell recommended and practised the plan of relieving the tension of the perinæum by a slight lateral or oblique incision during a pain, thus actually producing a laceration, but one of no moment, if it serve, as intended, to prevent the tear along the median line, where it naturally takes place, and proves of serious consequence. This plan I concur with, and would practice where indicated.

M. Chailly-Honoré places particular stress on duly supporting the perinæum during the delivery of the shoulders; stating, as his belief, that most lacerations occur at that time from the neglect of such support. In Cases VII. and XI., the exit of the shoulders caused the rent; and so again it was the rough attempt to deliver the shoulders which, in M. Verhaeghe's third case, did the mischief. This reference to facts does not, indeed, confirm Chailly-Honoré's opinion, but it demonstrates the importance of giving due assistance at this stage of delivery, by showing the escape of the shoulders to be not an unusual cause. It is again an obvious rule to induce women to moderate their efforts at expulsion during the passage of the head of the child.

I need not extend my observations on the means of obviating the causes of laceration, since they are well treated of in all books on the art of midwifery.

Consequences of Rupture.—The consequences entailed by a laceration of the perinæum will depend on its extent: they may be slight and temporary, or so severe as to render life miserable; the latter only require to be detailed, and to any one who attentively considers the relative anatomy and functions of the parts, they will seem very obvious. The triangular chasm of which the perinæum forms the floor, has the rectum tending downwards and backwards as its posterior wall, and the vagina, passing downwards and forwards, as its anterior; consequently, when the two lips of a ruptured perinæum are drawn asunder,

the prominent convexity of the posterior wall of the vagina is brought into view with its transverse rugæ; and when the injury is of old date, all this is much hypertrophied and hardened. Again, the laceration may have penetrated so as to lay open the vagina, tearing asunder the sphincter ani and recto-vaginal septum, thus converting the opening of the two canals into one.

Acting as the perinæum does in the way of a counterpoise to the downward pressure of the diaphragm on the abdominal and pelvic viscera, its laceration deprives the latter of their natural support; hence the proclivity to prolapse of the uterus, of the bladder, and of the rectum, and their attendant symptoms,—dragging pains from the loins, interference with the functions of the bladder, leucorrhœal discharges, incapability of exertion, even of ordinary exercise, inability to go up or down stairs. Again, when the sphincters are torn their functions are lost, the fæces and intestinal gases pass uncontrolled. Hardened fæces may certainly be in a measure retained, but when at all fluid, they will escape quite involuntarily, entering the vagina and adjoining parts. Such circumstances necessarily confine the afflicted person to her house or room, exclude from all society, and render existence miserable. They may even induce disgust on the part of the husband towards his unfortunate wife, and render her companionship odious. No patients, indeed, ought to be more the objects of our profound commiseration, and of our liveliest sympathy. If any condition could incite us to devise remedies, it surely would be this, in which the patient may have all the bodily and mental functions in health and vigour, but be by this accident so cut off from all the pleasures and comforts of existence, that death seems preferable to life, and any means appear justifiable and are sought for, which promise temporary quiet or oblivion.

Difficulties of treatment.—The difficulties to be overcome in the treatment of laceration of the perinæum, have hitherto been generally regarded as almost insurmountable. This impression led to the common practice of leaving the injury to nature; whilst the frequent failure of operative proceedings induced many eminent surgeons to oppose altogether their

adoption; nay more, as Dr. Barnes writes,* "An eminent obstetric author has sought to console his brethren under the disappointment of baffled art, by assuring them that it is better not to cure the whole laceration."

The situation of the wound, its nature, the structure of the parts involved, and their relations; the time which may have elapsed since its occurrence; the retraction that usually occurs; the difficulty of effecting apposition for a sufficient length of time to ensure union; the irritation, inflammation, and even sloughing apt to occur in some constitutions; the greater tendency to the growth of mucous membrane than to union by the first intention, or even by granulation; and the difficulty of the management of the bowels and bladder during the healing process, present so many and great obstacles in the way of success in the endeavour to restore the integrity of the parts by any surgical operation; that the most skilful attempts have often been frustrated, and many bad cases abandoned as hopeless. I hope however, in the ensuing pages, to show that these several impediments to successful treatment, may be met and overcome by a simple operation, so that laceration of the perinæum may no longer be reckoned among the opprobia of obstetric surgery.

SURGICAL HISTORY OF THE SUBJECT.

Before proceeding to detail my own plans, I will offer an outline of what has been done by others; but, at the same time, will not profess it to be perfect, as the want of literary leisure for a diligent search after writers has, not improbably, kept me in ignorance of some useful contributions on the subject.

So far as my researches have extended, ancient medical authorities appear to have regarded the injury as irremediable; by many of them no mention of it is made. Celsus speaks of lacerations about the vulva, and of recto-vaginal fistula, but does not describe the severe form of ruptured perinæum. For the

* Lancet, Vol. II., 1849.

relief of those injuries which he mentions, he recommends absolute rest, the tying of the legs together, and other general measures to favour the natural disposition to heal. And with reference to all but comparatively recent days, it may be stated generally that no operation was attempted to bring about union of the torn parts.

German Writers.—Excepting Dieffenbach, German surgeons appear to have studied the subject but little. It has certainly been often enough the theme of dissertations or theses of students proceeding to their degrees; but, so far as I can discover, has been rarely a matter of practical research by those so situated as to be able to contribute to our knowledge. Indeed,—and the remark applies not to Germany only, but also to France and England,—neither the anatomy nor physiology of the perinæum has been sufficiently attended to in its bearings on the accident in question; how accurately soever it may have been studied by surgeons with reference to the operation of lithotomy.

Dieffenbach's Rules of Practice.—It is not till 1829, when Dieffenbach directed his attention to the matter, that, in Germany, we meet with any originality in the treatises on, or in the treatment of rupture of the perinæum. This eminent surgeon, from his position at the Charité of Berlin, and an extensive private practice, enjoyed ample opportunities of observation. After a most deliberate and careful investigation, Dieffenbach concluded that suture alone would not supply any certain mode of remedying perineal laceration; and, among others, he laid down the following rules of practice:—1. That prior to the operation the bowels should be well cleared by purgatives and enemata. 2. That despite the swollen state of the torn parts, the presence of discharges, and the debility of the patient after delivery, the operation should be performed as immediately as possible after the accident, since those evils would be more than counterbalanced by those consequent on delay, as suppuration, sloughing and loss of substance, and the yet later results—displacement of the uterus and associated organs. 3. That no rupture, however slight, should be left to nature, for the healing would be superficial, and the vulva enlarged, proportionably to the extent of laceration, by the retraction of the labia towards the

anus, the support of the pelvic viscera being also thereby diminished. 4. That three to five sutures are necessary, according to the severity of the accident; the insertion of the sutures commencing at the anus, and, where the sphincter is torn, the first being applied at its angle. 5. That where the perinæum is lax, either the twisted or the interrupted suture may be used; and when the vagina is implicated, its fissure should be first brought together; also that where the perinæum is tense and rigid, an elliptic incision should be made on either side the median line, and equidistant from it. 6. That in those cases where there has been a considerable loss of substance, the transplantation of an adjoining piece of integument may be resorted to—*i. e.*, a plastic operation may be attempted. 7. That in cases of old standing, the edges of the fissure require to be pared before being brought into apposition by sutures. 8. That after the operation, the bowels should be bound by the administration of opium, in doses of one third of a grain twice a day; and that the urine should be regularly withdrawn by the catheter.

Such are the maxims of Dieffenbach. Of these the most original is the making incisions where the tension of the perinæum is considerable: among them, too, is one which I have much insisted on, and which, moreover, is opposed to ordinary practice—viz., confining the bowels by opium after the completion of the operation. With respect to the incisions advised by Dieffenbach, they are spoken of as penetrating only the integument and superficial fascia on either side the wound, in order to obviate the pull upon the sutures by any movements. Thus he seems to have overlooked the divergent action of the sphincter ani, and did not attempt to remove it by a division of the fibres of that muscle. Moreover, it was only latterly that this eminent surgeon recognised and advocated recourse to operation immediately on the occurrence of the accident.

Chelius gives a brief exposition of the operative proceedings pursued in the treatment of ruptured perinæum, but offers nothing original. He and also Zung, advocate the common practice of keeping up a looseness of the bowels during the process of healing. Professor Roser, in a recent paper

in Schmidt's "Jahrbucher" for the year, 1853, recommends hair-lip (twisted) sutures to bring together the edges, and the leaving them undisturbed for three or four weeks, notwithstanding any suppuration. Other writers in Germany, whose works I am personally unacquainted with, have written on rupture of the perinæum, among them Menzel, Osiander, Wutzer and Langenbeck. The plan of the last named surgeon it is the object of M. Verhaeghe's (of Ostend) Memoir* to make known; but I shall defer describing the method at present. To that memoir I am indebted for the following notice of German opinions. The interrupted suture is that generally recommended as the chief, and the twisted suture as accessory to keep the integument and subjacent areolar tissue in accurate apposition by preventing its inversion or eversion. M. Wutzer employs long curved needles, about 3½ inches in length, which he runs through the entire thickness of the lips of the wound. These needles, M. Verhaeghe tells us he has himself employed with great advantage. Wutzer and others postpone operating till the cessation of lactation; but Dieffenbach, Jungmann, and Langenbeck, advise immediate operation.

French Writers.—The French literature of the subject is more extensive than the German. Ambrose Paré, the father of modern surgery, pointed out the applicability of sutures to the accident. Mauriceau likewise wrote in its favour. But the first authentic instance we have of the suture being actually employed, is related by Guillemeau, a pupil of Ambrose Paré; he used the interrupted suture, and met with success. It did not, however, become a recognised mode of treatment until the time of Saucerotte and La Motte, at the close of the last century. Noël and Saucerotte used the twisted suture, and each succeeded in a single case.

Although admitted by the majority to be the most effective and certain means of securing union in perinæal rupture, yet the suture has been condemned as useless, and even as mischievous, by not a few French surgeons and accoucheurs.

* Mémoire sur un nouveau procédé opératoire pour la guérison des Ruptures complètes du Perinée, par L. Verhaeghe. Bruxelles. 1852.

Deuleurye* says, such solutions of continuity are to be healed without sutures ;—Puzos agrees with him ; likewise Outrepont and others. Boyer even condemns attempts to heal the laceration. Still more recently (1836), M. Duparcque,† who has devoted an entire treatise to ruptures of the female generative organs and perinæum, concludes that sutures are unnecessary and undesirable, and expresses his reliance on the old general rules of position, absolute quiet, &c.

On the other side, as advocates of operation by suture, we have Saucerotte, La Motte, the MM. Dubois, and that most successful and talented surgeon, M. Roux. This last named gentleman succeeded in curing four out of the first five cases he attempted. He employed the quill-suture with an accessory twisted suture at one or two points. In one instance, he kept the bowels confined for twenty-two days, but he does not point out such a proceeding as a rule of practice; not generally, indeed, resorting to it himself. He also practised Dieffenbach's incisions, but does not appear to have recognised the utility of dividing the sphincter ani to obviate retraction of the edges of the wound. Moreover, M. Roux thinks it best to defer operating till suckling is given up. In this opinion he is supported by Danyan. Madame Boivin‡ is silent on the subject.

M. Velpeau§ has a chapter on rupture of the perinæum, and supplies a good review of its literature, but presents no original matter. He appears to recommend sutures, and, where tension is great, Dieffenbach's incisions.

In a patient with rupture of the perinæum, involving also the vagina, Saucerotte, upon repeating an operation, divided the sphincter ani. No reason, however, is assigned for so doing, nor is the direction of the incisions mentioned. In fact, he evidently did not recognise the proceeding as an essential part of the operation.

MM. Paul Dubois and Chailly-Honoré advocate an ob-

* Traité des Accouchements.

† Histoire complète des Ruptures et des Déchirures de l'Uterus, du Vagin et du Perinée. Paris. 1836.

‡ Mémoire de l'Art des Accouchements. Paris. 1836.

§ L'Art des Accouchements.

lique incision, about the third of an inch long, of the vulva, towards the perinæum, either to altogether prevent the rupture of that region when much distended, or, when the laceration is inevitable, to favour it at a spot where it can produce the least mischief. The writers support their views by the history of successful cases.*

English Writers.—With English surgeons and accoucheurs rupture of the perinæum has engaged but little attention. We have no English treatise on the subject; and it is, moreover, strange to observe how often a lesion, so important in itself and in its consequences, and not so uncommon in its occurrence, has been almost or altogether passed by unnoticed in works on midwifery and surgery, and even in those of standard reputation. For example, I find no mention of it in S. Cooper's elaborate *Surgical Dictionary,* none in Pirrie's *Treatise on Surgery,* just published; no article upon it in Dr. F. Churchill's *Operative Midwifery,* nor in Burns.† Again, where not altogether omitted, it has been very superficially treated of; so much so, that no sufficient instruction is conveyed to the practitioner having the treatment of a case, and with no experienced surgeon at hand to advise with.

In my search after recorded cases of ruptured perinæum, and for opinions respecting its treatment, I have met with several instructive accounts scattered in the medical journals, which, that a conception may be had of what has been done in the matter, or left undone, in this country, I will briefly advert to.

Smellie, in his book *On Midwifery,*‡ relates several cases of laceration; but all the severe ones were either left to nature or treated unsuccessfully. Dr. Aitken§ is a determined opponent to operation, especially by suture, and would trust to the expedients practised of old, such as tying the legs together, attention to cleanliness, perfect rest, the withdrawal of the urine, the use of enemata, &c. Dr. Blundell (*Lectures on*

* Lancet, Vol. I., 1861. This plan is also proposed by Dr. Blundell. See p. 10.

† Principles of Midwifery. Dr. Burns.

‡ A Treatise on the Theory and Practice of Midwifery.

§ Principles of Midwifery, 1785.

Midwifery) says: "With the greatest care and nicest management these cases are seldom remedied by operation." He mentions cases of old and partial laceration operated on successfully by Mr. Rowley, which, says he, "did great credit to his surgery." Denman (*Practice of Midwifery*) presents a good description of rupture of the perinæum, its causes and prevention, but points out no plan for its cure. Dr. David Davis, (*Principles and Practice of Midwifery,*) in his chapter on ruptured perinæum, appears averse to operative proceedings, because "they much more frequently fail, . . . leaving the intermediate gap in a worse state than before," and remarks, "that it is a damage seldom benefited by any of the modes of treatment hitherto resorted to for that purpose."

Mr. South, in his translation of Chelius (*System of Surgery*), appends to the tolerably good account of the subject by the German author, some valuable notes, and quotes a successful operation by Mr. Davidson, reported in *The Lancet* (Vol. II., 1838-39, p. 225,) in which the quill suture was employed, and constipation kept up for seventeen days. Mr. South, however, favours the common plan of keeping the bowels loose after the operation.

Dr. Ramsbotham (*Principles of Midwifery*) speaks of laceration of the perinæum as an accident of labour, but mentions no remedy for it. Miller (*Principles of Surgery*) devotes only ten lines to the subject, and advises any operation being delayed for some time after parturition.

Dr. Cockle, in a recent pamphlet,* advises a chance being given of natural union by the first intention; and remarks that, "as a general rule, sutures are to be considered as inadmissible, at all events in the early stage."

Thus, on the whole, the prevalent opinion in England appears to have been that, from the uncertain, and most frequently, unsuccessful results of the operations devised, and from the apparently insuperable difficulties to be contended with, it was better merely to aid the efforts of nature in narrowing the wound, and in lessening the evils attendant on it.

* On Laceration of the Perinæum during labour. 1853.

CASES ON RECORD.

Of the instances of operation narrated in the medical journals, I will refer first to that described by Mr. Joseph Rogers, (*Lancet*, Vol I., 1849, p. 555). The laceration did not in his case involve the sphincter, but extended round the extremity of the rectum quite to the posterior part. The edges of the wound had nearly cicatrized throughout. In his first attempt, Mr. Rogers used two stitches (interrupted sutures); but these having ulcerated through, the operation was repeated, and the edges placed in perfect apposition by hare-lip pins, secured by the twisted suture. After the operation, the patient was interdicted nearly all food for six days, and had her bowels kept bound by opiates. At the end of seventeen days complete union had taken place; the period, however, having been prolonged by obstinacy on the part of the patient.

On this case Dr. Robert Barnes has offered some remarks (*Lancet*, Vol II., 1849). He writes, "I believe that no amount of skill and precautions will justify the surgeon in the majority of cases, in looking for perfect union by means of any of the sutures in common use." He then proceeds to recommend the *bead-suture*, devised by Mr. Charles Brooke, as obviating all the objections raised against operation by suture. He supports his recommendation by reference to a case operated on by Mr. Brooke, under very unfavourable circumstances, yet with complete success.

Mr. Higginbottom, of Nottingham, briefly relates (*Lancet*, Vol. II., 1849, p. 661) a case of laceration of the perinæum, extending through the sphincter ani, which was "directly united by the interrupted suture in two places, and the nitrate of silver applied to the skin on each side, close to the line of the wound, and left without any other dressing." At the end of the second day the bowels were opened by castor-oil, and on the third day the sutures were removed. "The wound united by the first intention; the eschar surrounding the laceration made by the caustic had the power of fixing the parts as if adhesive plaster had been applied." This treatment was carried out thirteen years prior to the published account; and during

that lapse of time the patient had suffered no inconvenience, and had borne nine children without any recurrence of the laceration.

In the same volume of the *Lancet* (p. 672) is the report of a case treated by Mr. Holt at the Westminster Hospital. The rupture was of two months' standing, deep and ragged, "extending from the lower portion of the vagina to the upper part of the anus." The edges having been pared, their contact was secured by "three double sutures passed through the whole thickness, at about half an inch from the edge. A piece of small gum-elastic bougie was then placed on either side; one piece through the loop formed by the double thread, and the ends of the ligature tied over the other." Eight days after, the sutures were removed, and the bowels, hitherto confined, relieved by castor oil. In about four weeks union was complete.

In the *Lancet* (Vol. II., 1850, p. 93), two cases occurring at King's College Hospital, under the care of Mr. Fergusson, are briefly recorded. In some preliminary remarks, it is said (apparently on the authority of Mr. Fergusson), that "it is better to wait before any surgical means be attempted, until the primary inflammation has subsided." In both cases, the interrupted suture was employed; the distinguished operator stating his opinion to be that the objections to it are removeable by precautionary measures, of which the most important, as illustrated in the cases cited, are the parallel incisions in the long diameter of the perinæum, as proposed by Dieffenbach.

In the first patient, Mr. Fergusson inserted three sutures, and then made an incision on each side the closed fissure, filling it with dry lint. The bowels were kept regularly open by enemata. In about eleven days the sutures were removed, and at the end of a month both the original rent and the lateral wounds were entirely healed.

The same plan was pursued with the second case, except that the bowels were kept confined six days after the completion of the operation. The perinæal wound was entirely and accurately closed within twenty-seven days after the insertion of the sutures, but a very small communication existed between the

vagina and rectum, so unimportant however, that Mr. Fergusson declined resorting even to cauterization.

Both Mr. Arnott, of the Middlesex, and Mr. Lane, of St. Mary's Hospital, have operated successfully for laceration of the perinæum, but have published no detail of their cases; and without doubt many successful operations remain unrecorded, or are at least unknown to me.

Dr. Lever and Mr. Hilton's Operation.—Quite recently a volume of the *Guy's Hospital Reports** has appeared, containing a brochure by Dr. Lever on Laceration of the Perinæum, with two cases operated on in a peculiar manner: viz., by dividing, by a subcutaneous incision, the coccygeal attachments of the external sphincter and levatores ani.

In the first case the sphincter, during delivery by forceps, three months previously, had been ruptured, "the laceration extending through the perinæum, so that the fæces passed involuntarily." The operation took place on the 26th August; on the 1st September, the patient is reported to have then had "command of the rectum; but she felt a bearing-down pain after standing or sitting;" and on the 7th "there was a continuous surface of mucous membrane from the sphincter to the vagina."

"This patient, when last seen, two and a half years after the operation, had lost the pain and bearing-down, and had full command of the bowels, except occasionally when the fæces were very fluid."

The second case, of nine years' standing, was complicated with procidentia uteri and leucorrhœa, whilst a considerable portion of the rectum protruded through the anal opening, the mucous membrane being intensely injected with blood, and very tender.

"She complained of constant burning pain in the rectum, with inability to retain the fæces if the stools were fluid. . . . . This woman was seen more than three years after she left the hospital, and stated that there was no descent either of the uterus or rectum, but she was compelled to be attentive to the state of her bowels."

* Vol. VIII., Part ii., 1853., p. 401.

Mr. Hilton operated in each instance, and thus details his reasons:—" Remembering that the levatores ani have one firm and fixed attachment to bone near the arch of the pubes, and another at the coccyx, and that the external sphincter ani might be regarded anatomically nearly in the same light in relation to its effects upon the injury to the perinæum, and bearing in mind that all muscles contract towards their more fixed point, it occurred to me,—that by disengaging the coccygeal attachments of the levatores ani, I might allow them to retract the anal aperture and adjacent structures in a direction towards the pubes, as it were, to bury the perinæal injury deeply in the pelvis, thus enabling the lower fibres of those muscles to assume the office of a sphincter to the lacerated opening, by approximating the edges of it, and drawing it upwards towards the pubic arch." Also, "that by separating the coccygeal fixed point of the sphincter ani, I should necessarily change the direction of its contractile power from the coccyx towards the vagina, and thence to the pubes; this I hoped would help to occlude the lacerated opening between the vagina and rectum. Whether I had reasoned rightly or not, the results were as satisfactory, and indeed more so, than I had anticipated. It seemed to myself, that two ulterior purposes might be held in view by such an operation; the first was to ascertain how much of complete relief could be afforded by an operation which promised to be altogether free from both danger and the severity of the ordinary operation for such cases; and secondly, should no important immediate benefit be derived, it would certainly tend to the advantage of the patient, by putting the parts into a better state (by relaxing them) for the easy and perfect accomplishment of the usual but more formidable operation of paring the edges of the lacerated wound, and maintaining them in contact for a time by sutures."

From the last clause especially, but also from the general line of argument, Mr. Hilton seems to have apprehended the importance of annihilating traction of the fissure by severance of the muscles; yet I cannot commend the utility of the operative measures his anatomical reasonings suggested. At the best those measures answered very indifferently;—the fissure re-

mained (not so widely gaping it may be) a source of annoyance and discomfort; and the control over the dejections continued imperfect and a necessary cause of misery. The operation may indeed be less "formidable" than that of paring and stitching the edges together, but the end gained is trifling, and not to be weighed against complete cure, which the plan I follow promises almost certainly, and which cannot be rightly called formidable. I cannot believe Mr. Hilton will have many imitators, nor that he and Dr. Lever are themselves much in love with the operation, as they appear to have allowed some six years to elapse without repeating it in any case.

M. Verhaeghe's Memoir.—I have reserved the account of M. Verhaeghe's Memoir to the close of this sketch of what has been done by others, because it has been published since the appearance (in 1852) of my first Essay on the Treatment of Rupture of the Perinæum, which is referred to in its pages, and in many points, indeed, the author expresses opinions coincident with my own. It is curious, however, to note that in those very points of practice in which we agree, M. Verhaeghe claims them as peculiar to his operative system, and in contrast to that adopted in England, although he has at the same time quoted my pamphlet as one known to him.

I should observe that M. Verhaeghe, who is surgeon to the Civil Hospital of Ostend, puts himself forward as the expounder of the system and views of M. Langenbeck, the inventor of the operation, but who has not himself described it. It may, therefore, be rightly called *Langenbeck's* operation. It has been designated *perineo-synthesis.* Operation immediately after the accident is advocated; but the description given of the proceeding applies to old cases, "since in recent lacerations it is only necessary to bring into apposition the divided tissues to restore the perinæum."

The operation may be divided into several stages, viz., 1. Vivisection of the free border or spur (*éperon*) of the recto-vaginal septum. 2. The undoubling (*dédoublement*) of the septum, and the formation of a flap destined to form, in the new perinæum, the anterior side of the triangular space (formed by the two canals, vagina and rectum, with the perinæum as the

base). 3. The vivisection of the two lips of the laceration. 4. The insertion of the sutures. 5. The two semi-lunar incisions advised by Dieffenbach.

" In order to pare the free edge of the septum, two fingers of the left hand are introduced into the rectum so as to stretch the parts transversely; then, by means of scissors, a very thin lamina is removed from the entire thickness of the spur." This done, the second stage of the operation, doubtless the most difficult, comes next. The two fingers in the rectum keeping up tension of the septum, a nearly semicircular incision is made on the anterior surface of the latter, and two or three lines from its inferior border. A convex and very sharp scalpel should be here used, in order to avoid removing aught but the mucous membrane, and, above all, wounding the rectum. The upper lip of this incision is next to be seized by forceps and separated by careful dissection from the deep layer for the space in length of six lines, and in the entire breadth of the septum. Thus two laminæ are formed, one anterior or vaginal, the other, posterior or rectal; the latter destined to continue *in situ* to close the rectum, the former to be drawn forward and fixed by its angles at the anterior part of the new perinæum on each side. It will thus form an inclined plane, directed from behind forwards, as a sort of valve, which will act with reference to the new perinæum as the epiglottis does to the glottis; that is to say, it will prevent the fluids of the vagina coming in contact with the newly united parts."

" The vivisection of the two sides of the laceration is the next object. To do this a quadrilateral space, rather elongated antero-posteriorly is to be circumscribed by the scalpel, from the vulva towards the anus, avoiding the mucous membrane of the vagina above, and the skin below. In front the incision must not pass beyond, nor yet stop short of the point where the posterior commissure of the vulva naturally exists; behind, it should connect itself with the corresponding side of the pared edges of the spur; no portion not pared should exist between them. In general this quadrilateral space should be an inch and a half long, by three quarters of an inch wide.

This space having been very accurately pared, and bleeding having ceased, the next business is the introduction of the sutures. The suture intended to close the rectum is the first introduced, by a curved needle carrying a double thread. The needle should pierce the skin to the left of the anterior margin of the anus, and from four to five lines from the edge of the wound, so that it may come out on the denuded border of the spur of the septum, at the distance of about two lines to the left of the central line; it is then to be plunged into the same border, at an equal distance from the median line, and to be brought out at a point corresponding to that at which it was first inserted on the opposite side. By drawing this thread, the opposite pared edges are found to approach in the median line, and thus to close the rectum. This ligature thus drawn, being intrusted to an assistant, the other sutures to effect specially the reunion of the perinæum are to be introduced. For this object three or four sutures are needed. M. Wutzer's needles serve well for this part of the operation. The posterior suture is the first inserted; and about four lines should be left between any two. The needles should penetrate the flesh four to six lines from the margin of the wound, and emerge at a corresponding point on the opposite side, being kept clear from wounding the mucous membrane of the vagina. Those very long needles possess the advantage of being able to traverse the entire thickness of the tissues, from left to right.

The next step is to fix the lamina derived from the septum, left until the present at the anterior part. For this object small curved needles with a single thread suffice; and two or three sutures on each side are enough. This flap being fixed, its purpose becomes evident. It acts as a vaulted roof to the essential parts of the operation, obliging all the original secretions to flow towards the vulva without infiltrating in the interstices of the united fissure. In other words, it reconstitutes the anterior wall of the triangular space seen in the normal perinæum.

The sutures of the perinæum are now drawn tight. It is

as well, perhaps, to introduce a needle between the first and second sutures from the vulva, and form a twisted suture. Lastly, the incisions of Dieffenbach may be made, as they serve materially to obviate dragging on the united parts by movements.

Water-dressing is advised, and a (Hooper's) water-cushion, of a horse-shoe shape, for the patient to lie upon.

In the way of after-treatment are recommended the constant application of compresses dipped in water; frequent injections of infusion of camomile into the vagina, and catheterism whenever a desire to pass water is felt. This last attention is most important, and requires to be continued until union is perfect.

Low diet is ordered; constipation by the administration of opium to be secured. After three days the sutures may, one or other, be withdrawn, and the lint, dipped in goulard-water, be applied. It is most desirable to avoid any action of the bowels for a day or two at least after the removal of the last suture. After the first stool enemata may be used, and from this date a more substantial and plentiful diet be allowed.

Such is a condensed account of Langenbeck's method of treatment, as propounded by M. Verhaeghe. It evidences great attention to the subject, and in some particulars, especially in the production of constipation after the operation, by opium, resembles the plan advocated by myself. However, the writer tells us that this very point of practice, constipating the bowels, has not been thought of in England.

Langenbeck's operation differs from mine primarily and essentially, in omitting the division of the sphincter ani; and in a second and inferior degree, by forming a flap from the septum or spur of the vagina, to prevent infiltration of vaginal discharges in the conjoined parts. Of the latter proceeding, I may here remark that I have not found such necessary, and that it seems to complicate, and to add difficulty to the operation. As it may seem desirable, I will here add an analysis of the three cases, illustrating M. Langenbeck's plan.

Cases of M. Verhaeghe.—The first case was that of a woman, aged 24. The accident had occurred in her first and only

labour, two years and a half previously. The laceration was complete, extending to the anus, and for about four lines into the recto-vaginal septum. Her labour was long and painful, and the midwife used much force with her hands to deliver the head of the child. Intestinal gases escaped involuntarily at all times, and also the fæces when soft. The bodily health was good, and menstruation regular. This had occurred ten days previously.

Prior to the operation, hip-baths, simple vaginal injections, purgatives, and enemata were used, and the bladder emptied. The patient was brought under the influence of chloroform; and the edges having been pared, four interrupted sutures were introduced, and one twisted suture between the first and second of the preceding. The incisions of Dieffenbach were made about an inch on each side the restored perinæum. The operation lasted an hour and a half, having been interrupted by the patient, the chloroform failing to produce complete insensibility. Immediately after, a dose of opium was given, and this was repeated twice before night. The general after treatment above described was pursued.

The next day (September 22nd) three doses of opium were administered. The patient's state was satisfactory. On the 24th, a tolerably abundant, blackish, sanguineous vaginal discharge occurred, like a return of the menses. The pin of the twisted suture was removed this day. 26th: Removed one of the central sutures, and on the 28th two others. The central portion, four or five lines in length, was open, and there was suppuration. Pledgets of lint soaked in goulard-water were applied. The opium and low diet continued. 29th: The posterior and only remaining suture, which united the rectum, came away. Granulations were closing up the central fissure. 30th: The menstrual flow ceased. The granulations were touched with nitrate of silver. October 2nd: The first desire of defæcation occurred (*i. e.* twelve days from the date of operation.) Three enemata of infusion of linseed were injected. The patient felt able to control the evacuation both of fæcal matters and of wind. From this day the nourishment was

increased, and improved in character. October 4th: She got up for the first time and walked gently. The lateral incisions were now healed. She quitted the hospital cured at the end of the month.

Case II. A young woman, æt. 24, suffered from complete rupture of the perinæum caused by the application of the forceps in her first confinement; the sphincter ani was entirely divided; the inferior border of the recto-vaginal septum, forming a sort of spur, (*éperon,*) was the only separation between the vagina and rectum. Even when the fæces were hard they could be retained but a short while. The lesion had existed five months. The operation was performed on the 21st December, eight days after a menstrual period. Besides the suture to close the rectal fissure, four other deep interrupted sutures were introduced; each suture consisting of four threads, waxed. By means of Wutzer's needles,—the parts being lightly drawn together by traction of the rectal suture, the threads were passed by one effort, traversing the entire thickness of the two lips to the bottom of the wound. Three other sutures made fast the flap of the septum on each side; and one twisted suture was placed between the first and second of the interrupted. The incisions of Dieffenbach terminated the operation, which had lasted three-quarters of an hour, the patient during that time having been kept insensible by chloroform. A half-grain of opium was given at once, and twice repeated before night. The catheter was introduced twice daily, and frequent vaginal injections made. The most restricted diet was ordered—only barley-water and lemonade.

From the close of the operation till night, the patient complained of cold, and distinct rigors. She vomited once, and the pulse was small and frequent.

The next morning the skin was warm; the pulse 80, and stronger. All the night she had suffered much from flatulency. On the 23rd, there was febrile reaction. Still much flatus, but now the patient could control its escape. 24th: The needle was removed. 25th: Two middle sutures were withdrawn.

Union seemed perfect. 27th: The remaining threads removed.

On the 30th, the first desire to evacuate the bowels occurred—*i. e.*, ten days after the operation. Two injections were given, and much hardened fæcal matter discharged. Notwithstanding every care the wound opened about half an inch, posteriorly; fortunately, the anterior half held good. Jan. 1st: After a laxative by the mouth, a loose evacuation followed, which the patient was enabled to retain some time. Granulation in the re-opened portion proceeded slowly; to stimulate it nitrate of silver was frequently applied. This closure by granulation, however, and the consequent contraction of tissue had the effect of shortening the perinæum. On the 27th she quitted the hospital quite cured.

Case III. A woman, æt. 22, employed in field labour, suffered laceration of the perinæum in her second labour, six months ago. The injury resulted from the efforts of the midwife to disengage the shoulders by introducing her hand into the vagina. The rupture was complete; the delivery was followed by puerperal fever, and an abundant suppuration of the lips of the laceration. The recto-vaginal septum is laid open for about three lines, and the sphincter ani involved; the incontinence of fæcal matters complete. The bodily health good.

After the preliminary baths, injections, and aperients, the operation was performed on the 17th March. The parts were highly vascular, and bled largely, so retarding the operation, and requiring torsion of the small vessels. Four sutures were placed; one to close the rectum, and the other three to form the new perinæum. The flap taken from the septum had been previously fixed by two sutures on each side. The Dieffenbach incisions that had been made on each side bled in an unusual manner.

Cold-water dressing was used, and cold injections of infusion of camomile every three hours. The knees were kept together by a bandage. The oozing of blood, chiefly from the lateral incisions, did not cease till near evening. March 18th: Pro-

gressing favourably. Pulse 75 ; no heat of skin. Vaginal injections as yesterday, but warm. Two doses of opium; nourishment, thickened rice water, lemonade. 19th : The patient finds she can control the escape of flatus. To-day allowed broth, a wing of fowl, and the yelk of an egg. The suture nearest the anus has slightly cut the tissues. 20th: The twisted suture, and one other withdrawn. 21st : Condition very satisfactory. An abundant muco-purulent discharge has taken place from the vagina. Injections, diet, and opium continued. 22nd : The vaginal discharge augmenting, an injection of sulphate of zinc was adopted, and the pledgets of lint externally were soaked in the same liquid. Only one suture, besides that closing the anus, was now left. 23rd: The appetite is very great, and the patient can hardly restrain herself from indulging it. The two remaining sutures removed. Union seems complete. 24th : The vaginal secretion less. The same regimen continued. 25th : Whilst administering an injection yesterday, a sanguineous flow from the vagina was observed, probably a premature return of the catamenia. To-day this discharge is copious. Astringent and cold injections therefore stopped, and the tepid camomile one repeated. Catheterism and opium continued. Diet: broth, and rice milk. March 26th : Menstruation still abundant. Catheterism omitted from this day; but patient made to pass the urine placed resting on her hands and knees, and the parts carefully washed afterwards. Opium discontinued. 27th : Catamenia ceased. Having a desire to empty the bowels, two linseed injections were given without effect, but the third brought away a scanty stool, of nodular portions. This is ten days after the operation. The diet still to consist of liquids, but now in larger quantity. 28th : A copious, formed, not hard evacuation followed an enema to-day. The perinæum was supported by a cushion of lint smeared well with cerate. The diet was improved. An enema to be given every morning; the vaginal injections but twice a day. 30th : The small sutures confining the flap of the septum were not removed till to-day. A first attempt has been made to walk. The new perinæum is a good inch long, and very firm.

In concluding, M. Verhaeghe calls attention to the great

importance of minute attention to the details of the after-treatment, upon which, he truly observes, the success of the operation will depend.

Such is a summary of what has been said and written by others respecting the treatment of ruptured perinæum. It now remains for me to state my views, and to detail those operative proceedings which reflection on the deficiencies of other plans led me to adopt, and which an ample experience has convinced me to be the best. Further, as the results of operations are the best test of their efficiency and value, I shall hereafter detail those cases in which I have been concerned, and also any others which have been communicated to me by those who have pursued my plan.

Some few words are due to the consideration of the cases of a less formidable character than those of the complete rupture, and which constitute the three first cases I have enumerated (p. 6.)

The first variety, in which the rent extends to only an inch or less, requires, as already stated, no special treatment, at least of an operative description. Such a laceration needs only quiet and an attention to cleanliness to heal it.

The second form is rare, and demands special treatment. Mostly, in order to secure the closure of the perforation, it is necessary to divide the anterior band at the fourchette, and then to bring together the edges by quill and interrupted sutures. It almost seems unnecessary to point out that, where the accident has existed some time, and the edges have become covered by mucous membrane or otherwise cicatrized, the latter must be pared before sutured.

The third variety, in which the perinæum is lacerated but the sphincter remains entire, is still more an object for treatment. Although the functions of the rectum are not disturbed, yet a rupture of this sort, left to itself, entails many evils; for, besides those immediately attendant on the enlarged vulva, there are others due to the want of support to the pelvic viscera;

hence, prolapsus uteri, displacement of the bladder (cystocele), or of the rectum (rectocele), and symptomatic disorders consequent on such dragging down. Wherefore, every instance of this degree of laceration requires operative treatment. For when left to nature, even if closure of the fissure occurs, adhesion is apt to be superficial, and the contraction ensuing upon the process of reparation, is such as to draw backwards the parts towards the anus, enlarging the vulva, and so predisposing to pelvic displacements.

In examples of this form of ruptured perinæum, the treatment is pretty much the same as for the next and severest form, and most of the steps of the operation to be presently detailed belong to this degree of the accident, and, to avoid repetition, will not be here described. (See Case XVI.) However, it will not always be necessary to divide the sphincter ani, and all the sutures used will be introduced in advance of the rectum. Both quill and interrupted sutures are desirable.

In my second "Essay on Rupture of the Perinæum," I introduced it as a proposition, "that those forms of rupture, where the sphincter is not torn through, should be cured, to prevent *prolapsus uteri,* &c.," and I illustrated it by two cases, which appear as the sixteenth and seventeenth in the subsequent series. In those cases I thought it desirable to divide the sphincter ani. They were both of long standing, and great stretching of the parts had followed the displacements. In Case XVI., indeed, the pressure of the prolapsed uterus had been so great as to rupture the rectum. Case XVIII. is an additional example of this variety of lacerated perinæum, where I operated on the occurrence of the accident, one interrupted suture introduced answered the purpose, without any further measures. In this last case, I should state, necessity—from the want of instruments—was the chief reason of this considerable departure from the practice generally pursued. Indeed, in deciding on the operation in any particular case, we must be guided by its special circumstances.

Other instances of rupture of the perinæum, not involving the sphincter ani, occur in the chapters on vaginal cystocele and rectocele, in which, however, the usual operation was modified

to adapt it to the cure of the complication, which in those cases was the leading feature.

Contra-indications to Operating.—Before deciding on an operation, certain circumstances are to be taken into account. For instance, if pregnancy has advanced beyond the fourth month, if suppuration and inflammation exist, then the operation must be delayed; in the former case till after parturition, in the latter, until the arrest of these processes. The presence of leucorrhœa need not deter from operating, when it cannot be removed by simple measures: a postponement, however, is desirable until after a menstrual period. Cough, if present, should be relieved, on account of the straining it causes.

It seems almost unnecessary to add that, if the patient's health be impaired, an endeavour should be made to improve it before surgical means are resorted to, for the condition of the patient has much influence over the success of the operation.

Time of Operating.—The operation may be performed immediately after the completion of labour. The surfaces of the wound are then fresh, and in a condition favourable to union by the first intention, and consequently the paring of the edges required in old cases is not here necessary. Should, however, surgical means not be resorted to on the day of delivery, the advantages accruing from the recent nature of the wound will be lost; the mischievous effects of the vaginal discharges will have placed the edges in a disadvantageous position for healing, and it will therefore not be desirable to attempt an operation until after the third month, by which time the parts will have recovered themselves, be capable of undergoing the necessary denudation, and be sufficiently strong to carry the sutures.

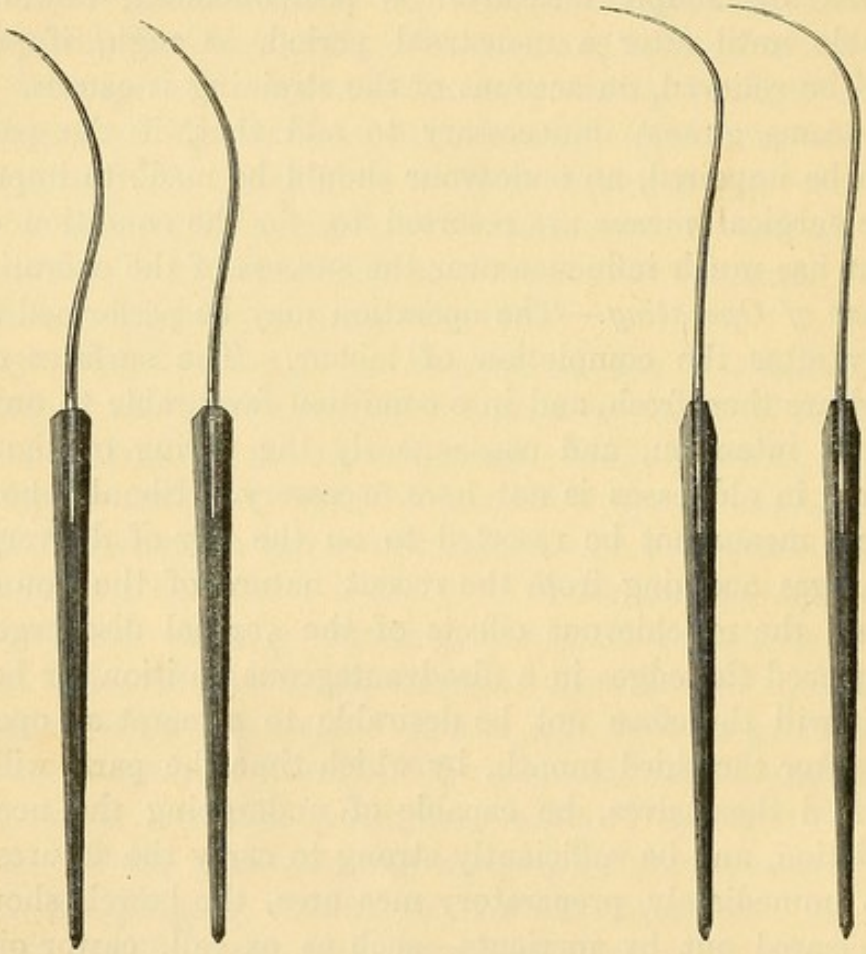
As immediately preparatory measures, the bowels should be well cleared out by aperients—such as ox-gall, castor oil, and by injections of salt-and-water. Warm baths are not objectionable, but generally sponging with warm water is sufficient. The diet for some days prior to the operation should be unstimulating, plain, and nutritious. As a last point, the bladder should be emptied.

Instruments required.—The instruments required are, a common straight scalpel; a blunt-pointed straight bistoury, to

divide the sphincter; a pair of long dissecting forceps; three large needles for deep sutures; small ones for the superficial interrupted sutures; a tenaculum; pieces of gum-elastic catheter or bougie, with twine well waxed; sponges, &c.

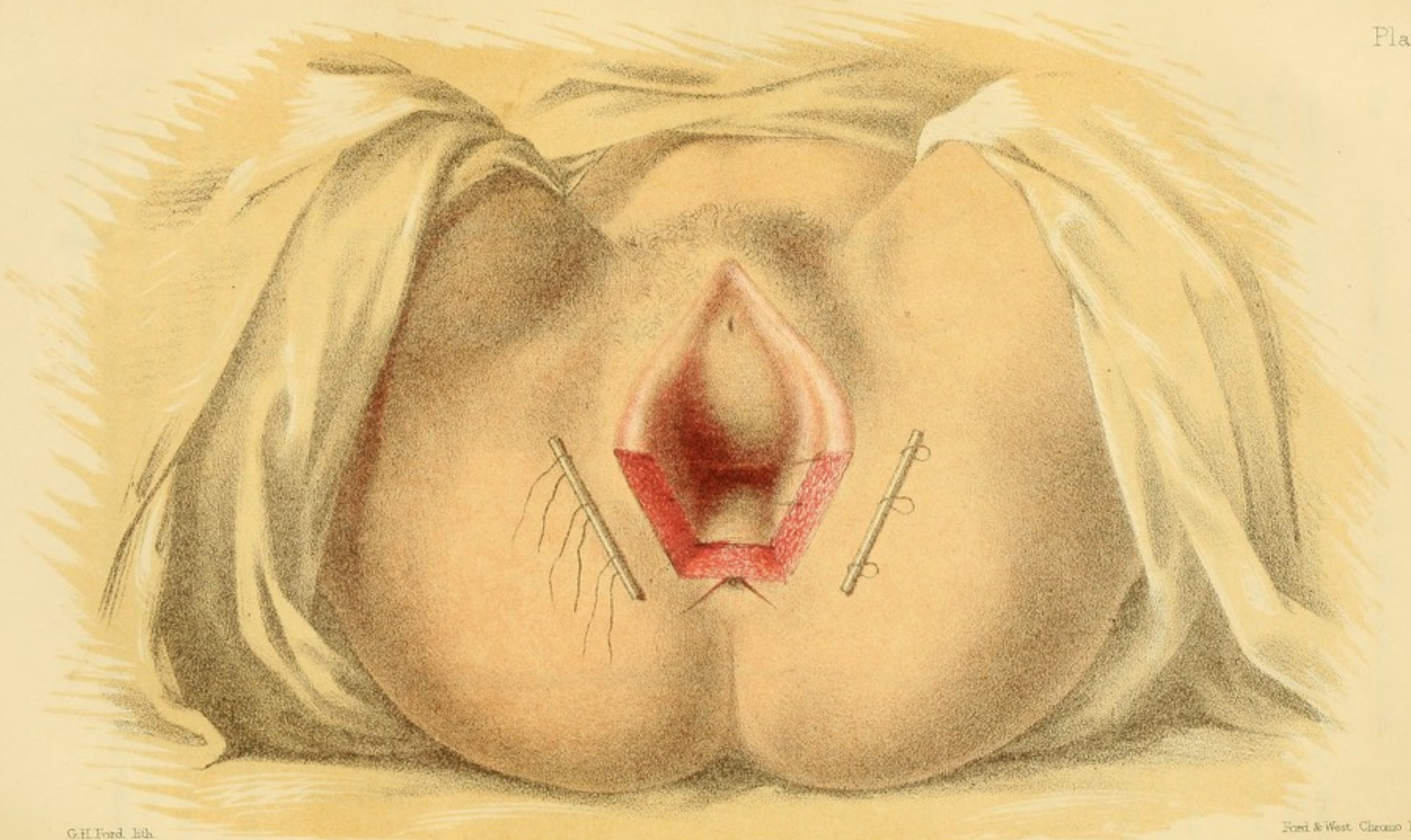
The needles used for deep sutures are fixed in handles, and more or less curved to adapt them to different cases; the width of perinæum and the thickness of the tissues varying considerably in different persons. See figs. 1 and 2.

Fig. 1. Fig. 2.



*** These figs. 1 & 2 represent one-half the size of the instruments actually used.

Chloroform.—The operator will require at least two assistants. Unless contra-indicated, or opposed by the patient or her friends, it is desirable to place the patient under the influence of chloroform; for not only will she be thereby saved pain, but opposition and straining are avoided, and a favourable relaxation of the parts obtained.



G.H. Ford. lith.

Ford & West. Chromo Imp.

Shews the denuded surfaces & the insertion of the quill sutures before the parts are brought together, & also the division of the sphincter on each side of the coccyx.

MODE OF OPERATING.

The patient should be placed in the position for lithotomy, the knees well bent back upon the abdomen, and all hair closely shaved off about the parts. The sides of the fissure should be held by an assistant so as to insure sufficient tension for the operator; a clean incision is now to be made about an inch external to the edges of and equal to the fissure in length, and sufficiently deep to reflect inwards the mucous membrane, and so to lay bare the surface as far as another incision on the inner margin (see plate 1). The denudation of the opposite side of the fissure is then to be practised in a similar manner, and the mucous membrane from any intermediate portion of the recto-vaginal septum to be also pared away.

This denudation must be perfect, for the slightest remnant of mucous membrane will most certainly establish a fistulous opening when the rest of the surfaces have united.

Some operators, especially the continental, remove the mucous membrane by scissors, but this is a clumsy and unsafe method, and the knife will be found to effect the purpose quicker and better.

Division of the Sphincter.—So soon as this stage of the operation is completed, the sphincter ani is to be divided on both sides, about a quarter of an inch in front of its attachment to the os coccygis, by an incision carried outwards and backwards. The incision should be made by a blunt-pointed straight bistoury, which, having been introduced within the margin of the anus, guided by the forefinger of the left hand, is quickly and firmly carried through the fibres of the muscle and through the skin and subcutaneous areolar tissue to the extent of an inch, or even two, external to the anal orifice.

The degree of relaxation to be sought must be regulated by the extent and character of the laceration; it being remembered that the freer the incision the greater will be the amount of relaxation obtained. In every case, muscular traction must be destroyed, for so long as it exists it will oppose the union of the parts.

Insertion of the Quill Sutures.—The sphincter having been

divided in the manner just stated, the thighs are to be approximated, and then the quill sutures introduced. The left denuded surface and tissues external to it being firmly grasped between the forefinger and thumb of the left hand, a strong needle carrying a double thread is plunged, with the right hand, through the skin and subjacent tissue an inch external to the pared surface, and thrust downwards and inwards beneath it until its point reappears on the edge of that surface; it is then introduced at the corresponding margin of the denuded space of the opposite side, and made to traverse beneath it in a direction upwards and outwards until it escapes at a point equi-distant from the external margin with that at which it entered on the left side. Each of the three sutures is to be introduced in the same way, the one nearest the rectum first.

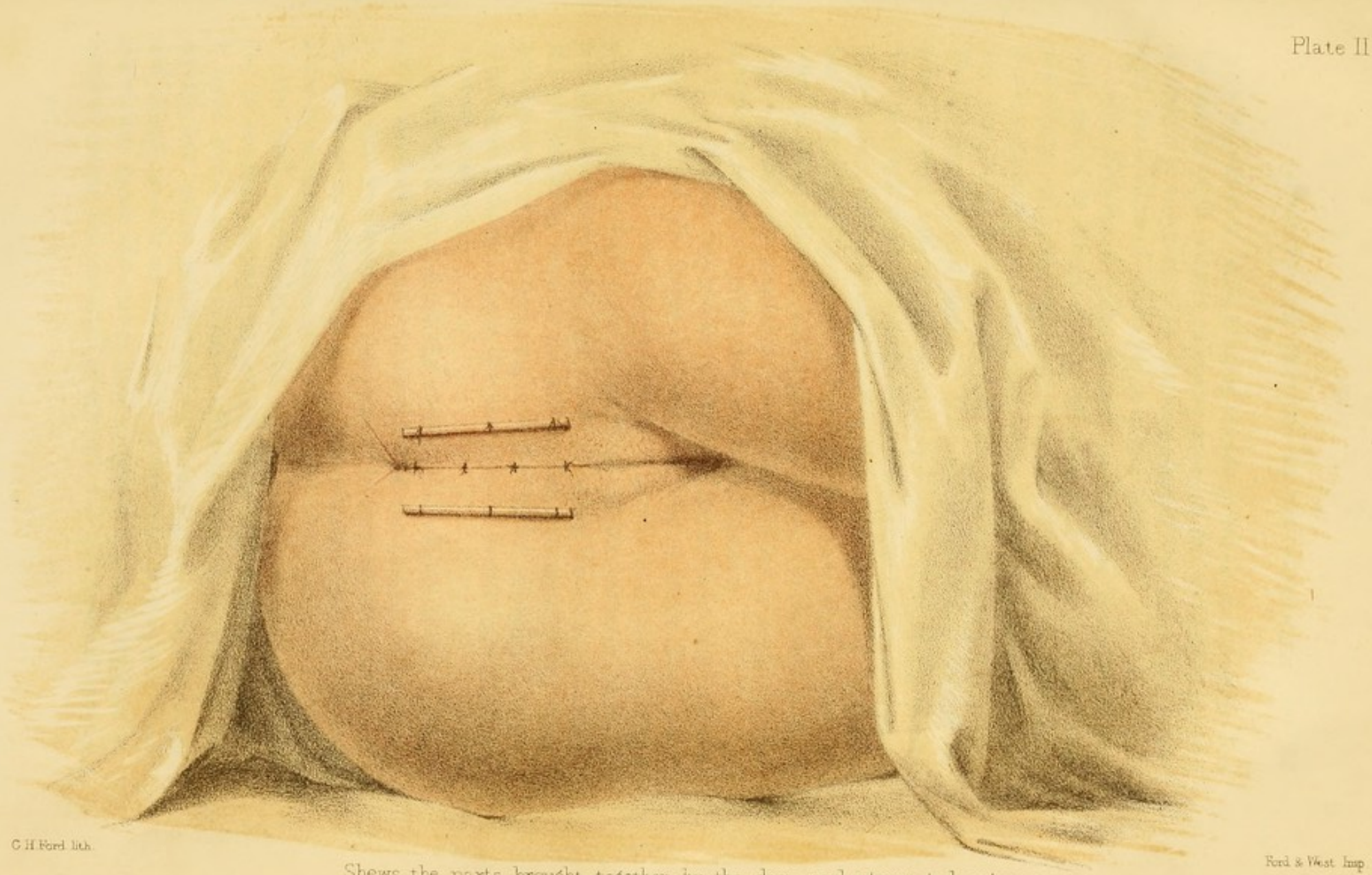
The sutures are double, to allow them to enclose the quills, or (as actually used) the pieces of elastic catheter or bougie, around which they loop on one side, and are tied over, by their free ends, on the other. For sutures I prefer stout twine, well waxed, to silk, as I believe it to be less irritating and productive of less suppuration.

Insertion of Interrupted Sutures.—Having firmly secured the three sutures upon the bougies, the sides of the fissure become approximated,—the denuded surfaces in apposition. To bring together the outer margins, along the line of the skin, it is advisable to pass three or four interrupted sutures. If this be carefully done, union of the skin will speedily take place, and that of the deeper parts be materially facilitated (see plate 2). As an accessory or superficial suture, the twisted form is used on the Continent; but I think the interrupted more simple, and have found it answer completely.

I should recommend, previously to bringing the operation to a close, that the forefinger of the right hand should be passed into the vagina, and that of the left into the rectum, so as to ascertain that apposition is complete throughout.

Lastly, the parts having been well cleansed by sponging with cold water, a piece of lint steeped in cold water is applied, and over it a napkin kept in situ by a T bandage.

Operation in Recent Cases.—The operation has been detailed



C H Ford lith.

Ford & West Imp.

Shews the parts brought together by the deep and interrupted sutures

with reference to cases of some standing, where cicatrization has occurred; with respect to recent cases of the accident, the only variation of the plan is in the omission of the otherwise necessary denudation of the margins of the fissure.

After-Treatment.—The patient having been removed to her bed, should be placed on her left side on a water-cushion, with the thighs and knees close together, and flexed on the abdomen. Perfect quiet enjoined, and cold-water dressing to be continued. Ice given to suck for twenty-four hours is refreshing, and allays febrile reaction and nausea. Two grains of opium should be given at once, and one grain repeated every four or six hours. Beef-tea and arrowroot may be given within the first twenty-four hours, but not wine, unless there are signs of flagging: the wine I give is port. After the first day, four ounces of wine may be allowed; and a generous diet, chops, strong beef tea, &c., after the second or third day. This is supposing no symptoms occur to contra-indicate such regimen.

It is of great importance to draw off the urine by the catheter every four or six hours for three or four or more days, after the operation. As the patient lies in the common obstetric position, this is best done by introducing the catheter between the thighs from behind; and in withdrawing the instrument, the thumb should be kept on its end, in order to prevent any urine remaining in it from escaping into the vagina, whereby it might cause such irritation about the wound as to render our attempts to close it abortive.

After some days, as on the eighth or ninth day, if the healing go on satisfactorily, and the strength of the patient be equal to it, she may be allowed to pass water, resting on the hands and knees, so as to prevent, as far as possible, its contact with the lower or sutured surface of the vagina.

The deep sutures should be removed on the third or fourth day in hospital patients; in private cases on the fifth or sixth. I have found their retention after the periods named, of no service, but rather mischievous by their tendency to suppurate and slough, results of more rapid occurrence in hospitals than elsewhere; hence the earlier date proposed for their removal in hospital cases. On the sixth or seventh day the *external* sutures

may be taken away. In withdrawing the sutures care must be taken not to separate the thighs, for it is necessary to keep up their apposition for some time. The time for the removal of sutures above stated, does not correspond with my practice in the first cases I published; increased experience has led to the alteration.

If, after the operation, there should be any considerable bleeding, not controlled by the simple water-dressing, pieces of ice may be introduced, or ice-water injected into the vagina: other measures, as ligature or torsion, are scarcely ever required. For removing secretions, and keeping the parts clean, injections of tepid water may be used two or three times daily, especially after the employment of the catheter. By such, and by frequent sponging, perfect cleanliness must be attained. Should there be an offensive discharge, chloride of soda may be added. The opium should be persevered with, so as to keep the bowels constipated for two to three weeks after the parts have united; when union has become firm and complete, the bowels may be relieved by injections of warm water with castor oil, and by the latter given by the mouth. Attention should be paid during the passage of the first evacuation, and support given to the restored perinæum if any hardened masses should cause stretching.

The precise time for opening the bowels must be regulated by the strength of adhesion set up, and by the amount of reparation of lost tissue which has been attempted.

For some few days after the first evacuation, an enema had better be continued.

Should adhesion, unfortunately, from any accident, not be complete throughout, and a fistulous opening persist, the actual cautery is the quickest and surest means of closing it; but the application of a caustic or stimulating substance may be tried.

CRITICISMS AND SUGGESTIONS.

The history already given has sufficiently detailed the propositions made, and the plans of treatment pursued by others;

but it remains for me to respond to the criticisms or objections raised against my mode of operation and of treatment since its first publication. This I shall attempt to do very briefly, as a practical response is at once offered by the greater success of the cases recorded, than that following any other plan yet brought forward. Hypothetical, à priori, objections are not worth discussing; for it is experience alone that can prove the fitness or unfitness, the safety or danger of any operation. It is absurd to descant on the necessary danger of a measure, when experience, sufficiently ample, proves that if such peril be not altogether imaginary, it is so small as not to be taken into account with the benefit to be gained by incurring it. Give importance to such an objection and what operation would be attempted.

On Immediate Operation.—Supposed danger of vaginitis is an objection of a cognate character to immediate operation after the accident. It has been said that an immense danger will then attend the suturing of the parts, from the inflammation set up in the vagina, and its tendency to extend to the uterus and neighbouring parts, which after delivery require to be carefully preserved from any such morbid action. But, omitting for the present, reference to the teachings of experience, we may observe, it is a mucous canal that is dealt with, not very delicate, and not prone, like a serous tissue, to so rapid propagation of a morbid process; for within it severe inflammation may be very limited in its extent. Moreover by immediate operation, the otherwise necessary denudation of surface is avoided; only the sutures have to be introduced, and the sphincter divided; the torn edges are thus placed in contact, and only that amount of inflammation necessary to union required; whilst the accurate apposition of surfaces guards against the noxious irritation from secretions. But, supposing the case left, will not the chances of extended inflammation be even greater? will not the inflammation, unavoidable, indeed even necessary to the healing of the lacerated surfaces, be greater, and its duration longer, seeing that the torn parts are exposed to every source of irritation? The reply must surely be in the affirmative.

The noxious influence of the lochia on the wound, chiefly in preventing or retarding the healing process, has been urged against immediate operation. The danger therefrom is, however, obviated by the close and accurate apposition of the surfaces when sutured, and when, too, the action of the sphincter fibres in drawing them asunder is annihilated. The ill effects of this discharge are further provided against by the constant attention to cleanliness, and by the use of injections as recommended.

A reason for deferring a surgical operation until some time has elapsed after delivery appears, to many practitioners, in the fact of the successful issue of some cases which have been left to themselves. For my part, I cannot admit this as a sufficient argument for delay. The maxim that "delay is dangerous," here holds good in all its force. The chances are greatly against spontaneous cure, even in milder cases; in severe, it is vain to hope for it. Surgical operations would be few indeed, if extraordinary instances of natural cure were allowed generally to contra-indicate resort to them.

On the other hand, the operation for ruptured perinæum, and more particularly in recent cases, is not of that formidable character to alarm the patient, or to peril her life; whereas, by it a complete restoration may confidently be anticipated,—a result hardly ever to be reckoned on when the injury is left to repair itself with all the advantages obtainable from general attention to quiet, position, and such like expedients.

That this *laissez faire* doctrine has so extensively prevailed, is readily accounted for, when we consider how very frequently unfavourable have been the results of operative proceedings heretofore devised and put into practice. Too often has the operator not only failed in procuring union of the fissure, but has also rendered the mischief worse by his interference. This sore discouragement will, I believe, no longer attend the surgeon, if the principles of treatment laid down in these pages be followed out; and then what has prevailed so often to deter from immediate operation will have ceased to influence.

Lastly, it is to be remembered that resort to operative means may in slighter cases secure an adhesion of the lacera-

tion in three days; and, at all events, will always effect a cure in a much briefer period than can the natural unaided process.

Supposed Rigidity of Restored Perinæum.—Another general objection to the operation—indeed, to any similar operation—is that the restored perinæum must be, from its nature as a cicatrix, so unyielding as to almost necessarily rupture from the stretching of a future labour. This is another of those vain hypotheses which vanish when tested by experience. The closed fissure certainly presents a cicatrix, but the natural yielding tissues persist on each side, and admit of the needed extension.

Suggestions, &c.—The cutaneous elliptic incision on each side the sutured part, proposed by Dieffenbach, and practised by Mr. Fergusson and by most continental surgeons, is of no service when division of the sphincter is resorted to. Again, I cannot appreciate the supposed utility of the central flap (*dédoublement*) from the recto-vaginal septum, adopted by M. Verhaeghe; perfect closure is attainable without, and the reflected portion can have little vitality, and is very apt to perish.

On Incision of Sphincter.—A subcutaneous incision of the sphincter has been suggested, but it will not furnish the results aimed at. The muscular fibres of the sphincter must be completely severed, and also the investing integument, to annihilate all traction. The utility of dividing the skin and subcutaneous tissue is undoubted, and particularly recognised in the generally approved incisions of Dieffenbach.

On Sutures.—The Bead Suture.—The bead suture, invented by Mr. Brooke, has been suggested as preferable to the quill suture, and as sufficient in itself to keep up the required apposition of the edges of the wound, and so render division of the sphincter unnecessary. In its mechanical operation as a suture it may be very excellent, but I have had no experience of it, for having been very successful with the quill suture, I have tried no other. That, however, it would render section of the sphincter unnecessary I cannot admit, until repeated trials have proved it; for, according to my views, the division of that muscle is the peculiarly important and essential feature of the operation to restore the perinæum.

As the history given shows, each kind of suture has had its

own advocates, and each has frequently failed. Dieffenbach thought the quill suture did not approximate and keep so closely together the edges of the wound as did the interrupted suture. I can account for this notion only by supposing he gave the quill suture but little trial, or that he failed to take up sufficient tissue with it.

MM. Langenbeck and Verhaeghe employ the twisted as the supplementary suture; but I think the interrupted, as used by myself, more simple and effectual in bringing about union of the integument.

The spring clasps invented in France, to keep the edges of a wound in contact, have not sufficient power and stability to be of any use in so serious an accident as a severe perinæal rupture.

On Diet.—The after-treatment proposed has had various arguments brought against it. The dietary has been thought ill adapted to the circumstances of the patient, after a severe operation, and the customary low diet of gruel, toast-water, and such like, been preferred. This low or fever diet has, in my opinion, been far too much persevered with in disease generally. In women after delivery, I believe its adoption is a mistake in most instances; and in the majority of women with ruptured perinæum, there are more or less exhaustion—nervous and other, and weakness, demanding support. Moreover, I believe a more generous diet, with wine, is favourable to the healing process, and a safeguard against erysipelas. This opinion is a reiteration of what was advanced by me in my paper read before the Medical Society of London in 1851, and subsequently published; and it is with peculiar pride and satisfaction that I am now able to support it by the able advocacy of Mr. Skey. I cannot forbear making an apposite quotation from that eminent surgeon's recently published Lectures.* "Why do we invariably subject patients after a long and severe operation, to abstinent diet? Why do we anticipate inflammation? and, still more, why do we encourage it? We anticipate inflammation, because our experience teaches us

* On the Prevalent Treatment of Disease. By Frederick Skey, F.R.S., &c. London. 1853.

that it is ready at hand, that our patient is now predisposed to it, but do we not refer it to the wrong cause? We attribute it to the irritation caused by the knife, and not to the *debility* and to the shock produced on the system by the operation, with attendant loss of blood. I believe that such persons should always be supported by moderate stimuli, from the hour of the operation until their inclination for food is re-established. By such treatment, generally, if not uniformly adopted, many lives, particularly after operations of severity, would, I believe, be rescued from the grave; that, and—'odium chirurgicum,' or rather 'odium medicum'—the lancet and scarificator, with all their concomitants of purgatives, laxatives, and diaphoretics, which tend to rob the body of its richest juices, constituting the essence of its life itself, may be largely restricted in their application."

On Opium.—Constipating the bowels by means of opium has been thought reprehensible. The practice has almost universally been to keep up a looseness of the bowels, and to use repeated injections, from the date of the operation. On the contrary, I obtain union of the wound first, and afterwards open the bowels. In this plan I have the support of Dieffenbach, and more recently of Langenbeck and Verhaeghe. In my own practice, I have never seen any ill effects from the prolonged constipation and use of the opiate. The reverse, indeed, I hold to be true—viz., that the opium proves actually beneficial by allaying irritation, by controlling inflammation, and thus by generally favouring the healing process.

When I published my first paper on Ruptured Perinæum, my colleague at St. Mary's Hospital, Dr. Handfield Jones, kindly furnished me with some interesting and valuable observations on the use of opium, from which I extract the following as applicable in this place:—

"Dr. Pereira notices the efficacy of small doses of opium (ten drops of laudanum three times a day), in such instances as the chronic or callous ulcer, the so-called varicose ulcer, in recent ulcers from wounds, in which granulation proceeds slowly, and especially in elderly persons, and in those whose constitutions have been debilitated by disease, labour, spirituous liquors, &c.

'It appears,' he says, 'to promote the most genial warmth, to give energy to the extreme arteries, and thereby maintain an equal balance of the circulation through every part of the body, and to animate the dormant energies of healthy action.'

"In the cases recorded in this paper, opium was given, not chiefly for the purpose of directly promoting the healing process, but of preventing its disturbance by mechanical and forcible disruption of the coalescing parts. For this it was freely given; and this most important end it well accomplished. But had not this end been all-important, I own I should have feared before trial, that the quantity of opium administered—three or four grains sometimes in a day—would have had the effect of disturbing, by its influence on the organic functions, that reparative healing process, which issued in so beneficial and happy a result. For in these cases there does not appear to have been any marked asthenia, or undue irritability of the system. The terrors of surgical operations of earlier days, when the anæsthetic spell was unrevealed, may well have inflicted on the system a disturbing shock that opium alone could calm; but now there cannot be the same need for this potent agent.

"It is, however, clear that if in these cases opium did not promote the vital healing process, at least it did not retard it: or such obstacles, as the first case presented, would not have been overcome, and the second would not have progressed so steadily and favourably. This circumstance in itself is, I think, novel and instructive.

"Perhaps, however, if we consider the matter more closely, it may appear not difficult to understand why no unfavourable, but, on the contrary, a beneficial result was produced by the opium. The condition of an ulcer, healing by granulations, may first be referred to as an extreme instance, illustrating the great waste of plasmatic material which occurs in such cases, and more or less in all that approach to it. Much of the effused plasma—effused too rapidly to be organised—is cast off as effete matter, having taken the form of pus; much is organized into the low type of the granulation structure destined to future re-absorption. This waste is needless, nay,

injurious, as a drain to the system, and if it can be prevented, as sometimes it may, by applications that exclude the air, or restrained and limited, as is done by the common water-dressing, the reparative process goes on much better, and with less constitutional disturbance.

"Again, if, as in the case before us, two fresh incised surfaces are brought together, and the aim is to induce them to unite by the first intention, what can be more prejudicial to this than the effusion of much plasma, or any, the least, approach to the above-mentioned condition? To form a connecting medium across which capillaries may anastomose and fibres unite, the thinnest film of exudation is sufficient, and the thinner the better; for the organizing process is of necessity slow, far slower than the exudative, the capillary loops must take many hours to unite, the opposed fibres some days to blend by means of the connecting material, and the further the old surfaces are separated the longer this must be delayed, and the more of the exuded matter, which itself has produced the separation, will pass into the form of effete and purulent fluid. Now, this tendency to the excessive effusion of plasma, opium very probably restrains, somewhat, it may be, as it restrains a flux from a mucous surface; the hurried action is stilled, the vascular excitement tending to inflammation allayed, the sedative influence of the drug assisting Nature in her work, by preventing that which would mar or delay it. The imparting of energy to the extreme arteries, which Dr. Pereira speaks of, we know from observation to be the restoration of their tonicity, enabling distended, relaxed, and congested vessels to resume their natural calibre, and thus to transmit a due and not excessive quantity of blood in a current of proper velocity to the parts they supply. The restoration of the proper function of the arteries, 'the conductors and disposers of the blood,' as John Hunter accurately defined them, will manifestly tend greatly to prevent the excessive effusion of plasma, and thus remove at least one obstacle to the progress of reparation.

"It seems, therefore, reasonable to expect that opium, so long as it does not manifestly disorder the nervous system or the organic functions, would tend powerfully to promote the

healing process, and this expectation is amply borne out by the results of the cases recorded."

The mode of treatment—operative and general—now set forth, is, in my opinion and according to my experience, applicable in all instances of rupture of the perinæum advanced to the extreme degree. I will arrange my leading views under three propositions:—1. That the worst forms of lacerated perinæum, of however long standing, may be cured by the operation. 2. That immediately on the occurrence of the accident it should be resorted to. 3. That subsequent parturition is possible without injury to the restored perinæum.

CASES.

I am now enabled to bring forward such a number of cases in which I have operated successfully, that I feel sure the value of the plan advocated must be admitted. Some of these cases have already been made public either in my printed Essay, or in the paper which was read before the Medical Society in London. I now collect together these, and others not previously published, and am at the same time pleased to be able to adduce instances of successful operation by friends who have followed my method, and kindly furnished me with details.

The order in which I purpose to describe the cases of the severest or fourth form, will be according as they illustrate the first, or the second proposition. I commence, therefore, with cases of long standing, and shall afterwards narrate those operated on immediately after the accident; whilst examples of the truth of the third proposition casually occur in both series. After the preceding will come instances of the third variety of lacerated perinæum,—that, viz., where the sphincter ani is not involved.

Moreover, I may observe that not a few of the recorded cases of perinæal rupture, by being complicated with displacements of the pelvic viscera,—of which indeed the rupture itself is a cause, serve also as examples of such pelvic diseases, and of the treatment suitable to them.

CASE 1.—*Complete Rupture of the Perinæum, of fourteen years standing.—Operation.—Delivery two and a quarter years subsequently. Remarks.*—A lady, (A—— T——), æt. 37, living in the country,

came under my care in August, 1851, suffering from an extensive laceration of the perinæum, with prolapsus of the mucous membrane of the bowel, and a small polypus uteri. She was unable to control the contents of the rectum when at all relaxed, and had in other respects no sphincter power. Any exertion would bring the uterus down to the os externum; and, on one occasion, when she was ascending a hill, the womb prolapsed, and inflammation succeeded, requiring leeches, with rest in bed for some days, to subdue it. She could not stand for any length of time without suffering severely; and riding in a carriage produced much uneasiness. Her health was good. On examination, I found a rent extending through the sphincter ani to the rectum; and instead of taking the usual straight direction, had either bifurcated from the fourchette, or, having reached the rectum, had returned on itself, thereby isolating a triangular portion from the front of the rectum and recto-vaginal septum. The last indeed was gone, most probably by sloughing, and hence a considerable chasm existed in the anterior part of the rectum.

This mischief occurred in her first labour, which was difficult, and protracted to nineteen hours; during the passage of the head, instruments were used. Notwithstanding so extensive a lesion, and the distressing consequences of it, this lady had never had the nature of her case recognised, or at least pointed out to her, during the fourteen years which intervened between its production and the time of her being submitted to my treatment. In this interval, moreover, she had given birth to five other children.

On her first visit to London, I removed the protruding mucous membrane and polypus, and advised an operation to restore the perinæum. After consulting Dr. Locock, she returned to the country for two months, and then came to town to place herself under my care.

On the 15th of August I proceeded to perform the following operation, assisted by Messrs. Coulson, Lane, and others; chloroform being administered by Dr. Snow.

Having placed the patient in the position for lithotomy, I pared the cicatrices on each side from mucous membrane to the extent of an inch in width, and about two inches in length. The edges of the bowel, which were drawn back (everted) by the absence of the anterior portion of the sphincter, I also denuded, and after that brought the whole together by three quill sutures in the manner heretofore described.

This done, the outer margins were stitched by small interrupted sutures. Finally, on passing one finger into the vagina and another in the rectum, I found a space not in apposition, and therefore, to close this, introduced another suture through the vagina and rectum, and thus effected an accurate contact of every portion of the fissure.

The operation lasted an hour. After sponging the parts perfectly

clean, and having placed the patient in bed, cold water dressing was applied to the wound, to be renewed every three or four hours; two grains of opium were given at once, and one grain ordered at 7 o'clock. At 10 P.M. the catheter was used.

16th. Introduced the catheter again at 2 A.M., and repeated this every four or five hours during the day. At 4 A.M., gave her some wine and water, after which she obtained four hours' sleep. On each occasion of employing the catheter the parts were carefully sponged with cold water, and every portion of secretion cleansed away. There was no undue swelling of the labia. She was allowed wine and water, and coffee. One grain of opium was given every four hours.

17th. The urine drawn off at intervals, as yesterday. There was no sleep to-day. A grain of opium was given at 9 A.M., and at 1 and 10 P.M. Besides wine-and-water, some mutton was taken.

18th. Passed a bad night, having been disturbed early in the night. At 4 A.M., two grains of opium were ordered. At 11 A.M., wine and brandy were freely given to overcome faintness. Catheter introduced every five or six hours, day and night.

19th. Has passed a better night. Complains of an aching and at times of a sharp pain within the vagina. There is a free discharge. 11 A.M.: the pain continues. I removed the last *external* suture. In the afternoon ordered warm fomentations and sponging. Two grains of opium in two doses were taken during the past night; one grain ordered this evening. The urine was withdrawn by the catheter four times in the twenty-four hours.

20th. When seen at midnight, she had great pain, especially about the orifice of the urethra, of a darting and aching character. The catheter was used, and the parts well sponged. At 6 A.M., the catheter repeated. On examining *per vaginam*, I found the now purulent discharge escaped through an opening by the sphincter ani, but still not without pressure from within. She now told me, for the first time, that on the last two days wind had passed from the bowel through the vagina. A bread-and-water poultice to be applied. This day, on again examining, I found a recto-vaginal opening. I removed all the sutures, and divided the sphincter ani at the posterior part, and immediately the united portion of the perinæum was drawn towards the vagina, and the fissure throughout closed more accurately. Half-past 1 P.M., a very free discharge of a sanguineous character. The catheter re-introduced. She is much more free from pain. Towards the evening the discharge became more purulent. Catheter used again at 4 and at 10 P.M.

21st. The discharge free. Catheterism every five or six hours.

22nd. Half-past 2 A.M.: Great pain in the rectum from the matter not escaping freely. During the day this was assuaged, and healthy granulations were visible.

25th. On this, the tenth day, the patient was allowed to empty her bladder, supporting herself on her hands and knees.

26th. I consulted with Mr. Lane, and determined to pare the edges where mucous membrane existed. To do this, I placed the patient under the influence of chloroform.

27th. I injected some warm water into the rectum, first plugging the vagina, to prevent any escape of feculent matter into it, when the bowels were relieved for the first time since the operation twelve days ago.

31st. Has gone on well. The granulations springing up freely.

Sept. 1st—12th. Going on the same. The catamenia have appeared.

19th. The catamenia having subsided for twenty-four hours, I examined carefully, and was pleased to find the fistulous opening by the side of the anus much less than it was a week since. The mucous membrane, however, had joined the skin on the left side of the opening, thus arresting all granulations there, and so preventing union. I therefore determined to pare the edges of the opening, and then to bring them together by a good deep stitch with a double silk suture. This I did to-day, and found afterwards, by passing one finger into the rectum, and another into the vagina, that I had completely closed the passage.

The new perinæum produced was half an inch thick, and sound. Two grains of opium were ordered at once, and one grain every two hours, to prevent pain and to arrest the action of the bowels. At 8 P.M., I emptied the bladder by catheter, and watched all night.

20th. At 3 P.M. she was very sick, and vomited freely; after which she slept at intervals. At 11 A.M., on again using the catheter, several clots of blood came from the vagina. I directed her to pass the urine herself next time, by kneeling on the bed. 6 P.M.: Has voided urine as directed, and some more clots have come away. There is no undue swelling of the sutured parts. She has taken some solid nourishment and some wine.

24th. I removed the suture, and found that only partial and slight adhesion had taken place close to the orifice of the anus, which is, however, now quite complete, and of its usual circular form; but a sinus exists, the size of a goose quill, between the vagina and perinæum.

25th. The bowels have acted by injections of warm water and a seidlitz powder. She has now perfect control over the contents of the rectum. I painted the orifice of the sinus with *acetum lyttæ*, to stimulate the granulations, and ordered the bowels to be kept daily gently relaxed.

29th. The sinus is diminishing, and the granulations filling up the space in front of the anus. The acetum lyttæ was again applied.

Oct. 5th. The process of granulation continuing very tardy, although the acetum lyttæ had been brushed several times during the last few days over the surface; and as the patient, feeling so nearly well, was extremely anxious to get home, I determined to make use

of the actual cautery to deprive the surface of the sinus of all mucous membrane. This was done, and attended with success, and in a short time the sinus closed, and my patient was able to return home on the 7th October, to enjoy a degree of comfort she had not known for years. There was a good strong perinæum, and the sphincter ani performed its functions accurately.

Nov. 1st. I have heard from my patient since her arrival home. She has greatly improved in health and strength, takes horse-exercise daily, and walks about with facility. Her bowels have acted comfortably, and no prolapse of the uterus has appeared. The case, therefore, must be deemed completely successful.

Remarks.—This case furnishes an illustration of my first proposition. The necessity for the frequent use of the catheter was urged upon me by my friend Dr. Locock, who told me that he had seen a very bad case fail at the first operation from inattention to this point of practice; whereas, on the second operation, by attending to it, the patient was cured. The greatest care also should be taken that none of the urine escape into the vagina, and trickle down on the united surfaces; for, if it does, the almost certain result will be sloughing of the parts which we are endeavouring to unite by adhesive inflammation. A second important practical point is to keep the bowels perfectly quiet—to allow no action. In the preceding case I kept them confined twelve days by repeated doses of opium. A third practical detail is the constant personal watching and attention to the wound. I was in constant attention on this patient for twelve successive nights; studiously keeping her on her side, on one of Hooper's water-cushions placed under her hips.

It will be seen that I did not divide the sphincter ani on the day of operation, but a few days subsequently. This was wrong. In my subsequent cases I have recognised this section as a leading principle in the operation, and have accordingly at once made it. Nothing could prove the importance of this procedure more clearly than this first case; for although adhesion took place anteriorly very satisfactorily, still, prior to the division of the sphincter, the edges posteriorly seemed drawn asunder after the removal of the sutures; whereas, immediately on making the section, they were brought into contact and steadily kept so. This matter is well illustrated by the following cases. In my first essays at operating for ruptured perinæum, I was of opinion that an incision on one side only of the sphincter was necessary, but subsequent experience has led me to prefer one on each side.

It was of much assistance to me that my patient was very quiet and tractable, attending to every direction, especially that of passing the urine by resting on her hands and knees, to prevent its contact with the sutured parts.

I am now able to add to the history of this my first published case, the result of the test of delivery on the restored perinæum.

Jan. 17th, 1854. At 10 A.M. I was sent for to this lady, who

was taken in labour at the full period of gestation. Its progress was slow. On making an examination I found a natural head presentation. At 4 A.M., the membranes broke and the head proceeded to descend on the perinæum, which was strong, safe, and dilatable,—before labour it was 1½ inch in length, and now by the pressure of the head, it elongated to 3 inches. Unfortunately, the head was unusually large, and continued to rest on the perinæum for three hours, the pains forcing strongly. Fomentations and lard were applied, and the uterine contractions calmed by the administration of chloroform by Mr. Moullin. At length a strong pain thrust the head through the outlet, causing a laceration of the perinæum, about an inch in length, in the median line. Great care was used in the delivery of the shoulders, but they were so large and broad that the rupture was extended half an inch farther, not in the median line, however, but to one side, the tear passing upwards obliquely, and leaving the sphincter and recto-vaginal septum intact.

After the removal of the placenta and of the clots of blood from the vagina, an interrupted suture was passed through the oblique fissure, and the quill suture applied to that in the median line. The thighs, as usual, were afterwards brought and kept together, and the patient placed on her side. Every four hours, the urine was ordered to be withdrawn, and a grain of opium given.

January 21st. Removed the deep sutures; union established; the parts looking well.

23rd. Doing very well.

26th. An enema was administered; there was complete control over the sphincter. She feels improving. The parts are well united.

She has since gone on very satisfactorily; the perinæum is completely restored.

It seems clear from the extent to which the perinæum became dilated, and the length of time it withstood the pressure of the head forcibly propelled against it, that, had the head and shoulders not been of so great dimensions, the perinæum would have escaped even the partial rupture it suffered. I should state that the head was 14½ inches in circumference, and the shoulders 17½ inches.

Thus, although this particular case does not precisely prove the proposition advanced, that 'subsequent parturition is possible without injury of the restored perinæum,' it proves that the sutured parts do not form, as it has been said they must do, a hard, unyielding cicatrix, but that, on the contrary, they are sufficiently dilatable to afford the best hopes of delivery without injury, under ordinarily favourable circumstances; as much so, I believe, as uninjured structures.

Under no pretence, surely, can the result of this case be quoted as inimical to the attempt to restore a ruptured perinæum in a female likely again to bear children. This patient's existence had been embittered by the local injury for fifteen years; and by the treatment adopted she was entirely cured, and restored to the enjoyment of life,

continuing well from October 1851, to the date of her recent confinement. Moreover, notwithstanding the protracted and difficult labour, which would have equally jeopardized the integrity of any perinæum, the injury she sustained was not great, and was remediable with little trouble.

It may be just noticed that the history of the above case serves to illustrate each one of my three propositions, more or less completely.

CASE II.—*Complete Rupture of the Perinæum, of two years' standing: Operation; Result.*—The second case appeared in my first essay, as reported by Mr. Bullock, the house-surgeon of St. Mary's Hospital. I cannot do better than copy it in the same form.

Ann J. æt. 40, admitted November 7th, 1851, into Victoria ward, under Mr. Brown, with lacerated perinæum, which occurred two years since, at which time she had a difficult labour, and the vectis was used. A sudden pain came on, and drove both child and vectis through the perinæum. The sphincter ani is torn through, but there is a firm band which separates the rectum from the vagina, and which has put on the character of a mucous band. She cannot retain her fæces. Had one child six or seven months ago; has had nine children; all her labours have been difficult, but she never had an instrument used until the above occasion. Her health has always been pretty good.

12th. The sides of the lacerated surfaces were pared three-quarters of an inch wide, brought together by quill sutures, and then the edges closely approximated by very fine interrupted sutures. The sphincter ani was first divided on the opposite side half an inch from its insertion, and water-dressing applied. The operation was performed under the influence of chloroform. As soon as she recovered from its effects, she was ordered opium, gr. i. directly; to be repeated every three hours. She was placed on her left side on a water cushion, the urine was drawn off every four hours; port wine, one ounce in water, and beef-tea.

13th. Has not slept, but has been quite easy. The wound is looking a little puffy, but the edges appear to be closely approximated: there is a little sanious discharge from the anterior part. Pulse 76; tongue clean; skin cool. Continue wine, two ounces, mutton-chop cut up fine.

14th. Pulse 100, tongue a little white; skin rather hot; appetite good; has slept very well; wound looking well; still some sanious discharge from the anterior part. Water drawn off every six hours. Wine and beef-tea and opium continued.

15th. Is quite easy and sleeps well; the discharge from the anterior parts is getting more purulent; pulse quiet; still some œdema. No pain; tongue slightly white.

16th. Going on well; no blood mixed with the discharge; the

anterior part of the wound has not quite united; the posterior part seems to have done so; less œdema; feels well. Continue the pill night and morning.

17th. Is rather flushed, with quick pulse; some little pain. Not to have a chop to-day, nor wine.

18th. Is easier, though she still complains of being flushed occasionally; the quill sutures were removed; there is much less swelling; the greater part appears to have united well. To go on with her chop and wine.

19th. Is pretty comfortable to-day; the anterior part has not quite united.

20th. Going on well; has frequent desire to pass her water, and occasionally lets a little dribble from her; urine still drawn off every five or six hours.

21st. Still has frequent desire to make water; union seems pretty firm. 10 P.M.: has passed a copious motion, without apparently disturbing the union, and without taking an aperient; feels now much more comfortable; still continues the opium.

23rd. The union seems quite firm; externally there is the appearance of a small opening near the anus, but it cannot be felt on the inside with the finger; bowels have not been again open. This morning she, for the first time, passed her water herself, supporting herself on her hands and knees, and had the parts washed afterwards whilst in that position: she suffered no scalding or other pain; to omit the opium.

24th. She passed three or four motions in the course of the day, having power over them to retain them; health improving; she is getting more cheerful.

25th. Bowels open; the small opening still remains, and pus oozes out when pressed from the vagina inside; nitrate of silver was applied to it; except the wound of the rectum, the remainder has perfectly and firmly united, a mere line marking the junction.

26th. Bowels opened; the fistulous aperture touched with tinct. cantharidis; appetite and spirits good. Wine and meat every day.

December 3rd. Three weeks since the operation. She is perfectly well, and the bowels act freely and are under entire control.

12th. This patient left the wards of the hospital, and returned into the country perfectly cured.

The progress of this case was highly satisfactory, union having taken place rapidly without a single unfavourable symptom, and without any retraction of the sutured parts. This good success I attributed to the division of the sphincter; subsequent experience has taught me I was right in so doing.

CASE III.—*Complete Rupture of the Perinæum, of* 17 *years' standing; Previous operation and failure: Operation; Result.*—Mrs. D., æt. 45, admitted into Victoria ward, St. Mary's Hospital, January 30th,

1852. Seventeen years ago was confined with her first child. The labour being difficult, the surgeon (so the patient stated) used a boot-hook instead of the usual instruments, and ever since then she has had no control over her bowels. Since the birth of this child she has had five others.

Fifteen months after the accident, an operation was performed, Her legs were kept tied together for ten days ; the parts were stitched up with four quill sutures ; the urine was not drawn off, but she passed it lying on her face ; its escape was attended by much smarting pain ; opium was given, and the bowels prevented from acting for ten days, at the end of which period the sutures gave way, the edges diverged, and the patient found herself in a worse state than before.

She has generally been unable to move about or to leave home ; and has resorted to opium and burnt rum before daring to go out. On one occasion, being unable to control the dejections, she was seventeen hours and a half on the night-stool ; and on another, a fortnight ago, ten hours.

The whole of the structures between the vagina and rectum have been torn through ; there are no remains of the anterior half of the sphincter ani, but merely the structure of the rectum and the mucous membrane of the vagina ; and there is but little loose integument about the margins of the chasm in the perinæum, owing to the former operation.

An operation being now decided on for February the 4th, on the previous morning a purgative was given, the action of which prevented her leaving the night-stool from 7 A.M. till 1 P.M., and then only on her having opium and wine.

February 4th. The operation consisted in paring the edges of the fissure, which were covered by mucous membrane, to the extent of an inch on each side. The septum intervening between the vagina and rectum was next denuded; and then an incision carried through the sphincter ani on each side the os coccygis, downwards and outwards, dividing the skin to the length of two inches. These free incisions allowed the sides of the fissure to be approximated much nearer. This done, three quill sutures were introduced to secure apposition,—the sutures being passed to the depth of nearly an inch from the margins, which were more closely brought together by five interrupted sutures.

Anæsthesia had been kept up by chloroform, and so soon as this had passed off, two grains of opium were given, and one grain ordered every four hours. The catheter to be passed every four hours, and cold ablution practised each time ; the usual water-dressing ; ordinary diet ; and port wine, three ounces per diem.

5th. Not much swelling of the edges of the wound, which appear to be uniting by the first intention. She has slept pretty well ; towards morning became sick, and continued so at intervals till 12 o'clock. She lies on her side, with the knees drawn up and close together. The opiate continued.

6th. The sickness has ceased. She sleeps a good deal, and has very little pain. Wound looking well. The urine withdrawn every four hours.

7th. Going on well. Catheter used every six hours. She has a very troublesome cough, which distresses her much, by causing a strain upon the sutures.

11th. The deep sutures were removed on this, the seventh day from the day of operating. Progress favourable.

Without entering into further daily details of the progress of the case, I may observe generally, that the principles of treatment laid down in the previous pages were carefully carried out. In this instance, I kept the bowels confined for no less than eighteen days.

When the patient quitted the hospital, a slight fistulous communication between the vagina and anus existed, which being treated by caustic, and subsequently by the actual cautery, contracted so much as to interfere but little with the performance of her duties with ease and comfort.

This was one of the severest examples of ruptured perinæum I have met with, and had existed seventeen years. The original rupture had no doubt been much aggravated by the failure of the previous operation, and the attendant sloughing of tissues; whilst subsequent labours must also have, in some measure, conspired to make matters worse. Its almost complete cure, therefore, was very gratifying.

I was indebted to my friend and neighbour, Mr. Ballard, for this case, which he had attended for six or seven years past.

Case IV.—*Complete Rupture of the Perinæum, of eight months' duration; Previous operation and failure: Operation; Result; Remarks.* —Jane McJ., æt. 19, admitted into Boynton ward, St. Mary's Hospital, March 12th, 1852.

Eight months ago she was delivered of a male child, after a protracted labour and the use of instruments. The perinæum was torn through to the rectum, and the sphincter divided.

Three weeks after the accident an operation was attempted, and failed. Castor oil was given the day following the operation, and its action (as the patient represents it) caused the united parts afterwards to give way. The sphincter ani was not divided by the operator. The urine was not drawn off, but she was allowed to get up and pass it herself,—this produced great pain.

She has now no control over her rectum, the anterior portion of its sphincter being lost.

March 17th. After the usual preparatory treatment, the operation was performed just as in the preceding case, and with the aid of chloroform. Three quill sutures were used. Two grains of opium were ordered at once, and one every three hours afterwards. The urine drawn off every four hours.

18th. Wound looking well. Has a cough, which annoys her much;

ordered a cough linctus, and an opium and belladonna embrocation to the chest.

19th. Going on well. Edges of wound uniting, with very little swelling.

20th. Cough still troublesome. She is rather drowsy. Urine withdrawn every six hours. Opium continued every four hours.

21st. Superficial sutures removed: deep ones beginning to ulcerate. Black wash ordered to be applied over them.

22nd. The two posterior sutures removed: the parts found firmly united. The ulcerated surfaces have a great tendency to bleed.

24th. A few hardened scybala passed from the bowel to-day without pain or any injury.

25th. Remaining sutures removed. A few ulcerated sloughy spots exist in the site of the deep sutures. There is no communication between the rectum and vagina. Union firm. The ulcers to be touched with nitrate of silver. To have an enema of warm water.

26th. The enema brought away some softened fæces: other and harder have been voided this morning. To-day, for the first time, she passes water, resting on her hands and knees. Enema to be repeated. A solution of nitrate of silver to be introduced into the ulcerated holes.

Nothing further occurred sufficiently peculiar to warrant a continued daily report. The patient from this time progressed satisfactorily, and was discharged quite cured, having a good perinæum, and complete control over her bowels.

This case, like the last, had been previously operated on unsuccessfully, and a severe fissure remained. I took the precaution to make a very free incision on each side through the sphincter, involving the skin to the length of two inches. This allowed the adjoining tissues to be freely drawn towards the united edges of the wound, and thus prevented tension on the sutures.

I have lately (Nov. 1853) seen and examined the patient, and found the perinæum complete, and the anus perfect in its action.

Case. V.—*Complete Rupture of Perinæum, of seven weeks' standing; Destruction of recto-vaginal septum: Operation; Result.*—Mrs. W., æt. 39, admitted 23rd April, 1852, into Boynton ward, St. Mary's Hospital.

Seven weeks ago she was confined with her first child, (male.) She had a difficult labour: instruments were employed, and complete rupture of the perinæum, extending through the sphincter ani and recto-vaginal septum, ensued. From that period she has had no control over her evacuations.

On the 28th I performed the operation as usual; on account of the great deficiency of sphincter muscle anteriorly, the first deep suture was passed close to the rectum, so as to bring the pared edges at that part closely together, the usual incision having been previously made.

The operation completed, she was placed in bed on a water cushion, on her left side; two grains of opium given and some port wine. A grain dose of opium to be repeated every three hours, and catheter introduced.

29th. Considerable œdema; much relieved by puncturing the sides of the perinæum.

30th. Œdema less; pulse quick; skin moist. Opium continued. Chop and wine for dinner.

May 2nd. Going on well. Removed the external sutures, and found that there was perfect union by the first intention.

4th. Removed the deep sutures. A small recto-vaginal opening is discoverable; apply strong acetum lyttæ to its walls.

11th. The bowels were moved on the twelfth day, by the usual means. The recto-vaginal opening not closing as quickly as could be wished, I submitted the patient to the influence of chloroform, and then, introducing a rectum speculum into the bowels, and a uterine speculum within the vagina, I obtained a perfect view of the fistula, and applied to it the actual cautery by means of a bent iron instrument.

After two or three weeks from this date the opening completely closed up; the patient had a perfect and strong perinæum, and entire control over the bowel.

This case was one of much interest. The lesion involved not only the sphincter, the anterior portion of which was lost, but also the rectum; hence the difficulties of cure were greatly augmented.

Case VI.—*Complete Rupture of Perinæum; Destruction of recto-vaginal septum: Operation; Result.*—Harriet M., æt. 46, admitted into Boynton ward, Feb. 25th, 1853. The mother of four children, of whom three are alive.

Her general health was good until the birth of her first child, which was difficult, and effected by instruments, with the production of lacerated perinæum. Since that accident she has not been so well in general condition; has been unable to retain her motions: suffered much from irritation of the parts, and other concomitant evils, but not from bearing down nor prolapse. She has had no serious illness; there is no cough, and the thoracic signs are healthy. Each succeeding labour has aggravated the local mischief; and there is now, besides ordinary complete perinæal rupture, a destruction of a portion of the recto-vaginal septum.

March 9th. After some preliminary general treatment, I proceeded to operate on this day in my usual manner. A protruding piece of mucous membrane from the bowel had to be removed; great care was taken to denude the recto-vaginal septum, and a very free incision made through the posterior half of the sphincter ani, and to the extent of two inches through the superposed tissues. Lint saturated with oil was inserted in the sphincter incisions; the patient placed in bed on a Hooper's cushion, on her hips, with the knees drawn up.

The usual water-dressing was applied, and warmth to the feet. Port wine, (2 oz.) to drink ; ice to suck; two grains of opium at once, and one grain every four hours. 6 P.M. : Repeat wine; beef tea. Catheter applied without disturbing patient ; circulation languid ; is rather cold and feels low. 10 P.M. : Has been sick several times. Ordered mist. potass. effervesc. with acid hydrocy. dil. (Ph.) ℥v, and a table-spoonful of brandy every four hours. Catheter again used.

March 10th, 8 A.M. Sickness continues. Omit brandy and wine, and give ¼ grain of opium every six hours. 6 P.M.: Less thirst, no sickness. Pulse 108. Complains of pain in the vagina, and of some in the abdomen. 10 P.M.: Parts looking well ; cold-water dressing renewed, and felt grateful. To take freely of barley-water. Urine drawn off three times to-day.

11th. Has passed a better night. Pulse 108. Complains of pressure on the bladder, and feels as if the bowels would act. Pieces of lint removed from sphincter. Lotio nigra ordered to be applied. 10 P.M.: Parts looking healthy.

12th. Has, on the whole, passed a comfortable night. The incisions in sphincter looking unhealthy, the perinæal wound healthy. Ordered a mutton chop with the port wine. Continue pills every six hours. At night the perinæum looked rather red and swollen.

13th. Rest disturbed by a nervous feeling, which she attributed to the pills ; omit them till evening. 10 P.M. : Complains of the nervousness, and of pains in her left hip. Pulse 108.

14th. Superficial sutures removed. Union appears generally firm. No communication between the vagina and rectum.

15th. Has slept better. Deep sutures removed. Small sloughs exist where the quills pressed. To-day she was allowed to pass water as she rested on her hands and knees.

16th. The sloughs appear rather deep. The perinæum has receded from the quills ; there is considerable discharge; left margin of the wound is more elevated than the right. Continue wine.

18th. Some of the adhesions have given way ; the slough on the left near the sphincter incision has come away, and reveals an opening into the cavity beneath. She suffers from diarrhœa. Ordered one grain of opium every four hours.

19th. Diarrhœa subsided ; wound looking healthy.

April 5th. She states that she has now more control over the bowel than when admitted. The anterior margin of the anus which was deficient is well granulating forwards; the rectum is quite separated from the vagina by complete adhesion.

9th. I denuded the prominences each side the gap, and brought them together by two sutures of silver wire. The patient inhaled chloroform during this process ; she was afterwards ordered four oz. port wine, and a grain of opium every four hours.

May 3rd. Perinæum is strong ; two inches deep. She can now control the bowels, even when suffering with diarrhœa, and is

sensible of the passage of the stool through the rectum, which she formerly was not; she has now no bearing down.

CASE VII.—*Complete Rupture of the Perinæum, eighteen months' duration: Operation; Subsequent delivery; Result; Remarks.*—Mrs. C., æt. 26, the mother of two children. In her second labour, eighteen months ago, the perinæum was ruptured by the passage of the shoulders. No instruments were used.

On examination, the entire perinæum and the sphincter were found lacerated, and the control over the bowel lost. She was again three months pregnant. However, I determined to perform the operation.

Nov. 12th, 1852. I removed the mucous membrane for only an inch in length, instead of as usual an inch and a half on each side, so as to leave as much opening to the vagina as possible, and then carefully dissected it off from the anterior half of the rectum, where the sphincter was absent, and introduced my first deep suture close to the rectum. Afterwards, the parts were brought into very nice apposition by two other sutures, so as to leave no opening between the vagina and the rectum, as ascertained by a careful digital examination. The operation being completed in the usual way, two grains of opium were immediately given, and one grain ordered every three hours following. Water dressing was applied, the knees tied together, and a cushion placed beneath the patient.

The only peculiarity in this case was that I tied a small artery at the edge of the rectum, cutting the ligature off close.

At 10 P.M. there had been some considerable hæmorrhage, which was then stopped, and the patient seemed comfortable.

13th. Since last night more bleeding has taken place, and the vagina is filled with coagula. A strong solution of alum was therefore injected into the vagina, and a mixture ordered of infusion of roses, dilute sulphuric acid, and tincture of henbane. At 9 in the evening there had been no more bleeding. Pain occurred in paroxysms, but was less severe.

14th. No recurrence of hæmorrhage; pain less, but still much uneasiness and throbbing in the vagina. To take the opium more frequently.

15th. Has not slept well. No further bleeding.

16th. Has passed a good night, and is much better this morning. In the evening I removed the superficial interrupted sutures. There has been a considerable discharge of sero-purulent, offensive matter, since which the pain in the vagina has ceased.

17th. Removed the posterior and middle sutures, and cut off half the bougies.

18th. Removed the third and front suture, and the remainder of the bougies. Examined *per vaginam;* found the union of the perinæum, and could discover no communication between the rectum and

vagina. Washed out the latter by an injection, and removed some hardened coagula. The bladder is still irritable, and the urine deposits much thick, opaque matter, consisting of phosphates and lithates, with no pus whatever.

19th. Irritability of the bladder decreased. Perinæum looking well. Ordered a draught of nitric acid and tincture of bark twice a day.

20th. Considerable irritation of the orifice of the urethra. The patient ordered to void her urine resting on her hands and knees.

21st. The patient has not been able to pass her water as directed, on account of the painful pressure of the pregnant uterus on the bladder. The perinæum looks quite sound. A digital examination could discover no recto-vaginal opening. Omit the opium.

23rd. A dose of castor oil, and four injections of it, mixed with water, produced a copious alvine evacuation without inconvenience, the restored sphincter acting perfectly.

29th. Is now convalescent; can move about.

This patient was introduced to me by Mr. Knaggs, of Euston-square, who, with Mr. Osmar King, Dr. Rogers, and others, was present at the operation. The second named gentleman kindly sent me (June 1st, 1853) a highly gratifying communication, to the effect that Mrs. C. had been safely confined, and that no damage had resulted to the restored perinæum. I cannot do better than transcribe his account of the event. He writes:—

"I was sent for on the evening of the 24th of May: the pains were slow but at pretty regular intervals of twenty minutes; the os dilated to the size of half-a-crown, the membranes protruding; presentation favourable. The vagina and os were excessively tender. Fomentations were used from this time. The waters were kept entire till they had well performed their duty; and the head was protruded about an hour afterwards, safely, though a very large child. There was a slight tear of a quarter of an inch *laterally* at the fourchette, but the old cicatrix is uninjured. The bowels were relieved on the third day, and there was and is perfect control of their functions. Mr. Knaggs was present, and administered chloroform during the pressure on the perinæum and expulsion of the head. I confess I felt a little nervous as to the result, especially having been told by an eminent obstetrician, a short time previously, 'go it would.'"

The lesion in this instance was of severe character, and yet, by the plan pursued, it was cured in fourteen days, so as to enable the patient to control the action of the bowels. Another point of interest was the existence of pregnancy, and the absence of any uterine disturbance from reflex action of the vaginal nerves implicated in the operation. The happy termination of labour also lends peculiar interest to this case, which now consequently illustrates both my first and third propositions.

CASE VIII.—*Complete Rupture of Perinæum, of one year and eight months' standing; Weak health: Operation; Result.*—Sarah S. æt. 22, admitted November 29th, 1852, into Boynton ward, St. Mary's Hospital: is much marked by small-pox; states she has never been well since 14 years of age. Complains of pain in the stomach and back, and other dyspeptic symptoms. The tongue is white; bowels regular; catamenia absent since her confinement; the cheeks are flushed, appetite bad.

The perinæum was ruptured one year and eight months ago, in her first and only confinement, when instruments were used. The laceration extends through the perinæum into the rectum, merely a band of mucous membrane separating the two canals: the structures laterally are deficient. No operation has been attempted on account of her weak health.

Having by medical treatment been considerably improved in health, the operation to restore the perinæum was performed in the usual way on the 22nd of December.

The after-treatment was according to the plan described, and the satisfactory progress of the case offered no particulars worthy of a daily record. On the tenth day, a careful examination per vaginam and per rectum, proved union to be complete and firm; and on the following, the eleventh day, the bowels were allowed to empty themselves, assisted by repeated injections of warm water. This case proved entirely successful.

CASE IX.—*Complete Rupture of Perinæum, of five years' duration: Operation; Result.*—Mrs. E., æt. 39, came under my care in January 13th, 1853, at the recommendation of Dr. Locock.

Five years ago she was delivered of her first child; instruments were used, and laceration was the consequence. Since then she has had no control over her bowels, and no hope of relief was held out to her: she has had, however, two other children.

On examination I found the perinæum and anterior portion of the sphincter ani destroyed; the uterus pressed on the rectum, and ordinarily produced great difficulty to the passage of the fæces through the bowel, but when she took medicine she could not check the alvine discharge when once it began. Her spirits are depressed. The catamenia did not appear at the last regular period.

On the 24th I operated in the usual manner; Dr. Locock, Messrs. Coulson and Nunn being present. The patient was submitted to the after-treatment advised, and everything went on well. On the 28th I removed the superficial sutures, and two days afterwards the deep ones. The edges of the fissure were firmly united.

February 2nd. Passed water, supported on her hands and knees.

4th and 5th. Bowels relieved by castor oil and injections.

10th and 12th. Able to control the evacuations and flatus. On the latter day walked down stairs.

24th. Left town quite well, and wrote to tell me she had arrived at Cheltenham without the slightest inconvenience.

I have lately seen this lady, and found her quite well locally and generally.

CASE X.—*Complete Rupture of the Perinæum; Destruction of recto-vaginal septum of sixteen years' standing: Operation; Death; Autopsy.*—C. B., æt. 42, admitted February 12th, 1853, into Boynton ward, St Mary's Hospital. Has had four children. The accident happened in her first confinement with a male child, having a large head; no instrument was used. The laceration has been aggravated by the three subsequent labours, which were, like the first, rendered more difficult by the size of the heads of the children, who have in each instance been male. The injury has now existed sixteen years. The rupture extends through the perinæum and sphincter ani, and much of the recto-vaginal septum is lost. She cannot retain her motions; there is a constant dragging from the loins, and a bearing down, especially upon exertion. The general health appears tolerably good. No operation has hitherto been attempted. As an aperient I gave her, pil. hydrarg. gr. iij.; fel bovin, gr. x., at bed-time.

On the 16th, I performed my operation in the usual manner, the patient being under the influence of chloroform. The operation presented no special features to detail: immediately after it, I ordered two grains of opium, and one grain to be continued afterwards every four hours. In the evening she was rather restless.

17th. Did not sleep last night. Eyes staring; expression wild; catheter introduced every four or five hours. Water dressing to wound.

18th. Wound looking well.

19th. Catamenia appeared. Parts looking very healthy; healed externally by the first intention. Complained in the evening of chilliness, and was restless; the face flushed, and pulse quick. Omit the opium. Ordered, ℞ spt. ammon. arom. ʒ i., mist. camph. ℥ i. liq. opii sedativ. ♏ xx., to be taken at once.

20th. Still restless, with quick pulse. Says she has not any pain. ℞ Conf. opii gr. v. ter die.

21st. Still feverish, with agitated, unquiet manner. Has hardly slept since the operation. Is thirsty; tongue nearly clean. ℞ Mist. potass. effervesc. ℥ j. ter die. In the evening still being without sleep, and restless, a grain of acetate of morphia was given.

22nd. Slept well last night; says she feels better. There is still, however, a restless manner and expression. The superficial sutures removed.

23rd. Passed a restless night. Had shivering this morning, and is now flushed and perspiring. Pulse quick, weak. Manner agitated. ℞ Spt. ether. sulph. co. ♏ xv.; spt. ammon. arom. ♏ xx.; tr. hyoscyam. ʒ ss. mist. camph. ℥ j., statim. This draught was repeated at noon, and spt. camph. co. ♏ xxx. ordered at bed-time. At

12 P.M. was sleepless, restless, and anxious; without pain. To have at once a grain of acetate of morphia.

24th. Slept but little last night. The wound this morning shows a tendency to slough. She has no pain nor tenderness of abdomen. Ordered brandy every four hours. Lotio nigra to the wound. ℞ Potass chlorat. ʒ j.; tr. cinchonæ f℥ j.; dec. cinchon. f℥ j. ter die.

At four this afternoon had a distinct rigor, which lasted upwards of half an hour, with blueness of face and cold extremities. Pulse 168, small, feeble. Repeat the ether draught, and take mixture every three hours. The deep sutures removed.

In the course of the night she became very restless, and the countenance anxious; face congested; abdomen tender on firm pressure being made, especially at the lower part; breathing hurried; expiration attended by a loud creaking noise at the base of both lungs; the heart's action hurried, feeble. Brandy was given freely, but it did not rally her, and she gradually sank, and died about six o'clock.

A post-mortem examination was made. The uterus was enlarged and much inflamed, but contained no pus. The Fallopian tubes were also highly vascular and inflamed, and contained pus, which oozed from their extremities. A small quantity of pus appeared in the pelvic cavity. The peritonæum and the intestines in the lower region of the abdomen, were highly vascular. There was a slight serous effusion in the pericardium; a deposit of lymph, and congestion about the base and posterior part of the left lung.

This case suggests the necessity of examining into the previous history and condition of a patient, in determining on the advisability or prospect of success of operation. This poor woman was particularly leuco-phlegmatic, without tone or muscular vigour. Several years ago she had a whitlow lanced, which would not heal until after a sojourn at the sea-side for two months; and she at all times exhibited a low vitality. Of these circumstances I was not informed until after her decease.

I now come to cases in proof of my second proposition—viz., "That in the worst forms of Ruptured Perinæum, the operation should be resorted to immediately on the occurrence of the accident." Two of the cases which illustrate this, fulfil the same purpose for the third proposition—viz., "That subsequent parturition is possible without injury to the restored perinæum." A proof of the last proposition is also furnished by cases I. and VI.

CASE XI.—*Complete Rupture of Perinæum: Operation immediately after the accident; Result.*—Mrs. G. I was sent for by the husband of this lady, a medical man residing in St. John's Wood. She was in

labour with her first child, and on my arrival I found the child just born, the uterus refilled from internal hæmorrhage, and the perinæum completely lacerated. The rent extended through the superficial sphincter fibres, but left the rectum intact.

I immediately put in two deep sutures, fastening them with pieces of bougie, and then a couple of small interrupted sutures to secure perfect apposition of the surfaces. This done, I divided the sphincter a quarter of an inch on each side from its insertion; gave at once a grain of opium, and ordered its repetition every six hours.

My friend told me that the labour for some hours progressed slowly, the pains being *cut short*, but that eventually the labour advanced rapidly, the head descended and was expelled during his temporary absence, but the perinæum did not then tear. On finding the cord tightly twisted around the neck of the child, he relieved this, and entrusted the nurse with the support of the perinæum. However, the shoulders were quickly and forcibly expelled, and in their passage the laceration took place.

December 30th. Has passed a good night. There is no swelling of the parts; pulse quiet. She has had some refreshing sleep. Catheter used every six or seven hours. Ordered to take beef-tea and milk.

31st. Very comfortable. The night has been good. There is no pain; no swelling about the wound. The vagina is injected with tepid water three or four times a day, to ensure cleanliness, and to prevent the irritation of the united surfaces by the lochia.

January 1st. Removed the quill sutures, and found strong adhesion. On the following day, took out the interrupted sutures.

3rd. Going on well in every respect. The opium to be discontinued. A dose of castor oil to be taken to-morrow morning, and to be followed by an injection.

4th. The bowels have been well relieved without any injury to the united parts. She now passes water, resting on her hands and knees.

5th. Milk scanty; in all other respects she is going on most favourably, and is convalescent. She has perfect sphincter power, and the perinæum is strong and complete.

The history of the labour in this case teaches a practical lesson. The pains were 'cut short,' and apparently did no good: when this happens we may be almost certain that it arises from the twisting of the funis around the neck or body of the child, and that the uterus will eventually suddenly expel both fœtus and placenta; and unless the practitioner be on his guard, this is likely to be attended by perinæal laceration, and, it may be, by hæmorrhage, and the death of the child.

The successful treatment of this case shows that the lochia do not so interfere as to prevent union of the surfaces when quill sutures are used, and accurate apposition obtained by relaxing all tension by the

division of the sphincter. In this patient too, it should be noted that the lochia were very abundant, by reason of the previous uterine hæmorrhage and the formation of coagula.

CASE XII.—*Complete Rupture of the Perinæum from abnormal condition: Immediate operation; Subsequent delivery; Result.* Mrs. D., æt. 35, was delivered of her first child, after forty-eight hours' continued labour, the perinæum all the while having the character of soaked pasteboard and being unyielding. No amount of grease and fomentation availed anything; and, during the escape of the head, the perinæum gave way in its entire length, and with it also the superficial fibres of the sphincter ani.

On the completion of delivery, I at once applied sutures, but did *not* divide the sphincter. The perinæal tissues united superficially, but some of the untorn deep fibres of the sphincter kept up a constant dragging, and a tendency to retraction of the united parts, the consequence of which was a very prolonged cure, and it was not till after two months that the perinæum was firmly and entirely restored.

August 27th, 1852, I was summoned to this patient in labour at 2 A.M., and found the os uteri the size of a shilling, thin, but dilatable, and the bag of waters protruding. The perinæum was very thick and unyielding. I determined to wait, and to make an examination but seldom.

At 3 A.M. the bag presented at the os externum, at a quarter past the waters escaped, and the head of the child then descended on the perinæum. A crescent-like band was now felt stretched across the vagina in the position of the constrictor vaginæ, very unyielding and tense, like a catgut cord, resisting the advance of the head. It was clear, therefore, that, unless great care was used, and the opposition removed, the head would tear through the perinæum between this transverse band and the sphincter ani, especially as the pains now came on forcibly. I therefore gave chloroform: this quickly relaxed the band, more particularly the horns of the crescent; and then gradually tearing through its extremities with my forefinger, the necessary dilatation of the canal was obtained. Still keeping the patient under the action of chloroform, I pressed with my left hand against the head, so as to direct it downwards and forwards, whilst, by means of the two forefingers of my right hand underneath, the head was prevented from pushing against and stretching the transverse band. The result of these proceedings was most satisfactory, for by half-past four the head passed, and afterwards the shoulders and body without the slightest laceration, though the child—a male—was above the average size.

This case affords a good illustration of the third proposition.

CASE XIII.—*Complete Rupture of the Perinæum: Immediate Operation; Subsequent Delivery; Result.* Mrs. V. æt. 29, came under my

care in her first confinement in October, 1851. She had been, previous to my arrival, in strong labour for twenty-four hours; the pains of late, however, not doing any good, and the head of the child resting on the perinæum, the practitioner in charge of the case had just used the forceps, and rupture of the perinæum had happened in its entire length, and extended to the superficial fibres of the sphincter ani.

I at once proceeded with the operation to bring together the edges of the fissure by the quill sutures; but having with me no bougies for the purpose, I was compelled to employ instead, pieces of lint tightly rolled up. I did not in this instance divide the sphincter, which omission I afterwards regretted, as union was much slower than it would have been if I had done so. However, the case did perfectly well, and a sound perinæum was restored.

On November 12th, 1852, I attended this lady in her second confinement. The labour was natural; the bag of waters remained entire until the complete expansion of the os uteri; there was a copious secretion to lubricate the parts, and the perinæum yielding kindly, the child was safely born without the least laceration.

This case, again, therefore, satisfactorily confirms the second and third propositions. The two next, in illustration of the second proposition, were operated on by my friend Mr. Obré, on the plan I had laid down. The first, was a patient of Mr. C. Stewart, who kindly furnished me with the following account:—

Case XIV.—*Complete Rupture of Perinæum: Immediate Operation; Result; Observations.*—"Mrs. M. J., æt. 26, was taken in labour with her first child, June 19th, 1852, at 1 A.M. The head presented; the os uteri high up at the promontory of the sacrum, was dilated to the size of half-a-crown; the soft parts rather unyielding and rigid; the pelvis of normal dimensions; the pains increasing in frequency and vigour. The membranes presently burst; the head became engaged in the brim of the pelvis, at the sacro-iliac joint. From this period, although the pains seemed efficient, yet the head progressed slowly; consequently, about 6 P.M., I applied the forceps, and turned the face into the cavity of the sacrum, when a violent uterine contraction occurred, seconded by the efforts of the patient, so suddenly as to force the child and forceps through the os externum, with the result of rupturing the perinæum into the rectum.

"The patient was directed to keep herself quiet; and at 9 P.M., Mr. Obré, myself, and a friend, proceeded to secure the ruptured perinæum upon Mr. Brown's plan, by the aid of chloroform.

As I had not previously seen the operation, and as Mr. Obré knew it perfectly, I preferred his performing it, while I assisted. Three deep double sutures were inserted, tied over a piece of elastic catheter on each side, the superficial interrupted ones introduced, and the

sphincter ani divided on either side. Cold-water dressings were ordered, and a pill containing one grain of opium and two grains of extract of henbane, three times a day. Diet to consist of milk, gruel, and weak tea.

"June 20th. Doing well. At 6 A.M. introduced the catheter. At 1 P.M. she complained of soreness from the pressure of the sutures. She has passed water once since I visited her in the morning, but, recollecting my injunctions not to allow the urine to come in contact with the united parts, she had avoided it by resting on her hands and knees; the nurse, too, carefully bathing the parts afterwards with cold water. From this period I did not again pass the catheter. Same diet and pills to be continued.

"21st. She has passed urine three times in the twenty-four hours, using the same precaution as yesterday. The parts look very well. The pill to be taken twice a day.

"25th. Has continued to progress favourably. Ordered beef-tea to be added to her diet. To continue pills.

"July 1st. The posterior of the three deep sutures broke in the night, and has come away. The parts continue healthy and are evidently healing.

"6th. The other sutures came away this morning. Union proceeding satisfactorily.

"Gave Ol. ricini, ℥i., early this morning. This acted freely, and without causing pain. (Thus constipation was maintained seventeen days). Examined her with Mr. Obré, and found the wound perfectly healed, with the exception of a very small opening anteriorly, just admitting a probe into the vagina. To omit pills: to be allowed meat daily.

"14th. The small sinus perfectly closed; the patient quite convalescent.

"This being the first case of ruptured perinæum which had occurred in my practice, and the first in which I had seen Mr. Brown's operation applied, I watched it with more than ordinary interest, and was most agreeably surprised to find that it in nowise interfered with my patient having, on the whole, a very good time. Her milk came the third day, and although scanty in quantity while she continued to take the opium, it increased immediately on its omission, and especially on the improvement of her diet. The lochia continued, as in ordinary cases; and from the first, she had neither headache nor any symptom which could be deemed untoward. Her infant thrived, and never required feeding; nor was there any occasion to administer medicine."

This must be admitted a very successful case. The treatment in some minor particulars was varied from that ordinarily pursued by me; the diet was more meagre than I allow; the

sutures were let break and come away of themselves; and catheterism was not persevered in as I advocate.

Case XV.—*Complete Rupture of Perinæum; Twins: Immediate Operation; Result.*—This case of operation immediately on the occurrence of the lesion, happened in the experience of Mr. Lerew, but is recorded by Mr. Obré, who operated.

"Mrs. B., æt. 31, having been in labour with her first child for fifty-three hours, Mr. Lerew considered it necessary, from the exhausted state of the patient, and the fixed condition of the child's head for many hours at the brim of the pelvis, to deliver by means of the forceps. The child was extracted with little difficulty, but on examination, a slight tear was observed in the perinæum, and some embarrassment was now felt, as another child was discovered in the uterus. On the passage of this second child, every effort was used to guard the perinæum, but to no purpose; for as the head advanced, the rupture slowly extended, and on the completion of delivery, the laceration had reached and involved the sphincter ani, and the rectum to about a quarter of an inch. The children were certainly the largest twins I had ever seen.

"An hour after the birth of the second child, I was requested to ligature the parts, so as to restore them to their natural state. The edges were quite smooth, almost as much so as if made with a knife. I passed three deep double sutures, making the entrance and exit of the needles at least an inch and a half from the margins, and traversing deeply, close to the mucous membrane. The first suture was made at the fore part of the rupture: the third near to the rectum; and all the ligatures fastened on either side over a piece of bougie. The edges of the integument were now also closed by interrupted sutures.

"As only a very small portion of the sphincter muscle was ruptured, I did not think it prudent, as in Mr. Stewart's case, to divide the sphincter laterally.

"The case from this time was left under the care of Mr. Lerew, with directions that water-dressing be applied; the catheter used three times daily; light but nutritious diet allowed; and the action of the bowels be restrained by the continued use of small doses of opium.

"On the fifth day, one of the deep sutures cut its way nearly out, and was removed; the other two were withdrawn on the eighth day.

"The patient went on most favourably. On the fifteenth day after the operation I visited her, and found, by examination with one finger in the vagina and another in the rectum, that the parts were healed. I then recommended the bowels to be moved by a dose of castor oil, and an enema of warm water.

"I have had a subsequent opportunity of examining this patient, and found the parts sound and well."

The next cases belong to the third variety of lacerated perinæum, and illustrate its treatment.

CASE XVI.—*Incomplete Rupture of Perinæum, of three years' standing, with Fissure of the Rectum: Operation; Result.*—E. T., æt. 37, admitted into Boynton ward, St. Mary's Hospital, March 26th, 1852. At her first confinement, three years ago, the perinæum was ruptured by the sudden descent of the head, at the moment of its extrusion, in the absence of medical assistance. The tear did not go through the sphincter or recto-vaginal septum, and she therefore did not suffer from incontinence of her motions, but very much from procidentia uteri. The uterus not only partially projected from the vagina, but also constantly pressed on the rectum, and produced fissure of that bowel. These evils exerted an injurious effect on the general health of the patient, causing nervous depression and dyspepsia, besides the mere local inconvenience.

I first cured the fissure of the rectum, by dividing the sphincter through the fissure itself. After the complete success of this step, I applied the usual remedies for the restoration of the health, and also for the procidentia uteri. With the latter I failed on account of the deficient perinæum, and accordingly determined to operate for its restoration.

April 7th. On this day I sutured the ruptured parts in the ordinary manner, and pursued the usual after-treatment.

Success crowned my efforts, and on the 24th of the month she was discharged cured, having a sound perinæum, and no procidentia uteri. I have seen her frequently since, and ascertained the permanence of the benefit derived.

This case presented two or three interesting and instructive features. First, the production of fissure of the rectum by the mechanical pressure of the uterus against it; second, the dependence of the prolapse of the uterus on the absence of the perinæum,—the natural floor of the vagina, and support of the pelvic viscera against their necessary tendency to descend, and the cure of the displacement by renewal of the perinæum: a third, in the restoration of the bodily health by attention to these mechanical causes of its decline.

CASE XVII.—*Incomplete Rupture of Perinæum, five months' standing; Prolapsus Uteri: Operation; Result.*—E. A., æt. 23, admitted July 2nd, 1852, into Boynton ward, St. Mary's Hospital. She was confined with her first child nearly five months ago, after a labour lasting three days. No instruments were used, but

the perinæum was ruptured : the sphincter ani, however, escaped. She complains of discomfort from the dragging of the uterus, which prolapses to some extent ; and from its pressure on the rectum, the margins of the fissure are a good deal congested, and numerous condylomata are scattered over them.

July 7th. The opposed surfaces of mucous membrane were dissected off, and the edges brought together by quill sutures. The sphincter was divided on both sides. Two grains of opium were at once given, and one grain continued afterwards every three hours. Pulse rather quick, soft ; skin cool. She was ordered a pint of beef-tea, four ounces of port wine, and a pint of porter.

9th. Pulse 126, soft; tongue with some patches of coating. Says she has caught cold ; complains of pain in the lower part of the chest. The united surfaces look well. The urine drawn off regularly every five or six hours.

12th. Has continued to do well. The sutures removed to-day. Union is perfect, save in the centre, where is a small opening. This to be touched with acetum lyttæ.

20th. Improving. The opening in perinæum decreasing.

24th. The application of the acetum lyttæ continued. Ordered a calomel and colocynth pill at night.

30th. Has progressed favourably to this date, and is now quite well. The perinæum perfect and firm. Discharged cured.

The operation in this instance was called for to remove the prolapse of the uterus, and its ulterior injurious consequences.

Case XVIII.—*Incomplete Rupture of Perinæum: Operation immediately after the accident; Result.*—Mrs. W., æt. 22, March, 1854. In labour with her first child. The head large ; outlet small ; perinæum unyielding, and the expulsive pains strong. The constrictor vaginæ suddenly gave way, and the perinæum was torn as far back as the sphincter ani, leaving that muscle intact. So soon as the placenta had escaped, I applied one very deep interrupted suture, and followed the usual after-treatment.

After three days I removed the ligature, and found the union of the parts perfect. The subsequent progress of the case was very successful, and presented no circumstances worth recording.

Other cases where the perinæum was ruptured will be found among those detailed in the chapters on Vaginal Prolapse.

CHAPTER II.

PROLAPSE OF THE VAGINA.

This condition presents itself under three forms, according as it affects the anterior or posterior wall, or the entire circumference of the canal. Each form involves displacements of the viscera connected with the vagina, and derives its importance from them. The yielding of the anterior parietes of the vagina drags down the bladder, and produces "Prolapsus Vesicæ," or "Vaginal Cystocele;" the giving way of the posterior wall induces "Rectocele;" whilst the descent of the entire circumference presents a true prolapse of the vagina, and almost necessarily involves more or less displacement of the connected pelvic viscera. This last will need no consideration distinct from that of Prolapse of the Uterus.

I. *Prolapse of the Anterior Wall of the Vagina.—Prolapsus Vesicæ, or Vaginal Cystocele.*

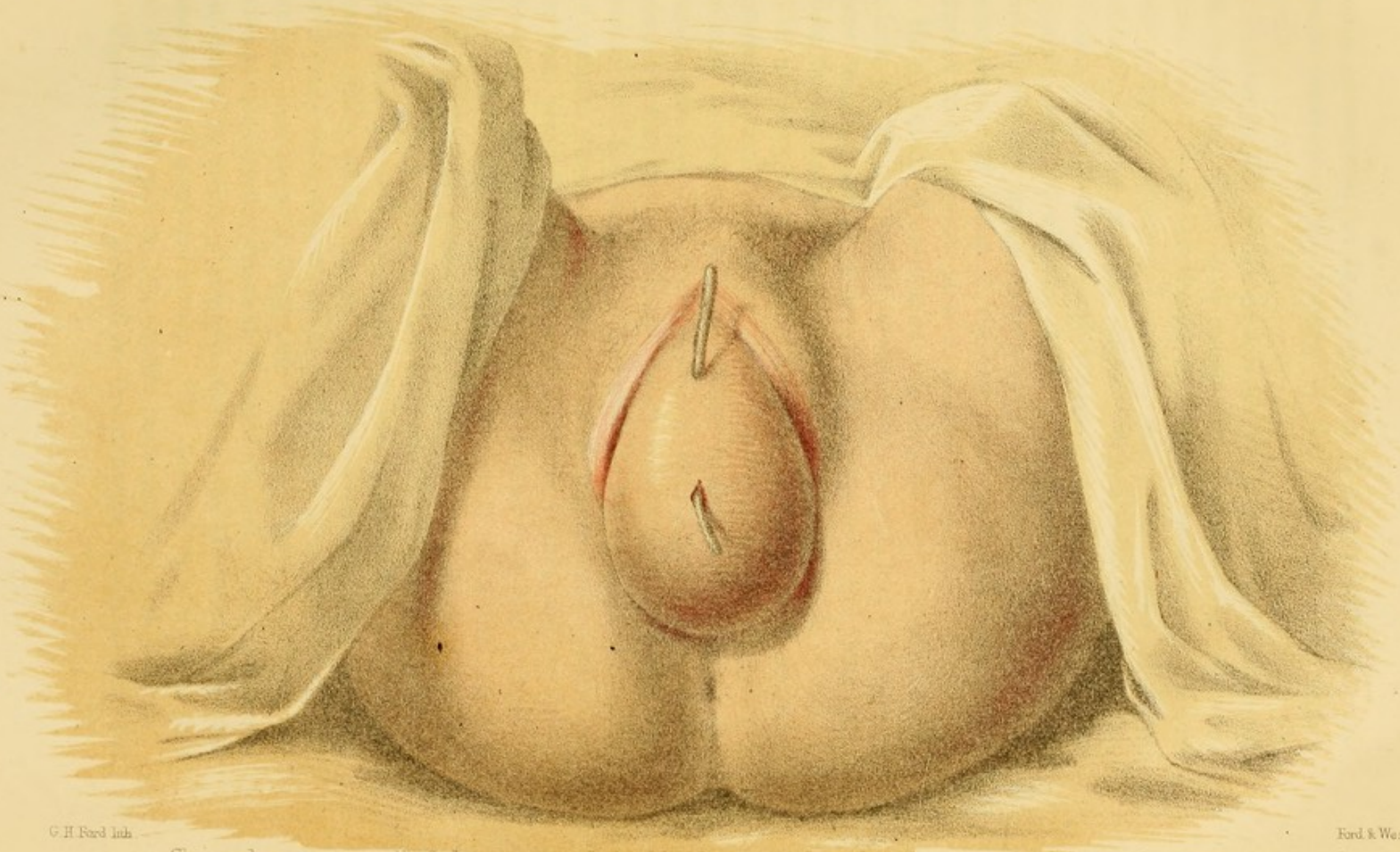
Cystocele.— This not uncommon accident usually results from the stretching of the parts by repeated, or by difficult labours, and progressively becomes worse when left to itself. It may vary in degree from a slight bulging of the front wall of the vagina to the production of a tumour filling or stretching the canal, or even extending from it and hanging between the thighs. A ruptured perinæum, by removing the natural support of the pelvic viscera, may predispose to this, and, indeed, to either variety of prolapsed vagina. The relaxation of the vagina in front immediately causes an alteration in the position of the

bladder and of its meatus, so as to impede the evacuation of its contents. This interference with the escape of urine again leads to imperfect emptying of the bladder, and to excessive accumulations, by the weight of which the vagina is stretched still further, and thrust downwards and forwards. Instead of the urethra rising upwards behind the pubes, it becomes curved backwards more and more, until eventually, in complete prolapse, its course is actually downwards and backwards, and its orifice external to the labia. See PLATE III.

As might be presumed, the extruded bladder is liable to injury, and may become the seat of ulceration or of other morbid process.

Symptoms.—The patient complains of weight and bearing down, and sensations of dragging in the lower part of the abdomen; uneasiness and pain in walking, and more or less dysuria,—the bladder having, to a great degree, lost its power of contraction. Some patients are obliged to replace the bladder before they can evacuate the urine. On examination, a soft, elastic, fluctuating tumour is felt at the orifice of the vagina; it is of a red or bluish-red colour, and can be greatly diminished by catheterism: the finger can be passed into the vagina below the tumour, and the os uteri can be felt behind, nearly in its natural situation. The surface of the tumour, when distended, is smooth, moist, and shining; but, when the bladder is empty, it is thrown into transverse folds. There is always very considerable mucous discharge, which is exceedingly irritating to the labia and soft parts; and there is sometimes a very distressing irritability of the bladder, and the urine, when passed, is fœtid, and contains much ropy mucus. This arises from a small portion of the urine being always left in the bladder, and the consequent decomposition of that secretion.

Cystocele may be easily distinguished from prolapsus of the uterus; it is soft and yielding to the touch, and, on introducing the catheter, the point will be felt through the walls of the tumour, towards the anus; and, on passing the finger upwards, the os uteri can be felt in its natural position. It can also be distinguished easily from prolapsus of the posterior wall of the



G. H. Ford lith. Ford & West Chromo lmp.

Shews the anterior wall of the vagina and the bladder protruding from between the labia with an imaginary catheter passing from above downwards towards the rectum.

vagina or rectocele, or from inversion of the uterus—that condition preventing the passing of the finger into the vagina at all.

Treatment.—This will depend on the extent and duration of the prolapsus. If it be of recent date, and occurring in young females, the treatment should be frequent catheterism, recumbent posture, astringent injections within the vagina of alum, oak-bark, infusion of galls, sulphate of iron, cold water, &c. An additional means is to keep constantly in the bladder a bent metallic catheter, with an elastic bag attached, and a sponge tent within the vagina to uphold the bladder. The injurious accumulation of urine is thereby prevented, and opportunity afforded to the relaxed parts to recover themselves.

By this mode of treatment, I have seen much benefit result. A lady, æt. 24, the mother of two children, who had cystocele of some standing and severity—which, by the way, had been mistaken for uterine prolapse—was much improved by it.

If, however, the prolapsus be of long standing, and occur in females beyond the period of child-bearing, the treatment should be more severe and radical. Some recommend plugging the vagina with pessaries, made especially for this condition. These, however, frequently produce much irritation, and hence the greater need for a surgical procedure. It has been recommended by some to remove a triangular slip of the mucous membrane, the base being towards the orifice of the vagina, and to bring the edges together by sutures, thus contracting the calibre of the vagina. Others recommend the use of the actual cautery so as to produce a slough, and subsequent cicatrization and puckering. M. Jobert, of Paris, encloses within two curved transverse lines an oval space, more or less considerable, on the posterior surface of the vagina, by means of caustic, so as to form an isolated spot, repeating the application of the caustic till the mucous membrane is destroyed. He then pares the edges with scissors or a bistoury, draws them together, and maintains them in apposition by means of straight needles (the points of which are removed) and a twisted suture. He operated thus on a patient in July, 1838, and on two others, subsequently, with success.

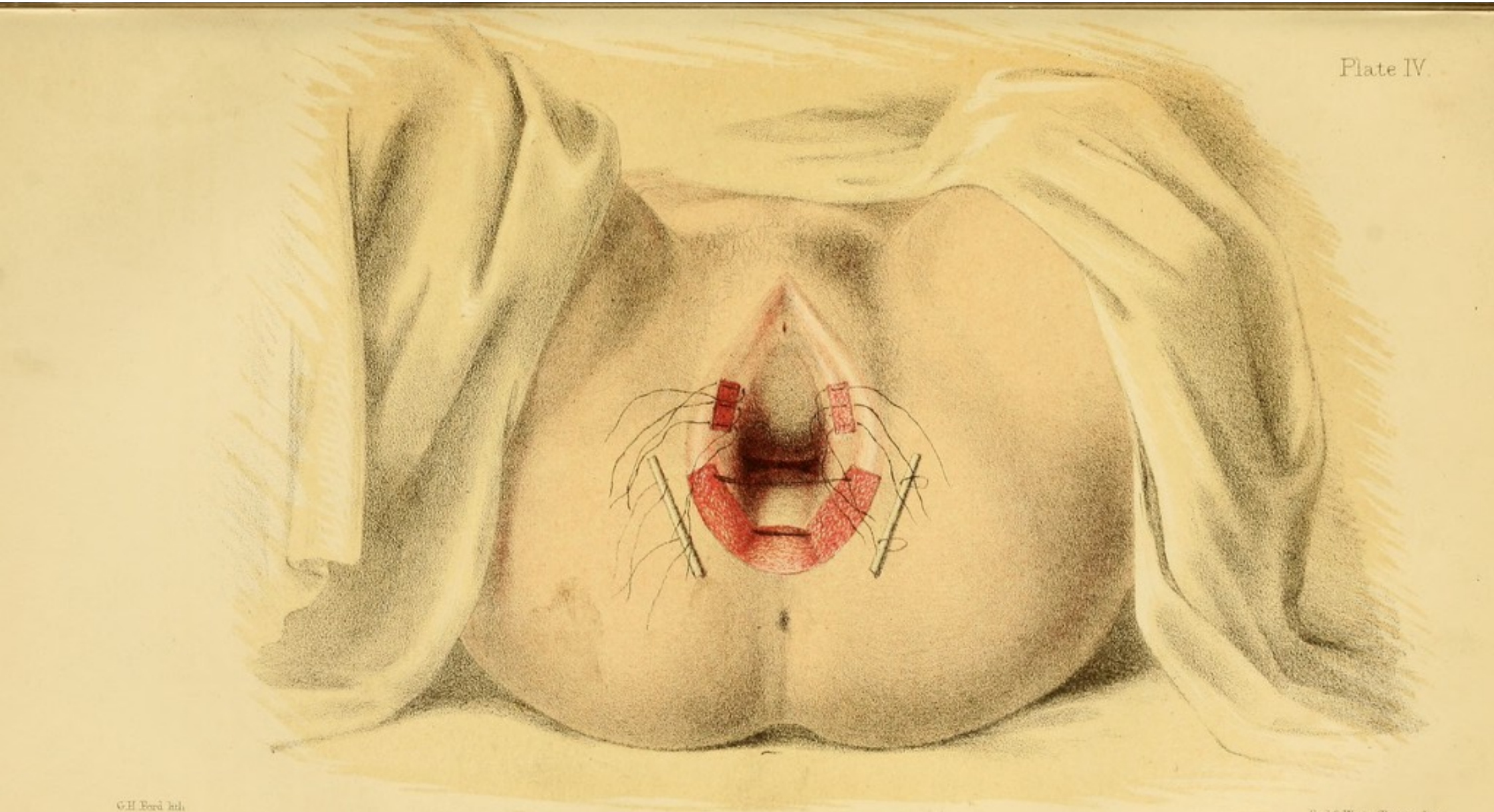
These operations proceed on the principle of contracting the

vagina, and of thereby mechanically preventing the protrusion of the bladder. My principle of operating also is similar. Recognising the prolapse of the bladder to be due to the relaxation of the anterior wall of the vagina, my endeavour is to remove this cause by a "plastic" operation, which will be sufficiently described in the history of the following case:—

Case XIX.—M. T., aged 52, has had ten children. She was admitted into St. Mary's Hospital, February 14th, 1853, suffering from severe prolapsus of the vagina and bladder, which first began to trouble her nine years ago, after her last labour. On the least exertion of walking, or even standing, or coughing in the recumbent position, the tumour came down and protruded through the external orifice of the vagina, to the size of a large fist. On lifting up this tumour, when so extruded, there were seen on the under and posterior surface of the os uteri, which was dragged down by the vagina, two or three ulcerated spots produced by friction against the posterior wall of the vagina. The patient could, when reclining on her back, replace the tumour. She had a cough from chronic bronchitis, which she generally had in winter, complained of feeling weak, and her appetite was capricious.

This patient being a servant in place, suffered greatly from her condition, and was obliged always to wear a bandage or napkin to prevent the extrusion of the tumour; and this very support, by the friction and heat, rather increased than diminished the suffering. Her spirits were depressed, and the poor woman became an object of great pity and commiseration. Mr. Clarke, of Gerrard street, recommended her to my care.

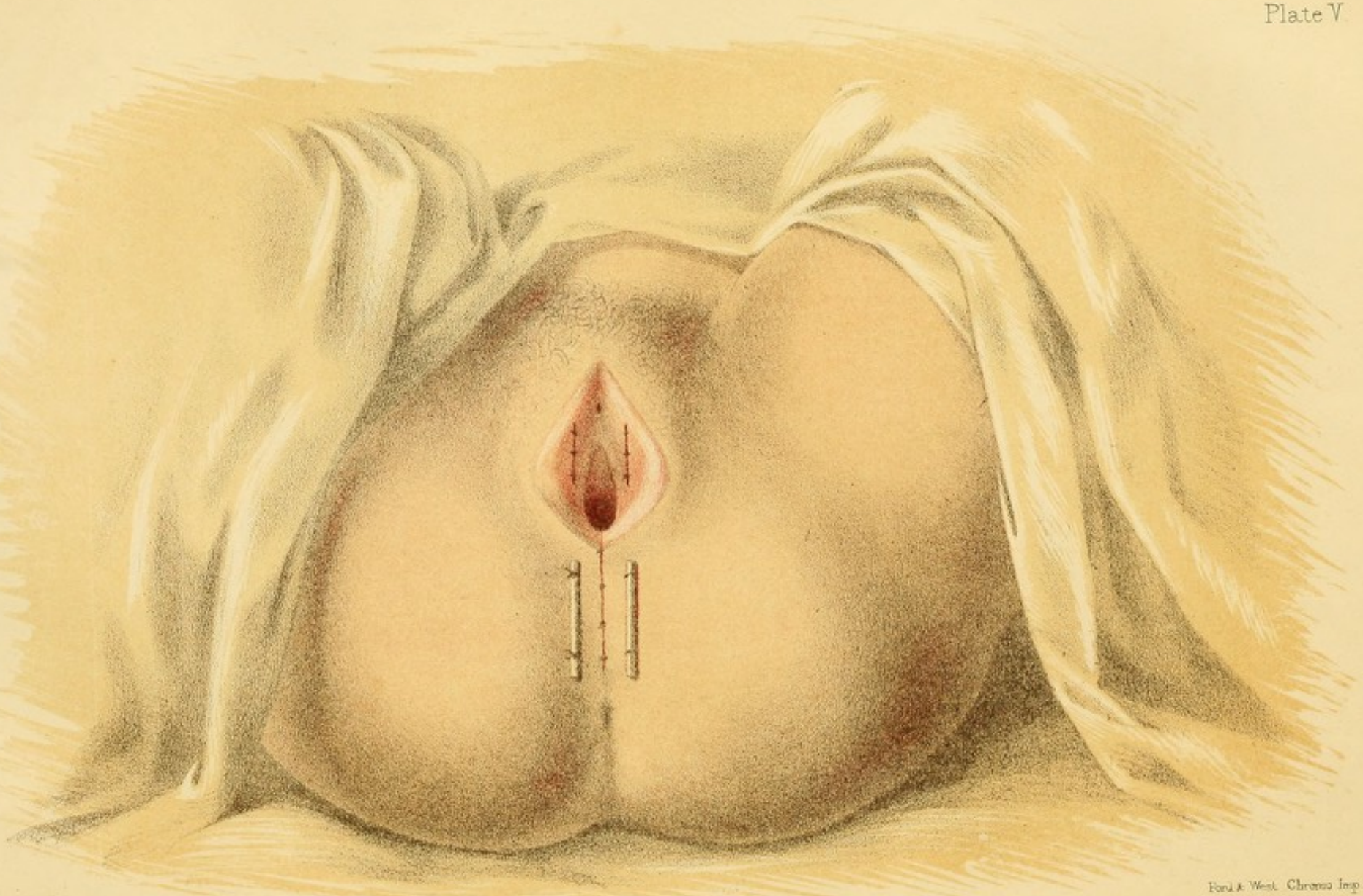
Operation.—The patient having been prepared, by emptying the bowels, was on February 15th placed under the influence of chloroform, and then put in the position for lithotomy, each leg being held by an assistant, a third assistant holding up the tumour with Jobert's bent speculum, and pressing it under the pubes in its natural position. A piece of mucous membrane, about an inch and a quarter long and three-quarters of an inch broad, was dissected off longitudinally, just within the lips of the vagina. The upper edge of the denuded part being on a level with the meatus urinarius, the edges were drawn together by three interrupted sutures, this being repeated on the other side of the vagina. The next stage of the operation consisted in dissecting off the mucous membrane laterally and posteriorly in the shape of a horse-shoe, the upper edge of the shoe commencing half an inch below the lateral points of denudation, taking care to remove all the mucous membrane up to the edge of the vagina where the skin joins it. See Plate IV. Two deep sutures of twine were then introduced about an inch from the margin of the left side of the vagina, and brought out at the inner edge of the denuded surface of the same



G.H. Ford lith.

Ford & West. Chromo Imp.

Shews the different surfaces denuded, and the insertion of the quill sutures posteriorly and the interrupted ones laterally, for the operation for prolapsus of the vagina.



G.H. Ford lith.

Ford & West. Chromo Imp.

Shews all the parts brought together after the operation is completed.

side, and again introduced at the inner edge of the pared surface of the right side, and brought out an inch from its margin, thus bringing the two vascular surfaces together, which were then kept so by means of quills, as in the operation for ruptured perinæum. The edges of the new perinæum were lastly united by interrupted sutures, and the patient placed in bed on a water-cushion. See PLATE V. Two grains of opium were given directly, and one grain every six hours; simple water-dressing applied to the parts; beef-tea and wine for diet. A bent metallic catheter, to which was attached an elastic bag to catch the urine, was introduced into the bladder: by this means the bladder was constantly kept empty. This patient progressed satisfactorily from day to day without a single bad symptom; and, on the 22nd, the deep sutures were removed, and the parts were found firmly united. The lateral interrupted sutures were gradually removed, and firm union found to have resulted.

February 26th. The deep union was perfectly sound, about three-quarters of an inch thick, the lateral wounds well contracted; the tumour could not be brought down by coughing.

March 8th. The parts were all firmly healed; the patient was much improved in health, with a very cheerful aspect of countenance. She could walk about without inconvenience, and no amount of exertion produced any prolapsus. She could empty her bladder with comfort; and all the leucorrhœal discharge, which was so distressing before the operation, had entirely subsided; the offensive smell of the urine had also departed. On passing the finger into the vagina, the os uteri could be easily felt in its normal position, and the ulcerated spots which formerly existed on its surface were healed.

On the 10th she was discharged cured, and resumed her duties as domestic servant.

Remarks.—The object sought in this operation was the contraction of the calibre of the vagina, which, as may be imagined, was exceedingly enlarged and flabby. The first step of the operation was directed to the contraction of the vagina laterally, so as to prevent the tumour from falling down from above; the second step of the operation was for the purpose of contracting the vagina posteriorly; and thus in the end, by contracting the orifice of the vagina at least two-thirds, and by so adding to the extent of the perinæum, that, should the prolapsus not be restrained by the lateral contractions, it could not extrude beyond the orifice of the vagina, but must necessarily fall upon the new perinæum. As was proved by the result, all the objects sought had been fully attained; and it was scarcely possible to imagine a more satisfactory result from any operative procedure. The principle of this operation is equally applicable, as will be hereafter shown, to the cure of prolapse both of the posterior wall and of the entire circumference of the vagina; and also, with some slight modifications, to the relief of prolapsus uteri.

After-Treatment. — This in most particulars resembles that pur-

sued after the operation for ruptured perinæum. Opium is given to allay irritation and pain, and to prevent defæcation; the strength is supported by nourishing diet and wine; water-dressings are applied; and perfect repose is enjoined. The use of injections is, however, contra-indicated; for the sutured parts must not be interfered with in any way. It is of the greatest importance to keep the bladder emptied; and this point is best secured by retaining a catheter in the bladder, with a bag to receive the urine as it escapes. After the seventh or tenth day, according to the integrity of the union of the parts, the patient may pass the urine resting on her hands and knees.

The time for the removal of the sutures must be regulated by the circumstances of each case; but, in general, the deep ones may be withdrawn from the third to the fifth day, the others a few days afterwards.

Case XX.—Mary Ann R., æt. 47, admitted into Boynton ward, St. Mary's Hospital, April 29th, 1853. Is a married woman; has had nine children, and two miscarriages; her labours were protracted; her youngest child is now seven years of age. Her general health has been bad. Twelve months since she had much bearing-down with pain, and for the last month has experienced a much increased difficulty in passing water. She noticed that the bearing-down was accompanied by the appearance of a tumour, the size of a small apple, which she took to be the womb. The urine has varied in quantity on different days, and she experienced most pain when but little escaped. Any exertion increased her sufferings, and even walking was painful. The catamenia have been regular and abundant; the appetite is good; the bowels usually act properly; the urine is of natural colour and appearance.

On examination, a tumour, the size of an orange, was seen protruding through the vulva, and occupying two thirds of the vaginal canal, which was extremely relaxed.

May 4th. I performed the operation after the plan described; and in the after-treatment gave her opium, nourishing diet, and after a few days, port wine. On the 14th, her state demanding it, she had a mixture of quinine and iron. All the sutures were removed by the eighth day.

The case did well. On the 25th of June, on an examination of the parts, no prolapse was seen; there was strong union of the sutured parts, and the patient was able to get about with ease and comfort, without any dragging or pain being felt, and had perfect and painless action of the bladder.

Case XXI.—M. A. M., æt. 45, admitted into Boynton ward, April 30th, 1853. Has had five children; her labours have been easy, but as a servant has had much hard work. For above five years she has suffered inconvenience from the bladder occasionally protruding into

the vagina after exertion; for the last five or six months, however, the displacement has been nearly constant, and a consequent cause of much pain and distress, entirely disqualifying her from holding any situation.

It is unnecessary to particularize symptoms, as they were of the usual character. From her bodily sufferings, and her mental anxiety at being precluded from gaining her livelihood, she was in a low and nervous condition.

The state of the parts corresponded pretty nearly with that described in Case XIX.

May 10th. I operated in my usual manner, and placed the patient under the same after-treatment. She went on well. The deep sutures were removed on the 14th of May: on the 25th she appeared quite well, and was ordered to be discharged. The adhesions set up were strong; there was no prolapse, no difficulty nor pain in making water, and no bearing-down when walking.

I may state that this patient is at the present time perfectly well, and able to perform the arduous duties of a cook at the hospital.

Case XXII.—Mrs. W., æt. 33, of delicate and nervous constitution. Has been married five years. Her first child was born eighteen months after marriage; for the first and last three months of pregnancy she suffered much from nausea and retching, and, during the latter period, from bearing-down pains also, accompanied by difficulty of micturition, and by the slight protrusion of a tumour into the vagina. This tumour gradually increased in size, causing more pain, and almost disabling her from walking, and at last even from standing. After delivery she applied for relief, but was informed she had prolapse of the womb, for which there was no remedy.

Thus four years were allowed to pass by without an attempt to ameliorate her unfortunate condition, when, finding herself advanced in the family way a second time, and suffering increased discomfort, she applied at St. Mary's Hospital. The management of her case during delivery was assigned to J. M. Moullin, Esq., of Porchester-terrace, the district surgeon-accoucheur of the hospital.

On the 3rd of August, she was taken in labour, and on examination, a large tumour, the size of a newly-born child's head, was discovered by Mr. Moullin, projecting from the vagina, and giving the impression at first that the head had actually been expelled. This tumour, however, proved to be the bladder, distended with urine, and incapable of voluntary evacuation by reason of the child's head pressing against it as it descended in the pelvis. The catheter was used; upwards of a pint of urine withdrawn; and then, the empty bladder having been pushed back, the head speedily came forward, and the birth was happily completed. Mr. Moullin observes that, if the case had been mistaken, and relief not at once afforded, rupture of the bladder must have been the inevitable consequence.

The subsequent progress after delivery was favourable, and on her becoming convalescent, she was anxious to have something done to give her permanent relief from the miseries of the displacement she had so long endured.

Sept. 6th. It having been decided on to operate, I proceeded in my usual manner, the patient being under the influence of chloroform.

The case was complicated with a partial rupture of the perinæum, which had happened in her first labour, but it demanded no special modification of the operation. The large dimensions of the cystocele required an additional denudation of the mucous membrane of the vagina of an inch square in extent, in the centre of the tumour; the edges were in the last place brought together by two interrupted sutures. A serous cyst, the size of a pigeon's egg, in the left labium, was a source of inconvenience in operating, but a still greater difficulty was encountered from the tender state of the vaginal mucous membrane, which tore with the slightest pressure, and precluded the possibility of dissecting it off in a piece. It was therefore peeled off with the forceps. One small artery had to be tied.

On the third day after the operation the catamenia appeared; and on the fourth, the quill sutures were removed, when the parts were found perfectly united. On the ninth day, the remaining sutures were withdrawn. The after-treatment was that commonly pursued by me.

Perfect success attended this operation, and the patient was restored to a state of comfort she had not known for years.

The above history I have condensed from the account of the case kindly furnished me by Mr. Moullin.

Case XXIII.—*Cystocele, with Prolapse of the Uterus and Rectocele, and partially ruptured Perinæum.*—Mrs. L., æt. 25, having returned from Sierra Leone to England, on account of her health, was recommended by Dr. Locock to see me with reference to the severe pelvic injuries with which she was afflicted.

At her confinement with her first child, three months since, the perinæum was partially ruptured. Since then she has suffered much from bearing-down of the womb and prolapse of the bladder and recto-vaginal septum. She states that the urine was once retained in the bladder for forty-eight hours, and she dates the aggravation of her sufferings in that organ from that time. She has wasted considerably, and become low, nervous, and sometimes hysterical. Has had no connexion with her husband since parturition, and has not nursed the child. She cannot sit up or walk without great local distress. She had constant sickness on her voyage home, which greatly increased her sufferings.

I ordered generous diet, and steel with belladonna in pills, with her meals. I proposed to operate in a week.

February 14th, 1854. I operated in my usual manner. Two grains of opium were given immediately, and one grain every four hours afterwards.

15th. Going on very comfortably. As in my last case, I directed the urine to be withdrawn every four hours, instead of leaving the catheter in the bladder as I had before done, for I found that its continued presence caused irritation of the urethra ; and, by keeping the bladder constantly empty and contracted, deprived it of its ordinary power of retention after the recovery of the patient.

This patient was convalescent in a fortnight, and the local inconvenience so much relieved as to enable her to be down stairs in the drawing-room.

April. I have lately heard that this lady is quite cured of the prolapse.

II. *Prolapse of the Posterior Wall of the Vagina, or Vaginal Rectocele.*

This condition is generally gradual in its origin, and like the preceding, tends, if left alone, to become worse, mechanical causes seconding the operation of the primary one, viz., relaxation of the posterior wall of the vagina. The accident varies in extent from a mere encroachment of the vaginal wall, to the expansion of it into a tumour projecting between the labia. Its more aggravated stage involves other organs; the uterus is at length dragged downwards and displaced.

Causes.—Rectocele may be produced by—

1. Habitual and prolonged constipation. The undue stretching of the rectum by fœcal accumulation brings about a relaxed and loose condition of its tissues; and the same cause stretching the parietes of the vagina, produces a like looseness of that canal.

2. Persistence in the use of strong purgatives in persons of lax fibre.

3. An enlarged or a displaced uterus, so pressing on the rectum as to impede the evacuation of its contents, and to cause thereby an overloading and an over-extension of the muscular fibres of the rectum, and the relaxation of the tissues of the vagina, especially behind.

4. Rupture of the perinæum, when this extends to, but does not involve, the sphincter ani. The action of this cause may be explained by supposing the detachment of the sphincter fibres

from their connexion with the perinæum, to produce their relaxation, and thereby a deficiency of the natural support to the recto-vaginal septum, especially during the evacuation of the bowels. The perinæum is the normal antagonist to the diaphragm, counteracting its downward thrust of the intestines, especially in the efforts at stool. Hence the perinæum being destroyed, the force of the diaphragm tends to displace the intestines and pelvic viscera, and will be more particularly felt on the anterior wall of the rectum.

Symptoms.—The general symptoms attendant on this affection resemble those of the preceding. The patient complains of pain in the parts and in the back, with bearing-down and dragging sensations from the loins, aggravated by walking and exertion of any sort, and giving rise to various sympathetic ailments. The special symptoms are tenesmus, the frequent recurring desire to empty the bowels, generally fruitless and attended with much pain, the evident increase of the vaginal tumour, and more or less inconvenience or difficulty in emptying the bladder.

Diagnosis.—This tumour, so soon as perceived, is generally mistaken by the patient for a descent of the womb, but a manual examination will soon detect its real nature.

The patient being placed on her back, the finger is found to pass into the vagina in front of the tumour, instead of behind it as in *cystocele*, and reaches the os uteri higher up towards its usual position, thus proving that it is not the uterus prolapsed. Again, on introducing the finger within the rectum, it enters into a cul-de-sac of its anterior wall, or in other words, into the cavity of the apparent tumour in the recto-vaginal septum, and may be felt through its walls from outside.

Treatment.—It is of great importance to cure this affection; otherwise, by its continuance, it will drag down the uterus to rest upon it, and thus aggravate the tumour, increase the miseries of the patient, and, of course, render relief more difficult.

In the early stages of the displacement we may hope for benefit from the recumbent posture, attention to the bowels to prevent constipation, astringent injections, perinæal bandages, and such like expedients. If such fail, however, recourse to

surgical measures should not be delayed. The operation I recommend and practise resembles in principle that for cystocele, and needs no distinct description. The narration of the following cases will serve in illustration.

Case XXIV.—*Vaginal Rectocele.*—Hannah H., æt. 49; married. Admitted May 6th, 1853, into Boynton ward, St. Mary's Hospital. Has had six children, the youngest now twelve years old. Menstruation has continued regular. Dates her present illness from six years ago; has been under treatment for most of the time.

She complains of violent pain in the loins and side of the belly; pain when she passes water and when she has a motion; the latter can only be procured by aperients, and its passage is attended with much difficulty. The straining causes the appearance of a "lump" in the vagina, which she took to be the uterus or a tumour from it. The endeavour to walk causes the tumour to prolapse from the vagina, and hence she is obliged almost always to keep in the recumbent posture. She has suffered from considerable leucorrhœa, and from heat and sorenessa bout the vagina. Intercourse with her husband is impeded by the tumour. The urine is thick and ropy.

On examination, the tumour was found to be a prolapse of the posterior wall of the vagina. The finger was introduced into the rectum passing forwards into the tumour, as it projects from the vulva. The perinæum had been torn in some previous labour, and was shorter than natural by imperfect reparation. The leucorrhœal discharge was found to come from the upper part of the vagina and os uteri, the surfaces of which were abraded by friction, the uterus having been displaced obliquely forwards, so that its mouth pressed against the posterior wall of the vagina.

I considered the case favourable for operation; and, accordingly, on the 7th of May, having previously cleansed the rectum by an enema, I proceeded to operate (anæsthesia being produced by chloroform) on the same general plan as in cystocele, omitting, as unnecessary in this prolapse, the anterior denudation and sutures. This will be at once understood by referring to Plate IV. The paring off mucous membrane, and the insertion of the interrupted sutures (at *c*) are the parts of the operation for cystocele omitted in that for rectocele; since the object is only to contract the posterior wall of the vagina.

The patient after the operation was placed as usual in bed on a water-cushion beneath the pelvis, and a grain of opium ordered every six hours.

On the 13th the pulse was quick and feeble; there had been some slight sickness, and excitement of manner, with free perspiration. Opium omitted, and a draught with five grains of the citrate of iron and quinine ordered three times a day. In the afternoon there was a forcing of the rectum, when an opium suppository was used.

14th. Feels better generally, but the tissues between the two quills look red and inflamed. This afternoon the quill sutures were removed, as rigors had occurred, with some bleeding; this last was arrested with ice. The wound indicating a tendency to slough, a lotion of liquor sodæ chlorinatæ was ordered. At 7 P.M., rigors still troubled her; the pulse was 120; tongue moist; skin perspiring; tenderness over lower part of abdomen, and a forcing of the bowels. To have an enema containing an ounce of castor oil, at once; and to take a saline draught, and a powder of hydr. c. cretâ and pulv. ipecac. co., every four hours.

15th. The shivering and pain have ceased. The left side of the wound looks puffy.

16th. Is better. Pulse 100; countenance more cheerful; appearance of wound healthier.

After this date the case proceeded satisfactorily; firm adhesions were set up, and the prolapse was cured. On the 12th of April she was discharged. I have since seen her, and find that she remains quite well.

CASE XXV.—*Vaginal Rectocele.—Ruptured Perinæum.*—Maria L., admitted into Boynton ward, January 6th, 1854, æt. 32; married. Has two children; the younger three years, the elder four years old. Was forty-eight hours in labour with her first child, and for eight, in extreme agony; the presentation, however, was natural, and, as she states, the pains good and the child small. Two days afterwards the perinæum was found to have been lacerated; no instruments had been used. The power to control the dejections was not lost, and these never escaped except through the natural outlet. She suffered from almost constant tenesmus and leucorrhœa, and her health failed. The catamenia continued regular. When standing or walking, a tumour protruded from the vagina, which she imagined to be the womb; and she felt a fulness with bearing down and dragging pains.

On examination, the perinæum was found lacerated as far as the sphincter, which had escaped. A rounded, reddish tumour extruded between the labia, occupying about two-thirds of the orifice, and proved to be a prolapse of the posterior vaginal wall, or a rectocele.

January 19th. Is not well. Complains of cough, and has forcing pains in the rectum. Ordered for cough, vin. ipecac. ℥ xv.; tr. camph co. ℥ xx.; syr. scillæ, f℥j.; aq. f℥j.: ter die.

10th. To be operated on to-morrow. Ext. fell. bovis, gr. x.: h. s. An injection in the morning.

11th. Was operated on in the usual way. Opium as usual.

12th. Has had a bad night. The cough is troublesome; she is feverish and complains of great pain. Tongue clean; pulse 90. To have mel boracis, ℥j., pro re natâ.

13th. Is rather low this morning. Has been in much pain; the cough very bad, and there is considerable fever, with a furred tongue.

The sutured parts were very œdematous last night, when they were punctured with a lancet; to-day they are much less so. To take spt. ætheris nitrici, f℥ss; potassæ nitrat. gr. viij.; pulv. tragac. comp. gr. xv.; syr. papav. f℥ss; aquæ, ℥j: 4tis horis. This evening the sputa were streaked with blood, and vin. antim. potass. tart. ♏ xij., was added to the mixture.

14th. Feels better. Tongue not so furred, and skin less hot. urine clearer; pulse 96. The quill sutures were to-day removed; some suppuration existed. At night the cough was again worse, with increased dyspnœa and fever. The vin. antim. potass. tart. was increased to ♏ xxij.

16th. Past night has been better; expectoration and breathing easier. The catamenia have come on. The perinæum appears united. Mixture to be taken every five hours.

20th. The chest symptoms are alleviated. The superficial sutures were this day removed; the healing is complete.

24th. Cough much better. Complains of frequent desire to pass urine, which scalds her: it is acid, clear, and with very slight sediment; bowels regular. To take liq. potassæ, ♏ xx.: tr. hyoscyami, ♏ xx.; dec. lini. f℥j.: ter die.

29th. Has a good deal of bearing-down pain, and the urine still scalds; in other respects she is better. The vaginal rectocele is removed, and the perinæum perfect.

Case XXVI.—*Vaginal Rectocele, Prolapse of the Uterus, and Ruptured Perinæum.*—Mrs. F., æt. 24, was married when only fifteen, in India, and had the first child before she was sixteen years old. In the course of delivery the perinæum was much torn, and ever afterwards standing was attended with pain. Fourteen months after the birth of a second child, the womb came down and protruded externally. It was replaced, and she was kept in the recumbent posture for some time. In the course of the following year (1846), she miscarried at the eighth month, and was afterwards absent from her husband until the beginning of 1847. In October of that year, she was confined with another child, and a fourth was born in 1849. Moreover she had a miscarriage in 1850, at the seventh month (the child dying in a few hours), and again in June, 1851, at the sixth month.

She states that during each pregnancy something constantly protruded from the vagina, (except when in the recumbent posture,) the length of a finger, having a smooth surface, and feeling like a bladder.

The existence of this tumour, and the state of the perinæum and uterus, caused her so much trouble, annoyance, and pain, that she made the journey to England for further advice. For the last three or four years she had been almost constantly confined to the recumbent posture. By the kindness of Dr. Locock she was referred to me.

On examination, I found incomplete rupture of the perinæum; prolapse of the vagina posteriorly, or rectocele; displacement of the

uterus, so that the os was directed against the rectum, and the fundus tilted forward; moreover, unless supported by a pad and bandage, the vagina in its entire circumference prolapsed.

Notwithstanding this complication of complaints, I came to the conclusion, that by restoring the perinæum, and by contracting the dilated, relaxed vagina, the condition of the patient might be most materially relieved, if not entirely rectified.

Having subjected my patient to the common preliminary treatment for two days, I proceeded on the 19th of January, 1854, to operate, taking advantage, as usual, of the anæsthetic virtues of chloroform. The operation, as shown in PLATE IV., but with the omission of the anterior denudations,* consisted in dissecting off the mucous membrane from the sides and posterior wall of the vagina, in the shape of a horse-shoe, and fully one inch wide over the rectum, but not above half an inch at the lateral parts of the dissection. Rather more integument at the junction of the skin and mucous membrane was removed than usual, on account of the greatly relaxed state of the perinæum. For the latter reason also, I did not consider division of the sphincter ani requisite. The parts were brought together by two quill sutures of well-waxed twine, and superficially, by four interrupted sutures. The inclination to bleeding from the vagina was controlled by the insertion of a small piece of ice. The patient was placed on her side, the urine drawn off every three hours, and a grain of opium given every four hours.

Jan. 20th. There has been great irritability of the stomach, with repeated vomiting, and consequent prostration. A mustard poultice was placed on the stomach; an opium (gr. iij.) suppository introduced, and a teaspoonful of brandy and cold beef-tea ordered every hour. There was no tension of the parts operated on.

23rd. The suppository repeated every night; good nourishing diet prescribed; deep sutures removed; the parts looking well, and union by the first intention set up.

25th. Removed interrupted sutures. Union complete. The patient takes plenty of nourishment; is allowed wine and bitter ale.

29th. The bowels relieved for the first time. She has gained in flesh and strength considerably.

30th. The integrity of the parts quite restored; the ruptured perinæum united; the rectocele cured, and also the prolapsus uteri; and the patient can stand and walk with ease and comfort. One of my perinæal bandages to be worn for some months to sustain the newly-formed tissue.

Remarks.—This case illustrates the bad effects likely to ensue from neglecting to restore the perinæum, even when the rupture is but partial. The displacements of the uterus and vagina may be here attributed to it.

* The paring of the anterior surfaces is only needed when, as in cystocele, it is wanted to contract the front wall of the vagina.

CHAPTER III.

PROLAPSE OF THE UTERUS.

Of this affection there are three varieties, which, according to the description of my respected teacher, Dr. Blundell, are respectively called, *Procidentia, Prolapsus,* and *Relaxation of the Womb.* Several examples of these varieties of prolapse are recorded in the chapter on Ruptured Perinæum, with which lesion they were associated, and of which they were doubtless in a great measure the consequences.

I. *Procidentia Uteri* is said to exist when there is complete prolapse, with protrusion of the uterus beyond the vagina. It is consequently the severest form of prolapsed uterus.

Causes.—The immediate causes of this disease are:—

1. Relaxation of the Ligaments of the Uterus.
2. Relaxation of the Vagina.
3. Laceration of the Perinæum.
4. Polypus Uteri; and
5. Congestion of the Uterus.

This displacement consequently appears in subsidence of the uterus from deficient support, either from above or below. Such a want may arise from various causes originating in the general health of a patient, in local affections of the uterus, and in mechanical injuries.

One most common cause is the too early adoption, or too long continuance of the erect posture after delivery or miscarriage, before the uterus and its connexions have recovered themselves in position, size, and tone; i. e., speaking generally, before the end of the third or fourth week. Again, a violent cough at, and after labour, tends to thrust down the uterus by

the strong action of the diaphragm in the act of coughing, when too the vagina has not recovered itself and can render little support.

Single women, however, are not exempt from this accident, and in them mostly, from the nature of the causes, cure is more difficult to effect.

Symptoms.—One of the first symptoms of procidentia uteri is pain in the back, succeeded by some in the groins and labia, in which also there is a feeling of fulness. The pain in the back soon assumes a dragging character; there is a sensation of bearing-down or of weight, "as if" (as patients will describe it) "everything were dropping through." Together with these symptoms there are, an increased mucous discharge from the vagina, often a frequent desire to micturate, and sometimes a degree of strangury, irregularity of the bowels, and interference with the process of defæcation, sympathetic disorder of the stomach, loss of, or capricious appetite, dyspepsia, distension of the abdomen, &c.

With the pain and other local evils, and with the general bodily disorder, it is not to be wondered at that the spirits flag, that every occupation becomes tiresome, and life oftentimes a burthen.

Diagnosis.—With a little care, the os uteri may, by manual examination, be detected, and by observing its position and relations, our diagnosis may be readily made from polypus uteri, and from either variety of vaginal prolapse.

Treatment.—For a long period, in the progress of most cases, the uterus returns of itself or otherwise is easily replaced, on the patient assuming the recumbent posture. Hence, in the early stage, this posture, with the hips considerably elevated, must be insisted on, and continued for a long time; attention being at the same time given to maintaining perfect quiet. The food should be unstimulating, and opium administered by the mouth to prevent the action of the bowels, and so to keep the parts quiet; injections, however, being occasionally used. So soon as all inflammatory symptoms have subsided, cold, astringent and stimulating injections may be employed; the cold douche over the abdomen is especially beneficial. At the same time the system

generally requires to be braced by tonics, change of air, and good or generous diet. Let the introduction of pessaries be avoided. I will here state my objections—and they apply to each variety of prolapse, whether of vagina or uterus—to pessaries of all forms, as mechanical supporters. As a general rule they are bad; they are prone to produce irritation and excoriation, and with these leucorrhœa; they are incompatible with perfect cleanliness; and they stretch and tend to keep up the relaxation of the canal. To afford local support I find nothing so useful as the form of perinæal bandage which I devised and described some years back, and have constantly used. (See woodcut.)

Fig. 3.

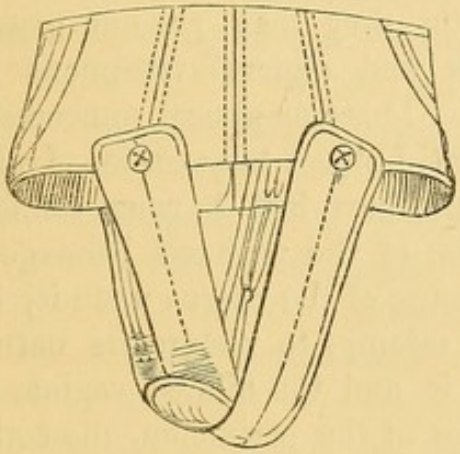
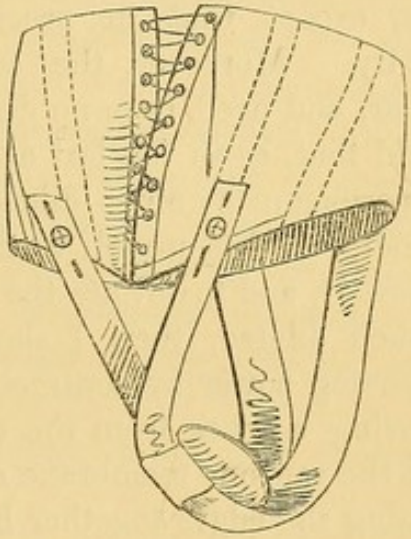


Fig. 4.



Should these measures auxiliary to the efforts of nature in recovering the normal tonicity and status of the parts be unsuccessful, or should the diseased condition have been previously neglected until no longer amenable to medical treatment, then we may seek a cure by surgical means. The measure I propose resembles in principle the one I have adopted in prolapse of the anterior and posterior walls—viz., in mechanically curing the displacement by contracting the relaxed, loose mucous canal. With this object I suggest the removal of a portion of mucous membrane anteriorly, posteriorly, and laterally, and the introduction of sutures after the same plan as in the other operations. A similar course of proceeding appears

called for in those very rare instances of prolapse of the entire vaginal canal without procidentia uteri. Such a condition is spoken of as a distinct one by Dr. Churchill, who quotes a case recorded by Nöel, where the prolapse reached the knees. But a relaxation of the vaginal walls seems almost necessarily to entail a more or less complete subsidence of the uterus, when, according to the accepted nomenclature, we should rather refer to the condition as one of prolapsed uterus than of prolapsed vagina. However this may be, the general treatment would be the same.

II. *Prolapsus Uteri*—Resembles *procidentia* in all points but in the extent of displacement, which does not proceed beyond the canal of the vagina. It is of more common occurrence than procidentia. The symptoms attending the two conditions are alike, except that in procidentia they may present greater severity. Moreover, the causes and general treatment are similar, and need here no detail. It seems almost unnecessary to add that, as in the last accident, I object to pessaries. Unless the perinæum be much dilated, and have lost its usual tonicity, I should confine myself to the use of the perinæal bandage to support it, and to obviate the pressure of the uterus upon it; but if much dilated, then I should attempt to restore its natural supporting power by contracting it and the dilated vagina, by removing a piece from the centre of the perinæum, dissecting back the mucous membrane over the recto-vaginal septum, and bringing the edges together by sutures.

III. *Relaxation of the Uterus.*—This is the least degree of displacement of the viscus. It implies merely a subsidence of the womb from debility of its structures—its attachments or, so-called, ligaments, and of the vagina. It is very open to general medical treatment, associated with attention to the recumbent posture, avoidance of fatigue, straining, &c., and proper hygienic conditions.

In this slight form surgical measures are not called for.

CHAPTER IV.

VESICO-VAGINAL FISTULA

Has been especially considered one of the opprobria of surgery, and, with few exceptions, attempts at cure have failed. By the term "vesico-vaginal fistula" is understood an unnatural communication between the bladder and the vagina, allowing all or a part of the urine to escape through it, instead of solely through the urethra. This opening is different from that produced by a rupture of the bladder; as in the latter the structures are simply torn asunder, whereas in the former, the mucous membrane of the vagina and the coats of the bladder are destroyed by a slough.

Causes.—1. The wall of the vagina may be wounded during criminal attempts to procure abortion.

2. Retention of a pessary within the vagina, inducing inflammation and subsequent ulceration.

3. The long impaction of the head of the child in the pelvis during labour, by pressure inducing inflammation ending in ulceration and perforation.

4. Careless or improper use of instruments in attempting to deliver, especially if the bladder be not empty.

5. Corroding cancer of the uterus or vagina may perforate the bladder.

6. Stone in the bladder at the time of delivery is sometimes a cause, from the bladder being pressed between the head of the child and the stone within.

The situation of the opening is of considerable importance with reference to treatment; it may be either in or about

the neck or body of the bladder itself. The fistula is sometimes circular, at others longitudinal, running from within an inch of the meatus urinarius up to the os uteri, which is itself occasionally fissured; sometimes it is transverse, stretching across the whole breadth of the vagina.

Symptoms.—The involuntary escape of the urine will be the prominent and leading evidence of the nature of the accident, rendering the condition of the patient painfully distressing. In the words of Dr. Fleetwood Churchill, "the escape of urine is attended with so marked and irrepressible an odour, that the patient is placed *'hors de société.'* Obliged to confine herself to her own room, she finds herself an object of disgust to her attendants and even to her dearest friends. She lives the life of a recluse without the comforts of it, or even the consolation of its being voluntary. It is scarcely possible to conceive an object more loudly calling for our pity, and strenuous exertions to mitigate, if not remove, the evils of her melancholy condition." The escape of the urine also produces excoriation of the vagina and external parts.

Wherever this sad condition is suspected, a most careful examination should be made by passing a catheter or probe into the bladder, and introducing the forefinger of the other hand into the vagina, when, if there be an opening, the finger will come in contact with the catheter or probe at some point or other. The best position for examination is, for the patient to rest on her hands and knees; then the vagina being held open by retractors, the surgeon can see as well as feel the size of the fistulous opening. An examination is especially necessary, as partial paralysis of the bladder may induce incontinence of urine. The examination is easily made when the vagina itself is not cicatrized. The use of Fergusson's speculum, by dilating the vagina, renders it possible to detect the fistulous opening when the plan just proposed fails to do so: indeed, I always use the speculum so as to satisfy myself of the exact nature, size, and position of the opening.

The results of treatment in producing a cure will depend upon the situation and duration of the lesion, and also upon the cause of the accident. If it has been produced by a sharp

cutting instrument, the early application of sutures will occasionally prove successful; and, in other cases, if sutures be applied as soon as possible after the discovery of the opening, that is, before the edges have become thickened and turned inwards towards the bladder, then a favourable result may be anticipated.

The probability of the cure also depends upon the situation. When the fissure is far back, and there is considerable loss of substance, success seldom attends the efforts used; but when it is near the neck, there is a better hope of success.

I shall now allude briefly to the different modes of operation that have been tried.

Dessault's method consisted in plugging the vagina and maintaining a catheter constantly in the urethra, so as to divert the discharge from its unnatural channel and allow this to close up.

Chopart, Peu, S. Cooper, and Blundell, relate cases of cure by this means. It is, however, in some cases impracticable, owing to the irritability of the bladder, to continue the catheter in the urethra.

Cauterization.—Various modes of cauterizing have been recommended: the nitrate of silver, the nitrate of mercury and the actual cautery, and galvanism (as recommended by Mr. Marshall, University College Hospital) have all been tried, but with very partial success. A few successful cases are, however, recorded by Dupuytren, Delpech, Dr. M'Dowell, Dr. Kennedy, Mr. Liston, Dr. Colles, Dr. Ferrall, &c. In using any form of caustic, the patient should be placed on her hands and knees, and a speculum introduced, through which the caustic should be passed, and then lightly applied to the edges of the wound. A piece of dry lint should be immediately afterwards introduced to plug the vagina, the patient placed in bed, and a long metallic or gum catheter introduced, having attached to it an india-rubber bag to receive the urine. Solid opium given immediately, and continued from time to time so as to prevent pain and produce constipation, is a point in my estimation of the greatest importance; for I am convinced any action of the bowels by which the pelvic viscera are disturbed, tends seriously to prevent contraction and union.

Other Methods of Treatment.—Dr. Blundell relates a case where the fistula at the neck of the bladder was cured by laying it open into the urethra, and then healing up the wound, just in the usual way of treating a rectal fistula. Mr. Porter, of the Meath Hospital, performed a similar operation which turned out well. Velpeau suggested, and Jobert put in practice a rhino-plastic operation similar in principle to that followed in restoring the nose: of four cases so treated, two were cured, one failed, and one died.

Suture.—This method has long been put in practice; the merit of its introduction is due to Roonhuysen. It has been used with success by Dieffenbach, Blandin, Chanam, Jobert (to whose recently published interesting work I shall presently allude more fully), Malagodi, of Bologna, the late Mr. Earle, Mr. Hobart, of Cork (who states he has had at least ten successful cases), by Mr. Hayward, of Boston, United States,* and also by my friend Mr. Spencer Wells, who has had some successful cases.

M. Jobert (de Lamballe) gives a very elaborate account of his modes of operating. In some cases he thoroughly pares the edges and surrounding surface of the fistula, and then paring the side of the uterus, he brings the denuded surface of the bladder on to the denuded surface of the uterus, and keeps them in apposition by the interrupted suture. In other cases he dissects back the whole of the anterior lip of the uterus and unites the posterior lip with the denuded opening in the bladder: and he relates cases cured by this means where the menstrual discharge subsequently came through the urethra. In some cases he fastens the edges of the opening almost round the neck of the uterus. He lays great stress upon free incisions with a view to remove all tension, and also insists upon constant catheterism after the operation. He relates six cases, out of which he cured three, and greatly alleviated and very nearly cured two others; the remaining one died.†

* See published case in the American Journal of Medical Sciences, Aug. 1839.

† See Jobert's "Traité des Fistules Vesico-Uterines, Vesico-Utero-Vaginales, Entero-Vaginales, et Recto-Vaginales." 1852.

The above-named surgeons employed the common interrupted sutures, but the quill suture, or rather pieces of bougie used in place of quill, is far preferable; but still better is the method recommended by Dr. Marion Sims, of Boston, United States, which is described in Ranking's "Half-yearly Abstract of the Medical Sciences," (vol. xv., pt. 1, page 232,) as follows:—

"The suture used by Dr. Sims he calls the 'clamp' suture. It is composed of annealed silver wire the size of horse-hair and fastened to crossbars like the quilled suture. These crossbars are also silver, or lead highly polished. Properly applied, Dr. Sims states that this suture never ulcerates out, having always to be removed. It may be allowed to remain as long as ten days after scarifying the edge of the fistula. This suture is introduced as follows—the number depending upon the dimensions of the fistula:—

"A long spear-pointed suture needle, armed with a silk thread, is introduced half an inch anterior to the scarified edge (in the centre of the fistula first), pushed deeply into the vaginal septum without transfixing it, brought out just before the mucous lining of the bladder, entered into a corresponding spot on the other side of the fissure, and made to emerge into the vagina half an inch above. A loop of this ligature is then secured by the help of a tenaculum and the needle is withdrawn, to be used as before for as many sutures as are required.

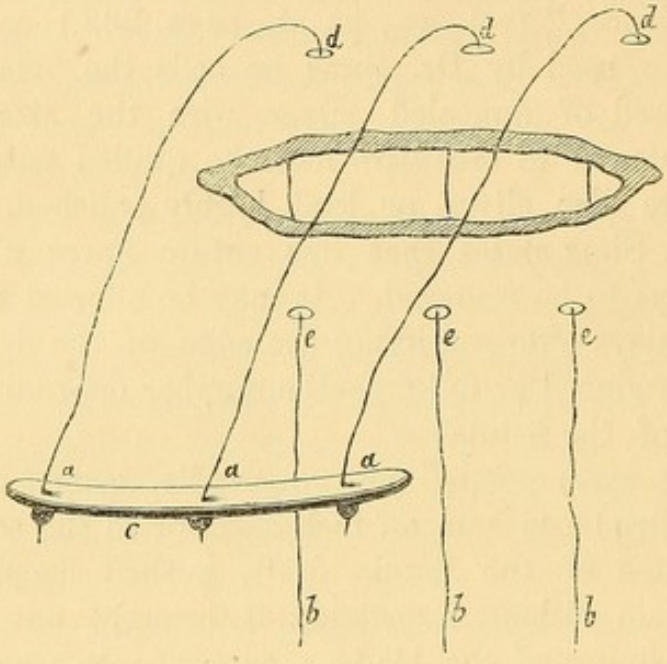
"The sutures having been passed and drawn out so that both ends of each thread hang out of the vulva, each is made to act as the guide for the metal suture now to be substituted. This is done as follows:—Take a piece of the hair-wire above mentioned, twelve or eighteen inches long, secured by a band to the silk, which then pull till the wire occupies its place. This is repeated for each. The next step is to fix the sutures by means of the clamps.

"The following diagram will assist the reader in understanding this manœuvre, as well as the previous steps of the operation.

"In this figure the wires are represented as passed; the ends *a a a* and *b b b* hanging out of the vulva. The ends *a* are fixed to the crossbar *c* by being passed through holes and

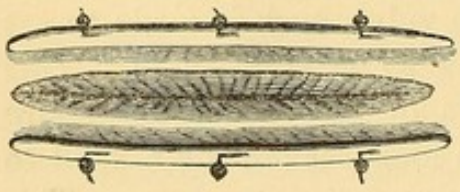
clamped by split shot. This done, the ends *b* are drawn down till the bar is pulled close to the needleholes at *d*, after

FIG. 5.



which it remains to attach a crossbar to the lower ends of the ligature and push it up to the lower perforations at *e*. To do this and fix it there it is only necessary to attach split shot upon each ligature and close them by means of appropriate forceps or pincers. The edges of the fistula are now brought together and retained *in situ* by a clamp on either aspect. It only remains to cut off the wires an eighth of an inch below the shot, and twist the end so as not to injure the mucous membrane. The condition of the parts is represented in fig. 6."

FIG. 6.



This plan has been successfully followed by my friend Dr. Druitt;* and I have myself used it with varied success, as will be presently seen in the cases recorded. On the whole, I am

* See "The Surgeon's Vade Mecum," 1854, page 572.

convinced that it is the best form of suture that we yet have. Before entering further on the treatment of this affection, I cannot avoid remarking that, as far as my experience goes, the prevention of this lesion is very much under the control of the accoucheur; and I cannot but consider that, with ordinary care, by keeping the bladder empty, and still more, by never allowing the head to remain long in its passage through the os externum, this serious injury would not so often occur. I am aware that in thus advocating the early delivery of the head, I am opposed to many of the most eminent obstetric writers. Still, when I reflect on the very many cases which have come under my notice, and find that in almost every case this accident has occurred after protracted delivery, I am strengthened in my own opinion. The history of some of the cases which I shall briefly record will adduce the strongest evidence of the truth of this opinion.

Position for Operating.—The patient should be placed either in the position for Lithotomy, on her back, or, still better, in the prone position as recommended by Dr. Marion Sims, as follows:—"The knees must be separated some six or eight inches, the thighs at about right angles with the table, and the clothing all thoroughly loosened, so that there shall be no compression of the abdominal parietes. An assistant on each side lays a hand in the fold between the glutei muscles and the thigh, the ends of the fingers extending quite to the labia majora; then by simultaneously pulling the nates upwards and outwards, the os externum opens, the pelvic and abdominal viscera all gravitate towards the epigastric region, and stretch this canal out to its utmost limits, affording an easy view of the os tincæ, fistula, &c. To facilitate the exhibition of the parts, the assistant on the right side of the patient introduces into the vagina the lever speculum, and then by lifting the perinæum, stretching the sphincter, and raising up the recto-vaginal septum, it is as easy to view the whole vaginal canal as it is to examine the fauces by turning a mouth widely open up to a strong light."

Another very good plan for placing the patient has been recommended by Dr. Hayward, of Philadelphia,* as follows:

* See "Ranking's Abstract," vol. xiv., pt. 2, p. 194.

"The patient being previously etherized, the bladder is brought down by introducing a large-sized bougie (one made of whalebone highly polished is to be preferred) into the urethra, to the very fundus of the bladder, and carrying the other end up to the pubis. In this way the fistula is readily brought in sight. Its edges can be pared with the scissors or a knife; though usually both these instruments are required; and this part of the operation is much facilitated by holding the edges by means of a double hook. It is not difficult to dissect up the outer covering from the mucous coat of the bladder, to the distance of two or three lines. The needles are then to be passed through the outer covering only, and as many stitches must be introduced as may be found necessary to bring the edges of the fistula in close contact."

The edges are to be pared by making an incision about three lines on each side of the fistulous opening, through the mucous membrane of the vagina (by means of a sharp-pointed knife with a long handle, as described in fig. 7), and then carefully dissecting off the mucous membrane; a pair of long forceps made on purpose (see fig. 8) being used to seize it. This done, a needle armed with silver or platinum wire, if that substance be used, is passed three or four lines from the edge of the incised surface, and made to penetrate the vaginal mucous membrane, and some of the fibres of the muscular coat of the bladder, but not through its mucous coat; to ascertain this, it is better to introduce the little finger of the disengaged hand through the urethra into the bladder. The needle should next be carried through the opposite side of the fistulous opening, and brought out at the same distance from the edge of the denuded surface as it was first inserted. Two, three, or more sutures, according to the size of the opening, should be introduced in a similar way. Various forms of needles have been suggested for this operation. I myself use those (shown in the following figures), made at my suggestion by Mr. Blaise, of the firm of Savigny & Co.* One was

* I may here say that I have been indebted to this firm for making, by my direction, all the instruments I have used in my various operations described in this work.

suggested to me by Dr. Wilkes, of Philadelphia (as seen in fig. 9), which represents the needle A, which has an eye at B,

Fig. 7.

Fig. 8.

and another at C. The ligature is passed through the eye B, the needle screwed to the stem D is then passed until the ligature appears through the wound; the hook E is then passed through the eye C, and held in the left hand; the stem D is then unscrewed with the right hand and withdrawn; afterwards the needle is carefully withdrawn by the purchase of the hook E.

A second, which is an improvement of Jobert's *porte-aiguille*, was invented by my friend Mr. Moullin, and is shown in fig. 10. A is a needle-clasp, which opens by a spring, and is inclosed in

a sliding tube B, which being pushed forward, closes the clasp tightly together. The plates C are furrowed with rough grooves

FIG. 9.

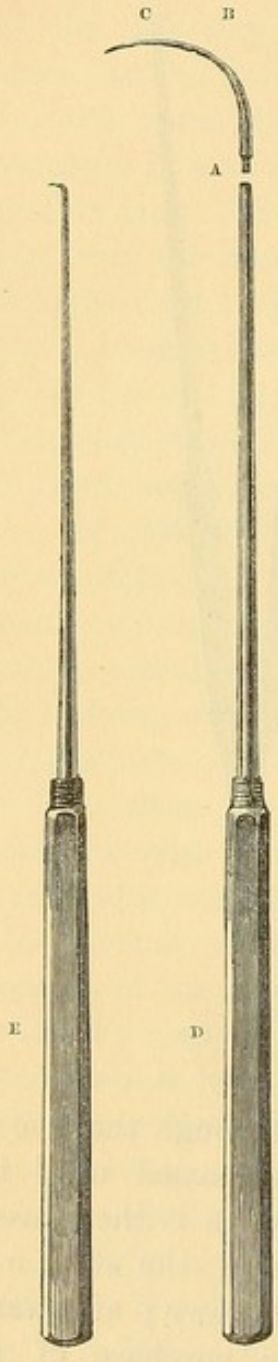
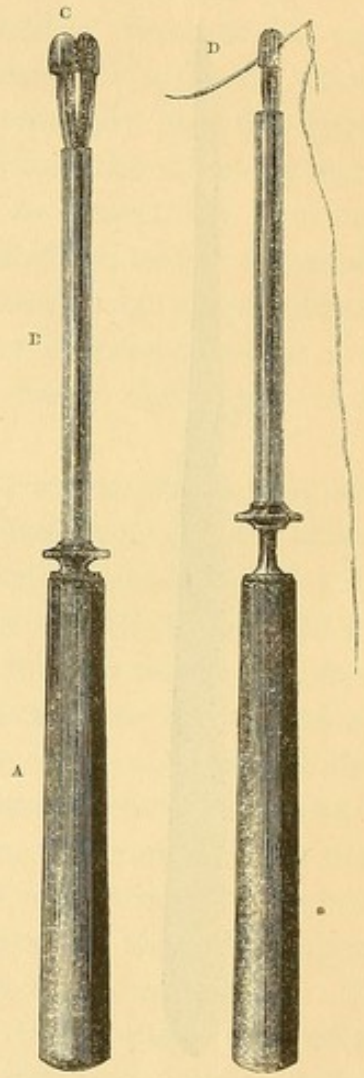


FIG. 10.



so as to seize and fix the needle firmly at any angle. D is a needle so clasped. After it has been inserted in its proper place, the clasp is withdrawn, and re-fixed near the point of the needle,

which is thus drawn through the wound and detached from the ligature.

A third instrument, (fig. 11,) made at my suggestion, by Mr. Blaise, is so contrived that by turning a screw at the handle A, the needle B may be bent to any angle with the stem, and the ligature being passed through an eye near the point of

FIG. 11.

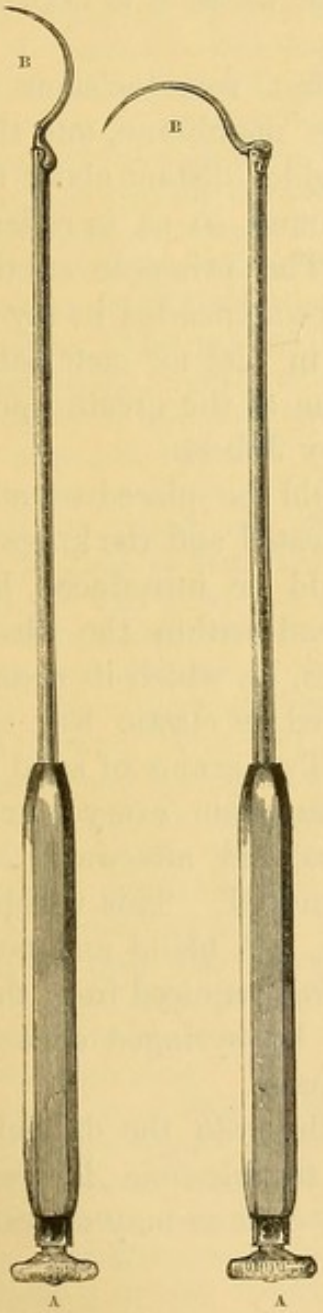
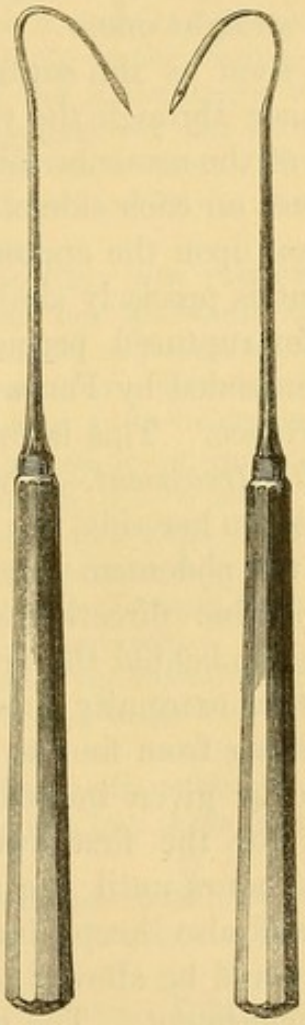


FIG. 12.



the needle, is seized by a pair of forceps, and the needle is withdrawn in a retrograde direction.

A fourth form of needle, invented by my friend Dr. Druitt, (fig. 12,) has a fixed curve at an acute angle, the point deviating obliquely from the staff. Those delineated in the figure are intended for the right and left hands.

Besides these, I am accustomed to use other needles, bent at various curves and angles, and in some cases, it is necessary to use a straight one.

So soon as the sutures are made fast, free incisions should be made through the vaginal mucous membrane, and through some of the muscular fibres of the bladder, distant about four to six lines on each side of the closed wound, so as to relieve any traction upon the apposed surfaces. The principle of this expedient is precisely similar to that recommended in my operation for ruptured perinæum, as also in that for cleft palate, as recommended by Fergusson, and is one of the greatest practical importance. This is fully dwelt on by Jobert.

After-treatment.—The patient should be placed on a water-cushion on her side, the hips being elevated and the knees flexed upon the abdomen. A catheter should be introduced, bent in a serpentine direction, so that the end within the bladder is turned up behind the arch of the pubes, on which it rests. To the other extremity should be attached an elastic bag, capable of holding from four to six ounces. Two grains of solid opium should be given immediately, and one grain every four or six hours for the first twenty-four hours, and afterwards once in twelve hours until the sutures are removed. This will prevent pain and also keep the bowels quiet. A bland and generous diet should be allowed, and wine is often required from the very commencement. The vagina should be syringed once a day with cold water so as to insure cleanliness.

I shall now relate some cases to illustrate the difficulties of any operative proceeding in these troublesome lesions, and make such practical remarks on each case as may appear most useful.

CASE XXVII. *Vesico-Vaginal Fistula of one year's standing : Six Operations ; Result ; Remarks.*—Eliza Z., æt. 32, married, aspect

healthy, dark red hair, dark irides,—was admitted into Boynton ward, St. Mary's Hospital, under my care. June 18th, 1852.

She reported that she was confined July 4th, 1851. The labour continued two days and a half and instruments were used. After the labour, she was unable to retain her urine, and she has continued in the same condition ever since. Bowels costive, not acting without medicine since her confinement; were not so before. She is otherwise quite healthy: her child was destroyed during the labour.

The condition of the parts before the operation was as follows:—On introducing the finger into the vagina, at about two inches from the meatus urinarius, it passed into the fistulous opening, which was equal in breadth to two fingers. The os uteri could not be felt without passing the finger to the left side high up in the vagina, where a small opening barely admitting the tip of the index finger, led to a cul-de-sac of the vagina, in which was the os uteri. It was found that the fistulous opening extended completely to the os uteri. She said that the urine did not flow away to any amount while she was lying down, but chiefly while in the erect posture.

The bowels having been opened, the operation was performed on July 17th. The patient being placed on her abdomen, and the entrance to the vagina being separated as widely as possible, the edges of the fistulous opening were pared, and four sutures introduced from below upwards, and held in situ by bougies, so as to bring the edges exactly in apposition; the lower edge of the cul-de-sac enclosing the os uteri was pared, and great care was taken not to close up the orifice leading to the os uteri. The patient was kept under chloroform for one hour and a quarter, the time occupied by the operation. When consciousness returned, two grains of opium were given, and the bent catheter, with a bag attached, introduced.

18th. She slept pretty well the night after the operation, skin at present warm, pulse 144, tongue coated at the back, with some red papillæ at the apex; bowels not acted, and no urine passed per vaginam: it flows through catheter into the India-rubber bag; she complains of some uneasiness in hypogastrium, but there is no tenderness; thirst; no appetite.

19th. Bowels not acted, tongue more moist and clean; complains of flushes of heat and shiverings succeeding each other. The urine seems to pass only through the urethra.

21st. Bowels not acted; to be opened by enema. Tongue cleaner; otherwise the same.

22nd. A good deal of blood flowed away with the urine into the receptacle last night; suffered much pain in the night; is easier now; less hypogastric uneasiness; tongue coated at back, less so, and rather moist at front; bowels not open to-day, only slightly acted upon by enema. The blood seems to have flowed from the uterus, probably in anticipation of the monthly period; the ligatures have given way, and the fistulous opening is just as it was before the operation.

25th. Tongue rather coated with papillæ; bowels open; slept well.

29th. On examination yesterday, it was found that another operation could be hardly performed with any prospect of success at present; she is therefore discharged.

Dec. 11th. She was re-admitted, and on the 14th the septum between the vagina and the cul-de-sac containing the os uteri was divided, so as to lay the two into one, and also enlarge the cavity of the vagina. The perinæum was also cut through as far as the commencement of the sphincter ani, and the wound dressed with oiled lint. This was found to afford a much greater space for manipulations during the operation of paring the edge of the opening and bringing them together, which was done on Dec. 30th in the manner described at page 93, figures 5, 6. A flexible metallic catheter was then passed through the urethra into the bladder and retained, and the patient placed on her left side. She was under chloroform one hour.

Jan. 16th, 1853. Clamps removed, and the wound found to be healed, with the exception of a small orifice close to the cervix uteri, which admits the extremity of a female catheter.

Feb. 15th. The edges of the remaining opening were pared and brought together as before with clamps, the os uteri being directed into the bladder; she was under chloroform upwards of an hour.

16th. No urine has escaped through the wound; feels comfortable.

18th. Doing well.

19th. Complains much of the catheter giving her pain. Catheter removed; the urine to be drawn off every two or three hours, or oftener, if needful. No urine has escaped by the wound since the operation.

22nd. Some urine has escaped through the wound into the vagina —clamps removed; they had become somewhat twisted. A small opening close to the os uteri still remains.

23rd. Urine escapes in considerable quantity through the opening.

24th. Less urine escapes; she passes a considerable quantity per urethram.

March 8th. Retains much of the urine when in bed, and when sitting, but when walking, suffers from it dribbling away. The opening is smaller than it was; actual cautery applied.

10th. No urine has come away through the opening for two nights, and very little when she walks about.

19th. Urine still coming away; the actual cautery was again applied completely into the very small fistulous opening, and lint soaked in oil applied to the vagina, and some dry lint over that, so as to plug up the vagina.

April 5th. Fistulous opening very small; cautery applied again.

9th. Actual cautery applied; opening still small.

14th. Actual cautery applied thoroughly.

15th. No escape of urine since.

25th. Urine passes both ways; feels very easy.

29th. Bowels open; sleeps well; no pain on passing urine.

May 3rd. No urine passed per vaginam since the 28th.

7th. Examination made very carefully; small quantity of urine escaped from wound. Discharged.

Re-admitted Oct. 31st, 1853.

A week after admission had nitrate of mercury applied to a vascular excrescence, which was growing in the old line of union in the vagina.

Nov. 19th. To-day the same was applied to the fistulous orifice. The growth had disappeared, leaving some slight vascularity.

Dec. 6th. The nitrate of mercury was again applied, and afterwards a solution of bicarbonate of potass.

10th. Same application.

13th. Parts painful; lint applied. She is not materially relieved. Discharged.

She was again operated on, Feb. 22, 1854, in private apartments.

The patient being placed on her abdomen and the vagina being well opened by retractors, there was found at the uterine extremity of the vagina, a large cul-de-sac with a very small entrance from the vagina, in which was the os uteri, which had fallen within the bladder and which could be felt within that organ by introducing the finger into the urethra. This cul-de-sac was freely laid open and the os uteri seized and dragged up by two pairs of vulsellum forceps one on either side, the right side of the os uteri was then well vivified as was the bladder round the opening: the bladder was then stitched to the side of the uterus by means of sutures of platinum wire and moveable needle, and retained in apposition by clamps and shot: free lateral incisions were made to let go the bladder and to guard against all tension on the sutures—sickness occurred directly after the operation, but not afterwards. Ice given, and an hour and a half after the operation two grains of opium were given.

6. 45 P.M. Water drawn off and tube (with bag attached) introduced.

23rd and 24th. Going on well.

26th. Doing well; sanious purulent discharge; no escape of urine.

27th. Still doing well; healthy discharge of pus; no escape of urine.

28th. An injection was given, and a great accumulation of fæces came away.

March 1st. Examination; parts looking-well, clamps well together, no escape of urine. The clamps being removed, it was found that union had taken place between about three-fourths of the surfaces apposed to each other. Some urine escaped through the remaining portion when she stood up.

20th. The remaining portion of the fistula was denuded, as also the side of the cervix uteri, and they were stitched together by interrupted sutures of twine. She did well, with no escape of urine, up to

the 27th, when the sutures were removed; still no escape, and no opening could be found by probe or by examination with finger.

30th. Examined carefully, when one small opening was discovered barely admitting the probe, and then only from the vagina.

April 4th. On again carefully examining, another opening was found of the same size as the former, lower down, both of them being overlapped by the os uteri, part of which was within the bladder and part in the vagina. Both these small openings were denuded and again brought together by three interrupted sutures.

6th. The catamenia, a week before the proper time, passed chiefly through the urethra.

8th. The sutures came away, and again it was found that one of the openings was not quite closed. Discharged for the present.

Practical Remarks.—As might be expected, this patient is not inclined at present to undergo any further treatment, as no urine escapes except in the act of walking.* I still feel sanguine that this opening will be closed on a future occasion when her strength and courage return. This case is extremely interesting, as showing the great difficulties which are met with in the treatment of these troublesome lesions: and although it cannot be said that the patient is cured, still she is so much relieved as to be well repaid for all she has undergone.

CASE XXVIII.—*Vesico-Vaginal Fistula, of three years' standing, the effect of the Pressure of a Stone in the bladder during Labour; Operation; Cure; Remarks.*—Hannah B., æt. 48, mother of ten children, admitted into Boynton ward, St. Mary's Hospital, under my care, March 24, 1853. She states that she was injured three years ago during a tedious labour. The waters broke on a Thursday morning, and she was not delivered till Saturday morning; the child was born suddenly, no medical attendant being present at the time. The funis broke and the placenta remained, and had to be removed by the introduction of the hand of a medical attendant. There was a great quantity of fæces accumulated in the rectum, and great pain in passing the motions after taking castor oil. She got out of bed on the ninth day and tried to pass her water, but could not; something seemed to fall down and prevent her; no water passed for two or three days, then "a little piece fell down about the size of a finger nail, and water has escaped ever since."

In July, 1852, she had another child, natural delivery; cannot recollect how long she was in labour; frequent constipation subsequently.

March 24th. Examination. There was a small fistulous opening near the os uteri; a large calculus could be felt within the bladder,

* Since writing the preceding remarks, I find that the patient can now retain half a pint, even whilst walking. (April 28th.)

which on being grasped by a pair of forceps through the urethra, began to peel, and by repeated applications of the forceps, assisted by the scoop, the whole was removed : the stone was two inches long, an inch and a half broad, and three inches and a half in circumference, weight two ounces and a half. The patient was under the influence of chloroform during the operation. There was a very slight laceration of the anterior part of the urethra, which was otherwise uninjured, so dilatable was it found to be. The bladder was injected four or five times with cold water, and no bleeding followed. She was much depressed by the chloroform, with feeble pulse and somewhat laboured respiration; had distinct arcus senilis. Ordered 15 minims of liquor opii sedativus, 15 minims of compound spirit of sulphuric æther, and an ounce of camphor mixture immediately; and this was ordered to be repeated after six hours.

8. 30, P.M. Doing well; circulation recovered; countenance good; no sickness. To take two drachms of liquor ammoniæ acetatis, fifteen minims of spirit of nitric æther, fifteen minims of tincture of henbane, ten grains of compound tragacanth powder, and an ounce of camphor mixture, every four hours.

25th. Passed a good night; has had no pain in the bladder, no hæmorrhage; all the urine escapes through the fistulous opening; takes beef-tea and barley-water.

April 5th. The fistulous opening is a mere point and very high up, small particles of calculi still passed through. Actual cautery with small point thoroughly passed into the orifice. A catheter, with bag attached, introduced and retained to prevent the urine escaping at all through the fistula.

9th. An incision was made half an inch from the fistulous opening on all sides, by which the mucous membrane was divided, so as to take off all tension from the opening, after which the actual cautery was applied.

16th. The opening is quite closed, and the incisions through the mucous membrane healing up by granulation; no water escapes but by natural passage.

19th. No urine escapes through the vagina: on examination with the speculum, there is a granulating surface about the size of a shilling in the situation of the opening; os uteri irregular and abraded; urine clearer.

28th. On careful examination, no fistulous opening could be found, and there was no evidence of any urine escaping from the vagina.

30th. Discharged cured.

Practical Remarks.—This case is interesting, as showing the mischief sometimes done during labour by the presence of a stone in the bladder; a circumstance not mentioned, to my knowledge, by any author. It also shows the importance of liberating the fistulous opening from any dragging of the surrounding parts, by incising the membrane before applying the cautery.

CASE XXIX.—*Vesico-Vaginal Fistula of seven months' standing; Two operations; Cure of the Fistula; Subsequent Death from Effusion into the Pericardium and Left Pleura.*—Mrs. T., æt. 25, consulted me March 18th, 1853. She gave the following history of herself:—

On August 1st, 1852, she was delivered of her fifth child; her labour was very tedious: the legs, body, and arms were born at half-past ten A.M., but the head was not born till half-past seven P.M. On the ninth day she was taken with violent pain; leeches were applied and a warm bath afterwards, on coming out of which, she found she could not hold her water, and had not been able to do so since, except when sitting or lying down, and then not for more than two hours.

Examination. On placing her on her hands and knees and passing the finger into the vagina, I found an opening into the bladder about an inch and a quarter from the orifice of the urethra; this opening readily admitted the finger; on examination by speculum, I saw the mucous membrane of the bladder protruding through the opening, and a considerable quantity of phosphatic secretion oozing through. On passing the speculum further up, I brought the os uteri into view, and found it fissured from two considerable lacerations, and the whole os in a state of ulceration. I applied caustic to it.

20th. Examined again carefully, and applied caustic to the os and cervix uteri, and introduced a bent catheter, with India-rubber bag attached, to catch the urine.

25th. Catamenia appeared after two months' cessation.

On April 4th, 2 P.M., present, Messrs. Wilkin, Borham, World, Trotter, and my son, I proceeded to operate as follows:—I pared the edges of the fistula and applied three silver wires and clamps. I found, on passing my finger into the urethra and examining the opening from within, that there were two points admitting the end of the probe not in apposition between the sutures, so that, in fact, I had not enough sutures. I therefore introduced two more under the clamps, and tied them over; this appeared to secure them perfectly. There was a good deal of hæmorrhage. She had ice before the operation, and afterwards she was ordered to take one grain of opium every two hours, and the catheter to be passed every two hours by the nurse.

9 P.M. Considerable hæmorrhage; applied ice within the vagina and iced lint within the vulva.

5th. 9 A.M. No fresh hæmorrhage; urine full of dark blood; has had some refreshing sleep.

9 P.M. Syringed out the bladder and vagina with ice-water, and left a bent catheter, with bag attached, in the urethra.

6th. 9 A.M. Has not had a very good night. Some considerable quantity of clots from the bladder. Pulse quiet and soft; allowed her to sit up on the bed-pan, and pass the water herself. A large quantity of clots came away; and from this time she was easier. I ordered a mixture of infusion of roses, dilute sulphuric acid, and tincture of henbane.

10 P.M. Has had a very comfortable day, on the whole; no more hæmorrhage. Beef-tea and barley-water.

7th. 9 A.M. Passed a good night.

2 P.M. Passed some large clots from the uterus, which produced fainting and prostration.

10 P.M. Very comfortable.

8th. 9 A.M. Very good night. No bleeding.

10th. An injection of warm water and salt brought away a good deal of scybalous matter; ordered some acid and bark mixture, and an opium pill at bed-time.

11th. Has passed a good night, and is very comfortable.

12th. Examined and found the upper stitches had all given way, and that there was a large quantity of phosphates coming away like mortar.

She gradually recovered her strength, and could hold the urine for three or four hours, except when walking. She returned into the country in May to recruit, and on January 31st, 1854, came up to town again, her health being very much improved.

She was placed under the influence of chloroform, Feb. 6, and I proceeded to dissect away the meatus urinarius from the symphysis pubis, and from its attachments laterally, so as to let it go quite back and not to offer any traction on the rent of the bladder. There was a great deal of hæmorrhage, principally venous. The hæmorrhage being so great, I did not, as I intended, proceed to dissect away the bladder from its attachment to the uterus, and from its attachments laterally, so as to let it be quite free and void from all traction before proceeding to the treatment of the fistula. The hæmorrhage was stopped by ice, and the little that took place afterwards was immediately stopped by fresh ice. The consequence of the operation was, that the urethra contracted well backward, towards the fistula, insomuch that the patient could control her urine until she asked for the bed-pan.

Feb. 12th. The catamenia appeared. She can hold her water even when she sneezes. I now determined to attempt the complete closure of the fistula, and on the 20th I proceeded with the following operation.

The patient being placed on her abdomen and the pelvis raised, the anterior lip of the os uteri was dissected from the bladder; indeed, it was divided into two portions horizontally, and then the incision was carried round to the right side of the vagina, so as to detach the bladder completely from behind up to the pubis; the same was done on the other side; then a needle, armed with a double suture of twine, was passed through the upper part of the opening, (which was the size of a half-crown,) and then the edges were pared with the knife and scissors, and finally united by six sutures, fastened to two pieces of bougie. The operation took two hours and a quarter, during which time the patient was kept under chloroform. Not much blood was lost, considering the depth of the incisions which were made through

the plexus of veins on each side of the urethra and bladder. Wine and ice were administered as soon as she recovered from the chloroform, and hot bottles applied to her feet; one grain of opium an hour afterwards, and a bent metallic catheter introduced, with a bag attached.

21st. Almost incessant sickness.

22nd. Very sick all night, sleeping an hour or two at a time; ordered some Bass's bottled ale, which stopped the sickness; had some fresh mutton chop minced up; ordered to continue the opium every six hours.

23rd. Much better, and no sickness.

24th. Discharge from the vagina very offensive; syringed it out with chloride of lime water; the bent catheter was completely filled with phosphatic secretion. It was cleaned out with acid, and re-introduced. No escape of urine from vagina.

25th. Injection of chloride of lime used,—discharge of healthy pus, no escape of urine per vaginam.

26th. Careful examination. Consultation as to whether the sutures should be removed or not; there was no sloughing from pressure,—healthy discharge and no escape of urine,—parts looking well, and it was determined not to remove the sutures.

27th. Doing well; no escape of urine.

28th. A little shivering in the morning, headache, and sickness; a great deal of bile vomited. An injection ordered; great accumulation of fæces came away,—no escape of urine.

March 1st. The sutures have nearly all ulcerated away; removed the rest. The union appears to be perfect.

6th. Is able to retain her water for three or four hours, and she then passes it entirely through the urethra.

At half-past eleven, I was called to her suddenly, and found she had had a severe rigor. On examining the left side of the chest and heart, there was evidence of considerable effusion in the pericardium and pleura. I sent for Mr. Moullin, who stayed with her some hours. Day by day she gradually sank, became delirious, and died on March 13th. Her brother, a surgeon, was present for some days before she died. Post-mortem examination not allowed.

Thus ended one of the most interesting, and apparently one of the most successful cases on record.

Case XXX.—*Vesico-Vaginal Fistula with Ruptured Perinæum.*—Mrs. M., æt. 29, married, admitted into Boynton ward, St. Mary's Hospital, September 20th, 1853.

A thin, healthy looking woman, has been married about two years; suffered much for the first seven months of her pregnancy, but experienced no inconvenience the last three. She says she was confined one month later than she ought to have been, making ten months that she was with child. Was taken in labour August 26th; the pains

continued with great violence until the 28th, when she was delivered of a large female child, which her medical attendant had previously told her was dead, and which he said, on its birth, had been dead at least a fortnight. On her complaining of great pain, the nurse told her she was "ripped." About a week afterwards, she found she had no control over the sphincters, which want of power continued till about a fortnight since, when she began to evacuate as usual, excepting that when she was in bed the water passed in small quantities without her knowledge. She has suffered from and been cured of a swelled leg, which she attributed to the cramp during labour. Ordered two drachms of liquor ammoniæ acetatis, fifteen minims of tincture of henbane, and an ounce of camphor mixture three times a day. Six drachms of liquor plumbi diacetatis, and six ounces of water, for a lotion.

22nd. Zinc ointment to be applied to the lacerated surfaces.

27th. Ordered an ounce of decoction of bark, a drachm of tincture of bark, and a drachm of sesquicarbonate of ammonia, three times a day.

29th. Examination. Fistula in bladder about two inches from the urethra, sufficiently large to admit a finger. Perinæum completely ruptured even through the anterior fibres of the sphincter.

November 2nd. Operation under chloroform. Incisions were made round the edges of the fistula and the actual cautery applied. The vagina was plugged with lint.

19th. Fistula much smaller, healthy granulations; doing well.

26th. Doing well; parts touched with acetum cantharidis.

29th. The same application was applied.

December 6th. Fistula much smaller, granulations healthy. Acetum cantharidis applied. One grain of opium immediately, and to be repeated every three hours, if necessary.

13th. Acetum cantharidis applied.

21st. Operated on again to-day; an incision was made on either side of the orifice, and also one in front and behind, in order to take away the tension; then the edges being pared, sutures of silver wire, with shots attached at the ends, were applied from side to side, and from above to below, so as to pass each other at right angles. This being done, a catheter was introduced into the bladder, and it was ascertained that the orifice was quite closed. A piece of lint was then applied. One grain of opium every six hours.

22nd. Seems very poorly; very hot and feverish; has been sick and is still nauseated. No urine has escaped; simple diet and beef-tea; half a grain of opium every three hours.

23rd. Still very feverish; not so sick; feels thirsty; three ounces of wine; effervescing mixture occasionally.

24th. Better this morning, not so feverish; was in some pain last night, and felt something give way, which eased her. Repeat the pill every night. Some urine has escaped. On examination, it was found that the antero-posterior suture had given way, the other remaining firm.

25th. Has been in great pain all night ; thinks it is from the lint applied yesterday with collodion. Lint removed.

26th. Very much better to-day ; pain nearly all gone. Removed the wire and shot ; no union.

Jan. 3rd. Applied actual cautery, and plugged the opening with a little piece of lint introduced on the point of a probe.

9th. Since the opening has been plugged, it seems to have got a little larger.

12th. Less urine escapes ; lint placed against the opening.

14th. Four pieces of twine tied together were passed through the urethra into the bladder, and out of the opening by an eyed probe, a piece of lint was then attached to the twine to plug the opening, and the two extremities of the twine were then tied together at the surface of the vagina.

18th. States that no water has escaped since the application of the plug.

21st. Doing well ; water does not escape, one of the four pieces of twine removed.

25th. Last night urine began to escape a good deal.

29th. Urine still escapes, scalds her a good deal; twine all removed ; lint applied.

Feb. 1st. Operated again in the same manner as before, only not paring the edges, it being found that they were quite raw, and divested of mucous membrane. On passing the finger through the meatus into the bladder, a small opening was discovered, and in addition to the two wire sutures used on a former occasion, a third wire was introduced at an acute angle with the other two. After the operation, a grain of opium was given every four hours.

2nd. A little feverish, not much pain. Had a good night.

3rd. Much better ; no urine has escaped ; has some scalding.

7th. Complains of much pain, which prevents her sleeping ; water better than it has been, passed with little scalding.

9th. Better ; had a good night, but still complains of slight pain.

11th. Does not complain of so much pain in passing her water.

14th. Great want of appetite, and does not sleep so well.

15th. Operated upon as before ; one grain of opium every four hours.

16th. Less feverish than after the other operations.

17th. No escape of urine ; wound looks healthy.

19th. Large escape of urine during the night.

27th. Now no escape, but still keeps the catheter in.

28th. Urine escapes ; actual cautery applied.

29th. Slight escape of urine.

30th. The escape is nearly the same as before the last operation.

April 14th. The opening has become gradually smaller since the last report, and she is now able to pass her urine by the urethra every three or four hours, and suffers only from occasional dribbling from the fistula ; and, from the condition of the parts, I see my way clearly to a perfect cure.

The preceding cases will illustrate the various points of difficulty which are met with in the treatment of this distressing lesion; and although they do not exhibit a great amount of success, they may fairly be looked upon as valuable illustrations of our present knowledge and practice; and I still look forward to a greater amount of success, by steady observation and persevering efforts, which the late improvements in surgical science certainly justify; especially as the difficulties are rather mechanical than pathological. It cannot be concealed, however, that it requires no ordinary amount of perseverance and determination, to bear up under the vexatious disappointments which are constantly occurring in the hands of the most painstaking operators.

CHAPTER V.

RECTO-VAGINAL FISTULA.

By this term is understood an opening between the rectum and vagina, through which either the fæces or flatus may pass from the bowel into the vagina. Although this condition is not of so distressing a nature as the foregoing, still it is one which is extremely annoying to the patient, and moreover, often produces so much irritation to the vagina as to induce inflammation and excoriation of that organ. Of course the amount of inconvenience will depend upon the size of the opening.

Causes.—It may be produced (1), by recto-vaginal abscess; (2), by stricture of the rectum; (3), by laceration during delivery; (4), by sloughing after long impaction of the head; (5), by the use of instruments in delivery; or (6), by corroding cancer, either of the rectum or of the vagina.

Treatment.—This will depend upon the nature of the cause.

1. If it arise from recto-vaginal abscess, it will very often yield to the application of caustics; or it may be cured by laying open the rectum from the fistula to the anus, as in the operation for fistula in ano, and by subsequent dressings, so as to insure healing by granulation.

2. If it be produced by stricture of the rectum and consequent ulceration of the recto-vaginal septum, division of the stricture simply will frequently be sufficient for the healing of the aperture: if it fails, caustics, or even laying open the bowel, as just described, may be requisite.

3. If it arise from laceration during delivery, whether by the use of instruments or by the force of the labour pains, lacerating the rectum without lacerating the perinæum, then, putting the

patient immediately in a quiescent state with the knees flexed, confining the bowels by opium, and applying a well-adapted perinæal bandage, will generally suffice for the healing of the laceration.

4. If it arise from sloughing after long impaction of the head, then, as soon as all sloughing has disappeared, the treatment may become more complicated; and it may be necessary to pare the edges and to bring them together by suture. Any of the forms of suture recommended for vesico-vaginal fistula may be used for this. If the opening be not larger than the head of a probe, the actual cautery may be sufficient to effect contraction and closure, and this I have found successful even when the opening is larger. It will often be found more advisable to apply the cautery per vaginam than per rectum. Another mode which I have found successful is to pass three or four threads of twine through the opening, bringing one end out of the rectum, the other out of the vagina, and daily moving the threads for several days, so as to produce a healthy granulating surface, which heals on their removal.

Lastly; in cases where the fistula is produced by corroding cancer of the rectum or vagina, nothing remains to be done by operative treatment, and our only resource is allaying the irritation by opium, and cleansing the parts by the frequent injection of warm water.

After-treatment.—This consists in great attention to cleanliness, but more especially in constipation of the bowels by the frequent administration of opium. It is also necessary to confine the patient to one position on her side, and to keep her on generous and dry diet. It will be observed that the success of the operation for this lesion is much greater than for vesico-vaginal fistula, on account of the great facilities offered by the use of opium in keeping the parts perfectly quiet after the operation.

I will now relate a few cases in illustration of the foregoing points.

CASE XXXI.—*Recto-Vaginal Fistula from Abscess in the Rectum, of several years' standing : Operation ; Cure.*—I was requested by Dr. Locock, in the month of February, 1853, to visit a single lady, æt. 52,

who had been suffering for four or five years from vaginitis, inflammation of the labia, &c., and had for some time past observed an occasional discharge of fæcal matter from the vagina. The most diligent examination had, however, failed to discover any recto-vaginal opening, although several eminent practitioners had examined her. As she had had a deep perineal abscess, and also an abscess in the rectum some years before, it was the opinion of Dr. Locock that there must exist some undiscovered communication between the two passages ; and in this opinion I fully concurred. I examined the rectum carefully with the rectum speculum, but found nothing. I then examined the vagina most carefully with the uterine speculum, and after some difficulty discovered a small *sore* about two inches up the passage, in its posterior wall ; this was evidently the seat of the opening, but the mucous membrane of the rectum seemed to close it or to fall over it as a valve, so that the finger introduced into the rectum could not be brought in contact with the end of the probe when pressed against the fistulous opening in the vagina, although it could be felt in the rectum by gently moving it.

Operation.—Feb. 16th. The patient being placed under chloroform, I first applied the actual cautery to the fistula per vaginam, and then divided the sphincter ani on both sides. Cold water dressing was applied, and forty drops of laudanum administered.

Feb. 17th. Severe sickness from the chloroform, which was relieved by twenty drops of chloroform given on sugar. Bowels relieved with pain.

18th, 19th, 20th. Much the same.

23rd. An external pile, which created considerable inconvenience, was excised.

25th. Bowels acted without pain ; no fæcal matter or flatus has escaped through the opening since the operation.

From this time the patient suffered no inconvenience from the fistula.

Case XXXII.—*Small Recto-Vaginal Opening : Operation ; Cure.*—Mrs. W., æt. 34, mother of one child, consulted me, Nov. 30, 1853, and stated that since her confinement she had passed flatus per vaginam. On examination, I found, about one inch within the rectum, a small fistulous opening through the septum, through which I could just pass the head of a probe. I then attached a piece of twine to the eye of the probe, and drew it through the opening. I twisted round this a piece of lint, which I drew into the fistulous opening, and then tied the two ends of the twine together over the perinæum. This produced, in twenty-four hours, inflammation, and subsequently the secretion of healthy pus, and in a week after the removal of the lint, the fistula was found closed. This patient has continued well to the present time, having been, in the interim, delivered of a second child.

CASE XXXIII.—*Large Recto-Vaginal Fistula: Operation; Cure.*—Mrs. D., aged 47, consulted me in the latter end of the year 1852, having been confined with her last child seventeen years ago, since which she had suffered from the passage of fæces per vaginam as well as per rectum. On examination, I found, about an inch from the anus, an opening sufficiently large to admit the point of the little finger. This was caused by the injudicious application of instruments for the purpose of effecting delivery. The case was treated by the free and repeated application of the actual cautery both per vaginam and per rectum, which closed the opening in the course of a few weeks. My original intention in this case was first to reduce the size of the opening by the cautery, and afterwards to operate by paring the edges, but to my gratification, the cautery proved entirely successful.

CHAPTER VI.

LACERATED VAGINA.

This lesion may arise either from forcible expulsive efforts during labour, or from the application of instruments; and the consequences are often of so serious a nature as to demand the careful attention of the surgeon. Because, if the laceration is considerable, or especially if there are two or more lacerations of the vagina at the same time, with or without partial rupture of the perinæum, the great degree of contraction produced by the cicatrization of the lacerated surfaces when left to themselves, sometimes results in such an amount of occlusion of the vagina as to prevent sexual intercourse. Hence it is of importance that immediately after the accident the wound should be plugged with lint smeared with ointment or oil, so as to prevent the puckering which might otherwise result. If this treatment is neglected in the first instance, and severe contractions by cicatrization ensue, then they should be freely divided and dressed as just described. But my chief object in commenting upon this unfortunate accident is to insist on the importance of careful examination and proper treatment immediately after its occurrence. I shall illustrate the treatment by relating one case only out of many that have come under my notice.

Case XXXIV.—*Lacerated Vagina, with Contractions producing Incontinence of Urine: Operation; Cure.*—Mary M., æt. 27, married, admitted into Boynton ward, St. Mary's Hospital, Dec. 23rd, 1853. Mother of one child; states that she was confined about nine weeks ago, having been in labour from a Thursday evening to the following Sunday morning. Her medical attendant told her that the head, which was very large, was in the world two hours before the body. The

child was born dead; no instruments were used. After she was confined, her fæces and urine came away involuntarily, and seemed all to come through the vagina. About a month after this she got much better, and the urine and fæces came through their proper channels, which they do at the present time, and she has perfect control over them when lying down, but not when standing up; in this position the urine escapes involuntarily. Her bowels will not act without medicine. Has always enjoyed good health. On examination, the perinæum, which had been ruptured, was found to be tightly cicatrized; the vagina also was puckered, and on one side a cul-de-sac, the size of a finger, was formed; this dragged on the bladder, and thus, when she stood up, the sphincter of that organ could not contract so as to control the urine.

Operation.—I divided the anterior margin of the cicatrized perinæum, and also the bands in the vagina, and applied lint soaked in oil, to keep the parts separate. She was placed on a water-cushion, and a catheter was introduced within the bladder with a bag attached.

Jan. 3rd. Parts looking healthy, and granulations coming up well.

9th. Feels very well in herself; bowels not open; Ol. Ricini, ℥ss. statim.

14th. Where the incisions were made, the parts are filling up well. A band can be felt on the left side running across; this was now divided.

16th. Catamenia appeared.

20th. Doing well; feels better.

24th. Parts seem to be quite healed.

27th. States that now when she stands up she has perfect control over her urine. Feels quite well. Parts quite healed. Discharged cured.

CHAPTER VII.

POLYPUS OF THE UTERUS.

The pathology of uterine polypi has been described so frequently and satisfactorily in various works on surgery and midwifery, that I shall content myself with a very brief resumé of the principal facts, my chief object being to indicate the surgical treatment of these common morbid growths; especially the ordinary pedunculated fibrous tumours—to which the term polypi is chiefly applicable, and which are most amenable to operative measures.

Polypi are of various forms, according as they may arise from the fundus or cervix. They are, however, more generally found either spherical or pear-shaped. They vary much in size, being found little larger than a pea in some cases, and even then frequently productive of serious consequences, while in other cases they grow to an enormous size. One was excised in the Meath Hospital some years ago, which was more than fourteen inches in length, and four or five in its extreme diameter.* Many similar examples are mentioned by authors.†

Polypi differ in colour. This depends partly upon the degree of vascularity of their surface, and partly upon their exposure to air; some being quite white, others reddish, or dark brown. Occasionally the substance of a polypus is traversed by a few small vessels.

Polypi are attached, some to the fundus, others to the walls; some to the inner surface of the cervix, and others to the lips of the os uteri. Dr. Gooch, in his work on diseases of women (p. 251) dwells very graphically on the importance of distin-

* Churchill on Diseases of Women, page 201.

† Siebold saw one of the size of a child's head. Frauenzimmerkrankheiten, vol. i. p. 687.

guishing from what part they arise, as the mode of operation for their removal, and the difficulties to be encountered, will depend upon this circumstance. Sometimes, in the early stage of their growth, it is difficult if not impossible to detect the point of attachment, as the finger cannot be introduced into the cavity of the uterus. It is only by repeated examinations, and by observing that the neck can be no longer distinguished, that we can finally determine the nature and origin of the tumour; and cases have been observed, in which the polypus in its passage outwards has become so firmly adherent to the cervix and os, that it appears to form one body with them. A case of this kind will be hereafter related. Polypi which grow from the lip of the os do not necessarily hang from a stalk-like pedicle, but sometimes appear as part and parcel of the lip itself; and it is necessary in operations in these cases to remove a portion of the lip. Dr. Denman says, that occasionally we find more roots than one.* Sometimes a polypus will protrude through the os uteri and afterwards recede; and this may be many times repeated.

The structure of the majority of polypi may be referred to one of three species:—1. The glandular. 2. The cellular. 3. The fibrous.

The *glandular* polypus consists in enlargement of the glandulæ Nabothi. Dr. Lee says, "One of these two bodies is sometimes converted into a cyst as large as a walnut or even a hen's egg, and hangs by a slender peduncle from the cervix or lip of the os uteri. It is smooth and vascular, and contains in some instances a curdly matter, or yellow-coloured viscid fluid. The tumour produces great irritation, and gives rise to copious sanguineous and mucous discharges from the vagina."†

The *cellular* polypus is the least frequent of either kind: ‡ it is soft and lobulated, or divided into bundles of fibres: in colour it is of a violet or yellowish hue, and indeed very much

* Denman's Midwifery, p. 50.

† Dr. Lee's paper in the 'Medico-Chirurgical Transactions,' (vol. xix. pp. 127-8.)

‡ See Clarke on Diseases of Females, (vol. i. p. 244.)

resembles the nasal polypus. It has a very slight connexion with the uterus, and is easily detached with a pair of forceps.

The *fibrous* polypus resembles in structure those fibrous tumours which project from the walls of the uterus; and is the most common kind of polypus. It has, reflected over its surface, the mucous membrane of the uterine cavity, with its vessels. These growths vary in density, some being found hollow, according to Boivin and Dugès; some containing grumous blood or gelatinous matter and hair. An interesting case of this kind is related by Mr. Langstaff, in the 17th volume of the Medico-Chirurgical Transactions (p. 63). The tumour is always covered by a continuation of the lining membrane of the uterus.* This pathological fact has been perfectly well established by the researches of Lee, and it explains the fact stated by Dr. Charles Johnson, that, contrary to the received opinions, polypi are not always insensible. These growths are very scantily supplied with blood-vessels. There are, however, several cases mentioned, where a small artery and vein have been detected. I have not myself been able to discover any vessels in the polypi which I have removed. It is difficult to explain the cause of the alarming floodings which attend the progress of these growths. For the reasons just stated, we cannot attribute the hæmorrhage to the vessels of the tumour itself; and different authors entertain different views as to the source from which it flows. I would briefly refer the reader to the works of Gooch, Hamilton, and Oldham, for their opinions on this subject. I am myself inclined to think it depends much upon reflex nervous influence from the tumour acting on the general surface of the uterus, and causing the flux. There is one fact worthy of note, as proving the slight degree of vascularity of these growths,—namely, that they never assume a malignant character.

Symptoms.—The symptoms which attend this disease are, first, a mucous discharge, mixed at different times with blood, by which the constitution becomes extremely debilitated. Sometimes large coagula of blood will come away without any

* See Denman (p. 50.), who dwells fully on this subject.

mucous discharge: in other instances, the blood poured out lodges in the vagina and becomes putrid, when there is a very offensive discharge, often exciting suspicion of the existence of cancer. There is always a sense of pressure or bearing down, more or less, according to the size and weight of the polypus. If the tumour be large, so as to fill the cavity of the pelvis, it may interfere with the functions of the rectum and the bladder; and it very frequently happens that strangury occurs, owing to the sympathy between the uterus and the bladder, and owing to this also there are frequent nausea and vomiting.

Diagnosis.—When these symptoms are present, it is of the utmost importance that a careful examination be made, both by the finger and by the speculum. If by neither of these modes of examination can a polypus be detected, it may yet exist in its early stage within the cavity of the uterus; and therefore it is only by repeated examinations that any satisfactory diagnosis can be made. Sometimes by insinuating the finger within the cervix the tumour may be felt, and the finger or the uterine sound can be passed round it, when we may conclude that the polypus grows from the interior of the uterus, as this cannot be accomplished when it grows from the cervix. Professor Simpson recommends dilating the os uteri by means of sponge tents, until the finger can be readily passed up into the cavity of the uterus. These should, however, be used with great care. Dr. Montgomery has published a valuable paper on this subject, to which I beg to refer the reader.*

Polypus may be distinguished from *pregnancy* (with which it has been known to be confounded) by the entire absence of the audible, and by the less marked and non-progressive sympathetic signs; by the slower course of the disease; and by the frequent attacks of hæmorrhage.

From *vaginal hernia* it may thus be distinguished: "These protrusions of intestines into the vagina," says Dr. Davis, "are for the most part exceedingly easily distinguished from polypi of that passage, by their elastic and otherwise characteristic feel,

* Dublin Journal of Medicine, August, 1846.

by their perfect sensibility to the touch, and by their being covered by a production of the mucous membrane of the vagina itself."*

From *vaginal cystocele* (or protrusion of part of the bladder into the vagina) polypus may be thus distinguished:—In the former condition, the tumour is covered by the mucous membrane of the vagina, and if a catheter be introduced into the bladder, the end of it may be felt in the tumour. The tumour may also be pressed up above the arch of the pubes; which cannot be done in polypus.

From *scirrhus uteri*, by the absence of the severe pain which precedes ulceration in this disease; and although hæmorrhages occur in both, in cancer it is after ulceration has commenced, whereas in polypus no ulceration can be detected. If the polypus is within reach, of course the diagnosis is very easy.

From *cauliflower excrescence*, by its greater smoothness and density, and by its not bleeding when touched.

From *prolapsus uteri*, by the absence of the os uteri in the projecting part, and the normal length of the vagina, which is shortened or obliterated in prolapsus. The sensibility of the uterus and the insensibility of the polypus will also distinguish the one from the other.

From *inversio uteri*, by its gradual advance, not occurring suddenly after labour, or with symptoms of collapse; and by the vagina admitting the finger, whereas in inversio uteri there is no vaginal canal to be found.

Prognosis.—The prognosis must always be unfavourable so long as the polypus remains within, or attached to the uterus, on account of the severe hæmorrhages to which the patient is exposed. If the polypus be not removed, it may then prove fatal by exhaustion, or may produce prolapsus or inversio uteri; it may prevent conception, or give rise to abortion; or, if the patient should go her full term of pregnancy, it may offer a serious obstacle to delivery, or may tend to promote after-flooding by preventing contraction of the uterus. On the other hand, the patient may be assured that, nothing unfavourable

* 'Obstetric Medicine,' vol. ii. page 622.

occurring in connexion with the operation, she may anticipate a perfect restoration to health after the removal of the polypus. But it should be clearly understood that the success of the operation will much depend upon its early performance, before the health is materially impaired.

Treatment.—The first thing to be done when we suspect there is polypus, is to ascertain by careful examination whether it is within reach or not. There are some cases in which the polypus is still within the uterus, and cannot be felt. In such cases various means have been recommended to excite the uterus to expel it, such as the ergot of rye. Boivin and Dugès have recommended the free application of belladonna. Dupuytren advised that the cervix should be incised. Another plan, which my colleague Dr. Tyler Smith has found successful in a case in St. Mary's Hospital, is the repeated application of galvanism to the os and cervix uteri.

If the polypus is within reach, our first duty is to attempt its removal, as that alone will check the hæmorrhage and save the patient. There are various modes recommended for this purpose:—1. Twisting off the polypus. 2. The application of ligature, and allowing the polypus to slough off. 3. Excision. 4. The actual cautery.

1. *Torsion.*—This has been practised by several surgeons, but especially recommended by Mr. Toogood, late surgeon to the Bridgewater Infirmary. The mode of operating is simple enough. The polypus is to be seized by the finger and thumb, or a pair of forceps, and gently twisted till the stalk breaks. The only after-treatment required is frequent syringing with tepid water to keep the parts clean. This mode is only practicable in those cases where the pedicle is very slender.

2. *Ligature.*—This is the method generally recommended and most frequently practised. Various instruments, more or less complicated in their construction, have been proposed for this purpose by Gooch, Burns, Blundell, Desault, and others: for the description of which I refer the reader to any of the standard works on midwifery. Various kinds of ligature, silk, silver wire, silk covered with wire, whipcord, common twine, &c., have been recommended. The common practice has been to tie the pedicle of

the polypus tightly, day by day increasing the tightness, and thus to strangulate the tumour, until it perishes and becomes separated. It is evident that this plan must fail where the neck of the polypus is so thick that the pressure of a single ligature is not sufficient to strangulate the tumour. In this case a needle with a double ligature is passed through the neck of the tumour and tied on both sides. Dr. Robert Lee tells me that he usually removes the ligature after a few days, without waiting for the entire separation of the polypus, with a view of relieving the patient of a source of irritation.

3. *Excision.*—Many eminent practitioners, impressed with the inconveniences and dangers of the ligature, have substituted for it excision by the scissors or bistoury. Amongst them we find Osiander, Siebold, Mayer, Dupuytren, Brodie, Arnott, Locock, &c. Dupuytren states, that he has removed by excision 200 polypi in the course of his practice, and that hæmorrhage occurred in two cases only. Dr. Fleetwood Churchill has recommended that a polypus should be excised after a ligature has been tightly applied twenty-four hours.

4. *The actual cautery.*—This has been recommended by Siebold, who states that he has employed it with success. An ingenious mode of applying the actual cautery to detach a polypus has been suggested, consisting in surrounding the neck by the two wires of a galvanic battery, which, on the setting up of the voltaic current, become red hot, and so cut through, and at the same time sear the bleeding surfaces.

In preference to any of these, I venture to propose another plan, namely, the application of a ligature or ligatures (according to the size of the pedicle), and instead of allowing the polypus to slough off in the ordinary way, or to remain twenty-four hours, as Dr. Churchill recommends, to excise that portion of the polypus external to the ligature *immediately after its application.* My reasons for preferring this method to the simple ligature are, that I have seen the most serious consequences ensue from allowing a putrid polypus to remain within the vagina. Not only does it emit a most offensive smell, detrimental to the health and comfort of the patient, but it also produces excoriation and irritation of the vagina and labia. But

further, a still more serious result is the absorption of some of the secretion from the putrid mass, which poisons the system, and produces sometimes uterine phlebitis, sometimes boils in different parts of the body, and sometimes abscesses in one or more organs, whilst the patient is frequently many months recovering from the effects of this poison. I find that my colleague, Dr. Tyler Smith, has also frequently observed the occurrence of boils and abscesses after this operation. Cases of uterine phlebitis succeeding the operation are recorded by Mr. Babington, late surgeon of St. George's Hospital, and also by M. Blandin. Dupuytren also relates that he met with eight or ten fatal cases which presented all the symptoms arising from the absorption of pus into the system.

I need not say that the plan above proposed is only applicable to those cases where the ordinary ligature would be applied by others, and is not at all intended to supersede the plan of excision where it can be safely adopted. My friend Dr. Locock almost invariably prefers excision even in cases which would be thought by others unfit for that mode of treatment; and I have heard him state that he has never seen any ill results.

The following are the details of my mode of procedure.

The patient is placed in the position for lithotomy, under the influence of chloroform, the vagina gently opened by retractors, when the polypus is seized by a pair of vulsellum forceps with long handles, and if the pedicle be small, a ligature is passed round it by the fingers; if large, a long needle (represented in figures 1 & 2), carrying a double ligature, is passed through the centre of the pedicle and tied on both sides. The polypus is then removed either by a pair of curved scissors or a blunt-pointed bistoury. A piece of lint soaked in a strong solution of alum is then applied to the cut surface, so as to prevent any chance of even slight hæmorrhage. If hæmorrhage should occur, even after this application, the actual cautery should be applied through a speculum.

Each of the following cases presents features of interest which are worthy of record.

Case XXXV.—*Polypus: Removal; Cure.*—E. P., æt. 29, unmarried, consulted me, December 2nd, 1852. She is of pale complexion and

anæmic in appearance, and has not menstruated for three months. She complains of headache at the vertex, and depression of spirits. On examination per vaginam, I found a small polypus growing from the superior lip of the os uteri, and extending up the cervix, making the os very patulous. I applied leeches to the os uteri every three or four days, and gave blue pill and ammoniated tincture of iron. After ten days the catamenia returned, and though rather scanty, they continued for some days.

On the 27th, the patient being placed under the influence of chloroform, and in the lithotomy position, I seized the os with a pair of vulsellum forceps, and the vagina being held open with retractors, I brought the polypus into view, and carefully dissected it away from the os and cervix uteri. It was irregular in shape, and about the size of a two-shilling piece. Lint soaked in a strong solution of alum was applied to the os, and the patient placed in bed. One grain of opium to be taken every four hours.

28th. No bleeding, little pain in the abdomen; the urine is drawn off by catheter. This case progressed favourably without any untoward symptom, and now, after the lapse of some considerable time, no recurrence of the polypus, nor indeed of any inconvenience about the uterus, has troubled the patient. This was a case where the base of the polypus was so broad, and the polypus itself so short, that it could not very easily be tied, although it might have been excised; still many surgeons would have thought the base too broad to recommend excision.

Case XXXVI.—*Polypus, from the fundus uteri, adherent to os and cervix: Removal; Subsequent death from disease in the chest.*—E. S., æt. 45, married, and has five children. She enjoyed good health until two years ago, when she was admitted into the Middlesex Hospital for some affection of the uterus. Fourteen months ago she applied at St. Mary's for retention of urine, which she had frequently suffered from, and became an out-patient under my care. She had also chronic bronchitis, which added very much to her distress. On proceeding to make a vaginal examination to ascertain if there were any uterine cause for the suppression, I found an enlarged uterus with the os and cervix very patulous, through which the finger could be easily passed, and then discovered a polypus occupying the whole cavity of the uterus, which appeared to be of the size of a small apple. It was, moreover, evident that the pressure of the enlarged uterus on the bladder had produced the suppression of urine. This poor woman had suffered from repeated attacks of hæmorrhage, and her general health was much impaired. After a few months, the polypus gradually protruded out of the uterus, tightly encircled by the os and cervix, giving great pain and suffering to the patient. Finally, a portion of the polypus, about an inch and a half in length, was seen projecting from the vulva, of a yellowish colour, surrounded by a margin of fleshy substance, which on careful examination was found

to be the os uteri extremely dilated, and inseparably adherent around the polypus; and when the patient was placed on her back for examination, it presented exactly the appearance of a distended glans penis projecting from the vagina, and completely filling up the orifice of that cavity. It could, however, be pushed back out of sight, but did not remain so. She was now admitted into Boynton ward, December 12th, 1852, the chest was examined, and no disease found except chronic bronchitis.

December 29th. She was placed under chloroform, in the lithotomy position; the end of the polypus was seized by a pair of vulsellum forceps, being held by an assistant. I proceeded first to make a circular incision around the tumour at the point of juncture with the os uteri, dividing some of its fibres; then carefully dissected back the os and cervix, separating their very firm adhesions to the tumour, which extended upwards two inches. I then found the bands of adhesion became fewer, and easily broken down by the finger. The polypus could now be distinctly felt growing from the fundus of the uterus. Having forcibly pulled out about three inches of the polypus, I passed a needle with a double ligature through its body as high up as possible, and tied a ligature on either side, so as completely to strangle it. I then cut off with a scalpel the portion anterior to the ligature. The operation occupied rather more than an hour. The patient was then removed to bed, had a rigor immediately afterwards, and vomited freely. Some brandy and water was given her, which having subdued the sickness, one grain of opium was taken, and ordered to be repeated every four hours. In the course of the evening she complained of slight shooting pains about the abdomen, with pain on pressure over the lower part. Her tongue being dry, she was allowed to suck ice freely. An injection of alum and water was ordered to be thrown up the vagina night and morning. A draught composed of one drachm of Hoffman's anodyne, half a drachm of the liquor opii sedativus, and camphor mixture, was given her at bed-time.

30th. Slept well during the night; complains of pain on pressing the abdomen; very troublesome cough; tongue dry, with some little sickness; pulse 130. That portion of the polypus below the ligature appeared to be sloughing. Diet, milk and arrow-root. Towards the afternoon the pain in the abdomen became more severe, and twelve leeches were ordered, and a linseed-meal poultice to be kept on constantly after their removal.

10, P.M. Pain less; she is able to straighten her legs with comfort.

31st. Slept well; pain very much less; pulse 100.

6.30, P.M. Bowels have been twice relieved; no pain in the abdomen; states that she feels very comfortable.

Jan. 1st, 1853. The discharge from the vagina is fœtid. Ordered a lotion with chloride of soda. Bowels much relaxed; has been very sick; is depressed; extremities cold. Ordered an ounce of port wine every four hours, and two pints of strong beef-tea during the

day. Half a drachm of the compound creta powder with opium ordered.

2nd. The bowels were quiet some hours after the powder, but are again very much relaxed this morning. Powder to be repeated.

3rd. Bowels quiet; complains much of thirst. Vaginal discharge free, and less offensive.

4th. Less thirst; bowels open once; slept well; cough much better.

5th. Has slept well; bowels once relieved; the polypus is nearly separated.

11, P.M. All the polypus has sloughed away. She is very low; pulse 132. Ordered a sedative draught, and to have some brandy and arrow-root from time to time.

6th. Much better; enjoys her food; bowels regular.

7th. Bowels very much relaxed during the night. An opiate enema ordered.

8th. Pulse 116; mouth and throat very sore. Ordered the biborate of soda lotion.

10th. Did not sleep well; cough very troublesome; mouth still very sore; very slight discharge per vaginam. Ordered compound tincture of bark and dilute sulphuric acid, in addition to the four ounces of port wine which she has taken daily.

12th. Mouth aphthous; complexion of a dark sallow colour; feeble quick pulse. From this time she gradually got worse, and died on the 3rd of February, five weeks after the operation.

Post Mortem.—Uterus well contracted, containing no remains of the polypus; no evidence of any disease of the pelvic viscera, but on examining the chest, both lungs were found studded with small tubercles in a state of suppuration, although no evidence of this condition was discovered before the operation. The lining membrane of the larynx, trachea, and bronchial tubes was found in a state of chronic inflammation, and the aphthous condition of the mouth extended through the œsophagus to the stomach.

Remarks.—This case I have related as being one of unusual interest from the various complications in connexion with it. The constitution of this patient was so shattered by her long suffering antecedent to the operation, that it is evident her death was not attributable to the latter, whilst the complete removal of the polypus, and the absence of disease in the pelvic viscera, clearly show the success of, and the justification for, the operative procedure.

CASE XXXVII.—*Polypus: Operation; Cure.*—Mary P., æt. 44, married, by occupation a laundress, was admitted, Sept. 2nd, 1853, into Boynton ward, St. Mary's Hospital.

She is a healthy woman, was married at seventeen, has had three children, and always enjoyed good health till two years since, when the catamenia stopped suddenly, which gave no inconvenience except occasionally, when she had headache. Three weeks afterwards the

catamenia returned violently, and continued for ten days; after which, she was unwell regularly every fifteen days, and continued so for a twelvemonth, since which time the hæmorrhagic discharge has never ceased for more than a day. The discharge consists of large clots of blood and a transparent fluid. On the 26th ult., she was obliged to go to bed and send for her medical attendant, who said it was a tumour, and advised her to go to the hospital.

Sept. 3rd. On examination, there was found a polypus of the uterus. On the 7th, the patient being placed under the influence of chloroform, I brought the polypus well down with a pair of vulsellum forceps, transfixed it with a needle with double sutures, and tied the tumour in two portions, its circumference being from three to four inches.

9th. A mixture with sulphuric acid, tincture of henbane, and decoction of bark was given.

10th. To have a dose of castor oil at bed-time.

In the evening of the 11th, she had a violent attack of peritonitis; five grains of Dover's powder were given, and twelve leeches and a linseed poultice applied to the abdomen,

12th. Repeated the Dover's powder, leeches, and poultice.

13th. She is much better; ligatures have come away, pulse 80, bowels opened, tongue not very clean; a mixture of sulphuric acid, syrup of white poppies, and tincture of orange peel, was given three times a day.

11 P. M. She has been very unwell from diarrhœa and cold, but is now doing well.

14th. Pain in right groin extending down the leg, œdema in foot, tongue foul, bowels open, pulse 108; fomentation of poppy heads to be applied to the leg, and ordered to take a mixture of sulphuric æther, opium, and camphor mixture.

From this time she gradually improved in health, and on Dec. 3rd was discharged cured.

CHAPTER VIII.

STONE IN THE FEMALE BLADDER.

Urinary Calculi are probably formed as frequently in the female bladder as in the male; but the shortness of the female urethra and its remarkable degree of dilatability, so frequently provide means for a ready and spontaneous escape of the stone before it arrives at any great size, that the surgeon is less frequently consulted by women suffering from stone than by men.

Diagnosis.—The symptoms of calculus in the female are somewhat analogous to those in the other sex, but differ in this,—that they are particularly liable to prove fallacious. Nothing is more common than for hysterical girls to complain of pain at the neck of the bladder, and at the extremity of the meatus, frequent calls to micturate, and a sudden arrest of the flow of urine before the bladder has been emptied. But upon examination by a sound or catheter, no stone can be detected. It is also by no means uncommon to find the female bladder occupied by a solid substance, very different in form and structure from ordinary calculi. Many cases are on record in which the female bladder has become the receptacle of extraordinary nuclei. A case is related in the *Medico-Chirurgical Transactions* (vol. i. p. 123), by Mr. Thomas, in which an ear-pick was extracted from the bladder of a young female.

Dr. Toogood, late of Bridgewater, in his lately published and most interesting volume, "Reminiscences of a Medical Life," (page 155,) relates two cases, in which the surgeon accidentally allowed a catheter to slip into the female bladder. In one case it was in the bladder fifteen days, and produced but slight irri-

tation. It was removed by dilating the urethra by a sponge tent, and then introducing the finger, directing the catheter into the long axis of the bladder, and then seizing it with a pair of forceps, as recommended by Sir Astley Cooper. In the other case, it was in the bladder seventeen days, and removed in the same manner.

In January, 1853, a young girl was admitted into St. George's Hospital under Mr. Hawkins,* who had suffered from symptoms of stone in the bladder for four years, in consequence of having passed a hair-pin through the meatus into the bladder. Attempts had been made repeatedly to extract it, but without success. On her admission the urine was found to be offensive, and it contained a large quantity of ropy mucus, but no blood. It came away involuntarily at first, but not afterwards, though the patient was obliged to pass it very frequently. When the sound was introduced, a foreign body, not easily moveable, was felt in the bladder. It was extracted with extreme difficulty by first incising and then dilating the urethra and introducing the forceps. The hair-pin was broken on extraction, and was surrounded by an incrustation of triple phosphate, with phosphate of lime. The urine was alkaline. After the operation, she could not retain her urine more than three hours at a time, except at night. In this case, as in many cases of calculus in the female, there was, before the extraction, rather an impediment to the retention of urine than a difficulty in passing it.

Among the symptoms of stone in the female may be noted that the meatus is always dilated, there is always pain after passing the urine, generally pain in sexual intercourse, and the urine often deposits a mucous, and sometimes a sandy, sediment. Frequently there is vaginal cystocele in the first instance, followed by prolapsus uteri. Although the urgency of these symptoms varies a good deal in different cases, there is often much suffering produced. Sir Astley Cooper says:—"I think the symptoms of stone in the female are more urgent than those in the male. It is horrible to witness the sufferings which a woman experiences in consequence of this disease. She

* "Lancet," May 28th, 1853.

has a dreadful pain at the extremity of the meatus urinarius, and in addition to this, there is a forcing down of the lower parts of the pelvis, as if they were about to protrude; a frequent disposition to make water, and all the pains suffered during delivery. There is generally a prolapsus uteri, and a discharge of bloody urine. In addition to these symptoms, there is almost constantly an incontinence of urine, a great urgency to discharge it, and an incapacity to retain it."*

These symptoms, or some of them, may arise from scirrhus, or from chronic inflammation of the mucous membrane of the bladder, polypous tumours within the bladder, or excrescences in the meatus. The detection of the stone by the sound is the only satisfactory evidence of its existence.

Treatment.—Although stone in the female does not always produce much distress, and may even escape spontaneously, yet, when discovered, it ought not to be allowed to remain, as it may grow to a size indefinitely large; and, if the patient should become pregnant, it may prove a source of great difficulty and danger during parturition: it may even produce vesico-vaginal fistula.

There are three ways of removing calculi from the female bladder,—incision, dilatation of the meatus, and lithotrity, with or without dilatation.

1. *Incision.*—Lithotomy in females is much more easy of execution, and less dangerous to life, than the same operation in the male subject. It may be done in various ways, but until recently the plan was to divide the urethra and neck of the bladder, and introduce a pair of forceps. The objection to this operation is, that incontinence of urine is apt permanently to follow the operation. The late Mr. Hey, of Leeds, cut two female patients for the stone, both of whom were afterwards unable to retain their urine. A modern method is to incise the anterior margin of the meatus, and then gradually dilate the remaining portion of the urethra until the finger can be passed into the bladder. But even this plan is often followed by a greater or less degree of incontinence of urine. And to

* Cooper's "Lectures on Surgery."

this point I shall have soon to call the reader's particular attention.

2. *Dilatation of the Urethra.*—The female urethra is well known to be capable of dilatation to a great extent, but few practitioners are aware either of the extent to which it may be dilated, or of the conditions on which that dilatation can be effected without laceration or subsequent incontinence of urine, or any other injury. In regard to the dilatability of this canal, there is ample evidence that it will admit a calculus to pass through it of almost any size which these concretions are likely to attain. Numerous examples are adduced by surgical writers in which calculi of immense size have been spontaneously voided through the meatus urinarius, either suddenly and without pain, or after more or less time and suffering. Heister mentions several well-authenticated instances of this kind. Middleton has also related a case where a stone weighing four ounces was expelled in a fit of coughing, after lodging in the passage a week. Collett speaks of another instance, where a stone about as large as a goose's egg, after lying in the meatus urinarius seven or eight days, and causing a retention of urine, was voided in a paroxysm of pain.* Dr. Molineux relates a case ("Philosophical Transactions") in which a woman voided a stone of which the long circumference was between seven and eight inches, the shortest circumference (in the thickest part) five inches and three quarters. I have myself extracted a stone through the dilated meatus three inches and a half in circumference; and in the case already quoted, in which Mr. Thomas extracted an ear-pick from the bladder, he says, "The left forefinger was most easily introduced, and I believe, had the case required it, both thumb and finger would have passed into the bladder without the smallest difficulty." It is clear, therefore, that there is no absolute or mechanical necessity for incising the canal in order to allow ordinary calculi to pass. Still, objections have been brought against the practice of dilatation:—1. That it frequently takes a long time and gives great pain to dilate it effectually.

* See Cooper's "Surgical Dictionary," (Art. *Lithotomy.*)

2. That laceration is liable to occur. 3. That incontinence of urine has sometimes followed.

As I am anxious to demonstrate the practical importance of availing ourselves of the dilatability of the female urethra in the extraction of calculi from the bladder, I shall now consider these objections seriatim. 1. The tediousness of the operation and the pain it produces, are objections the whole force of which has been dissipated by the introduction of anæsthetics into operative surgery; and in this case chloroform has a double claim upon our notice. It not only prevents all pain, but it prevents all tediousness likewise. So long as the patient is conscious, the process of dilatation is rendered difficult and tedious by the contraction of the sphincter fibres of the meatus; but under chloroform these fibres are relaxed, and the dilatation can be accomplished easily and quickly. 2. The second objection is disposed of in the same way. Laceration can only occur in the walls of this loosely arranged structure, in consequence of the rigidity of the muscular fibre: relax this rigidity by chloroform, and the danger of laceration no longer exists. 3. Incontinence of urine does not occur after dilatation under chloroform. And I think this may be thus explained. When the dilatation has been a tedious and painful process, it has at length been accomplished (physiologically) by exhausting the irritability of the fibres, and thus rendering them powerless for the time; or (mechanically) their structure may have given way under tension; or both these circumstances may have occurred; and in either of these occurrences, subsequent imperfect contraction, and consequent incontinence, are perfectly explicable. Whereas under chloroform there is no wasting or bearing down of the local nervous irritability, nor, as the rigidity of the canal is destroyed, is there any danger of laceration; there is, therefore, no probable cause for incontinence, as a subsequent evil. I state these things advisedly, and after considerable experience, having had frequent occasion to dilate the female urethra, not only in cases of stone in the bladder, but in operating for vesico-vaginal fistula.

I ought, however, to add, that Mr. Fergusson, Mr. Coulson, and other modern surgeons, advise, when the stone is large, that

the anterior portion of the meatus should be divided, and the remaining portion dilated. In this way Mr. Fergusson has extracted a stone three inches in circumference. Mr. Coulson, however, in his admirable and practical work on Lithotomy and Lithotrity (p. 261), rather recommends lithotrity when the stone is very large.

Lithotomy in the female, as it was formerly performed, is an operation which should be utterly discarded from practice. Sir Astley Cooper says:—"The extraction by dilatation is greatly to be preferred, not only because there is much less danger in it, but because it does not leave behind it the melancholy consequences of lithotomy in the female. I mean the loss of the retention of urine. A woman who undergoes the operation for stone, generally loses, for ever after, the power of retaining her urine. Her condition, therefore, is most deplorable. The constant discharge of urine, and the constant excoriation of the parts render her offensive to all around her; her health is broken, and she is completely cut off from all society."* Dr. Blundell, my highly respected preceptor at Guy's Hospital, and, before him, Dr. Haighton, strongly recommended the removal of calculi from the female bladder by dilatation of the urethra. Nothing more need be added to justify me in urging my brethren in all cases to avoid incision of the meatus. Dilatation under chloroform is both safe and easy, and will generally allow the stone to be removed entire; or if it be very large, it may easily be broken down by lithotrity.

Case.—At page 104 of this work will be found a case in which I extracted a stone from the female bladder by dilating the urethra under chloroform. The case is interesting in many points. The calculus had been the cause of a difficult labour three years before, and, by its pressure, a vesico-vaginal fistula had been produced. Although the stone was three inches and a half in circumference, it was extracted without much difficulty, and with a very slight laceration of the anterior portion of the urethra, which healed, and the patient recovered, without any difficulty in retaining the urine, which indeed had for three years been discharged through the vagina.

* "Cooper's Lectures," p. 368. Renshaw, 1839.

CHAPTER IX.

VASCULAR TUMOUR IN THE MEATUS URINARIUS.

Few diseases of trifling magnitude occasion more distress than a vascular excrescence, varying in size from a large pin's head to that of a horse-bean, which is sometimes found growing from the female urethra. The exquisite sensibility shows it to be as well supplied with nerves as with bloodvessels. The tumour sometimes arises from the projection which generally exists around the orifice of the meatus, but it frequently grows from the internal surface. The tenderness of the parts is so great as not to allow of sexual intercourse, and it may thus become a cause of sterility. There is sometimes a mucous discharge; and Mr. Coulson observed, in a paper recently read before the Medical Society of London, that inflammation may extend from the meatus to the bladder occasioning cystorrhœa.

The disease is common to the single and married woman. Sir C. M. Clark and Dr. Blundell describe it as confined to females under the middle age, and generally to young women. But I have myself seen it in a woman of sixty; and Morgagni, who was the first to describe the disease, says, "Examining the body of an old woman, about the year 1751, I met with a small triangular excrescence within the external orifice of the urethra, but it was not prominent."

Diagnosis.—An exquisite degree of sensibility of the part being the leading symptom of the disease, the patient complains of excessive pain in micturition, in coitu, and, indeed, from any the slightest pressure on the part. It may reasonably be suspected that such a tumour exists, when the acuteness of sensation is confined to the meatus, and does not extend to the vagina or the vulva. Still, as the symptoms much resemble

those of circumscribed inflammation of the vulva, it is evident that correct information can only be obtained by careful examination. Upon separating the labia and nymphæ, the nature of the complaint will generally become obvious. A small tumour, of a florid scarlet colour, resembling arterial blood, is observed on or just within the orifice of the meatus. It easily bleeds on rough handling. It is exquisitely tender, and its surface is somewhat granulated. It appears to grow, by a loose attachment, from the surface of the urethra. Upon turning it a little on one side, its insertion, sometimes into the tubercle above the meatus, sometimes into the lip of the meatus, can generally be observed. Occasionally there are more than one of these excrescences, and they extend along the urethra towards the bladder. They sometimes produce great constitutional disturbance, dyspepsia, and nervousness.

Treatment.—Ligatures are useless, as they cannot be made to include the whole of the diseased mass, nor can they be made to tie it with any degree of force without exciting inflammation, as, in order to a cure, some portion of the mucous membrane should be included. Yet this has been recommended on high authority. Excision alone is speedily followed by a renewed growth, unless it be followed by caustic applications. A better practice is to excise the tumour with a pair of scissors, or a small well-pointed knife, taking care that not only the excrescence itself is removed, but also that small portion of mucous membrane from which it grows, taking it up carefully with a fine pair of forceps, fig. 8. To the wound thus made, nitric acid should be applied on a piece of stick pointed like a pencil, the parts around being filled with lint previously soaked in a strong solution of nitrate of potash. Or, nitrate of mercury may be applied in the room of nitric acid, and a piece of lint dipped in cold water applied over the part immediately afterwards. In this way I have cured many cases, and recently a case in which a plurality of excrescences required three or four excisions of small portions of the mucous membrane at different times. This is better far than excising the whole at once.

My friend, Mr. Brigham, of Lymm, informs me that during the twenty years he held the appointment of surgeon

to the Lock Hospital at Manchester, he had frequent opportunities of seeing these peculiar tumours, and he found, after trying many modes of treatment, that the most certain and quickest plan was the application of the actual cautery, just touching the extremity of the body; and that it seldom required more than one application. I have never tried this method, but most certainly shall do so on the very next occasion, because I rely implicitly on the statement of my friend, knowing how earnest he is even now, in his retirement from practice, in the pursuit of truth and in the investigation of progressive surgery, having often seen him and my esteemed and talented friend Mr. Jordan, of Manchester, in London, watching at the different hospitals various new operative proceedings.

CHAPTER X.

IMPERFORATE HYMEN.

In its natural state, the virgin hymen closes the vagina imperfectly, generally occupying the inferior portion of the ostium vaginæ in the form of a semi-lunar membrane, leaving an aperture in the upper portion from the size of a quill to that of a thimble, for the transmission of the menstrual fluid. But it occasionally happens that the membrane is congenitally entire or imperforate. This may not be discovered until puberty, when the female will suffer severely every month by the accumulation of the menstrual secretion within the vagina, producing ultimately a pelvic tumour and a bulging out of the membrane which closes the vagina, causing severe pain and other serious symptoms. In this case, the uterus as well as the vagina, and even the Fallopian tubes, become distended with the menstrual fluid, which increasing in quantity at every menstrual period, presents at length an urgent necessity for an operation. The method of relieving this condition has been to divide the hymen by a crucial incision, and the fluid having been discharged, generally nearly black in colour, and of the consistence of treacle, the uterus is well syringed out with warm water, and a bandage applied around the abdomen.

This appears very simple and easy. Yet many young women have lost their lives by this operation from consequent peritonitis; and the subject is one which is worthy of careful investigation.

The fatality of this operation has been ascribed by Dr. Blundell to the epidemic influence of puerperal fever, then raging in the neighbourhood. His opinion is worthy of great respect: I therefore quote his words. He says, "It seems that

where puerperal fever is epidemic, women in whom the hymen has been divided in this manner, are liable to inflammation of the peritoneum afterwards, in the same way as they are liable to similar inflammation after they have been recently delivered. Cases of this kind, two in number, if my memory serve, have been mentioned by Denman; and a few years ago, at the London Hospital, a case occurred, for a reference to which I was indebted to Mr. Mitchell, of Kennington. In this case, the accumulation of the catamenia amounted to two gallons or more. The obstruction was divided; inflammation of the peritoneum ensued, but the patient was saved by rigorous antiphlogistic remedies. As this is the case, if I had a patient under my care, I should dissuade her from submitting to the operation till the epidemic disposition to puerperal fever had subsided; even though she waited for three or four years; for, without pretending to assert that abdominal inflammation from this cause is equally dangerous with the genuine fever of puerperal women, I think it not impossible that it might cost her her life. Why the discharge of the accumulated catamenia should, like parturition, give rise to peritonitis, I do not pretend to explain; but the fact is curious. Is there any analogy between the lochia and the catamenia; and is this the cause of these similar effects? Perhaps some great pathological truth lies concealed here."*

Without for one moment questioning the propriety of deferring this, or any other operation upon the pelvic or abdominal organs, whenever and wherever puerperal fever is epidemic, I have a strong impression that fatal peritonitis has succeeded this operation when there was no such influence to account for it. At all events, many such cases are recorded without any reference being made to the existence of an epidemic puerperal fever.

Treatment.—When the surgeon is consulted in the case of a young female before the age of puberty, on account of an occlusion of the vagina, it will generally be found that the united parts may be separated by the thumb of each hand being applied, and some little force being used, the child being placed

* Blundell's "Midwifery," p. 689.

in the lithotomy position. Cutting is rarely required in children. A piece of oiled lint should be introduced to prevent reunion of the separated parts, after they have been thus torn asunder. If the obstruction is of a longer standing, and the tissues are thickened and indurated, then the question to be considered is, how is it to be divided? Every author who has written on the subject recommends a crucial or stellate incision. This leaves the divided portions of the hymen to retract and remain on each side of the vaginal orifice; and when the operation is performed in the earlier stage, before puberty, or a few years afterwards, these relics of the thickened hymen may create no irritation of consequence; not so, however, when the patient has passed her 25th or 30th year; the divided portions do not then shrivel or pucker up, so as to create no inconvenience. On the contrary, vaginitis is very apt to be set up by the friction of these surfaces upon each other, produced by every movement of the body. It is easy to understand how inflammation thus set up in the mucous membrane of the vagina may extend into the uterus, Fallopian tubes, and ultimately to the peritoneum. I would therefore throw out the question, whether the frequent occurrence of peritonitis after this operation, simple as it appears to be, may not thus be explained.

Being strongly convinced that these two methods of dividing the hymen, namely, by the crucial and stellate incision, attended as they are by so many inconveniences, and, as I believe, dangers, are not so eligible as a more perfect surgical procedure, by which the whole of the abnormal structure is at once removed, I recommend that the hymen be removed entire by a circular incision at the point of its junction with the labia.

The following cases will more clearly illustrate the views I wish to enunciate.

Case XXXVIII.—*Imperforate Hymen in an unmarried lady: Painful Menstruation; Operation; Cure.*—Miss B., æt. 29, consulted me January 3rd, 1853, suffering from painful menstruation since puberty, and at every epoch so severely, that her health was seriously impaired. She had, in fact, become a confirmed invalid. She stated that the pain was accompanied with a sense of bursting, as if some-

thing must give way "at the mouth of the bladder." Considering it necessary that a vaginal examination should be made, I introduced my finger between the labia, and immediately found a firm resisting band which prevented its further progress. I then proceeded to make a visual examination, when I found a perfect closure of the vaginal orifice, but an enlarged meatus urinarius. She stated, upon further questioning her, that the menstrual discharge came from the mouth of the urethra; and on passing a probe into the lower part of the meatus, I found that it slipped into a tortuous canal below the meatus (the size of the probe) running up into the vagina. It was from this canal, evidently, that the menstrual fluid escaped. It was now clear that the hymen was congenitally imperforate, thick, and organized. I recommended that it should be removed, and promised her relief on future occasions of menstruation. Accordingly, having prepared her for a few days previously for the operation, I placed her in the position for lithotomy, under the influence of chloroform, and then proceeded to dissect out the hymen by a semicircular incision on each side, so as completely and cleanly to remove the whole structure. No hæmorrhage of any consequence took place. The parts were dressed with lint soaked in oil, which dressing was repeated from day to day, and in one fortnight all the parts were quite healed, and on the following period she suffered no pain or inconvenience, and has continued well at every subsequent catamenial period.

Case XXXIX.—*Imperforate Hymen in a married lady, obstructing connubial intercourse: Operation; Cure.*—Mrs. G., aged 35, married eighteen months, was requested to see me by Dr. Locock, February, 1854, who had ascertained from the patient that she had been married some eighteen months, but that her husband could have no proper connexion with her; that it was not his fault; that she has been in good health; menstruation has been regular, although it commenced late in life. On examination, he found the vagina a cul-de-sac not more than a short inch, the urethra very capacious, and the patient described the menstrual discharge as coming through that orifice. The uterus could be distinctly felt per rectum, and appeared to be quite normal. Dr. Locock advised her to return to town again when the catamenia were flowing, in order to ascertain whether the discharge actually issued from the urethral orifice, and then to stop in town for the purpose of having some operation performed.

On the 28th of February I had an opportunity of examining the patient, and after a very careful investigation, I discovered, about a third of an inch behind the meatus, a small projecting piece of mucous membrane like a cowpox pustule on the third day, and from this I saw some leucorrhœal discharge ooze out. Still I could not pass the smallest probe through this little projection. I then carefully introduced the little finger of my left hand into the bladder, and clearly ascertained that there was no communication with the uterus; which

organ I could plainly feel through the coats of the bladder, as also by passing another finger up the rectum. I examined again and again, and could find nothing but a thick fibroid hymen completely obstructing the vaginal orifice, extremely unyielding. At last, seeing some more leucorrhœal discharge ooze out, and hearing from the patient that she occasionally had a considerable quantity of that secretion, I again tried, and ultimately succeeded in insinuating a very small probe through a valvular opening into the vagina, when the instrument readily passed two inches upwards. I therefore advised her to stay in town till her husband's arrival, and proposed, subject to the approval of Dr. Locock, that she should undergo the operation of removal of the hymen. She remained accordingly.

Operation.—March 4th, 1854, the patient was placed in the lithotomy position, and chloroform having been administered by Mr. Moullin, with the assistance of Dr. Locock and Mr. Nunn, I carefully dissected away the entire structure, and removed it in one piece. It was nearly a quarter of an inch thick in some places, and was found lined within and without by a mucous membrane, with a strong fibroid tissue intervening. A spacious and healthy vagina was then discovered, and a normal os uteri could be felt by the finger. A small speculum was easily introduced, and immediately on its removal the vagina was plugged with lint soaked in oil. The patient was placed in bed, and opiates were given. No hæmorrhage of any consequence ensued. The urine was drawn off by catheter every four hours, and perfect quiet was enjoined. On the 6th day the bowels were opened by enema. The patient recovered without any unfavourable symptoms, and on the 18th returned home, having previously menstruated normally.

This mode of operating has been objected to on the ground that constriction of the vagina will occur in consequence of the circular incision being immediately around the constrictor vaginæ. This objection would hold good if no attention were paid to the after dressing; but if the plan be steadily followed which I have recommended, namely, plugging the orifice daily, after the first seventy-two hours, with lint soaked in oil, it will be impossible that any constriction can take place. In these two cases, as in several others which have come under my notice, certainly no constriction has followed the operation.

CHAPTER XI

ENCYSTED TUMOUR OF THE LABIA.

These tumours are met with of various sizes, but are generally circumscribed. Some authors assert that they are always semi-transparent; but this I believe to be a mistake, as I have not found them invariably so. If they are superficial, then they are semi-transparent, but not when they are deep-seated, being covered on the outside by skin with more or less of cellular tissue beneath.

Symptoms.—These are few in number, and, in the smaller and superficial kinds, slightly marked; but when the tumours attain a great size, or are attended by inflammatory action, then of course the symptoms are more prominent. The patient may complain of a certain degree of uneasiness and weight, aggravated by locomotion, by defæcation, micturition, or, if in the married state, by sexual congress. Some authors assert that the skin covering these tumours is rarely changed in colour, but my experience does not warrant my acceding to this opinion, as I have found the skin sometimes of a bluish, at others of a reddish-brown colour. When opened, they are found to contain fluids of different character in different cases, sometimes of a glairy nature, sometimes of a dark appearance, at other times of a puriform character.

Sometimes the contents are more or less solid.

These tumours may be caused by a fall or a blow on the soft parts, a long time antecedent to the formation of the cyst.

Diagnosis.—The slow growth of the tumour, and in most cases the absence of pain, will distinguish this disease from simple phlegmon of the labia; and its encysted character from warty tumours.

Treatment.—There are several modes of treatment recommended.

1. Simple incision, and evacuation of the contents. 2. Insertion of a seton through the tumour, so as to produce suppuration. 3. Dissecting out the tumour, care being taken that the entire cyst be removed. 4. Injections of iodine. 5. The actual cautery.

1. The first of these methods—namely, simple incision—may be practised with occasional success where the tumour is very superficial and semi-transparent.

2. The plan of treatment by seton I have never tried, nor do I think it one to be recommended.

3. The third kind of treatment—namely, dissecting out the entire cyst—is the mode which I greatly prefer, care being taken with the after dressing to ensure a healthy granulating surface at every spot. This may be accomplished either by dressings of dry lint, or by a cerate made of turpentine oil and resin cerate, equal parts; or by touching the surfaces with nitrate of silver.

4. The next best plan is injecting iodine, but as I have always found the third plan successful, I have never had recourse to injection.

5. The late Mr. Liston practised the actual cautery, but I cannot understand upon what grounds such a desperate remedy could be had recourse to, except the well known fact that these tumours frequently recur after the ordinary modes of operation.

I shall only relate one case, in which the third kind of treatment succeeded.

Case XL.—*Encysted Tumour of the Labia in an unmarried lady: Operation; Cure.*—M. H., æt. 26, consulted me, complaining of great pain in the lower part of her back, pain down the inner part of the thigh, and pain in the left labium, extending back to the rectum: she stated that nine or ten weeks ago she suffered from acute pain at that spot; that ever since that period she has had considerable uneasiness there, and that now she feels a swelling. Upon examination, I found an encysted tumour of the left labium, between the vagina and the tuberosity of the ischium, running up towards its ramus, about the size of a small pullet's egg. Feb. 28th. I ordered a dose of castor oil at bedtime, and on March 1st, proceeded to operate. The patient being placed under the influence of chloroform, and put in the position for lithotomy, and all hair being shaved off the labium, an assistant passed his finger into the vagina, and pressing the tumour

forwards, an incision of an inch and a half was carefully made through the skin and sub-cellular tissue, down to the cyst, which presented a blueish aspect. Having dissected away, as much as possible, the surrounding tissues, which were closely adherent, I punctured the cyst for the purpose of saving the fluid, and then seizing it with a pair of vulsellum forceps, I dissected it out, dividing two or three arteries, which bled freely at first, but were stopped by pressure, plugged the space, which was about an inch and a half deep, with lint soaked in oil, and applied two interrupted sutures to the upper part of the wound, leaving the rest open. Ordered her to take opium, cold water dressing to be applied constantly, and that she should suck ice freely.

She was very sick for the first twenty-four hours, but this evidently arose from the chloroform. On the third day I applied the black wash to the wound, varying the dressing by sometimes applying dry lint, and at others touching the granulating surfaces with caustic, and then applying dry lint; after six weeks of uninterrupted attention, the parts healed well and sound, and she left town for the country to recruit her strength.

CHAPTER XII.

DISEASES OF THE RECTUM RESULTING FROM CERTAIN CONDITIONS OF THE UTERUS.

The substance of this chapter is a transcript of the paper which I had the honour of reading before the Medical Society of London in February last.

It is a fact, generally admitted, that diseases of the rectum are more common in women than in men. Of this a partial explanation may be found in the more sedentary habits of the former, but, in my opinion, it should much more frequently be referred to a uterine origin. The sundry altered conditions to which the uterus is subject—such as enlargement, displacement, deranged circulation—act mechanically and otherwise upon the rectum, and produce in it various lesions.

These, so to speak, secondary disorders of uterine origin, seem to me not to have been sufficiently recognised and insisted on; and hence, I believe, has resulted the too frequent failures in the treatment of diseases of the rectum in females, which most practitioners have to lament. The influence of the enlarged uterus in pregnancy in developing disorders of the rectum, has, indeed, attracted general attention; but that of other enlargements and of displacements has never, so far as I am aware, been put prominently forward. Yet if the uterine origin of the disease be not suspected, we may treat a woman affected secondarily with constipation, piles, intestinal irritation of a dysenteric character, or other allied disorders, by measures directed to the *bowel* as the primary seat of the disease, and yet the patient shall derive no benefit from any of them; for the uterine and intestinal affections are related to each other as

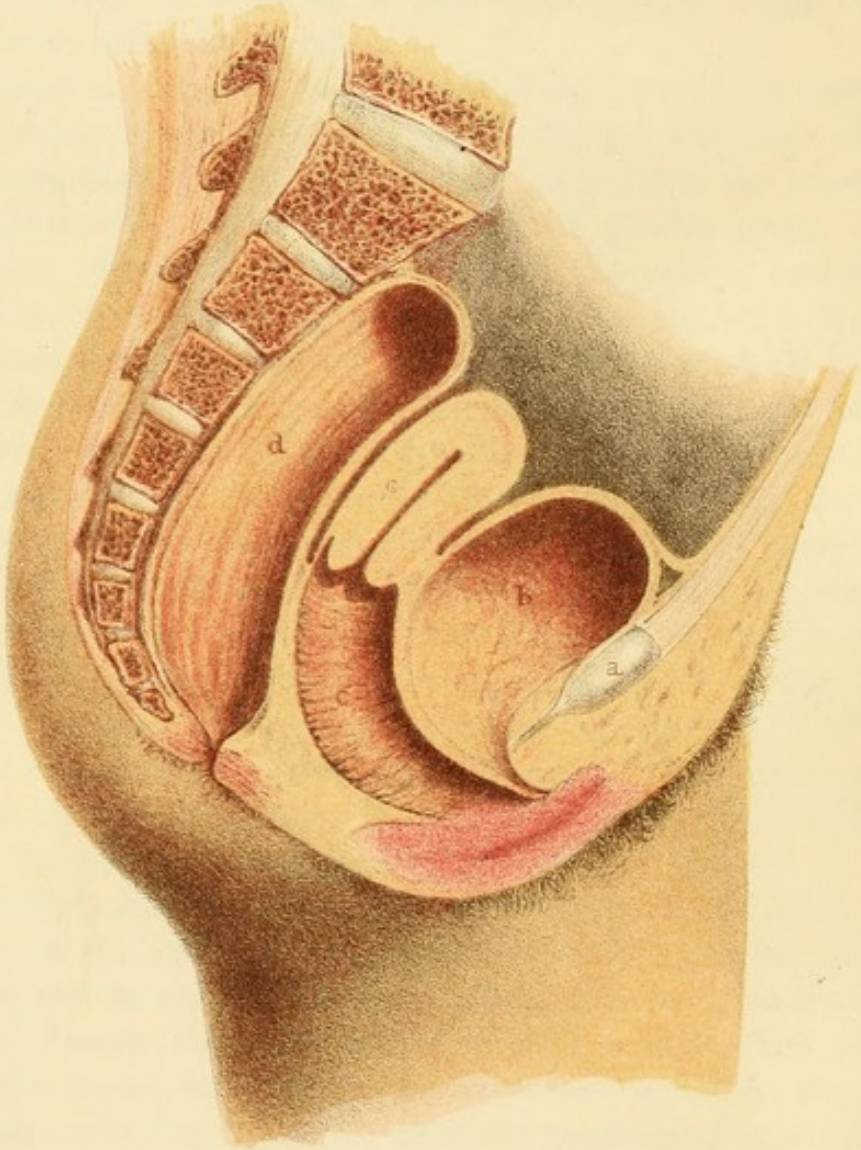
cause and effect; and it can be only on a recognition of this relation that we can apply remedies with any certainty, or look with any confidence for a favourable issue.

Displacement forwards or backwards, and enlargement of the uterus, from whatever cause,—whether pregnancy, hypertrophy, inflammatory engorgement, distension by fluid or by hydatids, polypi, or scirrhus, or any other disease—alike tend to injuriously affect the rectum.

As displacement may occur without enlargement of the uterus, it may operate singly in inducing rectal disease; but more often the two conditions concur, and it is then chiefly that the mischief is so considerable. The evils, too, will be greater when, with retroversion, engorgement of the body of the uterus, and with anteversion, that of its neck, go together. On the other hand, enlargement, without deviation of the womb forwards or backwards, may, and oftener does, act singly in provoking disease of the rectum, than either of these displacements does without it.

The conditions of the uterus under consideration act on the rectum injuriously in two ways: first, by mechanical pressure; and, second, by inducing vascular disturbance like that present in themselves. An enlarged uterus drags on its lateral ligaments, elongates them, subsides lower down in the pelvis, and so comes to press on the lower bowel, to interfere with its muscular action and the circulation through its bloodvessels, and to irritate its mucous lining. At the same time any hyperœmic state of the uterine vessels causes an increased fulness of the hæmorrhoidal, and a determination of blood to them. Thus, by reflecting on the anatomy of the parts, it will easily be understood why and how diseases of the rectum, such as hæmorrhoids, prolapsus, fissure, stricture, fistula, as well as disordered functions of the bowel, as constipation, dysenteric irritation, &c., do sometimes result directly, either from the mechanical pressure of an enlarged uterus, or simply from the derangement of the hæmorrhoidal circulation, resulting from uterine disease.

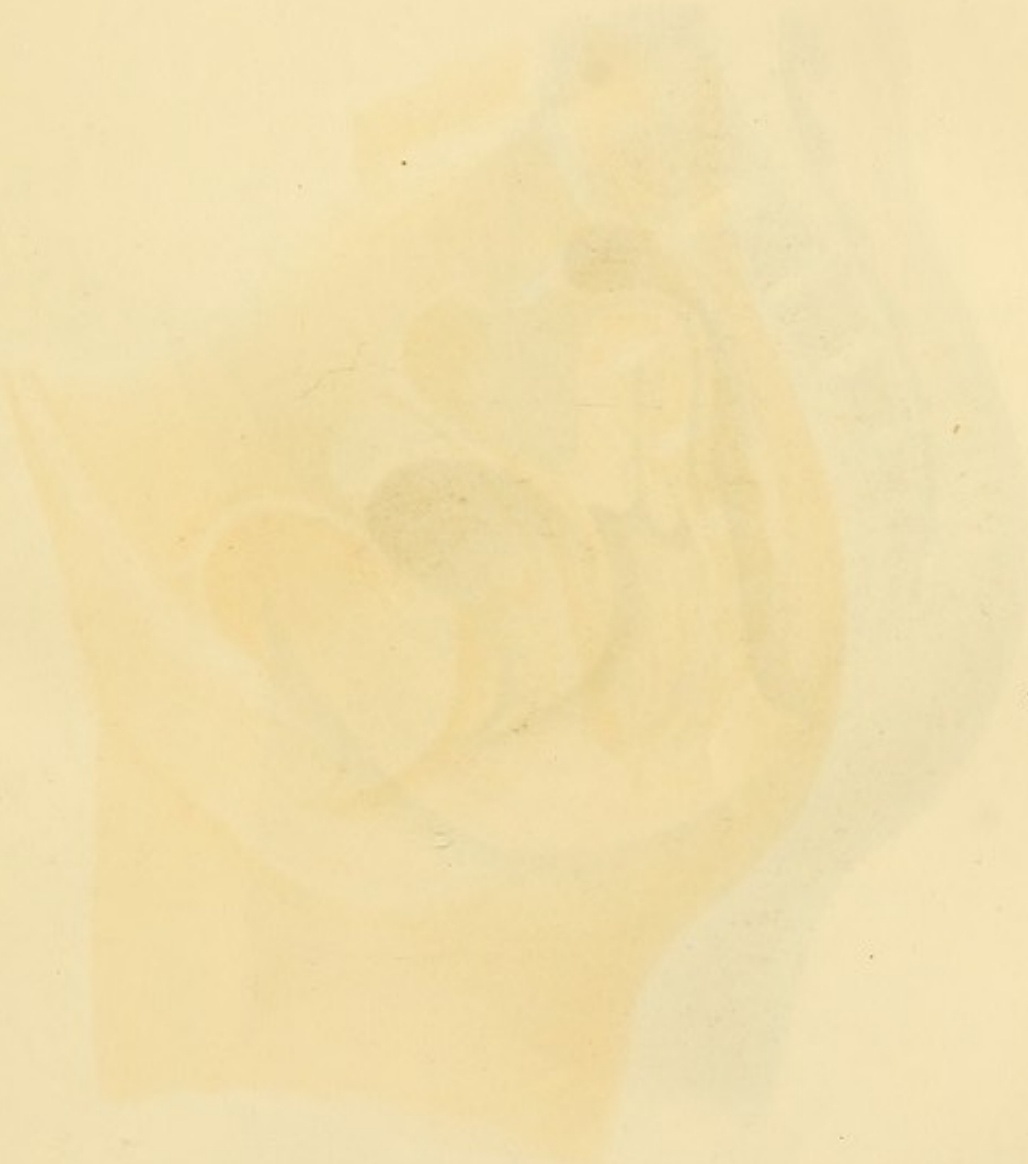
By retroflexion and retroversion, the fundus uteri is thrown backwards against the rectum, and will consequently exercise an amount of compression on that viscus, according to its degree, to the bulk of the uterus and the capacity of the pelvis. Retro-

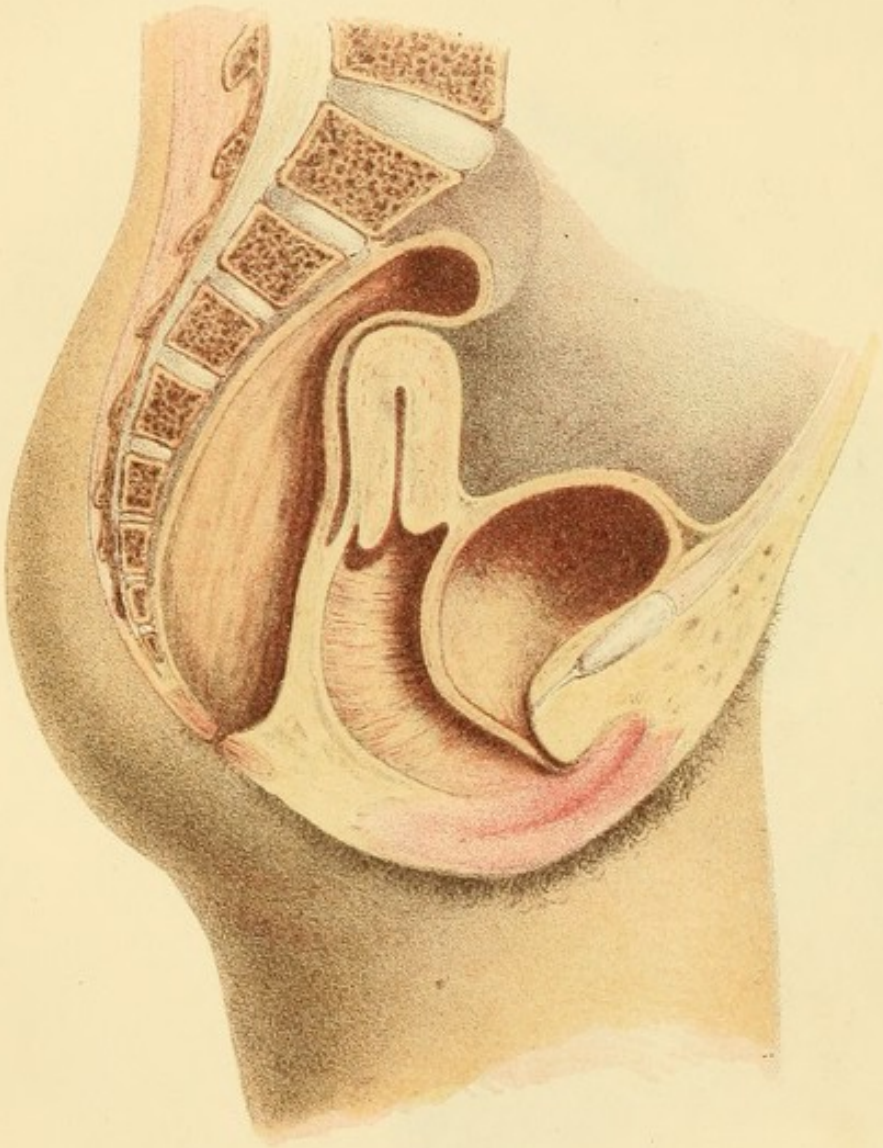


Normal condition of the Pelvic Viscera.

a. Symphysis Pubis. b. The Bladder. c. Uterus. d. Rectum. e. Vagina.

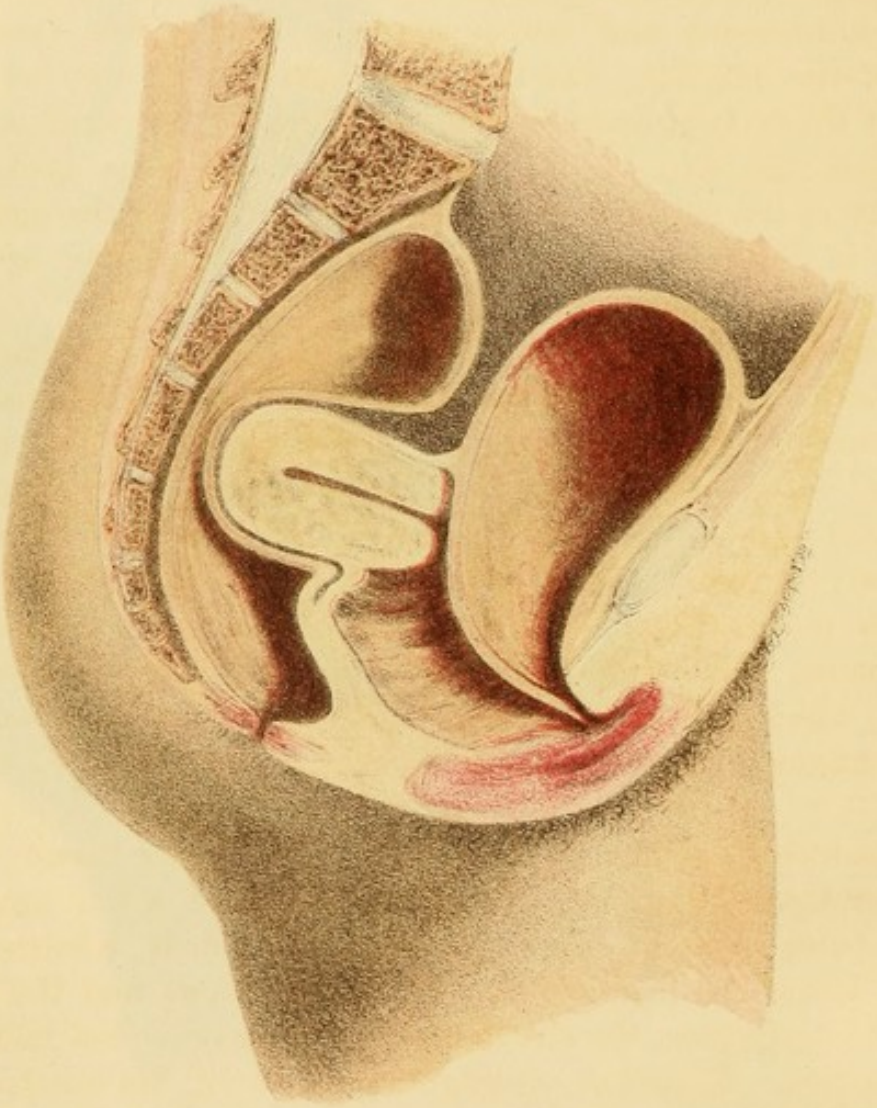
C.C. del. G.H. Ford. lith. Ford & West. Imp.





Showing Partial Retroversion of Uterus pressing upon upper part of Rectum

C C del. G H Ford lith. Ford & West Imp



Showing the result of a more complete Retroversion.

C.C. del C.H. Ford lith.

Ford & Greer Imp.

version is occasionally so complete that the fundus uteri depresses the posterior peritoneal cul-de-sac, and even descends below the level of the cervix. Now, as deviation of the uterus posteriorly is no unfrequent consequence of distended bladder—a common occurrence in females—owing to their natural reserve, and the restraint imposed by our social habits, and as its ulterior effects on the rectum must be expected, we so arrive at one reason for the greater prevalence of diseases of the rectum among them.

In anteversion and anteflexion, the fundus falls forwards against the bladder, and thus the cervix uteri will impinge against the rectum more or less, according to the extent of the deviation, the size of the womb, especially of its neck, the capacity of the pelvis, and the degree of fulness of the bladder, which in these displacements has its outlet more or less obstructed.

A reference to PLATES VI. VII. VIII. will best explain the mechanical interference exerted by these several mal-positions of the uterus, and likewise the normal relations of the pelvic viscera. It is obvious, that in the treatment of the various affections so arising, unless the attention of the practitioner is directed to their uterine origin, no permanent benefit can possibly result. Therefore, when any of these affections occur in females, it is necessary to inquire into the condition of the uterus, which will often at once explain the cause and indicate the treatment. I now propose to demonstrate these views by cases.

Hæmorrhoids.—The hæmorrhoidal veins suffer more from pressure than the arteries, because the coats of a vein are thin and capable of great distension, and not resilient, whereas the artery is smaller, firm, elastic, and very resilient, and the *vis à tergo* being greater, the circulation of the blood is less liable to interruption. Therefore, as might be expected, its mischief is greater in the veins than in the arteries. Hence we find that the blood stagnates, and occasionally coagulates in the veins, and forms a semisolid tumour, whilst the cellular tissue around becomes thickened, and the mucous membrane covering them xcessively veascular and sensitive. I allude here entirely to internal hæmorrhoids of a varicose nature.

Case XLI.—L. C., aged 31, unmarried; had suffered for several years from three or four large piles, which, she stated, protruded in the act of walking, and also created great uneasiness in the sitting posture. Every three or four weeks, she lost a considerable quantity of blood from them. Her bowels were seldom opened more than once in three or four days, and then only from taking some aperient. After each defæcation, she had always increased inconvenience and pain. She suffered much from indigestion, headaches, and general lassitude. I first inquired as to the menstrual function, and found that, although she was generally regular every four weeks, the quantity was very small, and the discharge seldom continued more than one day, and that, at this time, she generally lost a considerable quantity of blood from the hæmorrhoids. On making a digital examination per vaginam, I found the uterus enlarged and painful to touch, and lower in the vagina than normal. I directed that three leeches should be applied to the os uteri, and that the bleeding should be encouraged by a hip-bath immediately on their removal; that the bowels should be freely opened by a saline aperient; and that this treatment should be pursued once a week. She was further directed to take twice a-day the sixteenth part of a grain of the bichloride of mercury, and her diet was ordered to be simple, nutritious, and unstimulating. The result of these measures was, that at the next menstrual epoch there was a more copious uterine discharge, and an absence of bleeding from the hæmorrhoidal vessels. The same treatment was continued for another month, and resulted in an improvement in menstruation, both in quantity, and in the duration of its flow; the uterus had much decreased, being nearly of its normal size, and not painful to touch. I now considered it advisable to remove the hæmorrhoids, which I did by passing a ligature of twine around the base of each. I then placed the patient in bed, giving her a grain of opium every four or six hours, for the purpose not only of affording relief from pain, but also of constipating the bowels till the ligatures should come away, which they did in five or six days. The case progressed satisfactorily, and the patient returned to the country perfectly recovered.

This case presents some striking practical facts, which will serve to illustrate my preliminary remarks.

1. The bleeding from the hæmorrhoids at the menstrual epoch. It is a fact that hæmorrhoids are always more troublesome at the time of menstruation, because more blood is circulating through the blood-vessels of the rectum as well as of the uterus; and, if there be any obstruction in the uterine vessels to prevent the menstrual flux, then the hæmorrhoids often bleed freely.

2. The enlarged and inflamed uterus, with the absence of the menstrual flux.

3. The great relief afforded by the antiphlogistic treatment.

4. In ligaturing the hæmorrhoids I prefer *twine*. Its advantages over silk are very marked:—first, in procuring a quicker separation of

the tumour; and, secondly, in causing less pain to the patient. It will also be observed, that I preferred the ligature to the scissors in the removal of these tumours, acting upon the golden rule laid down by my old and esteemed friend, Mr. Copeland, in all operations upon the rectum, "*to cut skin, and tie mucous membrane.*" I am also indebted to the same gentleman for the practical hint to prefer the use of the vegetable product—twine, to that of the animal product—silk.

I think it is not too much to assert, that had I at first devoted my attention to the hæmorrhoids in this case, I should not have succeeded in restoring my patient to the condition of health.

Case XLII.—*Prolapsus Ani.*—H. A., æt. 28, unmarried, upper nurse in a lady's family; had suffered for twelve months with a prolapse of the bowel. She stated, that this prolapsus was always much increased by carrying the infant, or by raising any weight; and also worse after defæcation; that every three or four weeks she had bleeding from the protruding parts; that she had been regular as to time in menstruation, but very deficient as to quantity, and that the discharge was of a dirty-brown colour. She had been under a course of medicine for nine months, but had derived no benefit.

On passing my finger up the rectum, while she was standing on the floor and leaning forward on the side of the bed, I felt a round tumour the size of an orange pressing on the rectum just below the promontory of the sacrum, moveable on pressure towards the vagina; this, on examination per vaginam, I found to be an enlarged uterus retroverted, and thus mechanically acting upon the rectum. This prevented free circulation of blood through it, and thus not only produced piles, but also congestion of the mucous membrane,—hence the prolapsus.

Treatment.—I first directed my attention to the condition of the uterus; applied leeches; enjoined rest in the recumbent posture; gave saline aperients; ordered simple and unstimulating regimen, and the bichloride of mercury, with tincture of bark twice a-day. The result of this treatment, at the next menstrual epoch, was a considerable improvement in the character of the discharge; the same treatment was continued another month with increased benefit.

On Dec. 16, I prepared her for the necessary operation, by giving her a dose of castor oil at night, and an enema of warm water on the following morning. Having placed her under chloroform, my assistant separating the nates, I passed an armed needle, with a double ligature of well-waxed twine, through the prolapsus, and tied it in two separate portions; and then, having well smeared the surfaces with oil, I returned them within the sphincter, which firmly contracted, leaving the two ends of the ligatures without. Gave two grains of opium, and ordered one grain every four hours.

17th. Had some sickness during the night, and vomited, after which she slept well. There is no pain about the anus. To continue opium every six hours.

18th. Has had a good night. Some pain in the rectum for a short time, leaving no permanent discomfort. Diet: broth, light pudding, and milk.

20th. The ligatures came away, and the bowels were relieved by castor oil.

22nd. Complained of a sharp cutting pain after the last dejection.

23rd. Examined, and found an ulceration or fissure within the sphincter, and an inflamed external pile.

26th. I placed her under chloroform, and first cut off the external pile, and then divided the fissure in the manner directed by Mr. Copeland, and which I shall more fully describe in case XLIV. I then examined more carefully, and found, exactly opposite the fissure, a small wart-like substance, with a long slender pedicle. This fell within the fissure—which it may be it had produced, and kept up a constant state of irritation. Having removed this by the scissors, I applied a piece of lint dipped in oil to the incised surfaces, and gave grs. ij. of opium.

27th. Is free from pain; pulse quiet, and no fever. Removed the lint, and did not again apply it. From this time she progressed favourably, and in one fortnight was quite well. During the past two years she has had no return of the disease, but has continued in the same situation, performing well all its duties.

Practical Remarks.—This case again surely proves the truth of my preliminary remarks, as showing the predisposing cause of the prolapsus—viz., the condition of the uterus, its mechanical pressure on the rectum, and the increased flow of blood to the bowel at the menstrual epoch on account of the deficient discharge from the uterus.

Case XLIII.—*Prolapsus Ani.*—E. H., æt. 42, married; had been married 11 years, and had no children; had long suffered from bearing down of the womb, and at each menstrual epoch there was very deficient excretion. Her health was generally impaired: she had long been treated for uterine derangement, but had never allowed an examination. On consulting me, I immediately inquired if she suffered from piles, or bearing down of the bowel; and, on her replying that she had suffered from prolapsus of the bowel for several years, preventing her from riding on horseback, or sitting long in one position, I inquired further, whether, at the menstrual epoch, there was any bleeding from the protruding bowel. She replied that she lost a great deal of blood at those periods, and that the parts were more painful and sensitive then than at other times. This patient never had an evacuation from the bowel, except from medicine, which she took every night. I directed her to remain in the horizontal posture, either on her side or on her abdomen; attended to her general health, administering steel and quinine, and using the cold douche to the uterus. Under this treatment she rapidly improved; and on finding that after two months there was a freer menstrual discharge, I applied

ligatures to the prolapsus of the bowel. The disease was permanently cured; the patient was restored to good health, and in the course of a few months became pregnant for the first time in her life; and I delivered her of a healthy child at the full period of gestation.

Practical Remarks.—This case points out the importance of investigating both the uterus and rectum in such conditions of the female, for it will be observed, that instead of the rectum alone being investigated, as was done in the two preceding cases recorded, in this the uterus alone had been treated, and the result was equally unsatisfactory. I could adduce very many cases which have come under my observation of a similar kind, where patients have been treated for months and years for uterine disease, but no attention having been paid to the condition of the bowel, no good has accrued. If this were the proper place, or did space admit of it, I could show that the cause of sterility in many females would be found to arise from these conditions of the rectum, in connexion with those of the uterus. I need not, therefore, enlarge upon the importance of thoroughly investigating all such cases.

Case XLIV.—*Fissure of the Rectum.*—E. P., æt. 29, unmarried, of pale complexion, and of anxious countenance, consulted me, complaining of headache, great depression of spirits, lassitude, and want of appetite. She had not menstruated for three months, and complained of a heavy bearing-down pain in the womb, particularly on standing, or when lying on her back. She suffered from constipation, never having relief from the bowels except from taking medicine. She always dreaded the act of defæcation, because she suffered such excruciating pain a few minutes afterwards. She described the pain at the time of defæcation as like sand passing over a raw surface, and the pain which supervened upon the action of the bowel was of a deep, cutting nature, almost intolerable.

On passing my finger within the rectum, I immediately discovered an irritable ulcer, in the centre of which was a narrow elongated fissure, terminating just within the orifice of the anus. On withdrawing my finger, I found on it a streak of blood corresponding with the length of the fissure. On the opposite side of the bowel was a pendulous tumour about the size of a small pea, with a long thin pedicle. On examination per vaginam, I found a fibrous tumour growing from the superior lip of the os uteri, extending up the cervix about an inch, whilst the os and cervix uteri, enlarged by this body, were tilted back upon the rectum, thereby interfering with its functions. I ordered leeches to be applied twice a week to the os uteri, prescribed tinct. ferri muriatis, and warm hip-baths. The catamenia returned at the end of a fortnight, and continued for some days, although scantily. I then removed the tumour from the os by excision, and as soon as she had recovered from the effects of the operation, which she did in a month, proceeded to the treatment of the fissure in the following manner. Placing the patient on her side on

the edge of the bed, with her knees flexed on the abdomen, I passed the forefinger of my left hand up to the ulcer, and directed along it with my right hand a straight probe-pointed bistoury, beyond the very extremity of the fissure; then turning the cutting edge towards the sore, and securing the handle of the instrument with the thumb of my left hand, I withdrew my finger and the instrument at the same time, thus dividing the ulcerated surface as well as the fibres of the sphincter muscle. The result was, as will generally be the case, perfectly satisfactory, the patient being at the end of three months from the commencement of the treatment restored to health.

Practical Remarks.—I am indebted to my friend Mr. Copeland for both the knowledge of this disease and the simple method of treatment, which is almost invariably successful; at least, out of upwards of 100 cases which I have myself treated in twenty years, I have not seen it fail once. Another practical fact is connected with the pathology of these diseases. My own impression is, that the pedunculated tumour above described falling down upon a highly vascular mucous surface, produces, in the first instance, irritation, secondly, ulceration, and thirdly, fissure of the lining membrane of the bowel, each contraction of the sphincter after defæcation increasing or aggravating the ulceration. My reasons for believing this are, that I seldom find this condition of the rectum without finding one or more of these peculiar bodies, which I need not say should always be removed at the time of operation. It is very easy to detect this disease by digital examination. If the surgeon is consulted at the commencement of the disease, he will simply find an irritable, ulcerated surface; but if consulted at a later stage, he will find the fissure, which resembles very much the crack often found in the lip of the mouth, or in the palm of the hand in cases of psoriasis; still in whichever of these two conditions he finds the patient, the treatment to be pursued should be the same. I will also add, that it is always advisable to give opium just after the operation, so as to prevent the bowels from acting for some days.

Case XLV. *Constipation.*—Mrs. T——. aged 38, mother of six children; complained of persistent constipation, except when she was taking steel medicines; that she suffered pain after each action of the bowels; that much mucus came away with and after the dejections; that she had pain in the back, great bearing down both of the bowel and womb, with profuse leucorrhœal discharge, and that she had lost much flesh. I found her face anxious, and of a dark dusky hue. She suffered also from dyspepsia, headache, and general lassitude. I requested permission to examine the uterus, believing the cause of constipation arose therefrom; but for a long time this lady resisted the proposal; however, I was at last permitted to make an examination, and found, as I expected, an enlarged and prolapsed uterus, within two inches of the outlet of the vagina. On using the speculum,

the os was seen to be inflamed, enlarged, and ulcerated. On examination per rectum, I found, three inches up, a solid, heavy body (which was evidently the fundus of the uterus) pressing on the bowel, so as to prevent any fæculent matter passing in a solid state; the lining membrane was covered with much slimy mucus. She stated that she was always suffering pain in the bowel, as well as in the womb; that the pain in the rectum was of an *aching, wearying* character, making her feel faint and sick; that the sensation of the womb was like a heavy weight, feeling as if it would escape when walking. I applied caustic to the os, ordered the cold douche night and morning, with directions to recline on the stomach for several hours; to wear constantly during the day one of my perinæal bandages, to take internally steel, and zinc combined with extract of conium at bed-time; and to have the bowels relieved by an enema of warm water every other night. Whenever she was lying on her stomach, she was quite free from pain; after two months' treatment, this patient perfectly recovered; and by the simple precaution of relieving the bowels by an injection just before going to bed, she has continued well up to the present time.

Practical Remarks.—I think that any treatment, applied simply to the bowel, for relief of the constipation, would in this case have failed, unless the exciting cause had been found to have arisen from the condition of the uterus. It is worthy of serious attention, that she was perfectly free from pain both in the bowel and the womb when reclining on the stomach. Another practical fact, worthy of observation in this, and all the other affections of the rectum, is, that by relieving the bowel at night immediately before retiring to rest, the greatest relief is afforded; and it is the best way to prevent a return of disease, because the natural determination of blood to the bowel, at the time of defæcation, as well as the congestion of the mucous membrane, and the relaxation of the muscles, are all relieved by the recumbent posture followed by sleep.

Case XLVI.—*Fistula in Ano.*—E. C., aged 32, married, lady's maid, consulted me, complaining of feeling generally ill, of pain on her right side in the hepatic region, of indigestion, headache, and general lassitude. She had an anxious countenance, a dusky-brown complexion, depression of spirits, a tendency to melancholy, and felt scarcely able to perform the duties of her situation. The following is an account of her past history:—She had been married nine years; she suffered greatly from the first commencement of sexual intercourse, having had from that period pain in the womb of a dull aching kind, which increased more or less for twelve months. At the end of this time, she experienced a heavy bearing-down pain, which particularly affected the rectum. She had lived apart from her husband six or twelve months at a time, because of suffering so much pain, not only at the time of connexion, but for some weeks afterwards. Be-

fore marriage, she had been healthy, active, and in robust health; but this gradually failed since marriage. In the third year of her wedded life, she began to experience difficulty in defæcation, as if something prevented the bowel acting; and was obliged to take some aperient medicine two or three times a-week to insure relief. This difficulty was soon followed by an aching, wearying pain in the bowel itself when she was walking or sitting; then she became subject to troublesome internal hæmorrhoids, which were always more painful, and occasionally bled a little at the menstrual epoch; menstruation itself being regular as to time, but scanty in quantity. After some time, she suffered from a throbbing, deep-seated pain in the bowel, which terminated in a fistulous opening; and then, for the first time, applied to a surgeon, who operated for the fistula. During the next three or four years she underwent two or three more operations on the bowel, the precise nature of which she could not explain; but although relieved at the time by each operation, still the relief was not permanent, constipation and difficulty of defæcation continuing.

Examination.—On examining the anus, I discovered a fistulous opening extending an inch up the bowel; and on passing my finger up the rectum itself, found the uterus pressing heavily upon it. On examination per vaginam, I felt an enlarged hypertrophied uterus, tilted back upon the utero-vaginal septum, so as to press the rectum flat upon the sacrum.

Treatment.—I treated the uterine affection on the principles already described, with the same marked result. I then performed the usual operation for fistula, and, after the parts were healed, directed her to evacuate the bowels at night instead of the morning. The result of the whole treatment was most satisfactory; the patient recovered her former good health and spirits; and, when she lately called upon me, I did not recognise her, she had become so stout, and looked so cheerful and happy.

Practical Remarks.—Perhaps no case could more clearly illustrate my preliminary remarks than this. Here was disease of the rectum of several years' standing, distressing the patient, and rendering life hardly endurable, considering the duties she had to perform; and, although she had the best attention paid to those diseases, and had been relieved of each form of suffering by operation, still, the exciting cause not having been discovered, no permanent benefit accrued from treatment; whereas, no sooner had the uterus been relieved, than she was perfectly cured by the last operation, and has continued well ever since. I could easily multiply these illustrations by quoting cases from my note-book, and show that stricture, irritation of a dysenteric character, &c., constantly arise, either from mechanical pressure of the uterus, or from suppression, partial or entire, of the menstrual discharge; but, as the limits of this chapter will not admit of such extension, I shall rest the proof of my preliminary propositions on the cases now recorded.

DISEASES OF THE RECTUM RESULTING FROM OTHER CONDITIONS OF THE UTERUS AND ITS APPENDAGES.

In the preceding observations I have chiefly directed attention to the maladies of the rectum dependent on a tilting or bending of the uterus forwards or backwards, or on the subsidence of that viscus from enlargement. But it will be at once perceived that other conditions of the uterus than those named, may cause it to mechanically interfere with the functions of the lower bowel. Among such may especially be noticed fibrous tumours or polypi developed within the uterus, which will not only drag it from its normal position, and cause its enlargement, but also themselves act as mechanical causes of disease on the neighbouring viscera. What fibrous tumours developed within may do, those from the exterior of the uterus may do likewise, or even more completely; and equally injurious with the foregoing are the true pelvic tumours, particularly those originating in the recto-vaginal cul-de-sac.

Another cause of suffering in the rectum depends on the presence of ovarian tumours, chiefly when in their early stage, and still contained within the pelvis. This effect of cysts of the ovary is particularly noticed in the chapter on ovarian dropsy.

Just as by the pressure of a displaced uterus, so uterine and pelvic tumours give rise to false stricture of the rectum, sometimes to fissure and fistula, and oftener to piles. It is needless, however, to enter into descriptions of how each morbid production exerts its injurious effects; it will suffice my purpose to have called attention to the frequent mutual dependence of uterine and rectal disease; and to have shown the necessity of bearing this in mind, when we are called upon to treat females for any disease of the lower bowel, especially when the lesion proves intractable. When this relation is once discovered, the course of treatment will be obvious; every form aimed at any local symptom will be entirely vain, whilst the *fons et origo mali* remain untouched.

As the rectum behind, so the bladder in front is obnoxious

to injury from its relations with the uterus. The disordered micturition in pregnancy is well known; that in ovarian dropsy is hereafter pointed out; whilst of that seen in displacements of the uterus, and in the case of tumours attached to that organ and its dependencies, the varieties are mostly described in the descriptions of those diseases in works on surgery and midwifery.

CHAPTER XIII.

ON OVARIAN DROPSY, OR ENCYSTED DROPSY OF THE OVARY.

This form of dropsy has for a long period been recognised, and has received, especially of late years, the attentive study of many eminent practitioners of medicine. By the majority it has been deemed incurable, and susceptible only of palliative treatment. Its pathology is still unsatisfactory, little having been done to elucidate it. The history of the operations will be given when they come severally to be described.

The disease consists in the development and progressive growth from the ovary of one or more cysts, the lining membrane of which has the property of secreting fluid in oftentimes an almost indefinitely large quantity; where but one cyst exists, the tumour is said to be unilocular, where several are found it is multilocular.

Origin and Structure of Ovarian Cysts.—Cruveilhier, Seymour, Paget, and others, believe the origin of the cyst or cysts to be from one or more enlarged Graafian vesicles. Mr. Paget* says (p. 57), "Among the cysts formed by growth of natural cavities or obstructed ducts, we have surpassing proliferous power in the ovarian cysts from Graafian vesicles." Dr. Robert Lee's account† of a dissection of an ovarian tumour, points to the same source. In the language of others, there is a cystic degeneration of the ovary; in which a morbid formative power displays itself in the production of cysts, themselves

* Lectures on Tumours, 1853.

† Clinical Reports of Ovarian and Uterine Disease, p. 23. 1853.

capable of growth and of developing others. Mr. Paget* calls the cysts, with reference to this power of development, proligerous, and with respect to its direction (which he assumes to be internal), endogenous.

The cysts, sacs, or cells developed in an ovarium have three coats—an external peritoneal, a middle fibrous, and an internal, also fibrous, but smooth and capable of secreting, though not of absorbing fluid. This last coat consists, according to Dr. Lee, of two distinct membraneous layers, like the wall of a Graafian vesicle. Dr. Hughes Bennett describes† a delicate membrane, covered by epithelial cells, as existing on the free surface of the internal wall. The middle coat, when sufficiently thick, may be separated into several distinct strata.

Thus, it seems that, in most ovarian cysts, the true sac is derived from a dilated Graafian vesicle, and in its progressive growth involves itself with the fibrous or true coat of the ovary, and possibly with more or less of the stroma, and over all is covered by the peritoneum.

This applies to the true, or proliferous ovarian cysts, but another form of compound cyst is well described by Mr. Paget, thus‡:—"It is not unfrequent to find many small cysts formed apparently by the coincident enlargement of separate Graafian vesicles. These lie close, and mutually compressed; and as they all enlarge together, and, sometimes, by wasting of their partition walls, come into communication, they may at length look like a single many-chambered cyst, having its own proper wall formed by the extended fibrous covering of the ovary. Many multilocular cysts, as they are named, are only groups of closely packed single cysts; though, when examined in late periods of their growth, and, especially when one of the group of cysts enlarges much more than the rest, it may be difficult to distinguish them from some of the proligerous cysts."

It is in the middle tunic, as indeed its origin would indicate, that the vessels of the sac are found. These sometimes are small and few; at others much enlarged and numerous; they are

* Op. cit.

† Edinburgh Medical and Surgical Journal, vol. lxv., p. 402.

‡ See op. cit., p. 22.

always derived from the proper vessels of the ovary. In thus deriving its blood directly from the part from which it springs, an ovarian tumour differs from an hydatid cyst; unlike which, too, it has no such peculiarly independent existence, and no acephalocysts in its contents. It may be here remarked that hydatids of the ovary are very rare.

The walls of an ovarian cyst vary much in consistence and thickness in different cases, and even in different parts of the same sac. Also, in a mass of cysts, similar variations are often met with in the several individual ones. An increased thickening may be due to simple hypertrophy of the tissues, but more frequently to a morbid process established in the walls. Thus they may become thickened and indurated throughout, or only in parts, by inflammation, or by tubercular, or by cancerous deposit. On the other hand, inflammation may soften and waste them, or render their consistence friable and lacerable; or ulceration and even gangrene may be set up, and perforation follow; or lastly, they may undergo calcareous degeneration. Cases have been narrated where the tunics have attained an inch in thickness. In a tumour dissected by Mr. Stockwell*, where dropsy had been perceived only three years, and tapping but once resorted to, the anterior wall was one inch and a half thick; the posterior rather less. In one of Mr. Wilson's cases,† two thick bands stretched across the front of the sac, which were found to be offsets from the broad ligament, and to contain the several vessels. Often, on the contrary, the tumour has very thin and flexible walls, and a whitish, shining, or glistening appearance. The walls are, however, in all cases thicker at the part where the cyst is attached to the ovary, whether it be so by a pedicle, or by a broad base. The thickening of a sac chiefly takes place in its middle wall; the peritoneal, however, is often thickened and rendered opaque.

The lining membrane most frequently shows the result of morbid action. This it may do by partial or by general inflammatory injection; by adherent flakes of lymph; by the oozing out of pus; by a granulated or a puckered surface; by softening,

* Provincial Medical and Surgical Journal, No. 2, 1851, p. 38.
† Ibid., p. 35, 36.

and by various coloured spots. A fibrinous exudation may entirely line a cyst, and, as pointed out by Professor Simpson*, become vascular, and eventually give rise to hæmorrhage within the sac. An alteration of the lining membrane generally happens after a cyst is opened; for, as a rule, the qualities of the fluid subsequently secreted are changed.

On the growth of a cyst, from the ovarium, the latter, in most cases, wastes; but it will occasionally happen that its substance or stroma undergoes hypertrophy, increasing in quantity and hardness, and assuming a fibrous or fibro-cartilaginous consistence. This has been considered by some to be a scirrhous transformation, though any evidence of malignancy is wanting. It may be met with at only one portion of a tumour; or, where several sacs co-exist, it may intervene between them, and in a slighter degree appear only as thickened septa.

According to Dr. Lee, the ganglionic nervous structures enlarge when compound cysts are formed in the ovaries.

Formation of Multilocular or Proliferous Cysts.—It is common to find growing from the inner wall of an ovarian cyst many smaller ones, as if by a process of internal gemmation. Dr. Hodgkin† adopted this idea of internal cell growth, and applied it generally to explain the formation of multilocular ovarian tumours. In this he has been ably followed by Mr. Paget, who defines the process as one of *endogenesis,* but, at the same time, shows that the new cysts are occasionally shot forth from the external surface,—by exogenesis, and that, as above described, some compound tumours have no such proliferous origin, but consist of a mere agglomeration of independent vesicles.

"Respecting" (writes Mr. Paget‡) "the mode of generation of the endogenous cysts, it could only be supposed that they are derived from germs developed in the parent cyst walls, and thence, as they grow into secondary cysts, projecting into the parent cavity; or disparting the mid-layers of the walls and remaining quite enclosed between them; or, more rarely,

* The Monthly Journal of Medical Science, Vol. XV., 1852, p. 526.
† On the Morbid Anatomy of Serous Membranes.
‡ Op. cit. p. 60.

growing outwards and projecting into the cavity of the peritoneum."

My own observations tend to confirm these views of the endogenetic formation of ovarian cysts. In many cases I have found vesicles, of various sizes, proceeding from the lining membrane, and apparently quite unconnected with the external fibrous envelopes. Dr. Robert Lee would explain the formation of a compound tumour in another manner, as will be best shown by quoting from his account* of the dissection of a large cyst. He thus proceeds:—

"Imbedded in the middle coat (of the large sac), near the root, is another and much smaller cyst, with a lining membrane, and likewise composed of two distinct layers. From the preparation, it is seen that a thin stratum of the middle coat is interposed between these two cysts, and that they are independent of each other. But the smaller cyst, though not adherent to the outer surface of the larger, has grown so as to encroach on the cavity of the latter, the lining membrane of which the smaller cyst has protruded before it. From this dissection it is obvious that the smaller cyst did not grow from the inner surface of the larger, nor from its outer surface, but that, in the progress of development of the smaller cyst, it pushed before it a portion of the lining membrane of the larger, and thus acquired the layer of reflected membrane from the inner coat of the larger cyst, by which it is invested."

A similar account is given of a group of small multilocular cysts at the base or root of the great cyst in the middle fibrous coat, "which," (says Dr. Lee) "contain similar fluid, have all the same structure, bear the same relation to one another as the two cysts above described, and have evidently been formed independently of each other."

As a consequence of this dissection, Dr. Lee arrives at the following deductions, viz., "that in some, if not all, cases of compound or multilocular ovarian cysts, the cysts are formed independent of each other; that the smaller cysts do not grow from the inner surface of the larger cysts, as has been supposed,

* Lee, op. cit. p. 22, 23.

but are formed in the stroma of the ovary, external to each other, and that the smaller cysts encroach upon the cavities of those more advanced cysts with which they are in contact, and thus in a mechanical manner acquire reflected portions of their membranes."

Every pathologist will call to mind the frequency with which small cysts, with transparent, watery contents, are met with in the ovaries, sometimes giving those organs an appearance resembling a bunch of currants. Now we can readily conceive the formation, out of such a collection, of the non-proliferous tumours of Paget; or in some cases of an encysted disease like that described so well by Dr. Lee; but the latter writer endeavours to prove too much by his one case by urging it as decisive against endogenous growth in all. Some forms of compound cysts, especially where the secondary growth depends from a pedicle, —such as that represented by Mr. Paget, at p. 60 of his work, do not seem explicable on Dr. Lee's hypothesis; and it must also be remembered that endogenous cell-growth is witnessed in other organs than the ovary.

Growth of Cysts.—Multilocular ovarian disease is much more common than unilocular. The latter may be strictly so from the original development, or from the growth of a single cyst, or otherwise, it may be a secondary condition, the result of the coalescence of several cysts, to which indeed there is a natural tendency. A single cyst may go increasing *per se* to a size equal with multilocular tumours. If secondary cells grow in its interior, they may hang from it "in large, lobed, warty-looking masses, and nearly fill its cavity,"* or, springing from broader bases tend to subdivide it, and destroy its original unilocular character. The same effect is produced by exogenous development from the wall of the cyst. On the other hand further independent cysts may spring from the ovary, as represented by Dr. Lee, and form at once a truly multilocular tumour.

Where other cysts form externally to a principal one, they frequently feel like hard appended tumours, from being but partially developed. The growth of such seems frequently to be only

* Paget, op. cit. p. 60.

arrested, for on the subsidence, by tapping or otherwise, of the large one, they will at once increase. The hardness perceptible in some appended cysts is occasionally due to their distension by denser fluid. The number of cysts which may form in an ovarian tumour is almost infinite, but many will continue small, or their growth remain in abeyance, or several may become large sacs together or in succession.

Direction of Growth.—The direction of growth will be mainly that of least resistance. Where several independent sacs exist they pack themselves variously, according to their relations at their origin, their order of development, and the direction of least resistance to their growth. It so happens sometimes, that the disposition of the sacs gives the impression of disease in both ovaria, or of the transition of the dropsical effusion (after paracentesis) from one side to the other.*

Mostly the tumours press upwards and forwards in the abdomen, but occasionally are felt to be most prominent in the recto-vaginal cul-de-sac.

In consequence of the sacs enlarging in the direction of least resistance it is, as Dr. Simpson observes,† that "we have the largest cyst or cysts in the mass generally, if not always, placed *first*, at the upper or abdominal extremity of the tumour,—and, *secondly*, on the anterior part of the abdominal tumour, rather than on its lateral or posterior parts; the cyst or cysts in front growing more readily, because they are less resisted in their growth by the abdominal parietes in front, than the cyst or cysts placed towards the sides or back of the tumour, inasmuch as these latter are repressed by the denser fabric of the lateral and posterior walls of the abdominal cavity. It is in consequence of this pathological arrangement that, by the operation of paracentesis abdominis, we are usually able to evacuate the largest cyst or cysts in the mass; and in consonance also with the same law, the contents of such more prominent cyst or cysts are usually far more fluid, and become more easily capable

* See case by Mr. Hunt, Lancet, Vol. I., 1846; and Cases 2 and 5, published by me in the same Journal, Vol. I., 1846, p. 371 & 373.

† "Monthly Journal of Medical Science," Vol. XV., 1852, p. 365.

of being evacuated through the trocar than are the contents of the more condensed and undeveloped cysts of the tumour."

Intercommunication of Cysts.—In a congeries of cysts much mutual pressure is exerted; and from activity of secretion in some, whether by inflammatory action or not, such compression may follow, as to cut off the supply of blood to others, and so arrest their growth. This is illustrated where one cyst appears to grow at the expense of another. Compression will likewise cause the softening and absorption of intervening partitions or septa, and throw two or more sacs into one. So also the secondary cysts of endogenous growth may open into one another, and the entire tumour be resolved into one of few cells, or even into a single cyst.

The intervening walls are sometimes not entirely destroyed, but are represented by remaining bands traversing the cavity of the false unilocular cyst.

This deliquescence of several cells into one is more common with those of endogenous origin and small, than with others; for mostly where there are several large sacs in compound encysted disease, they do not communicate with each other.

The very reverse of this process of breaking up of several into one cell, is exhibited in that endogenous development in a simple sac, which thereby becomes converted into many, probably, as above intimated, to be reconverted ultimately into a single one.

The expansion and compression of adjoining cysts lead to active inflammation, to the effusion of pus, and sometimes to actual gangrene of their walls.

The inflammatory process, when set up in an ovarian cyst, whether simple or compound, frequently extends to its peritoneal surface, and thence to organs contiguous. The inflammation of its peritoneal coat leads to thickening and opacity, and mostly to the effusion of lymph, which causes it to adhere to some adjoining part. Either inflammation may extend from the cyst itself to some neighbouring tissue, or the irritation of the cyst may set up that process independently in the tissue, and not unfrequently peritoneal effusion be poured out.

The adhesion of the cyst to surrounding parts, although an

impediment to extirpation, sometimes favours a natural cure by rupture. Adhesions on the posterior surface are very rare, and not to be discovered by examination. It is to inflammation, acute or subacute, within the cysts of an ovarian tumour, that their rapid increase in size is mostly due; and from it also often result the breaking down, or perforation by ulceration, of septa between cysts, and the rupture of the tumour. This morbid process produces indeed the same changes in the lining tissue of a cyst, as in a normal serous cavity, and effusions of a like character.

Communication of Cysts with the Fallopian Tubes.—M. Richard, of Paris, cites† four examples of cysts, simply ovarian in origin, which "had involved a considerable portion of the Fallopian tube, through which their contents could by pressure be forced into the uterus. The portion of tube implicated had become much increased in length and thickness, and the folds of its mucous membrane, which are so numerous and resistant, were partly effaced. A distinctly formed aperture was the means of communication between the ovarian cyst and the tube, through which the contents of the former could be forced. Although, however, the portion of the tube which remained in its normal state offered no physical obstacle to the further passage of the fluid, this only passed out, even in small quantities, when a probe was introduced and pressure was applied, the latter alone not sufficing. M. Richard believes that some of the cases described as tubar dropsies,† have been in reality examples of this occurrence (which he calls tubo-ovarian), and that in this way may be explained the course and disappearance of some encysted abdominal tumours."

Contents of Ovarian Cysts.—The physical and chemical characters of the contents of ovarian cysts vary very much in different cases; and where the tumour consists of several sacs, *i. e.*, is multilocular, they often differ much in the various cells. The contained fluid is frequently like the serum of the blood, of a pale yellow, or straw colour, but containing only a trace

* See Medico-Chirurgical Review, April, 1854, p. 465—in Analysis of the "Mémoires de la Société de Chirurgie de Paris," by Mr. Chatto.

† See subsequent page on Dropsy of the Fallopian Tubes.

of albumen. Secretion of this kind is, according to my experience, the rule in unilocular cases, or in those having but few cells, and of not long standing, and not previously punctured. This pale liquid may also be limpid, or be mixed with more or less mucous matter, sometimes in quantity sufficient to give it a gelatinous or ropy consistence. At other times the cystic fluid is coffee-coloured, or thick, as if mixed with coffee-grounds; and when like this, has been by some considered peculiarly diagnostic of ovarian disease. This variety likewise will sometimes be met with in ovarian tumours when first tapped, and may recur; but it appears oftener after the first tapping. The peculiar colour may be assigned to the presence of altered blood. The dark-coloured gelatinous fluid sometimes discharged, is most probably derived from the gangrenous softening of the internal septa of the cyst. I have met with opaque contents, of a yellowish-white colour, which under the microscope appear to consist almost entirely of fat-globules, and which, when allowed to stand, form a semi-solid, greasy mass. Cysts containing such matter seem to be accompanied in their formation by unusually great pain and disturbance of the system. Occasionally I have evacuated from a cyst a black, ink-like liquid; at times a gruel, or custard-like one; and, in some instances, a mixture of fluid with semi-solid, brain-like matter.

After tapping, an unhealthy state of the sac is apt to ensue, and an ichorous, or putrid, fluid escape; or purulent matter form and discharge, with or without fetor and gases from decomposition. But pus also occurs in unopened sacs from spontaneous inflammation, and also, as Dr. Bennett supposes, from the formation of pus-corpuscles in the gelatinous contents.

A cyst, after being once evacuated, rarely again secretes fluid of the same character as before. As above remarked, the very fact of emptying the sac seems to change the character of its secreting membrane. Even if an alteration of colour be not met with, there is generally one in the consistence. The change from a clear to a more or less opaque, or to a mucilaginous liquid, is common on a second tapping. Not unfrequently the transition is still greater, and a second emptying of a cyst produces a coffee-coloured, or gruel-like, or a flaky discharge.

The semi-solid, brain-like, and flaky substances may be commingled with either variety of liquid contents.

The quantity of contained albumen varies much in the fluid of ovarian cysts. Dr. Druitt* writes, "The contained fluid generally contains about eighteen grains of albumen to the ounce;" but I have met with instances where the proportion has been so great, that, on boiling, the fluid has set almost as solid as white of egg. The excess of albumen I consider an unfavourable circumstance in any case, and one calculated to modify our prognosis and treatment, as pointed out in the subsequent section on diagnosis.

It may be stated generally, that an increase of density in the dropsical fluid, (associated as it is with an augmentation in the animal and saline constituents,) whether that increase manifests itself by a mucilaginous consistence, a more plentiful production of flaky, or gruel, or brain-like matter, betokens a more depraved or morbid condition of the cyst, and indeed of the general health, and consequently a condition less amenable to cure. However, I am disposed to believe that, in some few cases, such a morbid change may take place in the secreting membrane of the cyst, from the effects of great distension or of pressure, and of repeated paracentesis, that its secerning powers may be to a great extent, or perhaps entirely, lost, and the cyst consequently remain as an inert mass within the abdomen.

An instance of this nature was, I think, presented in a case of Mr. Bryant.† On the occasion of the third tapping, a fluid of the consistence of gruel was evacuated, having to the eye a near resemblance to a purulent discharge. Subsequent to that time, the previously enormous sac remained nearly inactive, with dimensions greatly shrunk. If this view be correct, some prospect of benefit is attainable even in cases otherwise desperate.

Besides albumen, chemistry reveals other constituents in ovarian fluid, as fatty matter, cholesterine, and various alkaline salts, chloride of sodium, sulphate of lime, and soda, &c. An

* The Surgeon's Vade Mecum, sixth edition, 1854, p. 465.

† Lancet, Vol. II., 1849, p. 9.

old analysis, by M. Jules Fontenelle,* detected, in eight pints of brown and turbid fluid, 6 parts of fibrine, 97 of albumen, 34 of congealed gelatine, a little phosphate and chloride of sodium.

Under the microscope are seen various small corpuscles, and numerous large and compound cells filled with granules, together with fat-globules and delicate plates of cholesterine. Dr. Hughes Bennett† states that "the flocculi often floating in ovarian fluid, are patches of epithelial membrane, more or less united together by granular matter. Sometimes it is filamentous, with granular cells and other products of inflammation. The jelly-like matter, when consistent, presents all the characters of coagulated liquor sanguinis." In considering the diagnosis of ovarian dropsy, I shall have again to refer to the microscopical as well as the chemical characteristics of the fluid, and will therefore here enter no farther on the subject.

The quantity of fluid which may accumulate in an ovarian tumour is certainly astonishing. As much as 120, and even 140, pounds of liquid are recorded to have been withdrawn from one sac. In a case I have described,‡ I drew off 93 pints at one tapping. Moreover, it is well known that a cyst once emptied secretes more rapidly than before. The last case quoted shows this. The first enormous quantity removed was the result of four years' accumulation; but, after its discharge, 49 pints were secreted and evacuated within two months, and a further 52 pints after the lapse of little more than three months.

History affords many instances of this rapid and repeated production of ovarian fluid, when paracentesis was generally the only method of relief attempted. To quote one or two in illustration, "Mr. Martineau drew off nearly 500 pints in a twelvemonth; and from the same patient upwards of 6600 pints by eighty operations, within twenty-five years."§ Dr. Copland adds,‖ "In a case under the care of my friend, Mr.

* Archives Générales de Médecine, Tom. IV., p. 257.
† Edinburgh Medical and Surgical Journal, Vol. LXV., 1846, p. 40.
‡ Lancet, Vol. II., 1849, p. 9.
§ Copland, Dictionary of Practical Medicine, Vol. I. p 664.
‖ Op. cit. Vol. II. p. 928.

Worthington, of Lowestoft, the quantity of fluid taken away by him amounted to nearly as much as in the case detailed by Mr. Martineau."

In examples of this sort we must suppose the enormous bulk of fluid drained from the system contained little animal matter—albumen; and that the sac after being opened even repeatedly continued to secrete, contrary to the rule, a similar thin, aqueous liquid.

Occasionally, actually solid tumours are produced in connexion with the cysts, both internally and externally, and soft or hard cancerous formations more rarely appear about and between them.

"In rare instances," says Dr. Copland,* "sebaceous matters, with long hair, have been found in the same ovarium that contained large dropsical cysts, and even in the same cyst with the watery collection; the cyst in which the hair and fatty substance had been formed, having subsequently become the seat of dropsical effusion." Another uncommon mixture is that with hydatids.

One or both ovaria may be affected: the latter circumstance, however, is rare, at least so far as the production of large cysts is concerned; but it is not uncommon that, where encysted dropsy of one ovary exists, cysts in an early stage are present in the other. The two ovaries are not equally prone to disease, the left one being the more so.

Dropsy of the Fallopian Tubes.—Besides true ovarian cysts, springing from the substance of the ovary, other similar ones occasionally proceed from the Fallopian tubes, or from the broad ligaments, and may attain nearly or quite equal dimensions with the first. Such cysts are unilocular, and more amenable to treatment than the true ovarian form. Unfortunately, however, sufficiently distinct signs are wanting to diagnose between the two varieties. The contents of these non-ovarian sacs are clear when first tapped, and have little or no albumen.

Causes of Ovarian Dropsy.—Under this head not much can be stated with certainty. The generally admitted *predisposing* causes are—the scrofulous habit; debilitating causes in general;

* Op. cit. Vol. I. p. 654.

and excessive or too frequent menstruation. The *exciting* causes are not well understood: no definite cause often can be assigned by the patient, its onset being so gradual and insidious; and even when its origin is attributed to some particular circumstance, the statement must be received with caution. Among exciting causes are enumerated external violence, over-exertion, venereal indulgence, mismanagement in labour or in miscarriage, cold, checked menstruation, or leucorrhœa from any cause, uterine irritation, or inflammation; and the operation of the emotions, as fright, anxiety, &c.

The formation of cysts does not as a general rule occur until the sexual functions of the ovary come into exercise at puberty; but it may appear first after the cessation of the menses, whether *de novo*, or only upon a germ of morbid action developed in previous life, it is impossible to say.

"Although," says Dr. Copland, "chronic cases of it are found in very old females, yet it rarely originates at an age much above fifty."

Cases are related of ovarian dropsy occurring in the 13th and 14th year, and I have related one case* of its existence in the 15th year, and before menstruation was established; and a second, of its appearance at puberty. Taking those cases, of which I have the histories, ovarian disease made its appearance in by far the majority between 21 and 40 years of age. The average age at which the disease was discovered is about 26; hence, so far as my collection of cases will warrant the deduction, the tendency is greatest during the period of the highest functional activity of the ovaria; and does not arise so frequently in further advanced or middle life, as is mostly represented by writers. It is not uncommon among the unmarried, and the larger number of diseased married females† have, according to my experience, borne no children though several years married. But Dr. F. Churchill believes‡ that those who have borne children are more obnoxious to it than the unmarried.

In a considerable number, ovarian disease has been ushered in

* Lancet, Feb. 19th, 1848.
† Lancet, Vol. II., 1849, p. 10.
‡ On the Diseases of Women, 1850.

soon after the birth of children; the process of parturition, or the pregnant state, seeming to have been in some way instrumental in developing it. With reference to this, I may remark that, during the menstrual flow, and the periods of conception and delivery, the ovaries are in an excited condition, and therefore the more liable to take on diseased action under the operation of any existing external cause; and thus a reason appears for the observed fact, that the commencement of ovarian disease is often traceable to such periods. Of the instances of married ladies without children, it is a common observation, that such persons are particularly prone to disease of the ovaries; probably from the partial and insufficient excitation of those organs—*i. e.*, the natural and sufficient stimulus to reproductive action may be wanting, or they may be incapable of taking it on; in either case, the stimulus they undergo may consequently serve only to kindle morbid or abnormal action. This notion derives countenance from those examples of encysted dropsy where the sac contains hair or other organized tissue.

It is supposed that the disease may take its rise from ovaritis; this may be sometimes the case, but yet, as Dr. Copland observes,* "there are numerous objections to this view; for even when the tenderness and pain in the region of the ovaria, accompanying its commencement, are greatest, there is also a frequently recurring and copious menstruation, indicating an excited, rather than an inflamed state of these organs."

Symptoms and Course of the Disease.—The onset of ovarian dropsy is frequently so very insidious, that the early symptoms are unobserved by the patient, or referred to some other cause, and it is not till the disease has unmistakeably shown itself in a more or less advanced stage that medical aid is sought for, and directed to its cure. Owing also to this non-recognition of the disease at its origin, it is difficult to fix on the symptoms peculiar to it at that period; the patient may probably remember, at some past time, having suffered pain in the region of the ovaries and uterus, and, perhaps, tenderness on pressure, with a feeling of fulness; or the malady may have crept on unheeded till a visible increase of the abdomen reveals it, the patient being unable to remember any previous definite symptoms.

In not quite half of my cases, pain, lancinating and paroxysmal, occurred; but in the others it was not mentioned as present, although the probability is, that the dropsical enlargement did not come on without some, which might, at the time, be very readily assigned to any other cause but the true one, and be subsequently forgotten.

Again, it may be remarked, with respect to those instances of the absence of pain, that more were married women, of mature age, in whom we might consequently expect the morbid process to proceed with less suffering than in young unmarried women, or in those married ones in whom pregnancy or parturition seems to act as a predisposing cause. And, in general, we may assume that the pain will be in direct ratio with the activity of the morbid process established.

I believe, therefore, we may fairly infer that, as a rule, ovarian dropsy is ushered in by the occurrence of pain; that this pain will be less in married females who have borne no children than in others, and especially if they have advanced near middle age, and the disease be slow in its progress.

In the first stage of encysted dropsy it is common to have irregularity of the menses, a too frequent recurrence, or an excessive flow; but suppression is rare. In the after stages menstruation is frequently continued, and even regularly so; an exception to this must be made where the tumour is invaded by cancerous disease.

So soon as the dropsical tumour growing from the ovary acquires a moderate size, and is still confined within the limits of the pelvis, it will mostly be a source of annoyance by its pressure upon, and interference with, the functions of neighbouring organs. Thus, from pressure on the bladder, irregularity in the discharge of urine, and occasionally actual stoppage; from contact with the rectum, constipation by obstruction, and hæmorrhoids; or instead of mechanical, sympathetic disorders may afflict those organs, and be evidenced by sundry disturbances of function. It is fortunate if these evils be assigned to their true cause, for it is more likely they will be accounted accidental, or assigned to some remote cause.

By its progressive growth, the tumour rises out of the pelvic

into the abdominal cavity, and in so doing stretches the Fallopian tube and broad ligament. Other symptoms now become evident, varying, however, according to the state of the patient's health, the nature of the tumour, the rapidity and direction of its growth, the occurrence of inflammatory action, distending its cells by further effusion, and attaching its walls to adjoining tissues, or the setting up of malignant disease. As I shall presently have to detail at much length the symptoms in connexion with diagnosis, it is unnecessary to describe them here as isolated phenomena.

It should be mentioned that impregnation may occur even after ovarian dropsy has made considerable progress.

Course of the Disease.—This differs greatly in different examples. In one of my cases, æt. 15, the disease progressed to a fatal end in eighteen months from the time of its first discovery; whereas, in another, twenty years elapsed from its appearance until active treatment was attempted. Mr. Martineau's extraordinary case lived twenty-five years, although tapped about eighty times.

J. P. Frank met with a case where ovarian dropsy commenced at 13, and yet the patient reached the age of 88 years. Dr. Druitt says,* he "is at the present time, (1853,) attending a lady aged about 57, of tall commanding figure, in whom an ovarian tumour of immense size has existed for more than thirty years." The very reverse of this prolonged duration is conveyed in the statement of Mr. Safford Lee,† that he has seen a small ovarian cyst progress so rapidly in a *fortnight*, as to acquire a large size, obstruct the breathing, and severely impede the vital functions. Dr. Frederic Bird, from a knowledge of fifty cases, found that four died within one year from the commencement of the abdominal enlargement, twelve within two years, twelve within three years, ten within four years, and all the others within ten years.

The rate of increase of a cyst is as various, and the circumstances of the tumour being unilocular or multilocular, appears

* Surgeon's Vade Mecum, p. 465.
† Lee on Tumours of the Uterus.

to have no direct nor constant relation with its rapidity of growth. The fact that, after tapping, the fluid accumulates in almost all cases much faster than before, has already been recorded. No doubt can be entertained that, apart from the actual activity of the ovarian disease, the state of the patient's health will influence very much the rapidity of secretion of cystic fluid—*i. e.*, the more sound, *cæteris paribus*, the constitution, the less the morbid exhalation of fluid. Hence the value of those tonic remedial agents recommended in the treatment of ovarian dropsy.

The character of the cyst, its size and quickness of development, and other circumstances belonging to it, each and all regulate the degree in which the health of the patient may suffer. In general, the chief complaint before the tumour is of very great bulk, is of its mechanical inconvenience, its weight, the dragging from the loins, the feeling of fulness, and pain in the back produced; but eventually it interferes with and oppresses the functions of various organs, some immediately and others by sympathy, and if relief be not afforded, or be given too late, the patient sinks. One of the most troublesome concomitants is irritability of the stomach, constant and exhausting vomiting, only relievable by diminishing the swelling. The bowels are also rendered irregular in their action; obstruction or local congestion may be produced by pressure; or irritation may set up diarrhœa; the kidneys, by the pressure, secrete less than they ought, may suffer congestion, and become a prey to organic disease. When the cyst presses chiefly upwards, it interferes especially with the action of the diaphragm, causes irregular action of the heart, and renders the breathing short and difficult.

From these extended and injurious effects of the ovarian tumour, the almost constant marasmus and exhaustion seen in the last stages are explicable; as also the irritative or hectic fever towards the close of life. Among other results of the progress of the disease are œdema of the lower extremities, and less frequently ascites.

Dr. Burns presents* the following sketch of the course of

* Burn's Midwifery, p. 139.

ovarian dropsy:—"In the course of the disease, the patient may have attacks of pain in the belly, with fever, indicating inflammation of part of the tumour, which may terminate in suppuration and produce hectic fever; or the attack may be more acute, causing vomiting, tenderness of the belly, and high fever, proving fatal in a short time: or there may be severe pain lasting for a shorter period, with or without temporary exhaustion, and these paroxysms may be frequently repeated. But in many cases these acute symptoms are absent, and little distress is found until the tumour acquire a size so as to obstruct respiration, and cause a painful sense of distension. By this time the constitution becomes broken, and dropsical effusions are produced. Then the abdominal coverings are sometimes so tender that they cannot bear pressure; and the emaciated patient, worn out with restless nights, feverishness and want of appetite, pain and dyspnœa, expires."

There is a remarkable difference in the toleration—so to speak, of the malady in different women. In some the functional disturbances are early and excessive when the tumour is still of no great magnitude; whilst in others, the lesser mechanical effects of the swelling are almost alone complained of until an extensive enlargement of the cyst—after, it may be, a long period—has occurred. Cases are recorded of tumours, with contents, weighing from 50 to 120lbs., and even upwards; and others where their weight has been such as to drag down the distended abdomen to a level with the knees. This variety in tolerance will much depend on the varied nervous impressibility of women, although the state of the general health, the rate of the growth of the tumour, its nature and contents, must have considerable influence.

In place of the dropsical enlargement progressing to the destruction of life by mechanical interference with important functions of the thoracic and abdominal viscera, other events may ensue. The tumour may disappear by evacuating itself by rupture through some organ, or, as some believe, by spontaneous absorption. "Dr. Baillie mentions an instance of the spontaneous disappearance of a tumour, after it had existed thirty years, the patient remaining subsequently in good health."

(*Copland, loc. cit.*) Although not a solitary example, this is, however, a rare one. A singular instance of the progressive wasting of an ovarian sac occurred to Mr. Norman, of Bath,* in a patient on whom ovariotomy had been attempted, but was not carried out on account of extensive adhesions. A small quantity of discharge escaped from the wound, "but too small to admit of supposing it came from the tumour," and Mr. Norman observes, that to account for the very great and progressing diminution of size must be a matter only of conjecture. Since the publication of the case, I have heard from that gentleman that the woman is quite well, is married, but has not become pregnant. In the paper quoted, Mr. Norman also records the spontaneous disappearance of ovarian tumours in several cases known to him and to friends; and he seems to regard such a termination as more common than generally supposed. The bursting of a cyst is not uncommon, but it often hastens on the fatal termination. The danger, nevertheless, depends much on the outlet through which the fluid makes its way; and this will be regulated by the seat of the previous adhesions of the walls of the cyst, by the relative thickness of those walls, and the changes in structure and strength that the inflammatory process may have effected in them, and, in fine, by the direction of least resistance. For the tendency to burst may be determined not simply by the over-distension of the cyst, or by mechanical pressure or injury, but also by a weakening of some part of the wall of a cyst, through a morbid process, or by other cause. It is not very uncommon for a sac, after being once punctured by a trocar, to again and again empty itself through the same outlet, the adhesions of which are dissolved by the pressure of re-accumulated liquid. Such a case I have put on record in the *Lancet* (Case 2, vol. i., 1849).

An ovarian cyst may empty itself into the peritoneal cavity, into the large intestines, the bladder, or the vagina, through the Fallopian tube (see p. 167), or externally through the abdominal wall. The discharge into the peritoneum is, of these several modes, the most dangerous; though, I believe, less so than generally imagined. The peril will vary according to the

* "Provincial Medical and Surgical Journal," No. 1, 1851, p. 7.

character of the escaped fluid; it will be the less when that fluid is bland and non-irritating, and the greater when it is mixed with the products of diseased action within the interior of the cyst. Sufficiently numerous cases of recovery are known to forbid a necessary fatal prognosis when the contents of an ovarian cyst are effused within the peritoneum; the fluid may be absorbed, and the peritonitis lighted up be mild and readily subdued, and even the yet more gratifying result ensue of the destruction of the cyst itself by obliteration. Indeed, in the operation, hereafter detailed, of cutting out a portion of the cyst and returning the remainder into the abdominal cavity, the subsequent secretion of fluid and its effusion into the peritoneal cavity are even contemplated as parts of the procedure.

Dr. Blundell, in his lectures on midwifery, adduces an instance of recovery from rupture of a cyst into the peritoneum. Dr. Simpson, of Edinburgh, states* that he has seen several cases, and narrates one.†

Many examples of rupture through one of the mucous canals are recorded. In one of my cases, published in the *Lancet* (vol. i., 1849), the tumour, it would seem, ruptured internally three times; and on the last occasion discharged its contents through the urinary passages. Dr. Seymour mentions one where the fluid escaped by the vagina and intestines at the same time, and the patient recovered. Dr. Simpson gives (*loc. cit.*) the history of a patient in whom the cyst ruptured from time to time, and emptied itself *per vaginam;* and he afterwards refers to the rare communication of the interior of an ovarian sac through a Fallopian tube with the interior of the uterus. Dr. Copland‡ says, he saw a case "in which adhesion of the tumour took place to the parts adjoining the puncture by which its contents had been drawn off. The cicatrix ulcerated, and the fluid was afterwards discharged by degrees through the opening, and the patient recovered."

* "The Monthly Journal of Medical Science," vol. xv. p. 527, *et seq.*, 1852.

† See some remarks by Dr. Simpson, quoted in section on tapping.

‡ "Medical Dictionary," vol. i., p. 655.

The issue of the cystic contents through a mucous canal, or through the external parietes, is much more favourable than into the peritoneum, and not attended by any such immediate danger to life. If the sac can collapse, a natural cure may result forthwith; if not, it may shrink, and though continuing to secrete for some time, may ultimately wither; or, again, it may expand with fluid as much as before, discharging it at intervals, or almost constantly. The result will much depend on the size and nature of the opening, as well as on the collapsibility of the sac, and on the exclusion or admission of air into its interior. The destruction of a sac with dense thick walls may likewise follow from suppuration established in them after its evacuation.

The following case of ruptured cyst, narrated by Dr. Simpson,* is sufficiently remarkable to justify its insertion :—"A patient, now aged 56, the mother of five children, and naturally of a very robust and strong constitution, had up to the end of last year been tapped for ovarian dropsy forty-four times by myself and others. Latterly the paracentesis was required every few weeks, and an enormous amount of fluid was always evacuated. I have repeatedly seen above four gallons of fluid drawn off at a single tapping. Last winter, this patient slipped in walking upon a frozen path, and so violently struck the abdomen and ovarian tumour against the ground in her fall as to rupture the cyst. Since that time, however, no new tapping has been required. The abdominal swelling, though still large, is considerably less than it was at the time of the fall, and does not increase in size. For a time the fluid of the cyst evidently escaped freely into the cavity of the peritoneum, and was as regularly absorbed from it. Latterly there has been apparently much less, or indeed, no perceptible amount of fluid in the cavity of the peritoneum. For several months the patient's skin was in an almost constant state of diaphoresis—a result which, to her, appeared the more strange, as for years previously she had never been able to excite any perceptible degree of perspiration. This tendency to spontaneous diaphoresis has latterly increased. The urinary secretion was often previously affected and greatly diminished as the ovarian tumour enlarged. Since the fall and rupture of the cyst, the

* "Monthly Journal of Medical Science," vol. xv., p. 528.

kidneys have continued to act very freely and uninterruptedly, the urine secreted being now always clear and limpid."

An extraordinary case, where death resulted from the twisting on itself of the pedicle of an ovarian sac, is related in the *New York Journal of Medicine*, for March, 1851. The twisted pedicle appeared to have caused the fatal peritonitis. The tumour internally was intensely congested.

The probable occasional discharge of an ovarian cyst through the Fallopian tubes has been referred to in a preceding page (p. 167).

Diagnosis of Ovarian Dropsy.—Encysted dropsy of the ovary has been mistaken for pregnancy, and pregnancy for ovarian dropsy; the latter a much more serious error, as it may lead to fatal treatment. Ascites, tumours of the uterus, distension of the bladder, fæcal and flatulent accumulations in the intestines, and indeed almost every kind of enlarged abdomen, have been confounded with ovarian disease; and, conversely, the last has been mistaken for each and all of these conditions. Such errors have occurred to distinguished practitioners; and it must be admitted that the diagnosis is often as difficult as it manifestly is important. Its importance, indeed, can scarcely be exaggerated; for whatever be the treatment, the knowledge not only of the existence but also of the precise nature of the ovarian malady, is of the utmost consequence.

Signs of Ovarian Dropsy.—The signs of ovarian dropsy may be divided into *general* and *special*, or *local*. They will, however, vary according to the stage of the disease.

General Signs.—The *general* are evidenced by the condition of the patient's health and appearance; and taken in conjunction with a suspected abdominal enlargement, are confirmatory of its real nature. Among such general signs in the fully developed disease, are, emaciation about the neck and shoulders, and a peculiar expression of countenance. The latter is more readily appreciable to the observer than any description can make it to the reader:—The face is elongated, thin, and rather shrivelled; anxiety and care are strongly depicted on the features; the angles of the nose and mouth are drawn downwards, the lips thinned, the cheeks furrowed; the eyes are remarkably defined, the space between the eyelids and bony margin of the orbits

being sunken and hollow; indeed, the whole areolar adipose tissue of the face is atrophied; the complexion is pale, but without that peculiar leaden aspect, or sallow or parchment-like colour seen in malignant disease. It is mostly not till late in the disease that œdema of the extremities is noticeable, that the abdominal veins become prominent, or that the derangement of the digestive organs, or the decreased quantity of urine is considerable. Sometimes, indeed, œdema happens at an early stage, owing to pressure on the veins of the leg, and is, consequently, seen on the side from which the tumour originates. It is, therefore, at once distinguishable from that œdema having a general cause.

Negative signs are deducible from the absence of symptoms of cardiac or of renal disease; for in ovarian dropsy there is little disturbance of the circulation; and it is only when distension is very great that respiration is much embarrassed.

Disorders of the compressed viscera, and impaired nutrition and consequent wasting, are among the signs of advanced ovarian disease.

As implied in the first paragraph, these general signs are apparent mainly where the disease has so far progressed as to exhibit itself by an abdominal enlargement; for where the enlarged ovary has not yet emerged from the pelvis, the symptoms, except some of a sympathetic character, are local and special.

Of the few general signs dependent on sympathy, are, enlarged and painful breasts, surrounded by an areola, often secreting a milky fluid, and at times even morning sickness.

Special and Local Signs.—The *special* and *local* signs of ovarian dropsy are to be gathered from the patient's account, from inspection, palpation, and percussion of the abdomen, from change of position, and by vaginal and rectal examination.

These signs vary considerably, according as the tumour occupies the pelvis or the abdomen; just as in the case of the impregnated uterus. In estimating the diagnostic value of symptoms, we must bear in mind that encysted dropsy is an advancing disease, and that, *cæteris paribus*, the larger the tumour the more difficult the diagnosis. Before attempting a manual examination of any sort, the bowels and bladder ought to be emptied.

Local Signs in Early Stage.—The cyst, while still in the pelvis, is attended by not a few of the symptoms of early pregnancy, and frequently gives rise to the belief of its existence. I have mentioned the sympathetic enlargement, pain, and secretion of the breasts, the appearance of an areola, and the occasional occurrence of morning sickness. The patient has besides a feeling of weight and fulness in the pelvic cavity, and the menses are not unfrequently suppressed, though in the majority of cases only irregular. In the course of its growth the sac is apt to press on the rectum, impede the passage of the fæces, and so to cause distension of the intestines above, and enlarged veins or piles about the anus. The pressure may likewise more or less completely close the ureters, producing dilatation above; or it may compress the neck of the bladder, and prevent the escape of urine; or, again, may cause some degree of displacement of the uterus. Such symptoms may concur or otherwise be met with separately.

But the most certain evidence of a cyst in the pelvis is to be obtained by a vaginal and rectal examination. To effect this, the patient should be placed on her back with the thighs flexed on the abdomen, so as to relax the muscles, and she should be directed *not* to hold her breath. The finger being introduced into the vagina or rectum, feels an enlargement in the iliac fossa, low down about the ovary, occupying the pouch between the vagina and rectum. It is a still better plan to introduce the thumb into the rectum and the middle finger into the vagina, when an elastic tumour of a rounded figure is felt interposed between them, and fluctuation in it may be ascertained if the sac be large enough and the walls not too thick, as in general they are not in this stage. Such a tumour is not very painful on pressure, and not immoveable like the non-ovarian solid or sanguineous tumours developed in the areolar tissue of the recto-vaginal pouch. The vagina is generally found to be drawn upwards, and the uterus raised, or thrown backward towards the rectum, or bent forwards, or pushed to one side—the opposite to that from which the tumour springs. "If," says Dr. Churchill,* "the finger be introduced into the rectum

* On the Diseases of Women. 1850.

past the tumour, we shall find the fundus uteri, and be able to distinguish it from the enlarged ovary. This is very necessary, or we might conclude the case to be retroversion of the womb. In addition, it may perhaps enable us to decide whether one or both ovaries be diseased."

"There are three characteristics," says Dr. Blundell,* "by which recto-vaginal dropsy of the ovary may be known; a tumour within the cavity of the pelvis, with the vagina in front, and the rectum posteriorly; a fluctuation more or less palpable, and an assemblage of symptoms, more numerous in some cases, of smaller number in others, but most of them referable to irritation, obstruction, and compression of the viscera within the pelvis."

It should be remembered that a hernia may descend between the vagina and rectum, and feel like a tumour in that region; but in the absence of symptoms of strangulation we must distinguish it from an ovarian cyst by the effects of coughing, and of change of posture, and by being unable to pass the finger beyond the tumour. Again, the ovary itself, though free from cystic disease, may descend into the same space, in which case, however, examination causes uneasiness, and pressure severe pain.

A cyst of the ovary may, owing to arrest of, or to extremely slow development, remain in the pelvis for many months, or even for years. In general, however, it gradually increases, and, retaining for a time its rounded outline and unilateral position, ascends from the pelvic to the abdominal cavity in front of the bowels, covered by the peritoneum. Now it is that it produces the abdominal enlargement and distension, and in its continuous growth thrusts upward the diaphragm and liver, thereby lessening the thoracic cavity, and compresses the stomach, spleen, and kidneys. Hence follows a train of new symptoms referable to the effects of the tumour in its new position on the several organs it comes into relation with; but I have at present only to deal with those signs—special and local—applicable to diagnosis.

Special Signs of Cyst when in Abdomen.—Inspection.—When an ovarian sac emerges from the pelvic into the abdominal

* Blundell on The Diseases of Women, p. 108.

cavity, the enlargement is first seen about the iliac region of one side, and as it increases, this unilateral preponderance remains visible mostly for a very long period. Ultimately the excessive distension of the abdominal wall, or the development of fresh cysts towards the opposite side of the body, obliterates this diagnostic sign of unequal enlargement on the sides of the abdomen.

To test the disparity in size of the two sides of the abdomen, we may moreover have recourse to actual measurement; although the difference is generally too slight to render this proceeding of much value. Just as in pregnancy, the distension renders the umbilicus prominent. We likewise see that the abdominal veins are enlarged and apparently more numerous; those of the legs also are oftentimes so in bad cases, and attended by œdema.

Percussion.—The growth of the sac renders fluctuation more distinct on percussion: the tympanitic sound of the intestines is heard more or less on one side the tumour, and a dull sound over the tumour, varying according to its dimensions, but having its limits generally well defined, and only slightly modified by change of posture. Unlike what happens in ascites, the more complete dulness of ovarian dropsy occupies the most prominent part of the swelling; whilst over the superior and lateral regions, especially on the healthy side, the clear intestinal sound will be recognised, and the want of resonance in the tumour can be distinctly traced into the pelvis. The fluctuation is more resistant than in ascites; and the hydrostatic line of level, so characteristic of the latter disease, is never found.

By palpation, the character of the wall of the cyst may be made out, whether smooth and even, or irregular and tuberose. The multilocular may often be distinguished from the unilocular sac by its inferior degree of fluctuation, and better still by its unequal surface and consistence; for mostly the additional cysts are less developed, and so feel solid or nearly so, or they have denser and less fluctuating contents, and are smaller. The distinction on these grounds will be more readily made where the new cysts are developed externally to the old one, as offshoots from it. As before mentioned also, the unilateral origin of ovarian dropsy is more evident when the disease is unilocular.

A vaginal or rectal examination will often discover supplementary cysts, not detected from the exterior of the abdomen, and afford us other valuable information respecting the condition and relations or adhesions of the sac. On examining per vaginam, the uterus will be found higher up than natural, or otherwise displaced, and the os expanded.

The uterine sound supplies another means of diagnosis; but I will defer an account of its use to a subsequent page.

On the eruption of the tumour from the pelvis, the feeling of weight and distension in that cavity vanishes; and as the urethra can be no longer compressed, but the bladder is, the impediment to the discharge of urine is replaced by incontinence. The bowels continue irregular, but the rectum is less the seat of the mischief. The sympathetic irritation of the breasts often continues for some time.

Recapitulation.—To recapitulate:—When with a slowly increasing abdominal tumour, there are such general signs as emaciation, sunken or contracted features; the absence of marked œdema of the legs, of the special symptoms of ascites, or of those organic lesions productive of it; of any notable impairment of the patient's activity; of any great deterioration of the functions of life, and of the characteristic signs of pregnancy, we may suspect ovarian dropsy to exist. When percussion reveals fluctuation, and in every change of posture the fluid is detected at the most prominent part of the tumour, whilst the intestinal sound is present only on one side, and the dull sound extends into the pelvis, ovarian dropsy may be more than suspected, it may be presumed to exist.

When in an earlier stage an examination *per vaginam et rectum* discovers an elastic tumour in the recto-vaginal pouch, loose in position, and probably distinctly fluctuating, without the presence of the symptoms of hernia, or of the pain of a prolapsed ovary, then we may be almost certain that it is a dropsical ovarian cyst, and by watching, the progressive increase of the tumour strengthens the conviction. Likewise it should be remembered that, when there is only one cyst, the tumour is generally more perceptible on one side the body, and its surface feels more equal; but that when there is a plurality of

cysts, the unilateral character of the tumour is liable to be lost, the symptoms to be more or less obscured, and the fluctuation less distinct.

Lastly, we must ever bear in mind the many deranged conditions of organs and functions which may be and have been confounded with encysted dropsy, and which I shall presently describe *seriatim*.

Microscopical Diagnosis.—When the existence of cystic disease of the ovarium has been made out, some more intimate knowledge of the nature and condition of the cysts it has been hoped to gain by means of a microscopic examination of the fluid withdrawn by tapping. Dr. J. Hughes Bennett, in a paper on *Ovarian Disease,* published in the *Edinburgh Medical and Surgical Journal,* (vol. lxv., 1846), expresses an opinion that such examination is of great value, and seems disposed to rely, to a very considerable extent, upon the indications so derived. He thus writes: "There can be little danger of our confounding the fluid accompanying encysted ovarian dropsy with that found in inflammatory or passive dropsies. In peritonitis we find primitive filaments mixed with plastic or pus corpuscles, which can never be mistaken for the large epithelial cells observed in the fluid of ovarian dropsy. In accumulations of fluid caused by diseased liver, I have not detected, when uncombined with inflammation, any structures whatever."

In the above remarks Dr. Bennett appears to lose sight of the frequent occurrence of inflammatory products in ovarian cysts, both of exudation and of pus corpuscles.

A few years ago I gave, in conjunction with my friend, Mr. Nunn, considerable attention to this point, and am indebted to that gentleman for the following able *resumé*. In the conclusions arrived at I entirely agree.

Mr. Nunn thus proceeds:—"The fact that fluid withdrawn from the cavity of the abdomen by the operation of paracentesis, may be, in one instance, the result of transudation of the serous part of the blood, in consequence of obstructed portal circulation; in another, the product of inflammatory action of the peritoneum; in another, a part of the contents of an hydatid; and in another, the distending secretion of an ovarian cyst,

might lead one to conceive the characteristics of each of these different fluids would be such as would enable one to decide at once upon the source from which each was derived; and that, therefore, the nature of the fluid would be diagnostic of the disease which gave rise to its production. In the present state of our knowledge I do not think we are justified in asserting that such is the case. What I believe to be the value of a microscopical examination of the fluid is, that it may serve to strengthen an opinion; but, alone, it ought not to decide one. As an illustration of what I mean, I would instance a somewhat analogous example: the presence of the prismatic crystals of the triple phosphate in the urine indicates the existence of a morbid condition, that may be either a local disease or a general disorder; a knowledge of the other symptoms is required before it can be determined which of the two maladies is present; to be in possession of the fact of there being that peculiar deposit in the urine is, notwithstanding, of great importance.

"We must take into consideration these two points:—

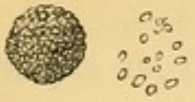
"First. What does the microscope reveal that is peculiar in fluid of an ovarian cyst?

"Second. What are the fallacies to which a diagnosis, founded upon a microscopic examination of the fluid, is obnoxious?

"In respect of the first of these questions, I am inclined to say, as the result of many examinations of different specimens of ovarian fluid, that the most constant characteristic of such fluid is its containing, in greater or less abundance, cells gorged with granules; and, in addition, circumambient granules having the same measurements as those encompassed by the cell wall. At one time I considered the size of these granules (if they can properly be so called) was constant; but subsequent observations have convinced me of the incorrectness of this conclusion—the size of the gorged cells and of the granules varies greatly even in the fluids from different cysts of the same ovary.

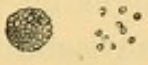
"It would be foreign to the subject to enter into a description of all the occasional contents of ovarian cysts; and I therefore only refer the reader to the annexed engraving, which will in some measure illustrate the idea I wish to convey respecting the gorged cells and granules.

FIG. 13.



A B

FIG. 14.



A B

A, In both figures represents the gorged cells.
B, Similarly the granules.

"In Fig. 14 it will be seen that both the cells and the granules are formed on a much smaller scale than in Fig. 13.

"These drawings were made from specimens obtained from a multilocular encysted ovary, taken from a subject sent to the dissecting-rooms of Middlesex Hospital. The fluids of the different cysts were carefully kept distinct.

"With regard to the second question, I would urge, in the first place, that the phenomena of cell growth are at best but imperfectly investigated, especially as bearing upon the physiology of cells which owe their existence to a morbid action; and that besides this, under certain circumstances, the ovarian fluid may not be contained within a cyst, as, for instance, where the cyst has been at some time or other ruptured, but may be mingled with peritonitic effusion, or the ordinary fluid of ascites; and, moreover, we must recollect that lymph and pus are not uncommonly found within an ovarian cyst."

Exploring Needles.—Dr. Simpson has suggested, as further aids to diagnosis, the use of the uterine sound, and of the exploring needle. The latter is nothing more than a very slender silver trocar, with appropriate canula. The trocar is tipped with a very short steel point; and the tube of the canula is open at one side for nearly an inch from its extremity, so as to admit more easily of the escape, through the canal of the tube, of any fluid in which its point may be placed.* Sometimes the application of an exhausting syringe to the outer end of the instrument is desirable, in order to produce the flow along its tube of any more viscid fluid. Dr. Simpson introduces these exploring needles to determine the solid or cystic character of a

* These exploring needles are represented in Vol. X., p. 197, of the "Monthly Journal of Medical Science," 1850.

tumour, and by withdrawing fluid where present, to obtain diagnostic signs by the microscope.

Of the advisability and utility of such an exploring instrument I am convinced, and have frequent recourse to its use. Indeed, I think it should be invariably employed before attempting any further operative procedure.

Diagnostic Value of the Uterine Sound.—Dr. Simpson proposed the use of the uterine sound in 1843,* and its applicability in the diagnosis of pelvic tumours has been acknowledged by various eminent practitioners.

I have found this instrument especially useful in deciding the diagnosis between fibrous tumours of the uterus and ovarian dropsy; a matter of much importance, and frequently of great difficulty. I should be sorry to encourage an indiscriminate use of the sound in uterine disease; for it will be but seldom wanted to distinguish between most maladies, and as injury may be easily inflicted by it, its introduction should be made with great care.

In the excellent essay referred to, Dr. Simpson has chiefly pointed out the utility of the sound, or bougie, in distinguishing a uterine from a non-uterine tumour. He thus proceeds:—"In other instances, where the tumour is not uterine, we have repeatedly made ourselves and others certain of the fact, by first introducing the bougie, and so far giving us at once a knowledge of the exact position of the uterus, and a control over its movements, and then proceeding in one of three ways.—1. The uterus may be retained in its situation with the bougie, and then, by the assistance of the hand above the pubis, or by some fingers in the vagina, the tumour, if unattached to the uterine tissues, may be moved away from the fixed uterus. 2. The tumour being left in its situation, it may be possible to move away the uterus from it to such a degree as to show them to be unconnected. Or, 3. Instead of keeping the uterus fixed, and moving the tumour, or fixing the tumour and moving the uterus, both may be moved simultaneously; the uterus by the bougie, and the tumour by the hand or fingers, to opposite sides

* See his paper on its employment in Diagnosis in the London and Edinburgh Monthly Journal for 1843, pp. 701 and 712.

of the pelvis, to such an extent as to give still more conclusive evidence of the same fact."

Again, as the same writer observes, the ovary normally lies behind the uterus, being attached to the *posterior* surface of the broad ligament; hence an ovarian tumour will occupy a similar position. Accordingly, if the sound show a tumour in front of the uterus, the disease is certainly not ovarian.

For further valuable hints as to the varied applicability of the sound in diagnosis, I must refer to the original paper from which I have quoted the above remarks.

As Dr. Hughes Bennett observes,* "In cases of ovarian dropsy the information thus arrived at is negative; but this becomes of immense importance when the question arises, (as it always does,) is the tumour uterine or ovarian?"

Further on, when alluding to a particular case, he says, "By pushing the uterus from side to side, we are enabled to act upon the ovaries, and to determine by the impulses communicated to the hand, whether the tumour be on the right or left side, and to form a tolerable idea, in certain cases, whether it be free or unattached."

The use of the sound is applicable in every stage of encysted dropsy, but with more advantage in the earlier.

Diagnosis of Adhesions.—Having discovered ovarian dropsy, the question of treatment will be further elucidated by ascertaining, if possible, whether the tumour grows free from a single pedicle, or is attached by adhesions to the peritoneum or to neighbouring viscera. To determine this, the patient should lie in the horizontal posture, with the thighs flexed, so as to relax the abdominal wall. The endeavour to move the cyst from side to side is first to be made; and if this can be easily done, it proves the absence of adhesions; next, the hand being placed firmly on the relaxed parietes, if these are readily moved over the walls of the cyst, there are no adhesions, at least on the upper and lateral surfaces. Lastly, a third argument against the presence of adhesions is deducible when the abdominal parietes, which are thin in this disease, can be

* Edinburgh Medical and Surgical Journal, 1846, p. 404.

grasped and puckered up, and so moved over the cyst; and when they can be gathered up readily without raising the cyst. If these three indications are met with, we may determine there are no adhesions.

Another plan, for which I am indebted to my colleague, Dr. Sibson, is based on the extent to which the contents of the abdomen are forced downwards during a deep inspiration, by the descent of the diaphragm. If there be no adhesions in front, the upper boundary of the ovarian tumour descends to the extent of an inch during a deep inspiration, the space previously occupied by the tumour being now taken up by the intestines; consequently, if percussion be made over the upper part of the tumour, during ordinary respiration, a dull sound is elicited; but when the patient takes a deep inspiration, an intestinal resonance is there perceptible.

Malignant Disease of the Ovaria.—It is not my intention to enter into a description of this condition, except so far as it bears on diagnosis.

Malignant or cancerous disease of the ovary is not so common as was formerly supposed, when dense fibrous, and some forms of cystic growth were set down as cancerous. Indeed, our more intimate knowledge of the pathology of cancer shows that the ovary is comparatively but rarely invaded by it.

The cerebriform, scirrhous, and gelatiniform varieties have been met with. Cruveilhier, in his *Pathological Anatomy*, describes an areolar, or gelatiniform ovarian cyst, in which the tissue of the ovarium is divided into cells or areolæ, and comes to exactly resemble the areolate, or gelatiniform cancer of the stomach.

Cancerous deposit takes place in the walls of the cysts, or in tissue intervening between; or appears as an independent growth from the ovary. The walls of cancerous ovarian cysts are thick, but unevenly so at different parts, and irregular on their surface. The same also is true of the false cysts, which sometimes hollow themselves out in the centre of a cancerous mass, whether that be scirrhous, fungoid, or encephaloid.

When an ovary is attacked by malignant disease, the increase of the tumour is more rapid, the pain attending it much greater,

often lancinating, the constitution is much more grievously affected, the health and strength quickly destroyed, the functions of the stomach and nutrition seriously impaired; the system is altogether cachectic, and the complexion sallow. At the same time, enlargement of the abdominal glands, the evidence of cancer in other parts, the unevenness of the abdominal tumour, and, from the thickness and density of its walls, the indistinct or imperceptible fluctuation, afford further evidence of the dreadful disease with which we have to deal.

The concurrence of most or all of the above symptoms renders cancerous ovarian disease not difficult to diagnose. The prognosis is necessarily unfavourable; and no treatment, except that to relieve present suffering, is justifiable. Tapping, and all active and depressing remedies, must be eschewed. In a case related before the Medical Society of London, in 1850, by Mr. Nunn, the disease attacked both ovaries, and the female, aged 62, died after several copious discharges of blood from the rectum. "The right ovary presented the greatest evidence of malignancy: the left contained within it several cysts; the fluid in each of these cysts differed in its appearance from that in the others. The gorged cells, which are said to be proper to ovarian fluid, were found in all in greater or less abundance. The right ovary was situated higher in the pelvis, and was the most plentifully supplied with blood. The spermatic artery, entering its upper part, was excessively tortuous. In addition to this, branches from the right colic, superior and middle hæmorrhoidal, epigastric, internal iliac, and uterine arteries, also assisted to feed the tumour; the ureter was involved in the pedicle of this ovary. The uterus was dragged from the centre to the side of the pelvis; and was so placed, that its long axis was directed transversely. It presented, on being laid open, no marks of disease, although malformed by being divided into an upper and lower compartment. The os uteri was perfectly healthy, and had the appearance of belonging to a virgin uterus. The vagina and bladder were quite sound; the rectum about an inch and a half from its lower termination was perforated by a circular opening, large enough to admit three fingers; otherwise this viscus was healthy. The aperture formed the means

of communication between the rectum and a highly vascular cancerous lump, situated in front of the rectum, and behind the vagina and uterus. This mass, if it originated in either of the organs referred to, must have occurred in the outer covering, since the mucous lining of all was, with the exception of the aperture mentioned, as sound as it is ever found in persons of advanced age. The cæcum was thrown from its seat in the right iliac fossa into the middle of the belly, not by being displaced by the enlarged ovary, but by means of the tension of the peritoneum. Cancerous deposit was found in the breast, and in several other organs."

I have had several cases of malignant ovarian disease under my own care; two such were patients in St. Mary's Hospital, in whom the cancerous disease enveloped both uterus and intestines, as well as the diseased ovary.

I will just observe, in passing, that the ovary is sometimes the seat of the so-called cancroid disease, which has been defined and fully described by Professor Hughes Bennett in his "Treatise on Cancerous and Cancroid Growths."

Diseases liable to be mistaken for Ovarian Dropsy.—The importance of a right diagnosis, the difficulty in arriving at one, and the ease with which an error may be made, will be my apology for dwelling more at length on this point than otherwise might be necessary. The principal diseases liable to be mistaken for dropsy of the ovary are,—

1. Retroversion and retroflexion of the uterus.
2. Tumours of the uterus: *a*, solid; *b*, fibro-cystic.
3. Ascites.
4. Pregnancy.
5. Pregnancy, complicated with ovarian dropsy.
6. Cystic tumours of the abdomen.
7. Distended bladder.
8. Accumulation of gas in the intestines.
9. Accumulation of fæces in the intestines.
10. Enlargement of the liver, spleen, or kidney, or tumours connected with these viscera.
11. Recto-vaginal hernia, and displacement of the ovary.

12. Pelvic abscess.
13. Retention of the menstrual fluid from imperforate hymen.
14. Hydrometra.

1. *Retroversion of the Uterus* may be confounded with the early stage of ovarian dropsy, when the tumour is situated in the pelvic cavity between the rectum and vagina; but a careful examination of the uterus will decide the point. In retroversion the os uteri is thrown forwards and upwards, the womb is immovable, the pain is urgent and distressing, and the bladder is generally distended. Not so in ovarian dropsy.

Retroflexion of the uterus, which has been well described by Dr. Rigby, more closely resembles ovarian dropsy; but, on examination by the uterine sound, the displacement is recognisable; and, by careful manipulation, the fundus of the uterus can be restored to its natural position.

2. *Tumours of the Uterus.—a. Solid Tumours,* particularly those with distinct peduncles, may at first be mistaken for ovarian dropsy: but a careful examination, first of the uterus itself, and then of the tumour, in which there will be detected neither elasticity nor fluctuation, will mostly soon determine the point. Still the difficulties of diagnosis are often very considerable, as is illustrated by the many recorded cases of error, where the solid character of the tumour has not been discovered until the abdomen has been laid open with the intent of performing ovariotomy. An instructive case of this sort has been published by Dr. Myrtle,* who has likewise collected notes of several similar instances.

This case of Dr. Myrtle was operated on twenty-five years before death occurred by apoplexy. The operation was undertaken by Mr. Lizars, and an account of it published† by him. He states that, on opening the peritoneum, "a multiplicity of convoluted vessels presented themselves, of various magnitude,

* Monthly Journal of Medical Science, Vol. XII., 1851, p. 229.

† Observations on Extraction of Diseased Ovaria, pp. 19, 20, (1825). In this work is another case recorded by Mr. Lizars, where supposed ovarian disease depended on a fibro-vascular tumour growing from the fundus uteri.

from the thickness of a finger to that of a crow's quill. . . . . On minute examination, they were found to be the blood-vessels of the omentum majus, enormously enlarged, running on the surface and into the substance of the tumour, which appeared an enlarged ovarium." The idea of extirpation was abandoned; but Mr. Lizars both punctured and made an incision into the tumour, which proved to be solid and cartilaginous: it bled but little. It was not till the autopsy proved the contrary, that the belief in the ovarian origin of this tumour was subverted. Much ascites co-existed with it, "and the difficulty of diagnosis was to no small degree increased, on account of the peculiar effect of the very strong adhesions, dividing, as it were, the abdomen into something like two cavities longitudinally, the firm fibrous tumour being in the centre." Both ovaries were found healthy, and in their natural position; the tumour was attached to the fundus uteri by a pedicle between two and three inches long, formed by a fold of peritoneum. "The uterus was so atrophied as to make but a slight inequality in the appearance of the vagina and pedicle, and could be but little distinguished by the touch, as they were much of the same breadth and thickness, and ran quite in the same mesial line."

b. Fibro-cystic Uterine Tumours.—The diagnosis between these very rare tumours and encysted ovarian disease, must be more difficult than in the case of solid tumours. Indeed, I know of no distinguishing marks between the two. The uncertainty which must exist is illustrated by a case published by Mr. Hewett, of St. George's Hospital, in the *London Journal of Medicine*, for July, 1850:—An unmarried female, æt. 47, was admitted into St. George's Hospital, under the care of Dr. Wilson, with great swelling and distension of the abdomen. The symptoms, which had existed about twelve months, had been at first confined to the left iliac fossa, but had subsequently spread over the greater part of the belly. Fluctuation was very evident in various regions, and the disease presented all the characters of ovarian dropsy. Œdema of the legs was present, as well as pain in the region of the heart, and difficulty of breathing in going upstairs. The general health had not been much affected, but

of late she had lost flesh. The catamenia had been absent for the last six months; the urine was scanty and highly acid. She was put on diuretics and good diet. After five days it was found she had decreased two inches in circumference round the abdomen, and that there was also much less swelling of the feet. Under this plan of treatment she at first contrived to improve slightly; but the symptoms and consequent distress having subsequently increased, Mr. Hawkins tapped the abdomen, and drew off fifteen pints of thick fluid, of a reddish colour, and mixed, towards the last, with blood and some flakes of lymph. After the operation, it was observed that the decrease in size had occurred principally on the left side, and two masses of solid substance were detected, which appeared to form part of a tumour, rising from the pelvis. The operation was at first followed by marked relief; but two days afterwards, symptoms of low peritonitis appeared, and the patient died on the eighth day after being tapped.

Examination of the body, eighteen hours after death.—The cavity of the peritoneum contained a large quantity of dark-coloured fluid, mixed with flakes of recently effused lymph, which served to glue together the convolutions of the intestines. In its lower two-thirds the abdomen was occupied by a large tumour, which, rising out of the pelvis, had displaced the intestines, and become attached by slight adhesions to the anterior wall of the belly. The upper part of this tumour was composed of large membranous-looking cysts, with thin walls, the interior of which was inflamed, and filled with a quantity of thick, dark-coloured fluid. It was one of these cysts which had been tapped during life. Towards its lower part the tumour was principally formed of a more solid substance, and filled with an enormous number of cysts, varying in size from that of a pin's head to that of a large orange. These cysts, which are all lined with a thin, smooth, delicate-looking membrane, were filled with clear fluid, containing a large quantity of albumen. The diseased mass was, at first, thought to be connected with one of the ovaries; but both these organs were found to be lying behind it, and quite healthy. On further inspection the

tumour was traced to the right side of the fundus of the uterus, to which part it was connected by means of a pedicle, two inches in breadth, and an inch and a half in length, formed by the fibres of the uterus, which were trained upwards some distance and then lost. Among these fibres were several vessels of large size. Here and there, in the lower part of the tumour, were scattered some spots of fibrous tissue, hard, dense, and without any cysts. In the body of the uterus, deeply imbedded in its structure, there was a common fibrous tumour, the size of a bean. There was no affection whatever of any of the glands. The other viscera of the abdomen and thorax healthy.

3. *Ascites*—may be, and is, more frequently mistaken for encysted disease of the ovary; and, in truth, when the abdomen is excessively distended, the history of the case is more to be depended on than percussion and manual examination. Ascites is usually the result of chronic peritonitis, of cardiac, hepatic, or renal disease, and its appearance has been preceded by the symptoms of such disease, and by much bodily ailment; whereas ovarian dropsy generally commences with only a little disturbance in the pelvic viscera, the patient being otherwise healthy. Moreover, in cardiac and renal dropsy there is not ascites alone, but also anasarca; and we also derive additional distinctions between dropsy of the ovary and any other about the abdomen by negative evidence,—by the absence of the peculiar and well-understood general signs of organic disease of the heart, liver, or kidneys; by the inefficacy of drastic purgatives, and of diuretics to produce any comparative diminution of the tumour.

Sometimes there is a complication of the ovarian dropsy with peritoneal effusion, when the ovarian cyst can generally be detected floating in the surrounding liquid, and its attachment to one or other ovary may be made out. An effusion of this sort may be the consequence of the friction or irritation of the ovarian sac against the peritoneum, causing chronic peritonitis.

In the early stages, percussion considerately used will determine the diagnosis. Want of resonance in the lowest part in all positions, with tympanitic sound on the highest level in all positions, indicates ascites. Manipulation also discovers a cir-

cumscribed elastic tumour in the former malady, and a diffused fluctuation in the latter, in which, too, the enlargement is more equable in character, and not harder at one point than another. However, in the late stages of ovarian dropsy, when the belly is enormously distended, fluctuation becomes more diffused, like that in ascites, and the uneven and limited wall of the cyst may not be discoverable.

4. *Pregnancy* is not unfrequently confounded with ovarian dropsy; that this should happen is not so surprising when it is remembered that the commencement of the ovarian disease sometimes affects many of the earlier symptoms of pregnancy, (see p. 181), although the history of the case, its duration and course, and a careful examination of the uterus—stethoscopic and manual—will dispel the error. Stethoscopic signs will not be available where the child is dead, and they may even lead us into error; for in an ovarian tumour, besides veins meandering over it, "arteries," (says Dr. Churchill,)* "may also be felt pulsating sometimes; and in one such case I observed a distinct 'bruit de soufflet,' like the placental 'souffle:' when the fœtal heart is heard, all doubt will be dissipated. Manual examination will detect the well-known state of the os and cervix uteri, if there be pregnancy, and by 'ballottement' we may assure ourselves of the presence of a fœtus; whilst externally, the movements of the child may be felt. Fluctuation in the tumour will generally be an indication of an ovarian cyst; but, at the same time, it must be remembered that, owing to dropsy of the amnion, fluctuation may be perceptible in the enlargement of pregnancy."

The danger of confounding ovarian dropsy with pregnancy cannot exist in cases of a standing much beyond the usual period of gestation; except, indeed, in those very rare instances of extra-uterine fœtation where the embryo has become encysted. An interesting case of ovarian pregnancy of twelve years' duration, with a perfectly mature fœtus, is related in the *Monthly Journal of Medical Science,* vol. xiii., 1851, p. 478.

A case lately came under my notice, where pregnancy had been

* Op. cit.

presumed by more than one medical man; but the patient, finding herself not to increase in size, whilst various constitutional symptoms multiplied, consulted me, when, using a uterine sound, I concluded she was not pregnant, but suffered from an enlarged ovarian cyst, with thick cheesy contents, a diagnosis which subsequent tapping confirmed. I was suddenly summoned to another patient supposed to have ovarian dropsy, but found her on my arrival in premature labour at the fifth month.

5. *Pregnancy complicated with Ovarian Dropsy.*—This is perhaps the most difficult of all to distinguish and determine. By the usual methods of examination we may detect pregnancy, but easily overlook the ovarian dropsy, unless this has been discovered prior to conception. It is therefore very necessary to learn the history of the patient, where there is unusual distension of the abdomen beyond that common during child-bearing. Even if a dropsical swelling be recognised in addition to that of pregnancy, it is not unlikely to be supposed ascitic in character; however, in ascites, the fluid will collect, or may be made by position to do so, in front of the uterus, whereas in encysted dropsy the tumour rises behind the uterus, and no change of posture will cause any of its fluid to appear anterior to it. In general, moreover, the uterus will be elevated by the cyst, and its mouth pushed beyond the reach of the finger. When the ovarian cyst is still in the pelvis, examination per vaginam et rectum, will make known the presence of two tumours. Under such circumstances the suffering from compression in the pelvis is likely to be very great.

In the complication in question, it is the determination of the existence of pregnancy which is of paramount importance. If this be made out, further proceedings will have to be regulated by the period to which gestation has advanced, by the size and relations of the tumour, and by its possible effects on the process of parturition. It is not my business, however, to enter into the indications of management of delivery under such circumstances of difficulty.

I have met with three cases of this rare complication. In one, the lady was pregnant with her second child. I found her

generally ill and weak, complaining of the enormous size of her abdomen, and satisfied in her own mind that she should have twins. At the proper period labour came on, and the child was born without difficulty; but on placing my hand externally, to grasp the uterus, I could not feel it, for the pelvis was filled by a white, soft, elastic tumour, and the uterus had ascended out of the pelvic cavity, and was above this tumour, which I recognised to be an ovarian cyst. On endeavouring to reach the uterus, to remove the placenta, and on pressing my other hand externally over the uterus, I felt the tumour suddenly rupture, and discharge its clear, amber-coloured fluid down the side of my arm. The uterus now descended, the placenta was removed, and a very tight bandage applied, and kept on for several weeks. At a subsequent confinement not a vestige of this tumour could be felt. In the second case, I pronounced my opinion to be, that there was ovarian dropsy, independently of pregnancy. This patient was safely delivered of a full-grown child, and subsequently I tapped the cyst, removed sixteen pints of fluid, and applied tight bandaging. In the third case, the patient was delivered in the country, and came to me directly after her confinement. Tapping and pressure were resorted to successfully.

6. *Cystic Tumours of the Abdomen.*—Such are occasionally developed in the sac of the peritoneum, or external to it in the abdominal wall; or still more rarely in the omentum, the mesentery, or from the kidney or liver. Such cysts are sometimes the result of hydatids. But whatever their nature, they are frequently distinguishable with difficulty, or even not at all, from ovarian cysts; those from the liver and kidney are the most likely to be confounded with them. In seeking a diagnosis where the tumour is of great size, we must rely chiefly on the history of the case. We must learn at what point the swelling first showed itself; what function has been most disordered; where pain has been the greatest.

The production of cysts from the kidney or liver is necessarily attended by much disordered function, and by greater bodily suffering than most forms of ovarian dropsy, whilst the

site of the first signs of disease is quite different. Cysts of the omentum and mesentery are very rare, and those of the peritoneum and abdominal wall hardly less so; in the two former, more functional disturbance may be expected; in the latter, the resemblance to ovarian cysts is even closer, there is little constitutional disorder, and, as in dropsy of the ovary, the swelling is not uniform, and fluctuation not so diffuse and evident as in ascites; it may be that in extra-peritoneal dropsy, the prominence of the tumour is greater in front than in the ovarian form.

Dr. Simpson described,* before the Medico-Chirurgical Society of Edinburgh, an example of hydatids occurring in the peritoneal cavity, and external to a large ovarian cyst. "Their origin was traceable to the peritoneal basement membrane, from which they sprung; and in their course of growth they probably projected into the cavity of the peritoneum, and subsequently became detached." The patient had previously been tapped without the escape of any such fluid; the distension of the abdomen was greater than Dr. Simpson had ever before seen; fluctuation was present, more particularly in the middle of the swelling. It is very doubtful if an ovarian sac could be discovered under such circumstances; and it must be confessed that our diagnosis will be at best vague in most cases of cystic abdominal tumours.

Mr. Harvey related a case of great interest at the London Medical Society, of supposed ovarian dropsy. Ovariotomy was determined on but not executed, and when the patient died, the disease was found to be an hydatid cyst connected with the liver, no ovarian disease whatever existing.

The following occurred to Dr. Buckner, of the United States.† "The case having been diagnosed as ovarian, and operation decided on, an incision nine inches long was carried from umbilicus to pubes; the tumour was then found to be not

* See Abstract in the Association Medical Journal, Feb. 10th, 1854, p. 137.

† Medico-Chirurgical Review, Jan. 1853, p. 293. The case quoted from The American Journal of Medical Science, Oct. 1852.

ovarian, but situated in the mesentery, between the laminæ of the peritoneum, and surrounded by small intestine. The operation was proceeded with, the tumour dissected out, and the superior mesenteric artery, and other small arteries tied. The patient recovered, and in spite of the great separation of the mesentery from the intestine, no apparent bad consequence of any kind ensued." This is certainly the most hazardous feat of operative proceeding I am acquainted with, in which our Transatlantic brother has certainly gone a-head.

7. *A distended Urinary Bladder* has been mistaken for an ovarian cyst. I once saw a case of this kind in a young unmarried lady, æt. 23, from the country. She stated that she had been under treatment for four months, for "falling down of the uterus," but that during the last month she had become very much enlarged in the body, and that her medical attendant thought she was suffering from ovarian dropsy. I could feel a round, smooth tumour the size of a fœtal head, rising up from the pubic region, with distinct fluctuation. She told me she had passed but very little urine for some weeks, and then only in very small quantities at a time. On examination per vaginam, I discovered a retroverted uterus, the os and cervix pressing firmly against the neck of the bladder. On replacing the uterus by the uterine sound, and pressing on the tumour through the abdominal wall, urine escaped through the urethra; I then introduced a catheter, and drew off seven pints of dark, offensive urine, and the tumour at once disappeared.

8. *Accumulation of Air in the Intestines,* especially if there has been chronic peritonitis leaving some ascitic fluid, may be mistaken for encysted dropsy. Such a case came under my notice some time ago, when my diagnosis was verified by a post-mortem examination. Mostly tympanitis is unmistakable. Anæsthesia by chloroform has decided the diagnosis at times.

9. *Accumulation of Fæces in the Intestines* is another condition which has been mistaken for ovarian dropsy. I once saw a case of simple encysted ovarian dropsy, which, in its earliest stage, was considered by a very distinguished surgeon in London to be an accumulation of fæces. The case was treated by tapping and pressure, and the result was a permanent cure.

10. *Enlargement of the Viscera of the Abdomen,* especially of the liver, the spleen, or kidney. I could illustrate this subject by mentioning some curious cases of error in diagnosis, in connexion with each of these organs, but I shall merely mention, that in these cases we generally have severe constitutional symptoms pointing out the nature of the disease. (See also remarks on cystic tumours, p. 201.)

The excessive production of fat in the omentum and abdominal parietes, has been confounded with encysted dropsy; such a case is mentioned in Mr. Lizars' work.*

11. *Recto-vaginal Hernia and Displacement of the Ovary* into the recto-vaginal space. The mode of diagnosing these conditions of the parts has already been discussed. (See p. 184.) Tumours also confined to that space,—the retro-uterine of some authors†,—may be distinguished from ovarian by the differential signs already mentioned (p. 184.) of the latter.

12. *Pelvic and Psoas Abscess* may generally be detected without difficulty, by reference to the past history of the case as compared with the present condition of the patient's health. They generally occur in persons of a strumous habit, but may be the result of injury or of accident, and are preceded by considerable constitutional disturbance, the result of inflammatory fever. A rapid pulse and a hot skin, loss of appetite, diminished secretions, and one or more distinct rigors, are among the general symptoms. The local signs are indistinct fluctuation, throbbing, and especially great tenderness and intolerance of manipulation.

13. *Retention of the Menstrual Fluid from Imperforate Hymen.*—Mr. B. Travers, jun., relates‡ a case of this kind, which was mistaken for ovarian disease. A young girl was admitted into St. Thomas's Hospital, under the care of the late Dr.

* Lizars, J., Observations on Extraction of Diseased Ovaria, Edinburgh, 1825.

† See L'Union Médicale for May 31st, 1851, for M. Huguier's Observations. Also Dr. Tilt on Sanguineous Pelvic Cysts. Lancet, Dec. 11th, 1852.

‡ Lancet, 1849, Vol. II. p. 387.

Williams. The abdomen was much distended, and on examination the disease was supposed to be ovarian. An examination per vaginam detected a fluctuating tumour, which, on being punctured by a lancet, gave exit to a wash-hand basinful of menstrual fluid. This girl's health was bad, she was anæmic, emaciated, and did not sleep; there were other symptoms also, to warrant the suspicion that organic disease might be present, and he (Mr. Travers) thought the condition illustrated by this case might be classed among those likely to be mistaken for ovarian disease.

14. *Hydrometra* in many points will resemble the last. It is a rare condition, and, like ovarian dropsy, causes no great disturbance of the health. The history of the case will assist us in distinguishing this form of dropsy from that of the ovaries, but the use of the uterine sound suggests itself as the readiest means of so doing.

TREATMENT.

General Observations.—A great variety of opinion has existed in the profession on the propriety of interfering with a disease which is seldom malignant in its character, and which occasionally exists for many years without either destroying life, or materially interfering with the general health. For many years the subject attracted but little attention, and practitioners for the most part contented themselves with either doing nothing, or with tapping the patient occasionally when the degree of distension became urgent. Of late, however, the subject has excited the attention which it appears to merit, since it afflicts a very large number of females at almost every age, tends, to say the least, to shorten existence, and to render the subject of it, in a great degree, unfit for the duties and pleasures of social life. Moreover, it has been proved to be curable in so many instances, as to justify the attempt to cure it in nearly all.

General Remedies.—The mere use of medicines internally to secure the obliteration of an ovarian cyst, even at an early stage, is almost hopeless, although conjoined with surgical means such may be of considerable avail. If a patient complains of uneasi-

ness and pain in one iliac region, we may diagnose ovarian disease, but until a cyst become evident in the pelvis, we cannot be certain that we have to deal with that disease, and consequently our remedies can be only of a general kind, and such as will combat the apparent irritation, congestion, or inflammation. Yet when a cyst is developed, and we are fortunate enough to discover it at its earliest epoch, medical means will be rightly used to endeavour to arrest its further growth, and to bring about its atrophy. Thus the application of leeches and cupping, and counter-irritation, are indicated where active morbid action is evident, or where the catamenia are wanting; and when these are subdued, the preparations of iodine internally and externally should be persevered in. Since, moreover, a state of perfect health is inimical to the course of any morbid process, the exhibition of tonics and of medicines to secure the proper performance of the several functions, is called for. Of the various tonics, the iodide of iron has enjoyed considerable reputation. I have frequently given it in the various stages of ovarian disease, and obtained much improvement of the general health, but have never seen it produce any effect upon the tumour, as some have thought to happen. Mercury, diuretics, and purgatives, although under particular circumstances useful, are rather to be avoided, on account of their prejudicial influence on the health and strength; they have no such influence in lessening ovarian dropsy, as is witnessed in ascites.

Dr. Watson has thus expressed himself respecting the employment of remedies:—"My position, as physician to a hospital, has brought under my notice many cases of ovarian swelling, at a very early period of its development. I have treated such cases assiduously with the remedies of chronic inflammation, frequent topical bleedings and the use of mercury, till the gums were affected; with the remedies of ordinary dropsy, diuretics and drastic purgatives; and with remedies accounted specific, the liquor potassæ, and the various preparations of iodine; and I must honestly confess to you that I am unable to reckon one single instance of success."*

* Principles and Practice of Physic.

In the always desirable endeavour to recruit and sustain the patient's health, hygienic measures should be attended to; a careful regimen, change of air and scene, gentle exercise, and particularly, the avoiding of any sort of irritation of the uterine organs. Attention to these matters is beneficial in all stages of the malady; whilst, as above intimated, the application of remedies must be regulated by the stage of the disease, the symptoms, and the particular conditions arising from time to time.

The following are the principal modes of surgical treatment hitherto proposed and adopted. In speaking of them, I shall have further remarks to make on the medical treatment.

1. Tapping, simply.
2. Tapping, with pressure.
3. Tapping, and injection of iodine into the sac.
4. Artificial oviduct.
    a. external.
    b. per vaginam.
    c. per rectum.
5. Excision of a portion of the cyst.
    a. by a small incision.
    b. by a large incision.
6. Extirpation.
7. Other plans.

1. *Tapping.*—This operation is usually performed in the course of the *linea alba,* the trocar being thrust in about midway between the umbilicus and pubes. It has also been the general practice to place the patient in the upright posture, resting on the edge of a chair or a bed, to encircle the abdomen with a broad bandage to be drawn tightly from behind by an assistant, so as to keep up a supposed necessary pressure as the fluid escapes, and to cut a hole through the bandage at the point where the trocar is to be introduced.

Mode of performing the Operation.—Now various objections attach to this mode of procedure, and I have for the last ten years practised tapping the patient in the linea semilunaris, in

the recumbent posture, and without the assistance of a bandage.* Besides difficulties from the employment of the compressing bandage, such as drawing into folds and altering its position as the abdomen collapses, there is a great tendency to syncope from the upright posture,—a very inconvenient occurrence. On the other hand, the supine position guards against faintness, and, together with site of the puncture in the most dependent part, admits of the most complete evacuation of the sac.

I place the patient on her side—that on which the ovarian tumour has originated, with the abdomen hanging over the edge of the bed. On puncturing in the semilunar line, the chief care is to avoid wounding the epigastric artery, and any enlarged veins which may be present. By previously emptying the bladder, any danger of injuring it is obviated. Two other possible accidents are thus mentioned by Dr. Simpson.† "The uterus is sometimes elevated and drawn upwards in front of an ovarian tumour, and has been fatally wounded by the trocar in the operation of paracentesis. . . . All chance of injuring it would be avoided, if a point in the cyst sufficiently fluctuating and thin in its parietes, be selected as the site of the puncture." Again, "Ovarian cysts have been occasionally found so turned upon their axis, that the elongated Fallopian tube has stretched across the front of the diseased ovary, and interfered with the introduction of the trocar; and a dense fibrous state of the cyst at particular parts has led to the same mischance—the cyst thus becoming merely displaced, and not perforated by the pressure of the point of the instrument. A case of obstruction to tapping from this cause is detailed by Dr. Bright in the Guy's Hospital Reports. The puncture, in consequence, must not be made over a point which feels unequal and condensed in its structure."

It is sometimes desirable, and particularly so if the abdominal

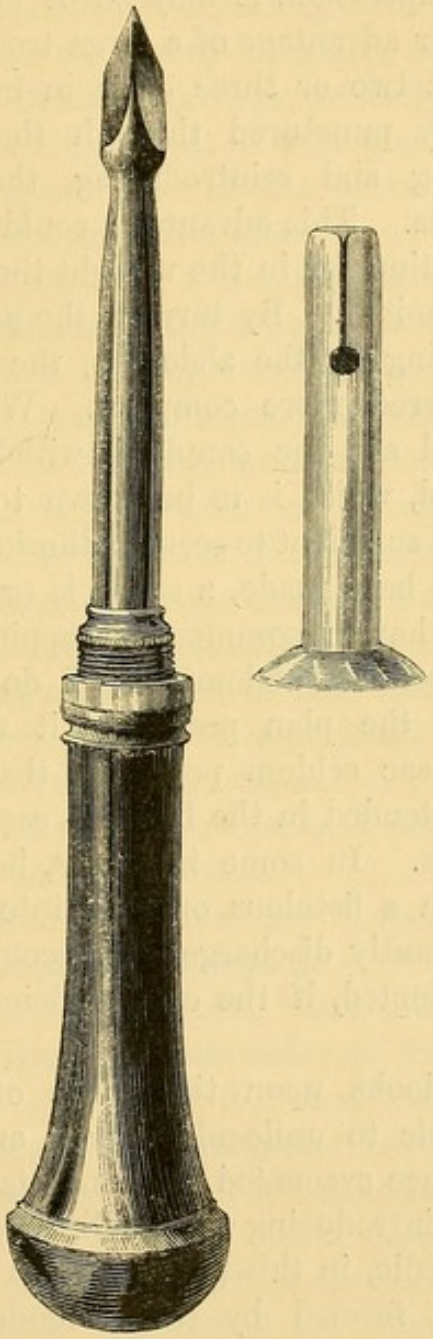
* Dr. Simpson, of Edinburgh, has more recently advocated the same plan, and has well set forth its advantages in a Lecture in the Monthly Journal, Oct. 1852. Dr. Tanner also (Lancet, Nov. 20th, 1852) has set forth the advantages of this proceeding, and in illustration has narrated an interesting case.

† The Monthly Journal of Medical Science, Oct. 1852, p. 363.

wall be thick and fat, to make an incision through the integuments before attempting to plunge the trocar with its canula into the cyst.

The trocar and canula should be much larger (see fig. 15.)

FIG. 15.



than those in general use.* If the fluid be thin and transparent,

* This figure represents two-thirds of the size of the instrument I generally use.

it runs well enough through a small canula; but if of treacly, viscid consistence, it scarcely escapes at all, and if there are albuminous flakes or cheesy matter, the tube becomes entirely clogged up. Moreover, the very large instrument I use, admits of free and rapid emptying of the cyst, and saves the patient a tedious operation, it may be of an hour's duration. There is yet another advantage of a large trocar and the recumbent posture,—that two or three cysts in multilocular disease can be successively punctured through the same canula by simply withdrawing and reintroducing the trocar without removing the canula. This advantage could be gained only in the recumbent position, for in the upright the gravitation of the cyst would not permit it. By turning the patient more on her side, and by pressing on the abdomen, the evacuation of the cyst may be rendered more complete. When the escape of the fluid has ceased and the canula is withdrawn, a pledget of lint over the wound, which is to be drawn together by strips of plaster, is generally sufficient to secure adhesion; where, however, a larger wound has been made, a stitch is sometimes required.

Some surgeons have recommended tapping *per vaginam* as preferable to paracentesis abdominis. I do not see what particular advantages the plan presents; it will be but rarely practicable, as the sac seldom points in that direction, and it will certainly be attended in the bulk of cases by greater difficulties and dangers. In some instances, however, where it is wished to establish a fistulous opening into the cyst, through which it may constantly discharge and become obliterated,* this method may be adopted, if the cyst sufficiently points in that direction.

Dr. Simpson† looks upon this mode of tapping as more peculiarly applicable to unilocular cysts, and states that he has "more than once evacuated the contents of a dropsy of the Fallopian tube, by introducing the small trocar, which forms the usual exploring needle, in this position. In one of these cases, the elongated sac formed by the distended Fallopian tube

* See subsequent section on the Production of an Artificial Oviduct.

† Op. cit. p. 364.

inflamed after its evacuation, and, in consequence, seemed to become entirely obliterated;" the patient in the end recovering from her previously bad health, and becoming pregnant. In this opinion Dr. Simpson may be very correct; yet the difficulty will be to diagnose unilocular, and still more the Fallopian form of dropsy, previously to putting it to the test of practice.

Many cases are on record in which paracentesis alone has effected a cure. Most such were probably examples of cystic disease of the broad ligament, or Fallopian sacs, and not actual cases of cystic degeneration of the ovary, which probably are rarely cured by this operation alone.

Dr. Simpson writes,* "I am acquainted with the history of two cases in which the first tapping of an ovarian dropsy has never been followed by any reaccumulation, the operation in both having now been performed several years ago: and I believe the secret of this very unusual termination in the two cases in question, is ascribable to the circumstance, that the perforation formed in the walls of the ovarian cyst by the trocar, has remained permanently open, like a fistula, allowing of the continuous drain of the ovarian fluid into the cavity of the peritoneum. Perhaps art will yet be able to imitate, both successfully and with certainty, in an appropriate set of ovarian cases, this fortunate accidental termination."

These cases of Dr. Simpson we may presume to have been, if not Fallopian, unilocular cysts.

Whatever additional agents may be prescribed, they will be found more active after paracentesis.

Dr. W. Hunter's dictum was, "that the patient will have the best chance of living longest under it (ovarian dropsy), who does the least to get rid of it;" and Dr. Denman and other eminent accoucheurs and surgeons have proposed to defer tapping as long as possible. The objections to paracentesis are that the fluid re-accumulates faster than before; that it is altered in character for the worse as regards the system, and that, by the probable entrance of air, inflammation is set up in the sac, attended with great and immediate danger to the

* Monthly Journal of Medical Science, Dec. 1852, p. 528.

patient's life. These objections* have certainly great weight, sufficient to deter from employing simple tapping with the hope of attaining a cure, although resort to it be defensible where nothing is left us but to ameliorate temporarily the condition of the patient. Hence,

2. *Tapping with pressure* should always be combined, both as a matter of precaution when the origin of the cyst is obscure, and as affording an increased probability of cure in any case. Like every other simple operation, the application of pressure may fail from inattention and carelessness. First of all, compresses of linen or lint should be so arranged as to present a convex surface, adapted as nicely as possible to the concavity of the pelvis. Over these compresses straps of adhesive plaster should be applied so as to embrace the spine, meeting and crossing in front, and be extended from the vertebral articulation of the eighth rib to the sacrum. Over this strapping, either a broad flannel roller, or, still better, a band with strings and loops which tie in front, may be applied; or a well-made bandage, which by lacing in front may be gradually tightened, as made at my suggestion by Mr. Spratt, 2, Brook-street. These bandages must be prevented from slipping upwards by a strap around each thigh. Both the compresses and the bandages will require watching and adjusting from time to time, lest by unequal pressure, the bowels or bladder be subjected to inconvenience. Also the crest of the ilium should be guarded with thick buffalo skin or amadou plaster.

The effect of pressure, before tapping, is fourfold in its operation. It sometimes retards the filling of the cyst; it may prevent the increase of the tumour; it sometimes brings about absorption of the whole contents; or, lastly, it may produce a rupture of the cyst into the vagina, rectum, or peritoneum. After tapping, pressure tends to prevent the refilling of the

* Dr. Atlee, of the United States, denies the generally received opinion of the danger of tapping in ovarian dropsy. He says that the experience he and his brother have had of this operation since 1828, and the numerous inquiries he has made of surgeon's in large practice, convince him that death, or even serious symptoms, never result from tapping, that life is usually prolonged, not curtailed, by resorting to it, while, in several cases, even permanent recovery has resulted.—American Journal of Medical Science, No. XXXVIII., 1849.

cyst, probably by compressing mechanically the blood-vessels which supply the fluid. The use of pressure is countenanced by its known good results in dispersing various tumours, or in arresting their growth. When tapping, with pressure, is resorted to as a means of cure, or even with the view only of retarding the process of ovarian dropsy, medicines to stimulate the functions of the various abdominal organs, to correct faulty secretions, and generally to improve the health and strength, should also be administered.

The use of tapping with pressure and auxiliary medical treatment, I consider most applicable to unilocular cysts without adhesions, with clear and not albuminous contents, and where time and the condition of the patient admit of its persevering application. There are also cases of multilocular disease, and others where adhesions exist, where pressure may do material good, and retard the growth.

This plan of treatment I first suggested in 1844, and the results have been published from time to time in the *Lancet*, not only by myself, but by other practitioners who have been induced to give it a trial. For the particulars of those already published, I must refer the reader to the *Lancet*.*

Besides those cases which have appeared in the *Lancet*, I have had several others which have proved entirely successful. Certainly, the result of some has disappointed me, where I had hoped to have effected a permanent cure; but, even in such, great benefit has been derived from the plan, the patients have regained health and comfort, and the disease has for a time been suppressed. Further, in some instances where ovarian dropsy has reappeared, it has been in consequence of the development of new cysts, an event to be wholly prevented only by resort to extirpation of the entire diseased ovary.

I will here adduce the following cases of the successful application of this mode of treatment.

Case XLVII.—*Ovarian Dropsy of several years' standing: cured by Tapping and Pressure.*—Miss E. B., æt. 24, came under my care in

* Dr. Murphy, at the Meeting of the Medical Society of London, April 8th, 1854, mentioned having had a successful example of this mode of treatment.

July, 1848, at the recommendation of Sir B. Brodie and Drs. Bright and Locock. From childhood she had a tendency to asthma ; and at three years of age had diseased mesenteric glands, which left a distended state of the abdomen for some time. After the establishment of the catamenia her health much improved ; but in June, 1840, she had a severe asthmatic attack, with fever, and copious expectoration—hay-fever ; and this recurred every summer. In May, 1844, a worse attack happened, and did not pass off till about the end of July, when it was found that the abdomen,—always swollen during these attacks,—instead of subsiding, actually increased. This was attributed to over-indulgence with grapes when at Nice, and she was treated for obstruction, with the effect of reducing the abdominal fulness. After this time hay-asthma did not recur except in a mild degree ; but her health became indifferent, and an increase of the abdomen was apparent. She complained of a feeling of weight and oppression in the stomach, and sought relief by aperients. On her return to England, in 1847, her disease was recognised.

When I saw her, she was pale and debilitated. There was much wasting, particularly about the neck, shoulders, and arms. The catamenia were mostly regular ; the stomach was weak, and she suffered much from heartburn, and sometimes sickness.

The abdomen was enlarged to the size of a woman's at the seventh month of pregnancy. Fluctuation was most distinct, and I concluded the cyst to be thin, and to proceed from the left ovary ; but it could not be pushed over towards the right side of the median line, which made me believe it adherent to the peritoneum.

August 14th. After some preliminary medical treatment, I proceeded this day to tap the sac. Dr. Locock, and Dr. Gardner, her ordinary medical attendant, being present. Fifteen pints of a clear, amber-coloured fluid escaped. Some slight faintness followed the operation. I strapped the wound, and over it applied my usual pads and bandage. A diuretic mixture, and some alterative, aperient pills she was previously taking, were ordered to be continued.

15th. Had had a severe asthmatic attack, which caused her to be restless, and so loosened the bandages, which it was to-day necessary to re-apply.

17th. To-day feverish and uneasy. Pulse 100 ; skin hot. Ordered a saline draught every four hours, and pills of ext. aloes aquosum gr. iii. ; ext. tarax. gr. iv. ; ferri sulph. gr. i., in pil. ii. : to be taken every night.

18th. Urine free, but alkaline and thick. To omit preceding draughts, and ordered an acid mixture in lieu of them.

20th. The urine is now of natural acidity : to discontinue the acid mixture.

24th. Has taken a diuretic mixture, and pills, composed of blue pill, aloes, and hyoscyamus. She is gaining flesh ; appetite very good ; is allowed wine daily. The recumbent posture in bed is strictly maintained. Bowels regular.

26th. Sir B. Brodie visited her with me, and, on examining the stomach, could find no indication of the cyst, and considered the progress satisfactory.

Sept. 5th. The catamenia have appeared at their proper time. Has continued to go on well. Pressure is kept up by the pads, strapping and by a flannel bandage. Kidneys and bowels act freely.

Oct. 6th. Has continued to improve, gaining in flesh and strength. Is to go to the country for change.

Nov. 7th. Sir B. Brodie wrote me to say he had seen Miss B. at the sea-side; that she was going on as well as could be desired, and that on a very careful examination he could discover no dropsy, and no trace of a cyst. The treatment is persevered in. At the end of another month the patient returned to London, when her health appeared excellent, and no vestige of the disease was discoverable.

Feb. 2nd, 1849. Dr. Gardner saw her, and expressed himself satisfied of the cure of the dropsy. Again, on April 4th, he visited her with Dr. Locock and myself, when, by a careful examination, no disease could be detected.

Some months after this, on repeating an examination, Dr. Locock and myself were sufficiently satisfied of the complete cure of the ovarian disease, that permission was given her to marry.

May, 1854. I have the great satisfaction of adding to the preceding history, the fact that she has continued well to the present time; that is, for a period of five years and a half, without trace of a return of the malady. She was married in 1849, and I have attended her in three confinements, and have after each delivery, when the abdominal wall is in the most favourable state for complete examination, been unable to discover any vestige of ovarian disease.

Case XLVIII.—Miss L., æt. 30, came under my care, Sept. 9, 1847. Complained of having suffered for many years; the stomach was considerably enlarged, but ovarian disease had not been suspected. She was much emaciated, especially about the chest and shoulders. Menstruation had always been regular; the bowels torpid; the urine free. Digestion impaired, and appetite bad; and she is altogether much debilitated.

On examination, I found a cyst about the size of a child's head, distinctly fluctuating. This I at first took to be a simple cyst; but a subsequent examination showed a solid tumour beneath it, pressing towards the rectum and the right side, and interfering with the action of the bowel. At the same time the uterus was pushed over to the left side.

Ordered a cinchona draught, and pills containing aloes, blue pill, and hyoscyamus.

Sept. 29th. Her health being improved, I this day, with the assistance of my brother, Mr. George Brown, tapped the cyst in the median line, and drew off five pints of a clear, transparent, and slightly albu-

minous liquid. No syncope followed. The usual pads and bandages were then applied to exert pressure over the abdomen. A saline, diuretic draught was ordered; the pills, as before, continued.

30th. The kidneys and skin have acted freely. I had, during the night, to re-adjust the bandage on account of its painful pressure over the ilium.

Oct. 1st. On a vaginal examination to-day, I found on the right of the displaced uterus a hard tumour pressing on the rectum, and evidently beneath the cyst, and apparently connected to it. In size it was about equal to a small fist, and painful when pressed. On removing the bandage, it could be felt through the abdominal wall. Owing to the pressure, as applied, causing pain in this tumour, with impediment to the passage of the fæces and sympathetic vomiting, I adopted the use of two pads, stuffed with bran, and over these placed tightly a flannel band. This band being made to fasten by loops, could be made as tight as needful.

13th. A fortnight after the tapping, she had pain and œdema of the left leg, which a stimulating embrocation and friction dispersed. She was ordered a mixture containing sulphate of iron, and pills of aloes and blue pill. The bowels act regularly, and the urine is copious. She is evidently gaining flesh, and in good spirits, having previously been exceedingly desponding.

21st. Examined carefully, but could feel no return of the fluid. The tumour was perceptible more in the centre than heretofore. The catamenia are regular.

December. Has continued the application of the pressure as ordered. No return of the dropsy traceable. Her health has much improved.

Jan., 1848. She left town this month for Brighton, having received instructions on no account to discontinue the use of the bandage.

March 29th. I received a letter from Mr. Phillpotts, of Brighton, the lady's ordinary medical attendant, saying, "I examined Miss L. a few days ago, as she complained of the pressure of the bandage. There is no return of the fluid in the ovarian cyst; and, indeed, I could detect no enlargement of the ovary itself. I recommended her to continue the use of the bandage, substituting an air-compress for the one in use, and slackening the bandage itself. She is in other respects in much better health, and takes more exercise."

March, 1849. This patient has been staying in town for some weeks. She is quite free from any symptoms of the ovarian disease.

April, 1854. I am now pleased to be able to state that this patient has had no return of the local disease, and that she is in every respect quite well; free from the constitutional disturbance which so much embarrassed and enfeebled her health prior to her being submitted to my treatment.

Dr. Hamilton mentions having cured seven cases by patting for a long time daily on the tumour, compressing by a bandage, by the internal exhibition of a solution of muriate of lime, and

by the use of warm baths. Long continued friction, with moderate pressure, and the exhibition of iodine, is another plan which has had its advocates.

3. *Injection of Iodine.*—It has been proposed both in England and France, to attempt the cure of ovarian dropsy by injecting a solution of iodine into the cyst, after having evacuated its contents by tapping; the object being, like that of the operation for hydrocele, to excite adhesive inflammation of the walls of the cyst. The plan has been resorted to in Paris with success, and though I have not had an opportunity of trying it, I regard it as well worthy of the consideration of the surgeon. It will scarcely be admissible in true multilocular disease, and in unilocular the danger will be considerable of the inflammation proceeding too far. The comparative merit of this plan with others, and the question how far the inflammation set up is controllable, are points to be decided only by experience. Since the above was written, the following able review of this practice has appeared.*

"Dr. Simpson has, within the last year, injected into dropsical ovarian cysts, subsequently to tapping, the tincture of iodine, of the Edinburgh pharmacopœia, undiluted, in seven or eight cases. He has usually thrown into the cyst two or three ounces of the tincture. In some cases he has allowed a portion of the injected fluid to re-escape; in others, has retained the whole of it. From these cases he drew the following conclusions:—

"1. In none of the cases of ovarian dropsy, treated with iodine objections after tapping, has he yet seen any considerable amount of local pain follow the injection, with one exception; in most instances no pain at all is felt; and in none has constitutional irritation or fever ensued. In the one exceptional case, considerable local irritation followed, and the pulse rose to 110; but the same phenomena occurred in the same patient after previous tappings, without iodine being used.

"2. While the practice seems so far perfectly safe in itself, it has by no means proved successful, as in hydrocele, in preventing a reaccumulation of the dropsical fluid; for in several instances the effusion into the sac seems to have gone on as rapidly as after a simple tapping without iodine injection.

* Monthly Journal of Medical Science, May, 1854, p. 467.

"3. But in two or three of the cases, the iodine injection appears to have quite arrested, for the time being, the progress of the disease, and to have produced obliteration of the tapped cyst, as there is no sign whatever of any reaccumulation, though several months have now elapsed since the date of the operation.

"Lastly. Accumulated experience will be required, to point out more precisely the special varieties of ovarian dropsy most likely to benefit from iodine injections, the proper times of operating, the quantities of the tincture to be injected, and other correlative points. Perhaps the want of success in some cases has arisen from an insufficient quantity of iodine being used, and from the whole interior of the cyst not being touched by it. The greatest advantage would of course be expected from it in the rare form of unilocular cysts. In the common compound cyst, the largest or most preponderating cyst is usually alone opened in paracentesis; and though it were obliterated, it would not necessarily prevent some of the other smaller cysts from afterwards enlarging and developing into the usual aggravated form of the disease."

Application of Iodine.—I have applied the tincture alone, and likewise in the form of an ointment to the abdominal parietes and to the inside of the thighs, where it may be supposed to act more readily. It is better to combine with it the internal exhibition of the iodide of potassium, commencing with five grains three times a day, and gradually increasing the dose.

The use of iodine externally and internally has had many advocates, probably from its known effect in producing absorption, especially of some parenchymatous glandular organs, as the mamma and testis. Yet, when we consider the pathology of ovarian cysts, we can derive little encouragement in attempting to procure their absorption by iodine, or indeed by any medicines; still, as accessories, we must not neglect them. I have, nevertheless, some fears that the dosing with iodine has sometimes been carried too far, and that the health of patients has been injured. The dose of iodide of potassium has been increased—gradually indeed—to twenty grains; and iodine has at the same time been introduced externally; the tumours thereby have, in a few instances, been stated to have become

softer; but this end has not been obtained without damage to the economy, nor, as the reports convey, without great danger from having excited inflammation in the sac, peritonitis, and inflammatory and irritative fever.

4. *The Production of an Artificial Oviduct.*—This ingenious and rational plan seems to have been first contrived and practised by the celebrated French surgeon, Le Dran, who recorded some cases, in a highly precise and graphic style, in the "Mémoires de l'Académie Royale de Chirurgie," and subsequently published his views under the title of "Plusieurs Observations et Mémoires sur l'Hydropisie Encysté et le Squirre des Ovaires." I deem his cases, with respect both to their historical and to their poetical value, worth extraction in this place.

Having described the autopsy of a patient whom he had tapped, and the character of the sac as generally adherent, he remarks, that such cases have always been deemed incurable, and that tapping has been practised for the sake of only giving temporary relief. Le Dran thus continues:*—

"Reflecting on the temporary relief that the dropsical patients of whom I speak feel when the cyst has been emptied by tapping, I thought that by preventing it from refilling, a cure might be obtained, or at least that the life of the patient might be prolonged. Upon this principle, I have dared to attempt a new plan, and success has answered my hopes.—

"Case A.—In the beginning of September, 1736, a lady, 60 years of age, came from Vernon to Paris, to consult me concerning an abdominal tumour she had.

"She told me that menstruation had been regular until her 48th year; that it then became irregular; that she had at different times losses of blood, terminating in the discharge of a fluid of a sour and unpleasant odour from the vagina, which, however, had stopped for the last year or eighteen months. This arrest of discharge was followed by a gradually increasing enlargement of the abdomen, accompanied by much pain, and a constant desire to micturate, although but little urine was voided each time. On examining the belly, I found a tumour

* I have abridged the account where possible without altering the sense.

in the middle hypogastric region, encroaching on the iliac regions, but more so on the left one, and rising nearly to the umbilicus. At its upper part it felt round like an inflated bladder, and fluctuation was perceptible. The hardness and extent of the swelling prevented my discovering any appended tumours.

"Although two diseases which appear to be of the same kind may not be exactly alike, yet there may be such an analogy between them that one may serve to direct the treatment of the other. Recalling, therefore, to my mind the characters of the cyst I previously dissected, I concluded it to be desirable to open the tumour to a great extent, along the linea alba. For if the cyst were not emptied, it would extend itself more and more; and if only emptied by tapping, it would refill very fast.

"M. de la Peyronie, with whom I saw the patient, advised for the present, tapping only so as to ascertain, on the collapse of the walls of the cyst, the existence or not of hard tumours at its sides, and afterwards to take such a course as I judged best. I yielded to his advice; but the patient did not agree to ours, and she returned to Vernon. The cyst filled and extended more and more in such a manner, that four months afterwards, that is, in January, 1737, the tumour extended itself to the diaphragm, and even raised the xyphoid cartilage, embarrassing the respiration much, fatiguing the patient by its weight, and by the most acute pains. The symptoms were accompanied by much fever, by want of rest, by frightful wasting, and a continual wish to make water; besides which, the patient's bowels were very confined, and yielded nothing but by injections. The sad condition in which she was, made her at last resolve to submit to all that was judged needful to be done for the relief, and M. Aubé, surgeon of the town, tapped her on the right side, considering the dropsy to be ascites. For this he must not be blamed, since it is very difficult, not to say impossible, to recognise ovarian dropsy by external signs when the cyst extends over the whole belly; and it cannot be distinguished under the finger from ascites, except when, being but little extended, its limits are discoverable. M. Aubé drew off fifteen pints of a bloody liquid; the patient was relieved; but

the cyst soon refilled, and at the end of February, *i. e.*, seven weeks after tapping, the patient's condition and symptoms were the same as before the operation. I was now requested to go to Vernon. The patient suffered such acute pain, that, to relieve her, she was tapped a second time in the right side, the day before my arrival, and M. Aubé thought good to leave the tube of the trocar in the wound. He this time only drew off twelve pints of bloody fluid; I saw the blood in little clots at the bottom of the vessel.

"In examining the abdomen, nearly a spoonful of purulent fluid, coloured by blood, escaped through the tube. I easily distinguished through the integument the entire cyst, which, though less extended upwards than before the paracentesis, still rose to the breadth of four fingers above the umbilicus. The left iliac region appeared occupied by a scirrhous tumour, of about six inches in length and four in width, attached to the cyst, and raising the integuments externally. Its almost round figure and its situation countenanced the supposition of its being the enlarged and scirrhous ovary, such as is often seen. The rest of the hypogastric region was rather prominent, with the skin covering it healthy. Around the retained tube was a circle of inflammatory swelling, of some two or three inches wide. When I saw this patient six months before, the hypogastric swelling had but an eighth part of its present bulk, and I had then hoped to be able to obtain a radical cure by promoting suppuration in the sac, and with that view proposed the large incision. Circumstances, however, were now changed, the cyst was so extended as to push forward the xyphoid cartilage, and I could not hope for the same success. I thought it, however, right to extend the existing opening, in order to prevent re-accumulation in the cyst; and to favour the gradual drawing of the wall towards the point from which it started, and which seemed to me to be near the fold of peritoneum covering the bladder.

"I should have wished to have opened the cyst as nearly as possible in the median line, but the collapse of its walls obliged me to make use of the opening made by the trocar. Not to lose the route of the tube, before withdrawing it I introduced a

thick piece of catgut, as a bougie, and afterwards a grooved director in the same course; then removing the bougie, I carried the bistoury the entire length of the director, and cut outwards and downwards towards the pubes, thus making an opening four inches long. I carried my finger all round inside the incision, but could on no side feel the furthest walls. I dressed the wound simply with pledgets of lint, keeping the edges moderately apart.

"As I could not reckon on arresting the formation of fluid in a sac which had twice become filled in so short a time, and as it was necessary to facilitate the escape of the results of suppuration and prevent the closure of the wound, I clearly foresaw the necessity of retaining the tube in it for some time. Accordingly, I made a tube of sheet lead, of a diameter proportionate to the size of the wound, into which I introduced it obliquely. As the wound contracted, I decreased the size of the tubes. For more than four weeks many shreds of membrane escaped through the tube, the pus in the interval of the dressings was always rather red. Morning and evening the surgeon injected the sac by the tube. First he employed detersives, and afterwards stimulating lotions. At length the pus lost its red colour, and at the end of five months, *i. e.*, in the beginning of August, the tube was dispensed with, and only a small fistulous opening was left, through which some drops of pus continued to ooze. But although the walls of the cyst approached, no union took place.

"If we observe that the disease came on in consequence of the suppression of an evacuation which had become habitual, so far from regarding the oozing through the fistulous opening as an evil, it will be looked upon as a resource of which nature availed itself.

"From the date of this fistulous opening being made, the dropsy terminated. However, as the cyst contracted, the scirrhous tumour gradually increased; the integuments over it became œdematous and thick, and at length pus slowly formed, accompanied by many symptoms. At the end of September, eight months after the opening of the cyst, the surgeon, feeling a fluctuation which seemed to him to extend throughout the hypogastric region, wished me to go to Vernon, which I did.

The fluctuation was not equivocal, and I judged from the touch that the pus was under the muscles, in the cellular tissue which surrounds the bladder, although it was felt to rise to two fingers' breadth below the umbilicus. Between the umbilicus, the fistulous opening, and the place where the pus terminated, which included a space of from two to three inches in extent, I felt under the integuments something denser than in the rest of the abdomen, which I judged was the cyst spoken of. I carried a very blunt probe obliquely through the fistulous opening, but it penetrated no further than the width of three fingers, and I could not make it move in the cyst, which I therefore concluded was very narrow. The principal thing to be done was to evacuate the pus. For this purpose I made, four fingers' breadth above the pubis, a transverse incision, following the course of the swelling. By this incision I divided the right rectus muscle partially, and the left one, together with the oblique and transverse muscles of the same side, entirely; and in so doing could not avoid the epigastric artery. I stopped the bleeding by holding the vessel between the fingers until the pus was evacuated, and afterwards tied the artery. Two pints of purulent fluid were at once discharged, and subsequently about a pint escaped from the bottom of the left iliac region, presenting a different character, being white, thick, viscid, clotted, and of bad smell. I passed my hand to the bottom of the wound, and found no trace of the tumour which was there six months before. It had suppurated away, and in process of so doing, had apparently involved the cellular tissue about the bladder. Almost immediately the walls of the abscess collapsed; and I filled the vacant space with very soft lint. The various symptoms forthwith declined and gradually disappeared. Two days after, I left the patient to M. Aubé, who dressed the wound judiciously; and this healed in seven weeks.

"The patient enjoyed tolerably good health for four years afterwards, when she died from the same cause as the dropsy originated from, a fact the post-mortem examination will show.

"The cyst appeared as if torn, but was closed at the bottom of the fistulous opening, which had remained open. The jejunum and ilium were adherent to it, and in connexion with them was a group of scirrhous tumours, consisting of the

mesenteric glands. The hypogastric region was filled with scirrhous tumours of different sizes, adherent to each other, and placed on either side of the bladder.

"This observation may lead to some useful reflections on the cure of this species of dropsy, and perhaps of some others. Firstly, ovarian dropsy is found nearly always based upon a scirrhous tumour, of which therefore it is only a symptom. Every cyst is always full, however small it may be, and the more liquid collects, the more it extends in every direction. Secondly, its bulk presses on all the parts it touches, and the more it extends, the more it compresses them, which impedes or deranges their functions. Thirdly, in extending itself, the cyst is rendered adherent to all the viscera upon which it rests. Fourthly, if the cyst has been emptied by an operation, and the opening closes immediately, it fills anew, and in less time than before; and the third time it refills still faster, *i. e.*, in less time than on the second occasion. Fifthly, if the opening be made in the cyst in such a manner that it does not close, the walls approach each other in proportion to the elasticity that is left in them; and they are further approximated by the compression of surrounding parts, just as the uterus which has been dilated in pregnancy, contracts after delivery. Sixthly, in proportion as the walls of the cyst are brought together, the vessels which empty the liquid into the cavity are compressed; therefore less liquid flows into it, as after delivery the discharges diminish in proportion as the uterus contracts. Seventhly, the opening made by the trocar closes in twenty-four hours, and as the cyst fills itself quickly, its walls approach each other but very little between one tapping and another. But if it is opened by a large incision, the walls have time to come very near together. Eighthly, the walls of the cyst approach each other, but cannot unite, hence the wound remains fistulous. Ninthly, if the cyst has been extended and dilated in such a manner that it is adherent to all parts of the abdomen, it is difficult and almost impossible that it should collapse entirely, owing to these adhesions. From what is above stated, it may be concluded—Firstly, that ovarian dropsy can only be cured by a tolerably large opening of the cyst. Secondly, that it must be opened

early to prevent its very great extension. Thirdly, that it is not enough to tap simply with the trocar, but an opening must be made in the sac so large that its interior may suppurate and modify itself before the opening becomes contracted. Although this mode of cure I propose may seem but palliative, as the wound remains fistulous, I regard it as necessary, since it prolongs the life of the patient, who has nothing more to fear, except the scirrhous tumours, for which, indeed, pathology may hereafter find remedies; finally, it is not impossible but that it may result in a radical cure. Here is an observation which proves it.

"Case B.—*Of Ovarian Dropsy, treated by incision, and cured without fistula.*—An unmarried woman, aged 44, had been for two or three years ill with obstructions in the abdomen, for which she had seen many physicians. During this illness she menstruated irregularly, then ceased entirely. At length the abdomen began to enlarge; her water became lateritious and scanty; fever came on; she had very frequent vomitings; the uterus became very painful; and she was tormented with wind and constipation. At last she was declared dropsical, and I was requested to tap her. This was in 1746. I drew off fifteen pints of muddy fluid, mixed with blood, of such a stench, that the whole house was infected with it. The abdomen being empty, I easily distinguished through the integuments in the left iliac region an unequal scirrhous tumour, fixed in its position, and seemingly the size of a small melon. The symptoms diminished after tapping; the urine became natural and more copious. The quality of the liquid drawn off made me conjecture that it was ovarian dropsy, but I had no proof of it till the end of eight or ten days, when, the cyst being half-filled, I easily distinguished its limits; in a part of its circumference it seemed to adhere to the scirrhous tumour. In three weeks the cyst was nearly filled again to the same extent. Then, knowing the nature of the disease, which I could not decide the first time, because the cyst extended all over the abdomen, I thought that simple tapping with the trocar would not be right, but that the cyst must be hindered from refilling. I then made an incision in it, so large, that it could not con-

tract promptly, in the linea alba, a little below the umbilicus, so that the bottom of the cyst approaching gradually the scirrhous tumour upon which it was formed, the wound always answered to its cavity. Almost as much similar liquid as at the first time, and as offensive in smell as that drawn off three months previously, was discharged. I put a tube in the wound to hinder it from contracting too much, and that I might be able to inject the cavity. However, new symptoms arose; the fever increased, accompanied by a species of delirium, also by frightful nausea, and almost continual sickness; the patient vomiting immediately all that she swallowed. As Spanish wine was the only thing she could retain, she was sustained by it alone, taking six or seven ounces a day, for five weeks, during which all her symptoms continued with the same violence. During this time there was discharged every day by the tube eight or ten ounces of red liquid, muddy, and as offensive as on the day of the operation; and twice a day I made injections in it of barley water and honey of roses. At last, at the end of three weeks, the fluid which passed lost a little of its red colour, and pus was detected in it One morning twelve to thirteen ounces of pus escaped, much whiter than before. I thought the tumour was beginning to suppurate, and that it emptied its matter into the cyst; for, on touching it, it seemed considerably diminished in size. Two days after, the violence of the symptoms abated, and then gradually ceased. The interior of the cyst suppurated well, and the pus daily lost its red colour and its offensive smell. Its quantity diminished, so that at the end of six months only a spoonful at the most was discharged in the day by the tube, which was kept in and occasionally cleaned. Doubtless the walls of the cyst gradually contracted. Things continued in the same way for more than two years; at last the patient having one day taken out the tube to clean it, could not replace it, and the wound closed entirely. With time, menstruation returned, and continued regularly. Of all the cases of ovarian dropsy I have treated by such an incision, this is the only one in which I have seen the cyst close itself entirely."

Treatment.—In January, 1850, I had the pleasure of bring-

ing before the notice of the profession what I conceive to be an improvement of this operation of Le Dran; the variation consisting chiefly in making the opening in the semi-lunar in preference to the mesial line. I was led to propose this deviation by reflecting on a case published by Mr. Bainbrigge, of Liverpool, who had performed Le Dran's operation in two cases, the first of which, I believe, terminated fatally; but the second, subsequently published in the *Provincial Medical and Surgical Journal*, was successful. In the latter case, Mr. Bainbrigge made an incision in the median line, midway between the umbilicus and the pubes, intending to stitch the sac to the external wound, which was to be kept open by the introduction of a pledget of lint, so as to admit of continuous evacuation of the contents of the ovarian cyst as fast as formed. As it happened, however, Mr. Bainbrigge found the previous adhesions of the sac so complete, that the sutures proposed were unnecessary. The patient was then placed in a *prone* position, and so kept for some weeks. The result proved quite satisfactory.

It will be observed that here the prone posture was maintained (as necessary for a free escape of the discharge) for a lengthened period. Now, it struck me on reflection that such an operation might be performed with greater chance of success, and with much less inconvenience to the patient, by making the incision *laterally* in the semilunar line, where, indeed, I ordinarily introduce the trocar in tapping an ovarian cyst. An opportunity of carrying this idea into practice soon after occurred to me, when the advantages I had reckoned upon were fully realized.

Case XLIX.—Miss R., aged 39, introduced to me by Dr. Richard Bright, came under my care in May, 1847, labouring under ovarian dropsy. The cyst was multilocular; for one sac yielded to the combined effect of tapping, mercurials, and pressure; but a second appeared six months afterwards, which was punctured, February, 1848, and yielded seven pints of a mucilaginous viscid fluid. The abdomen again enlarging in the following July, three cysts were punctured, the oldest one discharging a milky, highly albuminous fluid; the second, a transparent, but also albuminous serum; and the third, of small size, a non-albuminous fluid of a straw colour; the entire quantity evacuated amounting to eleven pints. Although

relief followed, the cysts re-filled, and pain and other symptoms of suppurative inflammation supervened. At the commencement of October a fourth tapping drew off a clear, light-coloured, and afterwards an offensive, purulent fluid, in all sixteen pints. After this, the accumulation of fluid returned with greater rapidity than ever, when, with the concurrence of Mr. Fergusson and Dr. Sibson, I decided on the following operation :—

Oct. 11th. Assisted by those gentlemen, and Mr. Nunn, (chloroform having been administered by Dr. Snow,) I placed the patient in the horizontal posture near the edge of the bed, and made an incision two inches in length about half-way between the umbilicus and the anterior and superior spine of the ilium, dissecting carefully down to the peritoneum. I next made a second (shorter) incision at right angles with the first, extending from its lower termination inwards towards the median line. The flap thus formed was dissected back, exposing the peritoneum with the subjacent whitish cyst appearing through it. Introducing a large-sized trocar at the angle at which the two incisions met, I withdrew nine pints of fluid, containing pus and flocculent matter; and, before removing the canula, divided the peritoneum in the line of the longer incision; and having reflected it on each side, stitched the cyst to the tendon of the external oblique muscle, taking care not to include any portions of muscle or of peritoneum. The next step was to remove the canula, and, with a pair of scissors to divide the cyst midway between the sutures; a piece of lint dipped in oil was then inserted and secured by strapping; lastly, the external wound was partially closed at its extremities by stitches.

For the first five days after the operation, the progress of the patient was very satisfactory; but on the 16th (the sixth day), a redness of the surface, extending from the wound to the back, became visible; and on the following day sickness occurred, and continued to do so subsequently. The discharge from the wound had previously been free, but I now thought it advisable to inject, twice a day, a portion of lotion containing two drachms of tincture of iodine to a pint of water; but the discharge becoming shortly very offensive, I substituted an injection of chloride of lime. At this period, much exhaustion and restlessness were present, together with frequent faintings and considerable dyspnœa, and the discharge from the cyst became most profuse, thus diminishing the little remaining power. The patient sank rapidly, and died on the 9th of November, a month after the operation.

A post-mortem examination was made on the following day in the presence of Mr. Nunn and other gentlemen. There was much emaciation. On opening the thorax, the diaphragm was found to reach as high as the third rib, and the base of the heart to lie between the first and second ribs. The *right lung* was thrust upwards by the liver, which was raised to a level with the third rib. Firm and extensive pleuritic adhesions existed. The right lung contained more air than the left, which though crepitant, was much congested, and also con-

tracted and shrivelled, each lobe being capable of containing but little air. Little or no fluid was present in the pericardium. The *heart* was very fat; the auricles remarkably small, as indeed was the entire organ. The right auricle contained coagula. The right ventricle was soft and flabby, whilst the left was thicker and harder than natural, its columnæ carneæ dense, and its chordæ tendineæ very firm and rigid. Valves healthy. The *liver* not only rose high in the chest, pushing the right lung up to, or above the third rib; but it was also much enlarged and rounded, the right lobe resembling in figure and size, a fœtal head. Its parenchyma was highly vascular and exceedingly soft. *Spleen* normal; *stomach* much distended with flatus; *kidneys* very much enlarged, softened, pale, and easily broken down by the fingers. The *ovarian cyst* was found generally adherent to the abdominal parietes in the neighbourhood of the lateral incision. On removing the cyst, we found on its posterior surface an ulcerated opening of no very recent date, through which a communication existed with the interior of a smaller cyst, and through this with several others, also small, some of which appeared to have been more recently formed. The contents of these several cysts varied in character; some being dark, thick, and offensive, the lining membrane studded with ossific points; others, more recent, straw-coloured or purulent. *Uterus* normal, except at its posterior surface, where it was indurated by many fine nodules.

The issue of this case was unfortunate, but the untoward result offers no testimony against the propriety of the operation, inasmuch as it was a consequence of general bodily disease. The engorged and enlarged liver, the abnormal condition of the kidneys, the congested, puckered, and adherent lungs, compressed into half their original bulk, and last, not least, the diminished size and diseased condition of the heart, afford ample explanation of the fatal issue. The frequent faintings occurring upon any change of position or sudden movement, indicated serious organic changes in the chest; and Dr. Sibson, when he saw the patient before the operation, had diagnosed displacement upwards, and diminished power of the heart. This diagnosis the autopsy confirmed and satisfactorily accounted for the dyspnœa and the constant tendency to syncope.

So far, then, from regarding the operation as the cause of death, we all agreed that, taking into consideration the extensive and serious visceral lesions, the multilocular character and long standing of the ovarian disease itself, the debility of the patient, and the pressure sustained by the thoracic viscera, the

operation was so far successful as that life was considerably prolonged by it. Had the powers of the patient persisted sufficiently, we may conclude that the cysts would have been destroyed by suppuration.

Case L. was that of a married woman, the mother of four children, who having been found to be labouring under ovarian dropsy by her usual medical attendant, Mr. Evan B. Jones, was taken by him to Dr. Tyler Smith, who requested me to see her in April, 1850.

I found that she had been tapped by Mr. Jones about seven weeks previously, immediately after the birth of her last child, when twenty pints of fluid were withdrawn. The sac had subsequently filled again very rapidly: she was compelled to keep her bed, but unable to lie down from fear of dyspnœa.

She stated it was several years since she detected a swelling in her right iliac fossa, that she was told it was ovarian dropsy. Since its appearance, however, she has had several children. After she was tapped, a hard body could be felt, apparently within the cyst.

On examination, the cyst seemed thin; and, deeper in the right iliac fossa, a solid tumour could be felt, which I thought might be an undeveloped or contracted cyst. Fluctuation was distinct.

This patient was most desirous that some further operation should be attempted, but her extreme debility and generally bad state of health, promised but an indifferent or untoward result.

However, I determined to try the plan of making a lateral incision, and of stitching the sac to the abdominal wall. On the 18th, I accordingly proceeded to operate, assisted by Mr. Nunn, Mr. Jones, and Mr. Henry Smith. Having made an oblique incision, similar in position and size to the first in my previous operation, and thereby reached the peritoneum, I found it on almost every side adherent to the subjacent sac. Withdrawing about twenty pints of fluid, I at once proceeded to stitch the sac to the aponeurotic tendon of the external oblique muscle. This being completed, I opened up the cyst by scissors, midway between the stitches—just as in my former operation. On introducing my finger, I felt the solid mass (before detected from the exterior), which was yielding to the touch, and seemingly within the empty cyst, and was in fact an undeveloped cyst.

The following day she was doing remarkably well, and continued progressing favourably for a fortnight. Unfortunately, however, at the end of this period, having previously removed from her bed to a sofa, she exposed herself to wet and cold by lying close to an open window. The consequence was a severe cold attended with fever, which lasted several days. Then the abdomen began to enlarge in the region of the cyst, and the previously free discharge diminished considerably.

On introducing my finger in the wound, I found that adhesions had

Diagram shewing

1. Original incision through abdominal wall. 2. Cysts, semitransparent, developed about the upper part of the old one.
3. Shews by dotted lines a ragged aperture on the posterior aspect of cyst. 4. A small patch of scarlet vessels on the front of uterus.
5. Left ovary, not in a healthy condition. 6.6. The ends of the probe which lies in the sinus leading to the cavity of the cyst.
7. Upper part of vagina. 8. Portion of wall of abdomen, rectus, &c.

T.W. Nunn ad nam. del.

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been set up between the walls of the cyst and the solid tumour contained in it: whereby the cavity of the sac was now divided into two compartments, only one of which could empty itself through the opening; the other had consequently become distended by the accumulation of its secretion. I was able, however, to break down these recent adhesions by my finger, giving liberty to the imprisoned fluid. To avoid the recurrence of this event I introduced a pledget of lint, so that it should lie across the tumour, or between it and the adjoining wall of the cyst.

From this period the patient went on remarkably well, suffering indeed every two or three weeks from attacks of bilious vomiting, with headache and prostration. At the end of May she changed her residence to the west end of London, as more advantageous, and her health so improved, that she was enabled to take walking exercise almost daily.

In July the large cyst was extruded *en masse* through the external opening, in a putrid condition. After its separation it required much care to prevent the closing up of the wound; the discharge, too, was now trifling, and caused the patient no inconvenience. To keep the orifice free, a pledget of lint had to be introduced daily.

At this period the operation was considered by the several medical men who visited her, (among whom were Mr. Fergusson and Mr. Ure,) as perfectly successful. In fact, the patient walked about and rode several miles a day.

In August, Mr. Ure saw her, when she was suffering from one of her severe bilious attacks, and from the œdema of her face, surmised the existence of kidney disease. Her health, which had long suffered from her intemperate habits, now began seriously to give way: incessant vomiting would occur for three days together, and incomplete paralysis of the left side supervened. Some relief followed the use of general and topical bloodletting, but exhaustion soon more clearly manifested itself, and she sank, after having fallen into a comatose condition four or five days previously.

A post-mortem examination was made the next day, with the assistance of Dr. Tyler Smith and Mr. Nunn. The following are the notes made on the occasion.—Body well developed, with a considerable quantity of subcutaneous fat. No existing peritonitis apparent on opening the abdomen. The cavity of the pelvis contained an ounce and a half of puriform fluid, lying partly in front and partly behind the uterus. This pus had evidently escaped from the mass of the right ovary, the vesico-vaginal and recto-vaginal pouches being healthy.

A cyst capable of holding an orange occupied the right ovary, (see PLATE IX.,) and was situated just below the broad ligament,—its inner side within an inch of the uterus, its outer in contact with the brim of the pelvis. This cyst communicated by means of a fistulous canal, 1½ inch in length, with the external opening made in operating. The

back and under part of the cyst was disorganized and soft, and at one part lacerated, allowing the free escape of its contents upon the slightest pressure. Through this lacerated opening, the puriform discharge in the pelvis had evidently escaped; and without doubt this laceration had occurred in the progress of the autopsy, for had it previously existed, the sac would have been much more completely emptied, and some signs of recent peritonitis have certainly been met with.

The left ovary and ligaments were healthy. The surface of the uterus was rather red and vascular, but unaffected by peritonitis. In the course of the fistulous canal were three or four small cysts varying in size from that of a currant to that of a grape. The structures about the wound and the fistulous canal were pale, firm, and healthy. The kidneys, soft, large, and pale; the liver remarkably yellow; the brain unusually pallid and soft.

That the case just recorded was (so far as the operation itself was concerned,) successful, will, I think, be generally admitted. The fatal symptoms were other than those dependent upon the operation, and death did not take place till *four months after it.* The great sac had been entirely expelled, and we may conclude that if the patient's general health had not failed, it would have been followed by the discharge or destruction of the small one found after death.

Case LI.—Miss W., æt. 41, was always observed to be of large size in the abdomen from her childhood, but enjoyed good health, with the exception of suffering occasional bilious attacks. In 1848, her health was not so good; there was much indigestion and gastric disorder, with a sensation of heat in her throat proceeding from the abdomen; but it was not till March, 1850, that she sought medical advice, at which time she consulted a physician, who declared her to be labouring under ovarian dropsy. She remained under that gentleman's care until June, her abdomen in the meantime increasing to double its former size. Wishing for further advice, she consulted another physician, who prescribed some medicines and recommended her being tapped.

In July she was visited by me, when I found her suffering considerably from the pressure of the ovarian tumour upon the thoracic viscera. The general appearance of the abdomen and careful manipulation, convinced me that this was a case of multilocular ovarian disease, with extensive and firm adhesions. The inference, therefore, was, that the operation of extirpation could not be resorted to, that pressure would be unavailing, and that the patient's condition demanded speedy relief. She had of late suffered frequent and severe pain in the right side of the tumour, and was herself most desirous to submit to an operation.

On the 1st of August, Dr. Snow having put her under the influence of chloroform, I proceeded to the operation, assisted by Mr. Nunn,

and other medical friends. The incision was made in the left side, and in the usual position, and the peritoneum being reached and divided, I found very firm adhesions over its right side incapable of being broken down. The multilocular character of the disease, as previously diagnosed, was rendered evident, and two cysts were opened on the present occasion, and a highly albuminous fluid evacuated. Many other smaller ones were left untouched. I do not here recapitulate the several steps of the operation, which were in all respects the same as in the previous cases.

On the day following the operation, inflammation was set up in the sacs, but was recovered from in three days; bleeding and other antiphlogistic remedies having been employed. After the subsidence of the inflammation, she became free from pain and progressed favourably; expressed herself much relieved, took food, and was in good spirits. The wound also developed healthy granulations. In ten days more, however, the discharge became offensive, and its debilitating influence on the system manifested itself rapidly; the feeble powers of the patient not being able to sustain the drain, and the less so, on account of its unhealthy character, which tended to produce a typhoid state. She consequently sank on the 25th of the month.

A post-mortem examination was made on the 27th.

On opening the abdomen, the cyst was found generally adherent on its right side, but free from adhesions behind. On attempting to rupture some of the adhesions low down, the walls of the sac gave way, and a quantity of pus escaped. The cyst rested by a broad base on the left ovary. The right ovary was enlarged, and contained a small cyst.

The liver was adherent, and pushed upward to the third rib. The left lung was adherent to the pleura-costalis in its upper third. On cutting into the cyst, it was found to be made up of many, some large, others smaller cysts.

The cause of death in this third case must be admitted to have been exhaustion from the copious and offensive purulent discharge from the cyst, hastened in its operation by the debilitated state of the patient. We must also attribute the fatal result in some measure to the circumstance of the discharge having become offensive, and the recognised noxious or poisonous influence exerted by any fetid collections of fluid within the body.

The state of the patient previously to the operation was such, that life could not have long continued, and I think that the operation itself, directly or indirectly, had little to do with shortening it.

In such inveterate cases, of long standing and multilocular, having extensive adhesions, and where the health is broken down, my present conviction is not to interfere by any operation.

Although the three cases last related terminated fatally from

one unfortunate circumstance or another, the principle of the operation has so frequently been successfully carried out, as to justify its repetition in a favourable case. In Paris the operation has been performed several times with success; adhesion of the sac to the abdominal parietes having been effected by *pinning* the cyst to them some days before making the opening. For this information I am indebted to Dr. Ferguson. I have also heard from Mr. A. Ure, a report of a case successfully treated by the lateral incision in Germany; and in the "Provincial Medical and Surgical Journal" (1850), an instance is recorded of "an ovarian tumour cured by incision, followed by suppuration," by Dr. Prince, of St. Louis, Missouri.* An operation which has been extensively acknowledged, not only in this country, but in France, Germany, and America, has certainly claims upon the attention of surgeons.

Artificial Oviduct,—per vaginam, or per rectum.—In the foregoing observations and cases, the formation of a fistulous opening into the sac through the abdominal parietes has alone been considered; but the same may be effected through the vagina, or through the rectum. However, the establishment of an artificial oviduct through either of those canals will be of less extended application, and only warrantable when the cyst is most evident in the recto-vaginal space, and is distinctly fluctuating, and where a long trocar and canula can be employed, and the latter be left. As to the requisite position of the cyst, it will be recollected that the direction of growth is rarely towards the recto-vaginal *cul-de-sac.* (See p. 184.)

The operation per vaginam has, I understand, been several times performed at St. Bartholomew's Hospital with success. I regret I have not the precise facts and statistics. That per rectum has also been resorted to in some instances, and obtained favourable results. I have, as yet, not had experience of either of these varieties of the operation in question; but I regard them as likely to be, under circumstances such as above indicated, more desirable than that through the abdominal wall. Moreover, I should, *cæteris paribus,* prefer perforating the vagina.

* Abstracted from the "American Journal of Medical Science."

5. *The Excision of a portion of the Cyst,* for the cure of ovarian dropsy, was first recommended and practised with success by Messrs. Jefferson, West, and Hargraves. Their operation consisted in making a small opening, about an inch in extent, seizing the cyst, withdrawing the fluid, and excising as large a portion of the sac as could be drawn through the opening. It will be seen that this operation is applicable only to simple cases, and that the smallness of the opening precludes the possibility of ascertaining, during the operation, either the degree of vascularity of the cyst, or the extent of its adhesions. Reflecting that there is no greater danger in an opening of two or three inches than in one of only an inch, Mr. Wilson, of Bristol, proposed and practised with some considerable success, a similar operation by a larger incision, which enabled him to tie all the larger blood-vessels ramifying in the cyst which were divided by the knife. To this plan I give the preference, for the above reasons, and for another, not less important,—viz., it enables the operator, by taking out of the wound one or more pieces of the cyst, and cutting it or them irregularly, to avoid dividing the bloodvessels, and the consequent necessity for ligatures. Also, should necessity arise, it affords room and space to tie a bleeding vessel with twine, to cut it off very close, and leave it.

The excision of a portion of the cyst is an operation more free from danger than complete extirpation, and less tedious in its results than the formation of an artificial oviduct. But it has a limited application. The conditions likely to favour its success, are :—The cyst unilocular, its walls thin, and possessed of little vascularity, very few or no adhesions, the fluid only slightly albuminous, and of light specific gravity. When these favourable circumstances coexist with unimpaired general health, or very little ailment, then only should this operation be performed. If pressure had been tried without success, or was interdicted by the existence of prolapsus uteri, or by any other objection, an additional reason to try this operation would exist. Now, by preferring the longer incision, and being prepared to extirpate the whole cyst if necessary, the surgeon will be able to explore the parts to ascertain which operation is most eligible.

For instance, if the walls of the cyst are found thicker and more vascular than was expected, it will be safer to proceed to extirpate the entire cyst, after tying its pedicle, than to run the risk of profuse hæmorrhage by cutting out a portion. Or, if the cyst is found to be thin, unilocular, unattached, and unvascular, and the fluid thin, then the plan of excising a portion may be adopted with reasonable prospect of success.

The operation consists in excising a portion of the cyst, returning the remainder into the abdomen, and then, closing the wound with sutures, to allow any fresh fluid secreted by the remaining portion of the cyst, to escape into the cavity of the peritoneum, there to be taken up by absorption and discharged by the kidneys. This method of treatment was suggested to my mind (before I was aware that it had been previously practised) by reflecting upon the numerous cases on record in which spontaneous recovery has occurred after an accidental rupture of the cyst and subsequent copious discharge of urine. One case especially impressed me with the importance of attempting such an operation; namely, that of a young lady who had been long treated by Dr. Henry Davies for ovarian dropsy. In this case spontaneous bursting was followed by complete disappearance of the disease, and non-recurrence of dropsy. She died ten years afterwards of inflammation of the dura mater. On the post-mortem examination it was found that the cyst had collapsed and shrunk, and that a fissure of some size existed, which was probably the original rent through which the cyst had burst.

The January (1851) number of the late "Provincial Medical and Surgical Journal" contained an interesting and highly practical communication from Mr. J. Grant Wilson, on the value of excising a portion of the cyst as a means of curing ovarian dropsy. He practised it in three cases, and in two was successful.

Unlike my proceeding, he advises the drawing out of as much of the cyst as can be readily extracted, without displacement of the other contents of the abdomen. He also makes it a principle of the operation, to cut off the cyst, *not* close to the wound, but from one and a half to two inches beyond it, so that when the portion of cyst has been removed, the cut margins can be carefully examined, and each of the vessels be secured by fine

silk; and he directs the ends of the ligatures to be cut off close so that none may hang from the wound.

For the cases, which are highly instructive, I would refer my reader to Mr. Wilson's own description in the periodical named.

In one of Mr. Wilson's cases,* the sac from which he had excised a large portion, slipped back into the abdomen before he could tie its vessels, which were numerous and large, and by hæmorrhage into the peritoneal cavity, acted as the chief cause of the fatal result. To obviate so disastrous an occurrence for the future, that gentleman contrived an instrument, having two branches, each seven inches long, which could be so screwed together, as to hold the cyst firmly between them. Figures of this instrument are given in the journal quoted.

I have never felt the want of such an appliance, and should think it would be in the way of the operator. The vulsellum forceps and proper assistance are alone necessary to guard against an accident of the sort.

I shall first relate the particulars of one case in which the endeavour to imitate nature, by excising a portion of the cyst and leaving an opening in it, proved eminently successful. I shall then illustrate, by two other cases, the difficulties which may be encountered in this operation. The first case is thus related in the case-book at St. Mary's Hospital:—

Case LII.—Jane T., æt. 47, admitted Feb. 13, 1852, into the Victoria ward at St. Mary's Hospital, under Mr. I. B. Brown. She is a thin spare woman, of somewhat sallow complexion. She stated that the catamenia first appeared at the age of 14, after which they occurred at regular periods up to the age of 19, when she had a child; she believes she had a natural labour, and she got about in three weeks after. Since this, the catamenia having regularly appeared, the amount of secretion however has gradually lessened. About nineteen years ago, whilst lifting a heavy piano she strained herself, and soon afterwards prolapsus uteri came on; she then also noticed that her abdomen began to get larger; when the enlargement first appeared it gave her the idea of a lump, commencing on the left side; three years ago she was in St. George's Hospital for eight weeks, and afterwards for seven weeks an out-patient, without deriving any benefit. During the last six months the swelling has increased much more rapidly; before that period the growth having been rather slow. At times has had shooting pains about the abdomen, sometimes

* "Provincial Medical and Surgical Journal," Jan. 22nd, 1851, p. 36.

confined to the left side, and to the space between her shoulders. She has complete prolapsus uteri, which she has considerable difficulty in returning, the uterus coming down on the slightest movement, even on turning in bed. During her stay in St. George's, she wore pessaries. The abdomen is considerably enlarged; the tumefaction, however, does not extend uniformly and completely up to the scrobiculus cordis; percussion gives a dull sound over the front of the abdomen, but is resonant on the sides; less so, however, on the left than on the right. Fluctuation extremely distinct. The general health was attended to, and a cutaneous eruption which appeared was removed, and on March 10th Mr. Brown judged her to be in a fit state to undergo the operation.

March 10th. Having been placed under the influence of chloroform, an incision four inches long was made through the integuments along the linea alba, commencing about an inch and a half below the umbilicus. The transversalis and afterwards the peritoneum were then divided, and the cyst, covered by the visceral layer of the peritoneum brought into view; its surface covered by ramifying vessels. The hand passed round the tumour encountered no adhesions. Cutting through the peritoneum, avoiding and pushing aside the vessels, the cyst was then punctured by a large trocar, and about sixteen pints of clear limpid fluid withdrawn, leaving a small quantity behind. Lastly, the cyst having previously been seized by the vulsellum forceps, a portion of it comparatively devoid of bloodvessels was cut out, its size being about four inches by three, but with an irregular outline. The omentum protruded a little, and had to be returned: the edges of the wound were then brought together with four or five interrupted sutures, care being taken to pass the needle deeply, so as to include the whole of the abdominal parietes, except the peritoneum itself, and to let the edges of the peritoneum come closely and evenly together. Two or three fine sutures were placed through the skin in the intervals between the deeper ones, so as to ensure perfect union. She was ordered two grains of opium immediately, and one grain every three hours: a pad of wet lint was placed over the wound, and a broad bandage round the abdomen.

6·45 P.M. Has been sick, has a little pain, pulse 110, full and strong, skin moist, lips rather dry.

9·40 P.M. Pulse 120, hard and jerking. Respiration 32; some tympanitis and pain on pressure, greater in the left iliac fossa; has some thirst; bled from the arm to twenty ounces; pulse was lowered to 80; two grains of opium immediately.

12 P.M. Pulse 108, softer; respiration 28; less tympanitis.

2 P.M. Is asleep, has passed a nearly fluid, dark coloured motion.

11th, 8·30 A.M. Pulse 110, rather hard; respiration 30; there is more tympanitis, somewhat less tenderness on pressure; tongue rather white and dry; venæsection sixteen ounces; the pulse did not diminish in frequency, but became softer; five grains of calomel and two grains of opium immediately, and to be repeated in six hours if needful.

4 P.M. She has been asleep since the last note, and is so now. There is more tympanitis, but not much tenderness of abdomen ; the wound looks quite healthy; pulse 120 full ; tongue rather white and dry, with red edges; repeat the calomel and opium immediately ; has passed about a pint and a half of high coloured urine.

11·30 P.M. Much the same; pulse 108, rather hard ; countenance placid, skin cool, tongue moister ; bled from the arm to thirty ounces. Repeat the calomel and opium.

12th. Feels easier ; pulse 100, strong ; complains of flatus, abdomen tympanitic, wound healing by the first intention. Blood drawn rather buffed and slightly cupped ; skin moist. Citrate of potash twenty grains, carbonate of ammonia three grains, camphor mixture and water each half an ounce every five hours. Passed a pint and a half of urine.

11 P.M. Pulse 108, hard and jerking ; more tenderness and tympanitis, tongue more furred in the centre : has passed a little more urine ; respiration 36. Bled from the arm eighteen ounces ; pulse become softer, 128. Respirations 30 ; less tenderness on pressure and on coughing. Repeat the calomel and opium directly, and in six hours.

13th. Has passed about a pint more urine, which is rather thick ; specific gravity, 1022 ; not albuminous ; its quantity greater than fluid taken. She has had a restless night ; face flushed ; tongue coated with a creamy fur ; gums not much affected. She suffered greatly during the night from flatulence, which was relieved by passing a tube into the rectum. Pulse 120 ; respiration 30 ; more tenderness and tympanitis ; skin moist. Repeat the calomel and opium every four hours, and omit the mixture. This afternoon she feels weaker.

14th. Omit the calomel and opium. To have some strong beef tea. Pulse 108, easily compressible. A leather plaster was applied over the abdomen yesterday ; there are now less distension and less flatus. Sutures removed ; union perfect, except that one edge slightly overlaps the other ; tongue clearing ; has passed half a pint more urine than she has taken fluid.

15th. Abdomen getting quite flaccid ; pulse 112, compressible, no tenderness. After the above the bowels were relieved three or four times, which rather weakened her. Motions of a dark colour, and fluid ; she has had some griping ; tongue cleaner. To have port wine, 2 oz., and a mutton chop. Take aromatic confection, 20 grs. ; sedative solution of opium, 10 drops ; sal volatile, 10 drops ; chalk mixture, 1 oz. every two hours. Quantity of fluid taken and urine voided, equal.

16th. Pulse 120 ; feels better ; abdomen smaller ; tongue much cleaner ; bowels open once, no tenderness ; urine voided, one pint, less than fluids taken.

17th and 18th. Improving ; more fluid voided than taken.

19th. Pulse quiet, rather feeble ; bowels regular. Fluid taken and voided equal. 1 grain of quinine, 5 drops of sulphuric acid, and

1½ drachms of tincture of cassia, and 1 oz. of camphor mixture three times a day.

20th. Abdomen getting quite flaccid; bowels open; tongue clean; looking much better.

21st. On the right side, and below the cicatrix, a solid, irregular substance can be felt, evidently the remains of the cyst. She is getting stronger.

22nd. To sit up a little.

25th. Has a little griping pain in the abdomen. 1 oz. of decoction of bark, and 3 grs. of carbonate of ammonia, three times a day.

29th. The tumour not so easily felt. To have 2 oz. of compound senna mixture. Milk diet.

April 3rd. No increase of abdomen; feels well; simple diet; mutton chop.

6th. Discharged.

Sept., 1853. She is still well, and equal to her duties as a servant.

April, 1854. Has during the past year gained in flesh and strength, and continues to perform her duties as a domestic servant.

It will be seen that acute inflammatory action was set up in the cyst and in the peritoneum, and that the most energetic means were required to overcome the urgent symptoms.

This case offers some important practical points for consideration, which I shall very briefly notice:—

1. The nature of the cyst—unilocular.

2. Why not attempt a cure by tapping and pressure?

3. How do we explain the subsequent condition of the patient?

4. Why do we expect that the cyst will not refill, or, at all events, fluid collect in the peritoneum?

1. The cyst was evidently unilocular, and the walls thin; and it was also evident by the usual diagnostic signs, that there were no adhesions; *and on a small trocar being introduced,* it was found that the fluid was very slightly albuminous.

2. It was, in fact, just the case which I should have selected for the treatment by pressure; but this patient had so persistent a prolapse of the uterus, that the slightest exertion extruded that organ, and no perineal support would retain it within the vagina. I was therefore convinced that any well applied pads and pressure would have the effect of increasing the prolapsus.

3. This patient's condition, after she was convalescent, was, the remaining portion of the cyst continued secreting, and as a certain quantity, about a pint, accumulated, it escaped

into the peritoneum, absorbent action was set up by that membrane, and the kidneys excreted the fluid. This would probably go on for some time, till the cyst became altered in condition, becoming more hardened, and assuming eventually, it might be, a calcified character, and consequently a less amount of vitality.

4th. It was therefore to be expected that the kidneys and peritoneum would continue to carry off the fluid secreted, and that the cyst would gradually undergo a process of degeneration as above alluded to; a result which has now been happily realized.

Case LIII.—E. H., a lady, aged 58, sent to me by Dr. Locock the mother of several children, had a large multilocular cyst. I dissected down to the cyst in the semilunar line, cut through its walls, which were very thick, and excised a portion. After the escape of a highly albuminous fluid, to the extent of twelve pints, it was found that a second large cyst existed, the fluid of which I evacuated, and then closed the wound. A sharp attack of inflammation supervened, which was treated by bleeding, with calomel and opium, and the patient did well. The first cyst has collapsed, and is easily felt through the abdominal parietes; but the other has frequently filled; but now (1854) it fills at a much slower rate, and the patient is in good health, and able to walk and drive out as formerly. I should observe that I kept up very steady and firm pressure after each tapping; and I believe that this has mainly prevented the cyst from filling so fast.

The subjoined table exhibits the gradual improvement which has occurred in the decreased morbid activity of the cyst.

	Tapping.	Pints.
March 13th, 1851	1	39
June 5th „	2	26
July 22nd „	3	26
Sept. 26th „	4	30
Nov. 12th „	5	28
Dec. 26th „	6	28
Feb. 19th, 1852	7	28
April 15th „	8	24
June 19th „	9	23
Aug. 26th „	10	23
Oct. 25th „	11	24
Dec. 23rd „	12	24
April 1st, 1853	13	25
July 14th, „	14	26
Dec. 16th „	15	30

As these sheets are passing through the press, I observe that the operation of partial ovariotomy has been performed by Mr. Crouch, of Bruton, Somerset, the particulars of which are published in the "*Association Medical Journal*," (Jan. 20th, 1854.) In this case the cyst was very thick and vascular, and adherent to the surrounding structures in every direction. A piece of the size of a crown piece was excised with a large pair of scissors. "No fewer than seventeen small arteries required the application of a fine ligature silk. Suppuration occurred after the operation, which process continued until the period of her death, sixteen weeks after the operation. Her health had improved considerably before her decease, which was sudden and unexpected. The *post mortem* examination proved that matter had escaped from the tumour into the peritoneal cavity, and the solid part of the cyst exhibited evident traces of cancerous deposit. The left ovary appeared healthy and only slightly enlarged. The uterus had a small fibrous tumour imbedded in its substance."

6. *Extirpation of the whole Cyst, or Ovariotomy.*—This has been looked upon as the last alternative; and the formidable and hazardous character of the operation has deterred most surgeons from attempting it.

I do not profess to give a history of the operation of ovariotomy; but may state, generally, that the idea of the entire removal of the dropsical cyst occurred to several of the older surgeons, of whom were Bonetus, Delaporte, and Van der Haar; but was opposed by Morgagni, Sabatier, and others. The first who attempted extirpation appears to have been Aumonier, of Rouen, in 1782, and he was successful. Of later celebrities in favour of it may be mentioned Dieffenbach, Martini, Siebold, and Lizars; and, on the other side, Sir C. Bell, Liston, W. Hunter, and Seymour.

At the present day, I think I may safely state that the number of those who recognise ovariotomy as a legitimate operation, is on the increase; and, undoubtedly, it is more frequently than ever performed. It would be useless here to enumerate the whole array of names of those who have practised the operation, or who approve of it; but in my ensuing

observations on its expediency, the opinions of several distinguished surgeons will be referred to.* I may at once advance the proposition that, even if the authorities in favour of ovarian extirpation were less numerous and less eminent than they are, the statistics of the procedure would commend it to our attention, as one far more satisfactory than are several others unanimously approved of by surgeons.

This point was well put forward by Mr. G. Borlase Childs, in a paper read before the Medical Society of London† since I have had this chapter in preparation. He made remarks to the following effect: that the mortality after ovariotomy could not be considered large, when it is remembered how common it is to delay the operation to the last—undoubtedly, a principal cause of its failure, as reference to recorded cases would show; and that errors in diagnosis sometimes committed, form no argument against the operation. Mr. Fergusson, no mean authority, in his work on "Practical Surgery," (3rd edition, page 792,) says, "My personal experience in the operation last referred to (ovariotomy) has been comparatively limited; yet, though prejudiced against it in my early education, I now feel bound to state that the removal of such formidable disease by one or other of the various proceedings as first executed in this country by Mr. Lizars, and now practised Dr. Clay, Dr. F. Bird, Mr. I. B. Brown, Mr. Walne, and others, is not only justifiable, but, in reality, in happily selected cases, an admirable proceeding."

Dr. Druitt,‡ after candidly stating the objections to the operation, produces the following comprehensive summary of particulars favourable to it. He says, "On the other hand, in favour of the operation, it may be argued: first, that the mortality occurring from this is not larger than from many other surgical operations; second, that as no other plan of treatment can effect a radical cure, but by this, women, relieved of a burden

* The chief British Medical Practitioners who have performed ovariotomy are:—Messrs. Clay, Lane, Walne, Frederick Bird, Crouch of Bruton, Borlase Childs, and Tanner.

† April 8th, 1854. See Report in the Journals.

‡ Surgeon's Vade Mecum, sixth edition, p. 467.

which made life miserable, have married and borne children; third, that if favourable cases only were submitted to operation, the mortality would be very small, and that increase of experience would lead to the selection and discrimination of favourable cases; fourth, that if the surgeon, in order to complete his diagnosis, makes a small incision to ascertain the existence of adhesions, and closes it again with suture, if he finds this to be the case, no great harm is likely to result; in fact this, which is sometimes raked up as an opprobrium against operators, is a prudent and legitimate measure. Lastly, it is by far the *most merciful* plan of treatment, if adopted early, in patients otherwise healthy, with a still growing, but non-adherent tumour."

The whole question of operative interference has been very fairly stated in an article in the "Medico-Chirurgical Review" for April, 1853, written by Dr. Fleetwood Churchill, as a critique on Dr. Robert Lee's recent work "On Ovarian and Uterine Disease."

The remarks of the able reviewer are so apposite to my present purpose, that I shall here reproduce most of them. He writes: "The objections to the operation adduced by Dr. Lee are,—1. The great mortality, which, according to his tables, is 1 in $2\frac{18}{42}$. 2. The extreme difficulty of diagnosis, so as to be sure the case is one which will offer no obstacles to the removal of the tumour. 3. The possibility of prolonging life considerably by other means. To this it is answered by the advocates of the operation:—

"1. Undoubtedly, the mortality is very great—1 in $2\frac{18}{42}$ according to Dr. Lee, 1 in 3 according to others; but a mortality nearly, if not quite as great, is not considered a fatal objection to other operations. If we take the major amputations of the limbs (primary and secondary) it appears that in Paris, according to Malgaigne, the mortality is upwards of 1 in 2; in Glasgow, it is 1 in $2\frac{1}{2}$; in British Hospitals it is 1 in $3\frac{1}{2}$. As to amputation of the thigh, Mr. Syme observes—'the stern evidence of hospital statistics shows that the average frequency of death is not less than from 60 to 70 per cent." Of 987 cases collected by Mr. Phillips, 435 proved fatal, or 44 per cent.

Mr. Curling states, 'On referring to a table of amputations, in the hospitals of London, performed from 1837 to 1843, I find 134 cases of amputation of the thigh and leg, of which 55 were fatal, giving a mortality of 41 per cent.' Of 201 amputations of the thigh, performed in the Parisian hospitals, and reported by Malgaigne, 126 ended fatally. In the Edinburgh hospitals, 21 died out of 43. Even if we take much larger numbers, we find the mortality very high. Dr. Inman has collected 3586 cases of 'amputation generally, primary and secondary, for accident or disease, and the deaths are 1 in $3\frac{1}{10}$.' In 4937, published by Mr. Fenwick, the mortality is 1 in $3\frac{1}{15}$.

"The result of amputation at the hip-joint is still more unfavourable. Mr. Sands Cox has shown, that of 84 cases, 26 were successful, and 58 unsuccessful.

"Again, take operation for hernia. Sir A. Cooper records 36 deaths in 77 operations; and Dr. Inman, 260 deaths in 545 cases. Or, the ligature of 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 ligature of the subclavian artery, 18 proved fatal. Ligature of the innominata has, we believe, been fatal in every case. So that, taking the mortality at Dr. Lee's estimate, it is not higher than that of other operations, which are admitted to be justifiable notwithstanding.

"But although these figures show that as high a mortality occurs in other operations as in ovariotomy, we beg to remark, that the necessity for the operation is much more urgent in the former. In many cases it is the alternative of immediate death. Further, the operation of ovariotomy is of two kinds—by the long and short incision; and the advocates of the latter point to their statistics, which give a mortality of 4 in 23 cases, or nearly 1 in 6; whilst, according to Mr. Safford Lee's tables, that by the long incision is 1 in 3.

"2. The errors in diagnosis have been very great, and the fair inference therefrom is, that the diagnosis is difficult and obscure. But, unless it can be proved that all improvement in this department is impossible, it is clear the argument cuts both ways. If the present deficient diagnosis entails an increased mortality, it is certain that every improvement will by so much

reduce it. And we can see that it is possible that this may occur; for if all who have operated had the means of adequately ascertaining the actual presence of a tumour, of being sure that it is an ovarian, of determining the amount of adhesions, and had been sufficiently attentive to the constitution of the patient—it is clear that many of the recorded operations would never have been undertaken, and equally clear that many of the deaths would have been avoided, as a cursory glance at Dr. Lee's tables will prove. Moreover, it seems highly probable that a more accurate knowledge of the contents of these cysts may lead to important results as to the selection of the more promising cases for the operation, which may yet further diminish the mortality; and, lastly, it is quite possible that some beneficial modification of the mode of operating might be adopted.

"3. With regard to the prolongation of life by palliative treatment and repeated tapping, it is not easy to estimate the exact gain: it would have been a valuable argument if Dr. Lee had given us a collection of cases to show the amount of prolonged life thus obtained. If the patient be otherwise in good health, and the ovarian tumour increase very slowly, it is true that years may elapse, under careful treatment, without much distress, or any necessity for measures involving risk. In such cases, life will be best prolonged by letting the patient alone. But with those that increase rapidly, and to such an extent as to occasion inconvenience and distress, or to threaten life, something must be done to afford relief, and tapping has been the ordinary means. We have, however, but few statistics to show the results. . . . . .

"From this brief summary it appears, that the admissibility of the operation will depend, not so much upon the rate of mortality hitherto, as upon future improvements in diagnosis; and when we see men of high intelligence like Drs. Simpson and Bennett, Southam, Walne, and Frederick Bird, devoting themselves to this task, we cannot doubt that a decided and practical advance will be made."

In the main, I cordially agree with the foregoing observations and arguments of Dr. Churchill, and will add, that much

has of late been done to improve our diagnosis of ovarian dropsy; to lessen the danger of committing those grave errors of which many of Dr. Lee's collected cases afford examples.

Indeed, in forming an estimate of the value of Dr. Lee's tables in deciding on the mortality, or on the admissibility of the operation of extirpation, it must be remembered that not a few of the cases occurred some twenty or thirty, or even more years ago, when pathology was more crude, and when many sources of diagnosis now resorted to, were altogether unknown. For example;—the stethoscope, the uterine sound, the speculum, and the exploring needle, are recent inventions; so—be its value what it may—is the achromatic microscope, as applied to pathology and diagnosis. Then again, I may safely affirm, that manual exploration of the pelvic viscera was not carried out twenty years ago, with the same care and discrimination as at present; and lastly, the lesions and the displacements occurring in the pelvic organs were, at the best, imperfectly understood.

Further, the surgeons in these earliest cases had not the benefit of example and of the experience of others in their operations; and if modern surgery have advanced,—especially in the matters of dressing and after-treatment,—present and future operators and patients may hope more favourable results from ovariotomy.

These ancient examples will therefore be surely not deemed of much weight, in appreciating that operation as it would be carried out at the present day.

The value of Dr. Lee's table of cases will appear still less, when we reflect on the circumstances under which the operation has frequently been performed. Setting aside those in which the diagnosis has been faulty from want of sufficient attention or experience, some underwent the operation as a '*dernier ressort;*' others with constitutions broken by the long continuance of the malady, or by the existence of malignant disease, or by the drain of albumen from the system by repeated tapping.

Finally, may I not assume without fear of contradiction, that the operation as now performed is improved,—that the provisions for securing success are better known and applied. Is it

a trifling advantage that we can now operate on the patient without pain to her, and with leisure and facility to ourselves?

I believe the preceding remarks must prove that our statistics of the operation of ovarian extraction are, *per se*, not at present sufficiently accurate and precise to construct data upon, as to the admissibility, or not, of that measure; yet that the weight of argument is in the favour of its admissibility into practice as a legitimate operation.

Another circumstance with regard to extirpation of a diseased ovary is, that it is the only operation affording undoubted security against the return of the malady. By it the disease is literally extirpated,—the whole morbid mass is taken away; whereas, by the other operations, partially, or, as they are called, undeveloped cysts may persist after the destruction of the major ones, and in course of time develope and reproduce ovarian dropsy; or, again, solid tumours may remain behind after the disappearance of the dropsical sacs, and be a cause of suffering and of death to the patient.

A very satisfactory case of ovariotomy happened to Mr. Crouch, of Bruton,* where the patient was safely delivered of a child two years after the operation. See the case of Miss B., hereafter recorded by me.

CONDITIONS RENDERING THE OPERATION OF OVARIOTOMY JUSTIFIABLE.

1. The surgeon should be satisfied by most careful and repeated examination,—that the tumour is ovarian; and those with whom he may consult should take equal pains to form an unbiassed opinion. The diagnostic signs it is not necessary here to repeat. (See page 181.)

2. That the tumour is increasing, and that the disease will be likely to progress to a fatal issue if allowed to take its course.

3. That such of the different modes of treatment already described, as appear to be suitable to the case, excepting the excision of a portion of the cyst, have been fairly tried without lasting benefit.

* Medico-Chirurgical Transactions, Vol XXXV.

4. That the tumour is not cancerous.

6. That the patient is not so reduced in her general health and vigour, as to render her an unfit subject for a formidable operation.

6. That there is no evidence of the existence of adhesions.

7. That the fluid is not highly albuminous.*

These conditions being present, the next question is, at what stage of the disease should the operation be performed? Should we wait till life is brought into immediate and imminent danger, so that any measure, however desperate, might be justifiable, which presented the faintest prospect of affording relief:—or should the earliest period be chosen after the necessity of the operation has become unequivocally apparent? On this question, a variety of opinion exists; some of the advocates for the operation only approving of it as a forlorn hope; others, believing with Dr. Druitt, that "it is by far the *most merciful* plan of treatment *if adopted early*," and that "the reasons for running the risks will be much the strongest in the case of a young, healthy person, whose life, if spared, might be long and valuable." I am persuaded that on this question hang chiefly the results, whether fatal or favourable, of the operation, and I therefore adhere most strongly to the latter opinion. I consider that the risks of the operation are becoming greater every year the disease exists. The tumour and its coats and pedicle are always growing, its chances of contracting adhesions are multiplied, and the patient is getting older, and most probably less able to endure the shock every year she lives. Indeed, I should as soon be persuaded to delay the operation for strangulated hernia till the symptoms of approaching gangrene became apparent, as to delay to extirpate an ovarian cyst, when I had once determined that it must be done. I believe that if early, and otherwise favourable cases, were selected for operation, the mortality would be very small. This opinion I give advisedly,

* Believing as I do that the highly albuminous condition of the fluid exhausts the system in a similar way to that of albuminuria from disease of the kidney, I consider that it contra-indicates 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.

after a thoughtful review of all the cases on record, as well as of my own. After tapping and pressure have failed, and the cyst begins to fill, the chances of success in ovariotomy, as well as in the operations above described, will be, *cæteris paribus*, determined by the promptness with which the operation is performed; and it is very important that it should not be deferred till the strength of the patient is exhausted by the disease, or abdominal or pelvic mischief has been done by the weight or pressure of the tumour. I therefore differ from those who advise that no operative procedure take place, until the tumour seriously interferes with the healthy action of the abdominal organs.

In a paper recently read before the North London Medical Society, by Mr. Erichsen,* that intelligent surgeon strongly advocated the contrary practice. He recommended "palliative treatment, until the growth has begun to interfere seriously with the comfort of existence, or *with the healthy action of the abdominal organs.* When these injurious effects of pressure," he continues, "have once fairly begun to manifest themselves, the patient wasting, suffering much discomfort from her size, with difficulty in breathing, repeated vomiting, gastric irritation, &c., then the question of relief from operation will necessarily obtrude itself. * * * It is proper to perform it when all other means of relief have failed, and when *the patient's health is giving way under the extension of the disease.*" This certainly is not the rule by which Mr. Erichsen, or any other experienced surgeon, would be guided in a case of strangulated hernia, fistula, polypus uteri, or any other disease, the tendency of which is from bad to worse, and which ultimately may be expected to destroy the health and life. The operation should be performed, not when there is but one chance in three, but when, with proper precautions, there are twenty chances to one in its favour. I am glad to find Mr. Borlase Child entertains the same views† with myself on this point, as well as on most others with respect to extirpation.

* Association Medical Journal, Jan. 13th, 1854, p. 37—39.

† Recorded in a Paper read before the Medical Society of London, April 8th, 1854. See abstracts of it, and the discussion in the Medical Journals.

PREPARATIONS FOR THE OPERATION.

As all important operations are liable to fail from the neglect of little things, both in preparatory proceedings and in the operation itself, the following suggestions, all of which are really of moment, may be useful to those who are about to operate for the first time.

1. If the weather be cold, the patient should have, ready to wear, a flannel waistcoat, and a pair of flannel drawers: the waistcoat should be put on before the operation.

2. She should have a warm bath the night before the operation, to cleanse the skin, and thereby ensure free perspiration after the operation.

3. The bowels should be opened by a dose of ox-gall or castor oil, and an enema, on the morning of the operation day.

4. A hot water-bottle should be prepared for her feet.

5. There should be a thermometer in the room, and the temperature should be kept systematically at not lower than 66 degrees, nor higher than 70 degrees. A kettle should also be boiling on the fire, so as to make it possible to insure a degree of moisture in the air by the steam. This is especially requisite when the wind is in the east, or the weather hot and dry.

6. If the operation take place on the bed which the patient is afterwards to occupy, the lower part of it should be prepared and guarded by a macintosh sheet and an old blanket, which can be afterwards removed. There should be a hassock or stool for the feet to rest upon. The feet and legs should be clothed in warm stockings, and the hands and arms enveloped in a warm flannel gown.

7. As the patient will have chloroform administered, she should not take any food for some hours previous to the operation; and to avoid sickness afterwards, a supply of ice should be procured for her to suck for two or three hours *before the operation. This is of much consequence.*

8. There should be plenty of hot water in the room, in which, in cold weather, both the operator and his assistants should immerse their hands before touching the patient; and there

should be from three to six basins of warm water ready for immersing sponges or warming the flannels, &c.

9. The duties of each assistant should be clearly assigned and understood before entering the room, so as to avoid confusion, and also to *save time*, an important point when the peritoneum is exposed.

10. Four or six large needles should be got ready, armed with the best twine, well waxed, for the interrupted suture; and one large needle to carry the double ligature (also of twine, not of silk,) for the pedicle. Several smaller ligatures for blood-vessels should also be ready; and a flannel bandage to go round the abdomen after the operation is completed; also a supply of lint and a few adhesive straps.

11. *Instruments.*—One or two scalpels, a pair of scissors, a pair of Vulsellum forceps, a pair of good common forceps, tenaculum, trocar and canula of large size, together with the needles and ligatures, should be ready on a tray.

Lastly,—As much will depend upon the after treatment, it will be well to arrange beforehand that the operator, or some other competent surgeon, should remain with the patient all night. Indeed, she should not be left for more than two hours at a time for the first three or four days.

MODE OF OPERATING.

The patient being placed conveniently on her back, and brought under the influence of chloroform, an exploratory incision, from two to three inches in length, should first be made in the linea alba. Having divided the peritoneum and reached the cyst, two or more fingers should be passed over its surface to ascertain if adhesions exist;—if these are slight and recent, they should, if possible, be broken down by the fingers; or if they are few, and small in diameter, so as to bear division, they may be first tied to guard against hæmorrhage, and afterwards divided; but if they are spread out to a considerable breadth, it is better to desist from any further procedure with a view to extirpation. If, on the contrary, there are no adhesions, or only such as can be easily broken, the incision should be enlarged to

the extent of four inches, or more if necessary : the next step is to tap the cyst or cysts with a proper trocar and canula, and in the evacuation of the fluid, to take care that none of it escapes into the cavity of the abdomen. Then, if there is only one cyst, and that not thick nor vascular, a portion of it only may be excised, in the manner described in the section " On Excision of a Portion of the Cyst." If the cyst, however, should be found to be thick or vascular, or multilocular, it will be the safest procedure to have recourse immediately to complete extirpation in the following manner. The pedicle of the tumour is to be taken in the left hand, and gently drawn outwards from the pelvic cavity,—an assistant carefully keeping back by warm flannels the bowels and omentum. The course of the bloodvessels in the pedicle should now be carefully observed, so that the latter can be safely punctured by a scalpel or bistoury, and through the opening thus made an aneurismal needle, carrying a double ligature of the strongest twine, be passed, and firmly tied on each side of the pedicle. Mr. Wilson advises, that instead of passing a ligature round the pedicle, each vessel should be tied separately. This some regard* as an important improvement. This ligature should be passed as near to the tumour as possible, so that, by the entire length of the pedicle being preserved, the ligatured end may be kept external to the abdominal cavity together with the ligature, as recommended by Messrs. Duffin and Erichsen. This done, the tumour should be removed by dividing the pedicle half an inch from the ligature, which should be given to an assistant and held at the inferior end of the opening. The operator then closes the wound—and this, I need hardly say, should be done, as in all operations exposing the peritoneum, as soon as possible—by introducing deep sutures about an inch from the incised edges, through the parietes of the abdomen, taking care to avoid the peritoneum. These sutures should be about half an inch apart. The edges of the wound should then be more carefully brought together by superficial interrupted sutures occupying the intermediate spaces between the deep ones. It now only remains to prevent the end of the pedicle

* See Medico-Chirurgical Review, January, 1852.

and the ligatures from returning into the abdomen. For this purpose, a common director, with its convex surface turned towards the abdomen, should be passed through the ligatures, so as to be firmly held by them at right angles to the wound. The ends of the ligatures should now be secured to the abdomen by adhesive plaster, and the wound dressed with common water dressing. This done, the abdomen must be supported by a many-tailed flannel bandage, comfortably tight, the patient be placed in bed, and warmth applied to the extremities. Two grains of opium are to be at once given, and one grain repeated every three or four hours until pain is allayed. Ice, milk, barley-water, or weak broths, should constitute the diet for the first twenty-four hours; afterwards stronger animal broth may be allowed, and wine, if the condition of the patient admit of it. It is better, if possible, that the bowels should be confined for four or five days after the operation. The bladder should also be emptied every six hours by the catheter. The temperature of the room should be carefully maintained for the first week after the operation.

I have not enjoined the use of any particular length of incision; for this matter must, I am of opinion, be regulated by the special circumstances of each case; the rule on the surgeon's part being to extract the cyst with the least danger to the patient, and through the smallest practicable incision without incurring a risk of failure in the operation. A small incision, of an exploratory nature, should be the first; if the operation be proceeded with, it must be enlarged sufficiently to admit the extraction of the apparent cyst, and further increase will be very easy, if, by its peculiarly compound nature, its position or relations, or other circumstances demand it.

The long, the median, and the short or small incisions, have each had their advocates, and their relative advantages been hotly debated; and statistics have been adduced to show that fewer deaths attend the smaller incisions. Such discussions I regard as of little moment, and the attempt to fix a certain length for the abdominal section in all cases, as frivolous. As well might operative surgeons debate on, or endeavour to fix the exact number of square inches the flap of an amputated

limb ought to have, without reference to the muscularity or fatness of the extremity, or to any other special circumstance which ought to weigh in the management of each individual case.

It is desirable, when the diseased ovarian mass of one side is removed and before the abdominal incision is closed, to look at the condition of the other ovary, which not uncommonly is also diseased, and when such is the case, may be at once removed. An instance of this sort is described by Dr. Peaslee, in the *American Journal of Medical Science*, for April, 1851, in which a cyst the size of a pullet's egg was discovered on the right ovary, and the whole organ was diseased. A double ligature was passed through the broad ligament, and the ovary removed; the ligatures were drawn out through the wound at the nearest point.

The dangers to be apprehended after ovariotomy are—*a*. The shock of the operation; *b*. Hæmorrhage; *c*. Acute inflammation—peritonitis; *d*. Inflammation of a low or typhoid character.

a. Now that we have the benefit of chloroform, the dangers from the shock of the operation are greatly lessened. But in some of high nervous susceptibility and debilitated frame, the shock may be fatal or severely felt, even although chloroform has been employed during the surgical proceedings, and the patient has not regained consciousness until they are over and the wound dressed. Like similar cases from other operations, these demand the use of stimulants, and other means of support.

b. Hæmorrhage is, unfortunately, not so uncommon; the source of it being mostly from the cut pedicle or supporting base of the tumour. It will be seen, however, that in one of my cases the fatal bleeding had its source in the divided vessels of an adhesion; and it is this event which has induced me to recommend the tying of any divided bands of adhesion where they have any thickness, and do not readily break down before the finger.—The tying of the stalk of the tumour, as I advise, will I think, generally provide against hæmorrhage from it, care being taken to leave the end of the pedicle out of the wound. Hæmorrhage may kill either by the exhaustion immediately induced, or by the peritonitis it kindles.

c. Acute peritonitis in a more or less severe form is a most frequent occurrence after extirpation. Its origin we may trace to the natural effort of the system to close the wounds made in the tissues in the operation, by effusion of plastic lymph. Every precaution is to be taken against the advance of this inflammation, and its treatment must be based on the ordinary principles. Some of the following cases exhibit this casualty, its course, and the treatment adopted.

d. Peritonitis of a low or typhoid type appears later than the preceding conditions; and is seen when any of the cut tissues put on an unhealthy appearance, and when probably some morbid excretions get into the blood.

Here, again, no special directions are necessary, since the ordinary principles of treatment are those to be pursued.

It will sometimes happen that unlooked-for conditions present themselves after the abdomen is laid open, and complicate, or even render impossible, the operation. Among such is an unusual vascularity of the cyst and consequent danger of fatal hæmorrhage. Examples of this condition have occurred sufficiently aggravated to deter from completing the operation: in such the surgeon must rely on his own judgment; no precise rules can be laid down, but I imagine the vascularity of the sac need rarely arrest the operation. Unexpected attachments of the cyst posteriorly, to the intestines, or to other viscera, of such a nature that it would be dangerous to destroy them, will operate more frequently in discountenancing extirpation. Cancer, indeed, may not be discovered until after the operation is commenced, and be so situated as at once to stop it.

Now, in all these cases, excepting cancer, where the steps previous to the drawing forth of the cyst have been proceeded with, and we are compelled to cease from the attempt at extirpation, the excision of a portion of the cyst is a mode of treatment still available.

Case LIV.—*of fourteen years' duration: Tapping and pressure employed with much benefit; Ovariotomy; Death.*—Miss E., a single lady, æt. 27. This case was first treated by pressure, reported in the *Lancet* of April 5th, 1845, which proved so far successful, that there was no reappearance of the disease for nearly two years. She was afterwards

tapped again, and recovered so well as to be allowed to marry. After her pregnancy and delivery, three cysts were found, two of which were tapped. She nursed her infant for twelve months. Two years afterwards, the cyst having re-filled, she was again tapped, and continued well for another two years, when the cysts began suddenly to fill again. It was then determined to extirpate.

Operation.—A four-inch section was first made through the linea alba, and the *first* cyst presenting itself was tapped. The incision was now enlarged, in order to puncture a second cyst, existing in the left hypochondrium, and pushing the lungs up to the third rib. Still it was found impossible to remove the sac, as a *third* cyst was discovered, occupying the pelvic cavity, having very slight recent adhesions in one spot on the right side. The incision was consequently further extended; the pedicle common to the three cysts was tied by a double ligature, and the operation completed in the usual manner. Peritonitis supervened, and the patient died on the third day, apparently more from exhaustion than from the severity of the inflammation. Probably an earlier operation might have been safe and successful.

Case LV.—*Ovarian Dropsy of two years' duration: Ovariotomy: Vascular Adhesion, and Death from Hæmorrhage: Autopsy.*—M. A. B., æt. 23, admitted at St. Mary's Hospital May 7th, 1852;—married: no children; catamenia regular, first appeared at 11 years of age. She has generally had good health.

Two years ago, whilst walking down a hill, she felt something give way in the abdomen, and soon afterwards noticed, as it appeared to her, a hard round tumour in the right inguinal region, which has gradually increased in size up to the present time. She has a pricking pain in it occasionally. The tumour over which the integument, moves freely, now occupies the abdominal cavity, reaching up to within an inch and a half of the ensiform cartilage. Distinct fluctuation is perceptible at the upper part, where there are also one or two hard nodules. The tumour is universally dull; resonance is heard on percussing over the stomach and the lumbar regions. She has never suffered from difficulty of breathing or indigestion, but has occasionally had faintness come on after taking food. Urine plentiful; sp. gr. 1022, alkaline, non-albuminous. She is 38½ inches in circumference.

11th. A small trocar—as an exploring needle—having been thrust into the tumour, a little below the umbilicus, a fluid escaped which contained much albumen, and some scales of cholesterine.

19th. Bowels have acted freely from the aperients given; feels very weak; has no pain or inconvenience from the tumour. On examination, a defined margin is felt in the upper and right part of the abdomen, like the edge of the liver, but the finger cannot be passed under it. Above this margin there is what feels to be liver, or a hard part of the tumour: it moves with the general mass. When she lies upon

her left side the tumour retains its form; but a prominence is felt and visible above, and considerably to the right of the navel, and is separated from the general enlargement by a well-marked fissure. The integuments are adherent to the tumour in front of the abdomen, as the recti muscles start forward when the patient tries to raise herself.

20th. 1.30 P.M. She was placed under the influence of chloroform, and an incision, commencing two inches below the umbilicus, and extending downwards about three inches along the median line, was made, opening the peritoneal cavity, and bringing into view the ovarian cyst. This last appeared very vascular, several large vessels coursing over its surface, intersected by numerous smaller ones. The peritoneum covering it was firmly adherent to its surface. It was therefore determined to remove the whole cyst, and on passing the hand over the upper part of it, a firm adhesion was found and divided. By the evacuation of the cyst rather more than 18 pints of a dark yellowish-brown fluid, presenting a glistening appearance from having scales of cholesterine floating in it, were obtained. An attempt was now made to draw the emptied cyst out of the abdomen, but this was prevented, although the adhesion above-mentioned was destroyed, by another cyst about the size of two fists. This in its turn was emptied by the trocar; its contents were similar to the former. There were also several other slighter adhesions which gave way under the finger when the cyst was drawn out of the abdomen, and along with it an apparently solid mass, occupying the pelvic cavity. The common pedicle was firmly tied by a double ligature passed through it, each portion tying half the pedicle. The cyst was then cut off.

The edges of the wound were brought together by deep interrupted sutures, and by fine superficial ones, to bring the margins of the integuments in close apposition; the ligatures were twisted together and brought out at the lower part of the wound: a pad of wet lint was then placed over the wound, and a bandage, made for the purpose, round the abdomen. She was ordered opii gr. j. statim et 3-tiis horis. The hard portion of the cyst consisted of numerous smaller cysts, containing a fluid of a more gelatinous consistence than that from the tapped sacs. On inspection of the vessels, two fair-sized ones were found in the band adhesion.

9.30. Pulse 126; felt very faint on the bandage being readjusted: given some brandy-and-water. Respiration 39; complains of pain in the right shoulder; has been sick several times; is rather restless, and very thirsty; to have some lemon-juice; to omit the opium for a time.—12 P.M.: Has been again sick: feels easier; does not complain of any pain; countenance less pale; skin natural; respirations 42; pulse 148; about half-a-pint of light-coloured urine drawn off by the catheter.

20th. 9.30. Has had several attacks of vomiting. Pulse 160; no pain; headache. Ordered acid. hydrocy. dil. gutt. ij. every four hours.

The sickness, rapid pulse, and general irritability continued with slight exacerbations until 5 A.M. on the 22nd, when she was suddenly seized with symptoms of collapse, and died in about a quarter of an hour.

Death here resulted from hæmorrhage, and that from a very unusual source, viz., the vessels of a band of adhesion, as is shewn by the

Post-mortem Examination.—Body well formed. *Abdomen,* somewhat tympanitic. Edges of incision adherent except in one or two spots, through which a little pus escaped by pressure; this pus found in the track of the deep sutures. On opening the abdomen, there were found, about 2½ inches to the right of the umbilicus, the remains of the adhesion divided in the operation, surrounded by a dark coagulum. The cavity of the peritoneum contained about 40 oz. of dark clotted blood. Coagula adhered to the intestines at various parts; the peritoneum was stained, but its vessels not much injected. The blood had apparently come from the adhesion, which, as noticed above, had two moderately sized vessels penetrating it. A little coagulum was met with on the stump of the pedicle, which, however, did not appear to have come from it, as the ligature firmly constricted it. Stomach distended by flatus and fluid. Kidneys pale, but healthy. Liver the same. Spleen small, with less blood than usual. Uterus healthy, but left ovary contained a cyst about the size of a walnut. *Chest:* old but thin pleuritic adhesions. Lungs somewhat collapsed, pale and apparently healthy. Heart,—a fibrous patch, about the size of a sixpence, near the apex. A dark clot occupied the right auricle, and a fibrinous mass the right ventricle. Left side of the heart empty.

Case LVI.—*Ovarian Dropsy of nine years' standing; Repeated tapping; Extirpation; Death.*—Mrs. D., æt. 37, observed the abdomen begin to swell nine years ago, and this enlargement became so great and was a cause of so much suffering that she was tapped five years since, and a clear, light-coloured fluid evacuated. The cyst gradually filled again, and after an interval of two years was a second time emptied; then another two years having elapsed, the same process was repeated. In January (1852) paracentesis was again, for the fourth time, practised; and afterwards the collection of fluid occurred more and more speedily, an interval of seven weeks, and at last of only three weeks, being interposed between the tappings. Altogether she has undergone the operation seven times, and of late by the rapid accumulation her health is suffering considerably. On the last occasion the fluid had a red colour; from one cyst 20 quarts, and from another 6 quarts were discharged. At a previous operation three distinct cysts were opened, each containing a distinct fluid. The evacuation of the cysts has prostrated her exceedingly at the time; indeed, after the two or three latter operations it appeared she would hardly rally; hence stimulants and general measures to support her have been required for

some days after the tappings. The abdomen is greatly distended. Previously to my seeing her, this patient had been under the care of Mr. Hearne, of Gloucester.

It was clear she could not long survive the exhausting effects of the repeated and oft-recurring tappings, and I thought the chance of cure by ovariotomy ought to be given her, although from her feeble state the prospect of success was not very encouraging.

July 1st, 1852. I proceeded to operate for the extirpation of the diseased ovary. Dr. Handfield Jones, and Messrs. Smith, J. Lane, Trotter and Umphelby were present and assisted me. Beginning with a small incision, I ultimately extended it to eight inches in length, on account of the mass of disease, and its relations and extended adhesions. Some of the last were of the breadth of the palm of the hand, and one was long and cylindrical, and required a ligature before dissecting it away.

Numerous cysts were found in connexion with the larger, easily breaking down under the slightest pressure or handling, and rendering their removal difficult. An immense mass of disease was removed, weighing, with the fluid contained in the cysts, 70 lbs.

The pedicle was tied, the wound brought together by sutures, a bandage applied, and the patient placed in bed.

Two grains of opium were given immediately after the operation, and one grain repeated twice in the after-part of the day. She got some sleep at night.

July 2nd. Vomiting occurred after taking some gruel; and at noon, some nausea being present, I gave a dose of hydrocyanic acid in camphor julep. A grain of opium was taken this morning. This afternoon, pulse 90, weak; skin warm; mouth dry. Dozed a little. The opium was repeated at half-past five, and the urine drawn off. The latter had a strong odour, was high-coloured, of feeble acid reaction, and loaded with lithates.

3rd, 6 A.M.: Some sickness persists; hydrocyanic acid again given. Pulse 87, not hard; complains of pain in the right iliac fossa. At 7.30, was ordered a suppository of three grains of opium.—6 P.M.: Pulse increasing in rapidity, 111; tongue moist, slightly coated; skin warm; sickness still present. Complains but little of pain. Abdomen, in the epigastric region, becoming more distended, but not tender, except in left flank; edges of wound in nice apposition. Later in the day the pulse became weaker and indistinct: the opium was repeated and the catheter used. Some brandy-and-water gave benefit.

4th, 10.30 A.M. Some sickness on three occasions; distension of stomach less; respiration easy, but pulse fluttering and feeble; no pain or tenderness complained of. Ordered ʒj. spt. ether sulph. co. After this she became restless; the symptoms of sinking manifested themselves yet more, in spite of every attempt to rally her by stimulants, and at 4 A.M. of the 5th July she died.

The constant nausea and vomiting in this case rendered nugatory

the endeavours to support her against the shock and exhaustion attendant on the operation; otherwise the degree of inflammation evidenced by the symptoms and displayed by the autopsy, would probably have been survived.

Examination, twelve hours after death.—Body not much emaciated. Some hypostatic congestion; a large quantity of dark fluid gushed from the mouth; the edges of the wound were very nicely adherent by a gelatinous lymph; the adhesion of tolerable firmness; the edges of the wound also adhered to the intestines. The great omentum adhered by recent exudation and blood to the peritoneum of the anterior wall of the abdomen, at the part where some large adhesions of the cyst had been dissected off. The pelvic cavity contained a large quantity of sero-purulent discharge. The surface of the parietal peritoneum, on the left side especially, was coated with lymph and injected. The surface of the stomach, and of the small intestines generally, was covered with an extremely thin, lymphy exudation, without much vascular injection. The surface of the uterus was especially injected, and coated with lymph, as well as the broad ligament, and the pedicle which had been ligatured. *Right kidney*, the seat of reticular venous congestion; a cyst on the surface; the texture coarse; some part of the surface slightly granular. *Left kidney*, in same state, but capsule more adherent; surface more granular. There was a quantity of blood-stained gelatinous mucus hanging out from the os uteri. It was continued through the cervix, which, however, was not congested, but appeared healthy. Texture of liver natural; capsule thickened generally, and anterior edge rounded. Other viscera not examined.

Case LVII.—*Attempted Excision of a Portion of the Cyst; Subsequent Extirpation and Recovery.*—Miss B., aged 30. In the year 1843 this lady was tapped for ovarian dropsy, and pressure applied, and no return of the fluid took place for seven years. In 1850 she complained of being stouter. On examination of the abdomen, I found a solid, slightly elastic, but not fluctuating tumour in the left iliac fossa. In 1851 I again examined her, and found the tumour, but still could not detect fluctuation. In March, 1852, there was a considerable increase of the tumour, and fluctuation was distinct. Shortly afterwards, I introduced a very small trocar, and drew off an ounce of clear, transparent, and very slightly albuminous fluid. After a few days, had a consultation with Dr. Tyler Smith and Mr. Lane, and we agreed that it was a favourable case for excising a portion of the cyst, as there were probably no adhesions, and the patient was in excellent health and spirits, most confident, indeed, of a successful issue of the proposed operation. I advised her to live on milk, farinaceous and vegetable diet; to take no beer, wine, or spirits, and to keep her bowels well open daily. This was steadily attended to, and the size of the abdomen was very much decreased from these means.

Operation.—March 29th, 1852. 1.30: Present, Mr. Lane, Mr.

J. Lane, Dr. H. Jones, Mr. Wellings, Mr. Bullock, and my brother, Mr. George Brown.

Chloroform having been administered, and a towel placed round the lower ribs and made tight, the patient was brought low down to the foot of the bed, and the abdomen being held by the Messrs. Lane, I made an incision of four inches between the umbilicus and pubes, dissected down to the peritoneum, and divided it on a director; seized the cyst with forceps, and then introduced the trocar, and drew off about nine pints of clear fluid. The external covering of the cyst was very vascular, some large vessels ramifying on it. Avoiding all the larger ones, I dissected out a piece of the cyst, of the size of the palm of my hand, and found the whole cut edge of the remaining portion of cyst, which was thick (one-eighth of an inch), bled freely, and no torsion of the vessels seemed to stop it. Under these circumstances, finding there were no adhesions, we determined to remove the entire cyst. On drawing out the cyst, I came upon the thick, round pedicle of the tumour on the left side; its base was an inch and a half broad, and one large blood-vessel passed through the centre. I passed a double ligature through the base, and tied both sides tightly, then brought the edges of the wound in the abdominal wall together by four deep sutures and by three superficial ones. I left the ligature out, and secured it by strapping to the right side; applied a water compress, and over the whole abdomen one of my many-tailed bandages. The operation occupied more than half an hour. She was some time in reviving from the chloroform, and was sick after taking some brandy-and-water. Pulse 108.

At 8 o'clock P.M., took some beef-tea, and 2 grains of opium. At 10 P.M., Dr. H. Jones and Mr. Bullock saw her with me. Pulse 108; skin soft and moist; countenance cheerful and hopeful; applied fresh water dressing, and reapplied the bandage; passed the catheter, gave some milk gruel, and 1 gr. of opium. At 12 she was sick, and vomited freely.

30th. At 4 A.M., the vomiting recurred, but she slept afterwards quietly; skin moist; pulse 100, and compressible.—7.30 A.M.: Feeling sick, gave some ice to suck, which gave relief; took some bread-and-butter, and tea.—2.30 P.M.: Pulse 96; countenance cheerful; has had some beef-tea; wound looking healthy; no swelling of abdomen. —10.30 P.M.: Rather faint; placed a plaster over the entire abdomen, having first applied lint and napkins. Has passed urine freely.

31st. 8.30 A.M. Has passed a good night, and slept for several hours, merely waking for a time: took some arrow-root. Urine passes freely, but there is no power over the sphincter vesicæ. Pulse 100; skin moist; countenance cheerful.—10 P.M.: Pulse 96; soft and compressible; skin moist; complains of feeling faint: this is evidently *nervous* depression, not vascular. Ordered some more beef-tea for support, and an opium pill if at all wakeful. No tenderness nor swelling of the abdomen.

April 1st. 8.30, A.M. Has passed a good night from one dose of opium; enjoyed her breakfast; pulse 96; countenance cheerful; removed the interrupted sutures.—9.30 : Very comfortable; pulse 96.

2nd. 8.15. Has passed a very restless night, not free from pain; had two grs. of opium, one at 12, and another at 3; is now very drowsy. To have beef-tea.—8.30, P.M.: Has passed a very comfortable day; pulse 96; removed the two lower sutures; the wound is united by the first intention.

3rd. Has passed a good night.

9.30, P.M. Very low and faint, and the sutures have given pain; removed the upper three sutures; gave some wine; to have arrow-root, with one ounce of wine in it.

5th. Gave an injection of warm water, which emptied the bowels.

From this time she gradually progressed without any single unfavourable symptom, and on the 27th the ligature came away.

30th. Down in the drawing-room, convalescent.

This case exhibits an important feature in the operation, as it offered a serious practical difficulty in completing the excision, viz., the hæmorrhage from the numerous blood-vessels ramifying in the external tunic, and unless I had decided to extirpate the entire cyst, I must have applied ligatures to all the blood-vessels before closing the wound in the abdomen; but I believe that the chief danger of ovariotomy arises from the presence of the ligatures within the peritoneum; I consider, therefore, the excision simply of a portion of the cyst the safest and best plan.

This lady married in Oct. 1853, and now, June, 1854, is in the 8th month of pregnancy.

CASE LVIII.—*Ovarian Dropsy, fifteen months' duration; Ovariotomy; Death; Autopsy.*—Elizabeth D., æt. 29, married, was admitted into Boynton's ward, St. Mary's Hospital, labouring under ovarian dropsy.

The abdomen began to rapidly enlarge on the right side about fifteen months since. Health pretty good; catamenia regular until recently. Has one child six years old. By careful manipulation the hand can be passed under the tumour, so as to negative the probability of adhesions; the cyst can also be moved a little from side to side; fluctuation obscure.

June 16th, 1852. *Operation.*—She was placed under the influence of chloroform, and an incision about four inches long made in the median line below the umbilicus. A large irregular tumour was then exposed, only adherent at one small point to the omentum. It was punctured in several places, and small quantities of somewhat gelatinous fluid let out, but not sufficient to materially lessen the sac. The incision of the external parietes was therefore extended upwards above the umbilicus for about three inches, and downwards to within two inches of the pubes; the omentum was then carefully dissected off

the cyst, a piece of the peritoneal covering being taken with it, and a small vessel tied with ligature cut off close. A large vessel running up from the pedicle on the cyst was also divided. The pedicle was then tied with three ligatures passed through it, and the whole tumour removed; it weighed 11 lb. 3 oz. The edges of the wound were then brought together with fourteen deep sutures, and three or four superficial ones, the ligatures being brought out at the bottom, with the exception of that on the omentum, which was left in the abdomen. Wet lint and a bandage were applied.

3.45. Pulse 80; she feels cold; respiration tranquil.

6 P.M. Is complaining of a good deal of pain in her abdomen, and that the bandage is tight. This was loosened. Ordered opii gr. ij. stat. et post horas 2.—9.45. Is complaining of increased pain; has had no sleep; abdomen a little increased in size; complains again of the bandage; tongue and skin moist, the latter quite warm, the former rather white; pulse 100, soft; respirations 36; very slight abdominal movement; a little tenderness; has her knees drawn up. Hydrarg. chlorid. gr. v. 4-tis horis. Opii grs. ij. 2ndis horis.

June 17th. 1.15 A.M. Pulse 100, fuller; has been easier, but is now complaining much of pain. V. S. ad ℥xxiv. The blood was buffed. She became faint; pulse afterwards was 120, small and rather feeble; said she was easier, and could take a deep breath much easier; her skin became cold, and with clammy perspiration; was sick at the termination of the bleeding; vomit of the same character as before.—9 A.M. Pulse 110, small and rather feeble; respirations 24; tongue furred at centre, rather red at edges; no distinct tenderness; has been sick several times; skin moist; countenance rather darker. Ordered ℞ Opii, ♏ xl.; decoct. amyli, ℥ij. ft. enema statim, et post horas iv. utend. si opus sit. Movement of upper ribs 20, lower 10; abdomen nil. A leather plaster was placed with relief over diaphragmatic ribs and abdomen.

1 P.M. Slept for about twenty minutes after enema, and has not been sick within the last half hour, but the sickness has just come on.

9.30 P.M. Pain removed by leeches; pulse 150, small: inclined to be running; tongue moist; bore pressure on abdomen fairly well. Pil. opii, gr. ij. statim et 3-tiis horis si opus sit; beef-tea.

June 18th. 8 A.M. Has passed a tolerable night, sleeping quietly at least five hours; has taken this morning some tea and toast; she was sick after the opium pills given last night, but not at other times; some hiccup; tongue moist, somewhat coated in middle; pulse 135, small, vibrating, weak; skin warm, not burning; forehead cool; urine drawn off this morning of natural appearance; abdomen not more distended; bears gentle pressure without pain; aspect quiet, not anxious; about one tea-cupful of beef-tea taken and retained last night. Ordered beef-tea, milk, and lemon ice to-day.

2.30. Frequent sickness; greenish mucous and watery matter

vomited; feels comfortable; no pain or distension; pulse 145, small, feeble. A bottle of soda water.

℞ Acid. hydrocyan. ♏ xvi.
Sodæ sesquicarb. ʒiss.
Aq. piment. ℥j.
Aquæ ℥v.
Capiat ℥j. statim et omni horâ.

9 P.M. Has had a little brandy-and-water. Aspect improved; feels tolerably comfortable; less sickness; pulse 150, not sharp; respirations 20. Quinæ disulphi gr. ij.; acid. sulph. dil. ♏ v.; spt. æth. sulph. co. ♏ xv.; aquæ ℥ss., frequently.

19th. Slept for two hours (12 to 2, A.M.), and dozed at intervals afterwards. Feels this morning quite comfortable, and her aspect is decidedly improved. Tongue moist, slightly coated; small, feeble respirations, 18. Has had two more doses of quinine without spt. æth. sulph. co., and taken at various times arrowroot, beef-tea jelly, with a little brandy-and-water, without being sick; wound healing by first intention.—7½ P.M. Pulse 135; skin cool; complaining much of thirst; rather inclined to be restless, otherwise comfortable; has complained of some headache, which has been relieved by cold wash.

20th. 10 A.M. Pulse 126; small, somewhat less feeble; tongue coated rather thickly, with red edges; had some quiet sleep in the night, waking at short intervals; countenance not anxious; some ligatures removed; size of abdomen rather increased; no tenderness; a fresh layer of plaster girding the abdomen. Applied—pil. sapon. co. gr. x., as a suppository, last night. Port wine, lean of mutton chop, at 1 P.M. Enema, with some castor oil.

9 P.M. Sickness again this evening, apparently from ether given by mistake. Pulse 114; more distinct and less feeble; bowels freely opened by enema; tongue less coated; she complaining much of flatulence; enjoyed her meat. Haustus acid. hydrocyan. repeated occasionally. Pil. sapon. co. gr. x. at bed time.

21st. 9 A.M. Much flatus discharged per anum with relief, also from the stomach after aq. menthæ. pip.; slept about one hour. Tongue coated in centre, clean at edge; abdomen softer and smaller; complains of pain in left side of chest, evidently from distension of stomach. Pulse 114; skin warm. Chop to-day; porter, half a pint; brandy ℥v.

9 P.M. Six sutures removed; enjoyed her chop and porter; flatulence troublesome; bowels did not act.

Tr. hyoscyam. ʒj.
Mist. camph. ℥ij.
Sodæ sesquicarb. ʒj. ℥j. hâc nocte.

Repeat pil. saponis co. gr. x. h. n. pro suppositorio.

22nd. Has not had more than a half-hour's sleep during the night;

soon after 1 P.M. was sick, and continued to be so at intervals until 5 A.M. Has taken some breakfast this morning with relish. Bowels acted twice in the night; motions natural. One ligature removed at upper extremity of wound; no union had taken place there. Pulse 144; same character.—2 P.M.: Several sutures removed; straps of plaster applied.

10 P.M. During a fit of vomiting in the afternoon the plaster gave way, and the lips of the wound separated, completely exposing the intestines, which were seen covered with lymph. The edges of the wound were pared and brought together by four sutures; since then she has been pretty comfortable; complains of hunger. There has not been much sickness or faintness. Bowels have acted once, motion healthy; the pain in left side has disappeared. Pulse 140, small, vibrating.

Acidi nit. dil. ʒij.
Dec. cinchonæ, ℥iv.
Aq. pimentæ, ℥j,
Tr. card. co. ℥ss.
Aq. ad ℥viij.
℥j. 4-tis horis.

23rd. 9 A.M. She took last night some cold meat, bread, and porter, and enjoyed it very much; slept well at intervals; medicine agrees well, and seems to quiet the stomach. Pulse 135, small; skin not hot; tongue quite clean.

10 P.M. Bowels open; thrice open to-day. Has been sick very slightly; has eaten half of two mutton chops at different times, and drank half a pint of porter with much relish; has slept a good deal, and soundly, during the day. Pulse 144, soft, weak; skin cool and moist.

24th. 8½ A.M. Slept little last night. Bowels open several times. Pulse pretty good; wound open for about two inches, at the upper part, a suture having given way. Has slept a good deal during the day; has taken two mutton chops and a boiled sole, and ℥xvj. of port wine and ℥iv. of brandy; no sickness. Bowels have not acted since last night. Wound dressed to-day.

25th. 9 A.M. Passed a better night than she had yet had; aspect this morning very favourable; cheerful. Pulse 120, of more strength. Bowels acted three times during night; much flatus escaping. The quantity of acid. nit. dil. diminished one half yesterday, and Tr. cinchonæ ℥j. added to the mixture. Tongue clean, rather dry. Some sanious discharge from the whole extent of the wound escaped on dressing it; some feeble granulations at its lower part; abdomen decidedly smaller.

26th. Quite comfortable, taking her food well. Bowels open twice with healthy motions. Urine passed naturally.

27th. Tongue moist, clean. Slept nearly all night well. Bowels not open all night. Pulse 120, more distinct; countenance improved;

wound looking healthy, suppurating and forming granulations. Diet, wine, one pint; porter, half a pint; sole, rice and milk.

29th. Wound looking more healthy; feels comfortable; has passed two tolerable nights; skin warm. Pulse weak, 129.

30th. Bowels disturbed during the night, acted three times, motion dark, offensive, and watery. Pulse 135, weak and small; aspect rather depressed; is tired of port wine; prefers stout, which she had to-day. Much flatulence; appetite not so good; discharge from lower part of wound very offensive, as from sloughing tissue. ℥ij. of wine added to mixture.

July 1st. Slept quite quietly all night; the bowels were rather inclined to be relaxed, but were quieted by an opium suppository. Has taken her food well. Pulse 117, more distinct; wound gaping at upper part, but granulating well at base and edges; aspect better.

2nd. Good night; bowels quieted by opium suppository; takes her food well.

3rd. Tongue rather dry, especially at apex; slept well with opium suppository; bowels disturbed much last evening, quiet since then; wound healing rather languidly. Pulse 126; skin somewhat hot.

6th. Tongue rather dry. Pulse 120, very weak; skin rather burning, dry; much depressed yesterday by great heat; appetite failed; bowels act involuntarily, require to be quieted by suppositories; aspect less favourable; says she feels comfortable, having been shifted to another part of the ward; takes her food better to-day; throat said to be a little sore, (it seems rather that the jaws are stiff;) wound looks languid, but not otherwise unhealthy; ligature of pedicle came away with a portion of the slough. Add quinæ disulph. gr. x. to the mixture.

8th. Condition much the same; bowels tend to be relaxed, but are quieted by the opium suppository; catamenia present last night; wound in about the same state; dressed with black wash; takes beer and wine well, but not much food; much less of discharge. Pulse 117, of rather more volume; skin tolerably cool; jaws continue stiff; glands under right side of the lower jaw enlarged, so that she cannot open her mouth well.

Ferri et quinæ citratis, gr. xv.
Tinct. cinchon. co. ℥ij.
Aq. pimentæ, ℥j. three times a day.

11th. The catamenia having been present for about four days,—this being the natural period, have to-day advanced to the extent of menorrhagia, which has brought her very low. She had stimulants administered freely this and the next day, but continued to sink, and died on the 12th, about 9½ P.M. The menorrhagia was checked by application of ice to the vagina. The discharge from the abdominal wound had been unhealthy during the last four days. The stiffness of the jaws continued to the last.

Examination, seventeen hours after death.—Body emaciated, wound in abdomen 7½ inches long, its margin separated, its base and sides of a semi-sloughy appearance. The base was formed by the omentum for the greater part of its extent, covered on its surface with feeble granulations, almost lapsed into a state of slough. The peritonæum of the edges of the wound was adherent to the visceral layer; on the left side these adhesions did not extend far; on the right, they were much more extensive, and spread over the whole of the right iliac and lumbar regions. The stomach and duodenum were tolerably healthy, and free from traces of inflammation; the whole of the small intestines were covered with granular lymph of some standing, and of a rather dark and sloughy aspect. The inflammation had been most considerable on the right side of the abdomen, where it had united together the intestinal convolutions extensively by effused lymph, and had also passed on in several places to the production of pus. In some parts ulceration of the intestinal canal had commenced, extending in the direction towards the cavity of the bowel; one such patch in the cœcum was very remarkable, having caused thickening and congestion of the mucous lining. The interior of the ilium was much congested. The peritonæum covering the uterus and bladder was inflamed and covered with lymph, as also that covering the liver, which was united by some rather long adhesions to the diaphragm. There was a small excavated ulcer on the vaginal surface of the cervix uteri; the mucous lining membrane of the womb was much congested, especially towards the right Fallopian tube; in the direction of the other it was pale, and a probe could be passed from the uterine cavity through the remains of the tube, which had been divided in separating the pedicle of the cyst.

Case LIX.—*Ovarian Dropsy of one year's duration; Treatment at first by Tapping and Pressure; Excision of Portion of Cyst impracticable; Ovariotomy; Cure.*—Oct. 29th, 1853, Mrs. B., aged 57, a lady from the country, consulted me, and stated that she first noticed enlargement of the abdomen on the right side eight months ago; at first the increase was gradual, but of late had been much more rapid; ten years since, the catamenia disappeared, but reappeared last April; has had seven children, the youngest being 14 years old. I recommended that tapping should first be had recourse to, followed by steady pressure. Accordingly, on November 3rd, I removed by tapping thirteen quarts of fluid, which contained a considerable quantity of albumen, and then applied one of my "ovarian bandages," and gave her bichloride of mercury in tincture of bark. Her health and spirits rapidly improved, and she returned home to the country.

On December 3rd, she wrote me word that she was still much improved in health; that she had as requested by me, taken an accurate account of the fluids taken and the urine voided; and had found the former from the 10th of November to the 3rd of December, twenty-four pints, and the latter twenty-nine pints; showing that the kidneys had excreted an excess of fluid of five pints.

After this the cyst gradually refilled; and, on February 27th, 1854, she came up to town again, and wished the operation for extirpating the tumour to be performed. I very fully explained the danger to be apprehended, and requested that she would take a few days to consider the subject. This she did, and again requested that the whole or a part of the cyst might be removed. Accordingly, on March 2nd, just four months after tapping, having kept her a short time previously on farinaceous diet, I undertook the operation. Being brought under the influence of chloroform, administered by Mr. Moullin, I placed her diagonally across the bed, and, assisted by Messrs. Nunn, Winchester, Wilkin, and my son, proceeded to operate. Making an incision in the median line, midway between umbilicus and pubes, about three inches in length externally, I came down upon the peritonæum, which gave some little trouble in dividing, with the aid of a director, because there was so large a quantity of fluid between the peritoneum and cyst. This was, however, shortly all evacuated, and the ovarian tumour well seen. I had at first intended to have taken out a piece of the cyst only, but I found the coats so thick that it was quite impracticable. I passed my hand round the tumour and found no adhesions. An assistant then seizing the tumour with a pair of vulsellum forceps, I introduced a trocar to evacuate the fluid. While the liquid was escaping the patient retched a little, and expelled the tumour entirely through the orifice, the internal incision being not more than two and a half inches in length. I then tied the pedicle, which was four inches broad at the junction with the tumour, and two inches long, in two portions, with double ligatures of well-waxed twine, and removed the tumour. During the expulsion of the tumour, a very small portion of the omentum and of the bowel protruded, which were held back by flannels first wrung in hot water. The pedicle was tied to a director placed transversely across the abdomen, in order to keep it external, and the opening closed by four deep sutures above the pedicle, and one beneath, and by four or five interrupted sutures. A pad of lint soaked in cold water was applied, and one of my flannel many-tailed bandages steadily tied.

Two grains of opium were given as soon as she recovered from the effects of the chloroform, and one grain ordered to be given every two hours, and ice to be sucked constantly.

11 P.M. Has had six grains of opium. Pulse 98; wiry; complains of flatulence, with nausea and retching; slight uneasiness and evident symptoms of approaching peritonitis. Bled her from the arm to sixteen ounces. After bleeding, pulse fell to 84. Gave ten grains of calomel and two of opium.

12 P.M. Pulse 88; sickness continued. One grain of opium every hour; to have barley-water and iced water *ad libitum*.

March 3rd, 1 A.M. No sleep; sickness continues; pulse 90.—2.30: Has slept an hour and a half; feels very comfortable; sickness quite gone.—4 A.M. Slept nearly two hours; slight return of sickness; pulse 86.—5.30. An hour's sound sleep; pulse 84.

6.30. Has been very quiet; countenance perfectly calm. No indications of peritonitis; pulse 86, and good. Has taken in all twelve grains of opium. She now mentioned that whenever she took opium she had dryness of the throat and great thirst; and although she had taken twelve grains of solid opium, there were no signs of narcotism. During the whole of the day she was very calm and composed. Bowels were acted upon three times by the calomel, and she passed a great quantity of flatus.—11 P.M. Ordered a quarter of a grain of muriate of morphia every two hours till sleep is induced. During the night she took four doses, was perfectly calm, but had very little sleep.

4th. 7 A.M. Pulse 72; skin moist; bowels quiet; no tenderness on pressure; no facial indication of peritonitis. Since operation the urine has been drawn off by catheter every four hours. Beef-tea and barley-water allowed, and the morphine ordered to be repeated at night.

5th. Has had a comfortable night, and slept well. Pulse 72; capital spirits; the upper part of the wound healed by first intention, and the pedicle of the tumour begins to slough. On the 10th, removed superficial sutures; on the 12th, removed two upper deep sutures, union perfect; on the 15th, ligatures came away; and on the 16th, she was able to be removed to the sofa.

25th. Is quite well, and has gone a little way out of town.

May. This patient continues in the enjoyment of good health.

This case is sufficiently interesting in itself to make it unnecessary for me to offer many remarks. I would merely, however, draw attention to the fact of the tied end of the pedicle and the ligatures being kept external, as recommended by Mr. Duffin, and also lately practised by Mr. Erichsen, as it may be found hereafter a decided improvement to the usual method of leaving the end of the pedicle to slough off in the pelvic cavity.

7. *Other Modes of Treatment.*—Besides the preceding, which are the chief modes of treatment put into practice, there are others recommended and employed by individual practitioners. Of these I cannot speak from my own experience, and shall therefore only refer generally to what those who have devised them set forth as their advantages, and what have been the results of experience with them, so far as I have been able to ascertain.

a. Dr. Tilt has recommended* opening ovarian cysts by Vienna paste, applied to the integuments in the median an inch

* Lancet.

or two below the umbilicus, or otherwise where the parietes are thinnest, and allowed to ulcerate through into the sac. The objects in view are thus stated:—1. To establish solid adhesions between the peritonæum covering the cyst, and that lining the abdomen. 2. To effect the smallest possible ulcerative opening of the cyst through the centre of these adhesions. 3. To keep the cyst always full, and only relieve it of the overplus of fluid by which it is distended. Abdominal pressure, gradually augmented, is indispensably necessary; and injections of tepid water, to meet the third object of the treatment.

Mr. Grant Wilson was induced to try this plan of Dr. Tilt in a favourable case,* in which the health was remarkably good. The eschar was made about two inches below the umbilicus; one application of caustic was sufficient, but it was eight weeks before the eschar separated sufficiently to discharge the water. "At first no injection of any kind was used, but in three or four weeks from the evacuation of the water the discharge became purulent and fœtid, and my patient's health declined so rapidly that I feared I should lose her. Under a generous diet, with quinine internally, and the repeated injection of the cyst with warm water, she rallied, after having lain a month or six weeks longer, in a very precarious state. At that time a weak solution of iodine (one drachm of the compound tincture to six ounces of water,) was occasionally used, without producing any ill effect, and a portion of gutta percha tubing was fitted to the opening of the wound. This was fitted with a wooden plug, so that the discharge could be drawn off at stated times. Before this the wound showed a disposition to close permanently, and required to be opened by a probe, to evacuate the fluid that accumulated, the patient always suffering until this was done. From the time the gutta percha tube was introduced, and the iodine injection used, the cyst began to contract, and the patient to improve steadily, and this continued until she has now got quite well. The tube remained in four or five months, and was then removed. I have recently seen her, and there is still a small fistulous opening, not quite closed . . . . but a probe will

* Provincial Medical and Surgical Journal, Jan. 22nd, 1851.

pass in no direction beyond half an inch, and she has gained flesh and strength, and has been enabled to resume her usual habits. I think I am justified in calling it a cure, though I should scarcely be disposed, except under peculiar circumstances, to recommend a repetition of the treatment."

b. Dr. Tanner has suggested, that when an opening is made into the abdomen, and adhesions are found preventing the removal of the tumour, the cyst should be emptied by tapping, and that, in order to prevent the fluid from being re-secreted, a ligature should be applied round the pedicle, so that the main supply of blood to the cyst may be cut off. Dr. T. thinks that sufficient blood will still be supplied to the tumour through the adhesions, to prevent gangrene of the cyst. I think this suggestion a sound one, and well worthy of a trial, and shall have no hesitation in putting it into practice on the first appropriate occasion.

Several other expedients have been at various times adopted; such are the introduction of a seton into the cyst; tapping and leaving a tube within its cavity, through which the contents may discharge; acupuncture and electricity. The results of these plans have not been sufficiently encouraging to induce a repetition.

APPENDIX.

To the illustrative cases contained in the body of the present treatise, I am able to append the following which have recently occurred in my practice.

Case A.—*Complete Rupture of the Perinæum of three and a half years' duration: Operation; Cure.*—Mrs. H., æt. 29, consulted me at the request of my friend Mr. Wilkin, May 10th, 1854. She has been married seven years, and had four children. At the birth of her third child no medical attendant was present, and no assistance being rendered her, the perinæum was severely torn: she was after this very ill. Two years and a half after this accident, or thirteen months ago, she had another child. She has but little control over her motions, and none when they are relaxed. The sensations of bearing down are constant and painful.

On examination I found complete rupture of the perinæum; the anterior half of the sphincter ani lost, and I recommended an operation.

May 20th. Having produced anæsthesia by chloroform, I operated in the usual manner; Messrs. Nunn, Spencer Wells, Wilkin, Moullin, and my son being present. As the patient was young, and still apt to bear children, I did not restore the perinæum in its entire length, but yet made it sufficiently long to secure complete sphincter power and a sufficient support to related parts. There was considerable bleeding, and torsion was used to several small arteries.

21st. Has had much pain since the operation, and taken altogether twelve grains of opium.

22nd. The pain continues severe, although opiates are largely taken.

23rd. The pain was so great from the sutures that I removed one of the quills, leaving the threads. In the evening the other quill came away.

25th. Is doing very well. Removed the other sutures. No suppuration going on.

29th. A careful examination per vaginam et rectum showed union to be perfect. This day she was allowed to pass her urine, resting on her hands and knees.

June 1st. The bowels have been freely relieved by several injections of warm water, and although several large and hard masses of fæces escaped, the new structures were uninjured.

8th. Now has control over the bowels, and is up and feels well.

Case B.—*Ruptured Perinæum of fifteen years' standing: Procidentia Uteri: Operation; Erysipelas; Cure.*—Maria M., æt. 38, married. Admitted May 4th, 1854 into Boynton ward, St. Mary's Hospital. She was sent to place herself under my care by Dr. Riding. Her appearance is healthy. She states that in her first and only confinement, fifteen years ago, the perinæum was ruptured into the anus during the passage of the head of the child. The labour was very lingering, lasting five days. On the last day she had very few pains, and the child, though large, was, she states, expelled without much effort on her part, but no instruments were used. Nothing was done at the time to close the rupture; and ever since she has had little or no power over the bowels. About three years ago, prolapsus uteri occurred, and she became an out-patient of St. Thomas's Hospital, but obtained no relief. Belts to support the parts have been tried, but could not be worn in consequence of the pain they occasioned. There is much bearing down, and pain in the lower part of the back.

The parts return when lying down, but are always protruded when in the erect posture. From the great difficulty in retaining her fæces she has allowed her bowels to be very irregular in action. The catamenia have always been regular. On exami-

nation, a rupture of the perinæum into the anus, procidentia uteri, and protrusion of posterior surface of the bladder, were found. There is great thickening of the mucous membrane between the vagina and rectum, and the lips of the uterus, especially the posterior, are much enlarged. She has had great difficulty in making water, and states, that on evacuating the bladder, "the womb seems to be drawn up."*

May 10th. Mr. Brown operated to-day in the usual way. Some slight arterial hæmorrhage occurred, which demanded the ligature. After recovering from the chloroform, 2 grs. of opium were given, and 1 gr. to be continued every four hours. The catheter to be kept in the bladder.

11th. Comparatively free from pain; no hæmorrhage has occurred. Feels very comfortable. To continue the opium every six hours.

12th. About the same.

13th. On examination, there was a little sloughing about the quilled sutures, with very offensive discharge; the quilled sutures were removed and the collected matter pressed out, and lint with chloride of lime applied.

14th. Still much discharge; the parts have to be pressed and cleaned four or five times a day. Some bloody thin discharge proceeds from the anterior part of the wound through the vagina. Continue the opium as before.

16th. Still the fœtid discharge, which is nearly as great in quantity, persists.

℞ Acid. nit. dil. ♏ xv.
Tinct. cinchonæ, ʒij.
Aquæ ad ℥j—Ter die.
Lotio nigra, p. a. a.

16th. She has pain at the præcordial region, which she attributes to the medicine; to be therefore discontinued. The discharge is not so great and is thicker. To use water dressing, and take the opium pill every night.

* The notes of this and the two following cases are taken from the Case-book, as kept by Mr. Talbot, house surgeon of St. Mary's Hospital.

17th. Doing well.

19th. There is some erysipelatous redness on the left side of the wound, which is proceeding up over the left buttock. Lotio plumbi, p. a. a.

20th. The redness has advanced, and occupies half of the left buttock. The swelling near the cleft of the nates is rather hard, and the surface in many parts is covered with vesicles. The interrupted sutures removed, and the edges of the wound found to be in an ununited state, though at the deep part of the wound adhesion had taken place. Flour to be dusted on the erysipelatous part in place of the lotion.

22nd. Erysipelas extending over both buttocks. Has a sensation of tightness in the abdomen, and a slight cough. Feels very uneasy and weak. Is feverish, and has a nervous way of drawing her breath. Ol. ricini ℥j. statim, which in consequence of nausea is to be preceded by a powder composed of Hyd. chlorid., gr. iij. sacchar. alb. gr. iij.; and four hours after an enema to be given.

23rd. Erysipelas still extending. Bowels freely open. Feels very low and weak. Decoct. cinchon. ℥j. Ammon. sq. carb. gr. iij., ter die. Two hours after, becoming worse, she had to omit the bark and take Tr. Ferri mur. ♏ xv. every four hours, with Liq. opii. sed. ♏ viii. Local application the same.

24th. Much the same. Erysipelas extending; is very weak; can scarcely turn in bed. Wine ℥viij daily. To have arrow-root and oysters.

25th. Rather weaker; pulse frequent and very compressible. Pint of beef jelly. Wine 12 oz.

26th. Redness not quite so great, but it covers a greater surface. Has very little power. There is a little slough over the left buttock. Bread poultice to be applied. Sleep broken and unrefreshing. Ammon. sq. carb. gr. x., Tr. cinchonæ, ℥ij., Sacchar. q.s. Decoct. cinchonæ ℥j. ter die.

27th. Erysipelas has advanced nearly to the waist; the slough has also increased in size. Her pulse is rather stronger, and not quite so frequent. She slept last night, and was refreshed thereby. Her looks are better.

28th. Better in every respect.

29th, 30th, 31st. Has daily progressed; erysipelas disappearing fast; the perinæum sound, and there is no prolapse of uterus or bearing down.

Case C.—*Vaginal Cystocele: Operation; Cure.*—Mary H., æt. 55, laundress. Admitted April 4th, 1854, into Boynton ward, St. Mary's Hospital. She is the mother of seven children, the youngest twelve years of age. All her labours she describes as quick and favourable. About eighteen months ago she experienced pain in the back, of a dragging nature, which three months ago became much worse, and there was prolapse beyond the vulva of about the size of an egg. She had no advice, and the prolapsus has been gradually increasing for the last three months: it is now as large as the fist. She attributes her present condition to her having lifted a very heavy weight (eighteen months ago), and fancies she heard something snap at that time.

April 5th. Mr. Brown operated in the usual way. After the operation, one grain of opium was given every six hours, and cold cloths applied to the parts.—10 P.M. Is very comfortable, experiencing very little pain or hæmorrhage.

6th. Very comfortable; passed a very good night; ordered wine ℥iv.

8th. Going on well; the quilled sutures removed. Ordered mutton chop, beef tea Oj., porter Oss.

11th. Interrupted sutures removed, and the parts found united.

15th. Doing very well. There is not much discharge.

18th. The bowels acted to-day after the exhibition of castor-oil.

25th. The wound is quite healed, and she is going on well.

May 4th. Discharged cured. When standing up, there is no protrusion, but she feels some bearing down pain; she is therefore directed to keep a good deal in the horizontal posture for a fortnight before recommencing her employment.

23rd. She presented herself for examination. Wound well

closed; no protrusion; no pain. She looks and feels a perfectly different woman. She now follows her employment (though not yet to the same extent as formerly) with great comfort.

Case D.—*Procidentia Uteri, with Complete Eversion of the Vagina: Operation; Cure.*—Sarah W., æt. 53, admitted into Boynton ward, St. Mary's Hospital, March 31, 1854; was sent me by Dr. Barnes. Ten years ago was delivered of her first child. The labour was natural, and of six hours' duration. About three weeks after her confinement she resumed her occupation as maid of all work, and continued in her situation for two months, when she suffered from leucorrhœa and bearing down of uterus, with considerable pain at times (menstruation being regular, though tedious). She continued to work for about a year in spite of this affection, when, becoming worse, she applied for medical aid, and left her situation. The prolapsus beyond the external parts being great, she has worn pessaries for the last eight years at intervals, and also a truss for the prevention of the prolapsus; but these only relieved her partially, and sometimes caused so much irritation as to oblige her to remove them. For the last eight years she has been unable to retain her urine, passing it by drops every half-hour with great pain.

April 5th. She was operated on in the usual manner. Portions of mucous membrane were dissected off, and the parts drawn together by quilled and interrupted sutures. The patient was under the influence of chloroform during the operation, which lasted nearly three-quarters of an hour. She was put to bed, and one grain of opium given every six hours. Wet lint was applied to the external parts and occasionally renewed.—7 P.M. A great many clots have passed, and there is a continued oozing of blood, notwithstanding the constant local application as well as the sucking of ice. Cold applications still to be used.—10 P.M. The blood has apparently ceased to flow; feels very weak, and complains of much pain; pulse frequent and weak; ordered wine ℥ij.

6th. Very little blood was lost last night; has frequent sickness. It was discovered this morning that from the constant application of cold cloths last night, one of the quilled sutures had got entangled and given way. Ordered, wine ℥iv., lemonade, brandy ℥ij., lemon juice ℥ss.

℞ Potassæ bicarbonatis, gr. xv.
Acidi hydrocyanici dil., ♏ iij.
Aquæ ℥j. 2-dis. horis sumend.

10 P.M. The sickness has abated; there is no more hæmorrhage; she is not in so much pain; feels inclined for sleep.

7th. Much better.

8th. Feels weak; complains of pain in the back; the quilled sutures removed. To take soda water with boiling milk, equal parts.

10th. Cannot relish the ordinary diet; feels pretty comfortable. The interrupted sutures were removed; union had only taken place at the posterior parts of the wound; lint dipped in oil applied.

12th. Pretty comfortable.

18th. Bowels acted to-day, after taking castor oil, for the first time.

25th. The wound is healing, and she appears and expresses herself comfortable.

May 6th. Allowed to get up.

8th. She suffers when walking about from no protrusion or bearing-down pains.

13th. Doing well.

22nd. Discharged, but recommended not to work for a fortnight or more, and to wear a support to the new perinæum for a short time.

This was one of the worst cases that can be met with, so complete was the procidentia; and yet in five weeks she is quite cured. It will strike the reader how futile were the pessaries, and what irritation and discomfort they created; and I think the case very well proves the truth of my remarks in the chapter treating of the displacement of the uterus.

Case E.—*Ovarian Disease: Ovariotomy; Death; Autopsy.*—Mrs. R., æt. 37, consulted me in October, 1853. She gives the following history of herself:—That she was married at 19, and is the mother of two children, aged respectively 13½ and 12. She enjoyed good health till May, 1852, when, being on a visit in the west of England, she retired to rest on a Sunday night, slept well till six o'clock the following morning, but was then suddenly seized with most violent pain on the right side of the abdomen, reaching to the hip-joint, and downwards; the pain, accompanied by sickness, lasted day and night till mid-day on the following Wednesday, when it gradually subsided, leaving only a pricking at the hip-joint, which continued some days longer. In about three weeks she recovered her usual health, but after a time observed a tenderness, accompanied with slight swelling, at the lower part of the belly. Of this she took little notice, her general health being unimpaired; and she continued able to take long walks without inconvenience. As winter advanced, the swelling continued to increase, and in April, 1853, she consulted Dr. Locock, who pronounced the disease ovarian dropsy, and merely recommended attention to the general health, with the support of a belt, and when the symptoms became more urgent, to consult me. She passed the summer at the sea side, and endured much mental affliction at that time. The disease also gained ground, and in October she became greatly prostrated in health, with entire loss of appetite and strength. At this time she saw me, and I advised change of air, with the adoption of every means for restoring strength, and the use of a tight bandage. She left town for Brighton, and at the end of three weeks was greatly improved, having gained strength and appetite, and could take long walks with but little inconvenience. Two months afterwards, she began to experience much restlessness at night, with a sense of weight and oppression in walking. She had much pain in the hip, knee and ankle. The sleeplessness continuing so distressing, she determined again to consult me. Six months having elapsed since I first saw her, I was greatly surprised at the improvement in the general health; and she, having heard that

I had just had a successful case of ovariotomy, determined to submit to the operation, after having been fully impressed with the danger to be apprehended, which was even greater in her case than ordinary.

Everything having been previously prepared for the operation, and chloroform being administered, I proceeded to operate at 2 o'clock, on Thursday, April 6th, 1854: Present, Messrs. Lewis, Nunn, Spencer Wells, Moullin, Winchester, and my son. It was determined to make an exploratory incision about an inch in length, to examine the nature of the adhesions, and to be guided by the result as to what should afterwards be done.

An incision was accordingly made, and the finger introduced and passed over the tumour, and all the adhesions within reach easily broken down; the incision was therefore enlarged to $3\frac{1}{2}$ inches, and the hand introduced, all the adhesions gave way in front of the tumour; but at the upper part and at the sides they were found to be very strong. The trocar was then introduced, and twenty-one pints of turgid, white, oily fluid, with a fatty sort of substance floating in it, evacuated. After about twenty minutes of difficult manipulation, all the adhesions were broken down. On the left side there had been a layer of plastic matter, apparently effused by peritonitis, thrown out between the tumour and the peritonæum, glueing the two together, and especially adherent to the cyst, to which it almost formed an outer covering. This layer was at last, with great difficulty and trouble, peeled off the tumour; a small portion of the bowel and omentum, to which the cyst was adherent above, protruded, but was held back by flannels wrung in hot water. There was some bleeding, but none of any consequence. The pedicle of the tumour, which was four inches broad, was tied in four portions, and retained external by means of a director placed transversely across the abdomen. The wound was closed by four deep interrupted sutures and two superficial ones. In the tumour there were three lumps of hair about half the size of the palm of the hand, and a great many fatty cauliflower excrescences on its inner coat. She had two grains

of opium directly after the operation, which were repeated at intervals all night, so that up to eight o'clock on the morning of the 7th, she had taken fourteen grains of opium and four grains of muriate of morphine, but still had only had two half-hour's sleep. Constant vomiting prevented her having any rest. Pulse from 96 to 100. To take grs. 4 of opium and a mixture of hydrocyanic acid, ammonia and soda. 11.30 P.M.: No more sickness; has had refreshing sleep twice for three-quarters of an hour.

8th. 2 A.M.: Has had more sleep, and taken beef tea, lemon ice, barley water, and tea. 5 A.M.: A little restless, with a slight pain from flatulence, which was relieved by passing it through the bowel; to take two grains of opium. 11 A.M.: Still very comfortable; pulse 120; to take two grains of opium. 1.30 P.M.: Has had refreshing sleep; hands moist, two grains of opium. 7.30 P.M.: Very comfortable; says she feels quite well; skin moist. No swelling of abdomen; removed dressing for the second time; the pedicle begins to be offensive, to be washed with a solution of chloride of lime.

9th. Has had on the whole a comfortable day, but towards evening she was distressed with eructations of wind and feeling of sickness: gave a warm rhubarb draught.

10th. 7 A.M.: Has passed an uncomfortable night; been sick and restless. Bowels relieved four times and much flatus escaped per rectum after injections. A dose of creasote relieved the sickness for some hours. 10 P.M.: Has vomited a pint of dark fluid: gave 20 drops of bimeconate of morphia. Sickness recurred soon after: repeated opiate in two hours, and again in four hours.

11th. From 4 A.M.: no sickness but occasional hiccup. 7·30 A.M. Is quiet and sleepy: pulse 100. 11 A.M.: Has had some very quiet and refreshing sleep, and is better. 9 P.M.: Has passed a very quiet day, sleeping, and has taken a cup of beef-tea. Barley-water and chicken broth have been given alternately every hour. Removed the two upper deep sutures: healthy pus came from the wound.

12th. 8 A.M.: Has passed an uncomfortable night, frequently

sick. Gave two grains of calomel, and in the evening the bowels were well relieved by an injection: omitted the opiate at night.

13th. 8 A.M.: Has passed a comfortable night, and is better. This evening, 7, P.M., is considerably better, and feels cheerful; removed the last suture.

14th. Has had a restless night, and is not so well this morning, but has had no return of sickness for forty-eight hours, and considerably less hiccup. Bowels have been opened three or four times. 11 P.M.: Very restless, with oppression on the chest; small quick pulse; clammy cold perspiration on the skin and hands. Gave her some hot brandy and water, and half-an-hour afterwards some port wine, with twenty drops of bimeconate of morphia, which in half-an-hour produced sleep and quieted the restlessness.

15th. 8 A.M.: Has been very sick all night after taking anything, but has less oppression, and is not so low as last night. Ordered her a drop of prussic acid every hour, and wine and nourishment to be continued. She had a relapse, rapidly got worse, and sunk at 11.30 P.M.

An autopsy was made at 4 o'clock P.M. on April 16th. An immense quantity of sanio-purulent matter was found in the pelvic cavity; the bowels had a slight blush upon them in some parts; the lower part of the omentum was very much enlarged and indurated; that which remained of what at the operation seemed to be a second covering of the cyst, was found to be very adherent to the peritonæum and nodulated in some parts, and there were evident symptoms of severe inflammation of old standing. A portion of the thickened omentum, and a piece of the layer, together with the vermiform appendix, the kidney, and the uterus, were removed for subsequent examination. In the thorax the lungs were found to be very extensively congested; the muscular coats of the heart flabby with fatty degeneration in some parts, and there was some fluid in the pericardium. The stomach was enormously distended. On examination, the uterus was enlarged, and the walls of pale aspect, but nothing abnormal could be seen; the thickened portion of omentum was of simple inflammatory origin, and contained some spots of fatty

degeneration; the vermiform appendix empty and natural; on one side of the layer which covered the ovarian cyst was a dense layer of thickened fibrous membrane, beneath which was a quantity of less indurated areolar tissue and fat containing a good deal of black pigmentary substance. The kidney, though much enlarged, was tolerably healthy; a little interstitial fibroid formation existed among the tubes; capsules shrunk.

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