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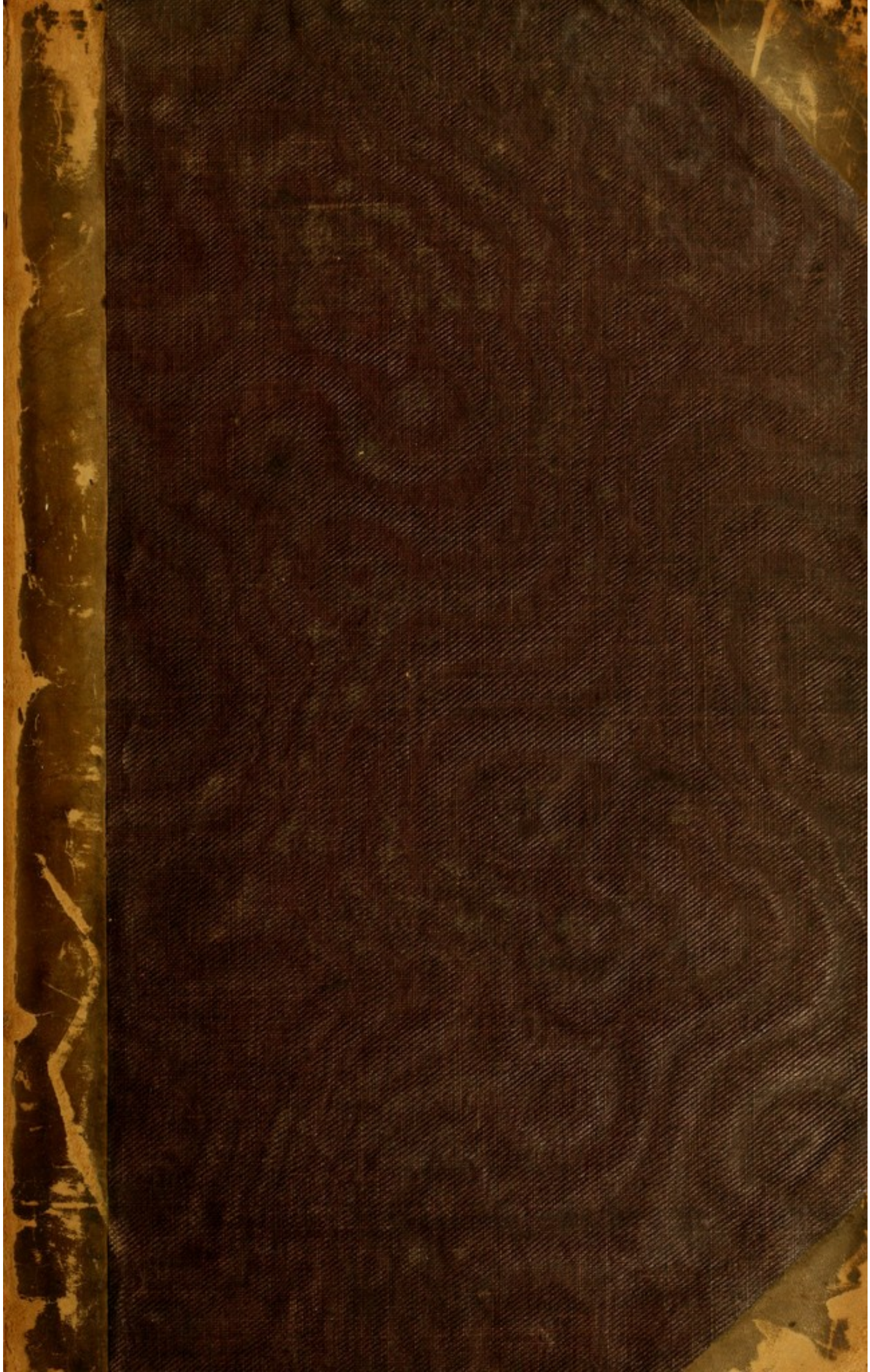
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ON SOME

DISEASES OF WOMEN

ADMITTING OF

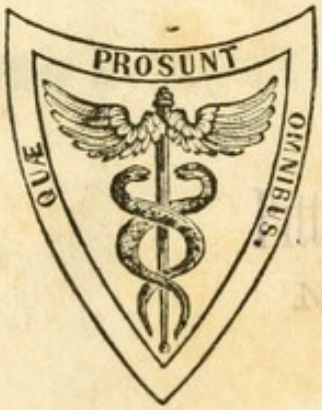
SURGICAL TREATMENT.

BY

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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.

2269

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.

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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 Perineum.
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 perineum, 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 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 PERINEUM.

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 perineum, 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 perineum 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 Perineum.—Without entering into anatomical details, it is as well to describe briefly the general structure of the *perineum*. 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 perineum. 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 perineum depends on the tonicity of the muscles, the elasticity of the skin, and particularly on the strength of the fascia.

Varieties of the Ruptured Perineum.—According as the perineum 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 perineum is torn to the extent of an inch or less from the fourchette. This degree of injury is one 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 perineum is torn between the constrictor vaginæ and sphincter ani, those muscles remaining intact. This is actually a perforation of the perineum, and, in some rare cases, has given passage to the child; 3. Where the laceration occupies the entire length of the perineum, 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,[1] that two different lesions are generally confounded together under the title of rupture of the perineum—viz: perforations and fissures; the former (*perforations centrales*) existing where the circumference—the sphincters of the anus and vagina—

[1] De l'Art des Accouchements.

is unbroken; the latter (*fentes vulvaires*) where the sphincters are involved and the fissure invades more or less the rectum. Laceration of the perineum 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 perineum, 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,[1] manual violence in 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 perineum, which is dry, hot, thin, and unyielding, as occurred in Case XIV. 3. A structural peculiarity, in which the perineum is thick, undilatable, and readily torn, the muscular tissue of the

[1] Mémoire sur un nouveau procédé opératoire pour la guérison des Ruptures complètes du Perinée. Bruxelles, 1852.

patient generally being flabby, as seen in Case X. 4. A peculiar conformation of the perineum, 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 perineum 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 perineum, 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 perineum during the last stage of delivery. The old authors on midwifery all recommend supporting the perineum 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 perineum to the uterus, whereby the latter is excited to greater expulsive efforts, and, consequently, to the exertion of greater tension on the perineum. This objection, no doubt, in a great measure, holds good; for it is certain that frequent interference to support or press against the perineum, 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 perineum, 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 perineum 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 perineum in which the head distends the structure like a bag, and cannot be driven forward, it is necessary not only to support the perineum with the greatest care, but also to introduce the thumb and forefinger 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 chloroform, or, where this is contraindicated, by the administration of opium. Having these resources at hand, I would consider bloodletting 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 perineum 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 practise where indicated.

M. Chailly-Honoré places particular stress on duly supporting the perineum 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 perineum 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 perineum 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 perineum 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 perineum 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 feces and intestinal gases pass uncontrolled. Hardened feces 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 perineum 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,[1] "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 insure 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 perineum may no longer be reckoned among the opprobria 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

[1] Lancet, vol. ii. 1849.

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 perineum. For the 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 perineum 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 perineum. 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 sup-

port 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 perineum 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 perineum 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 perineum 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 recognized 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 perineum, 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 harelip (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 perineum, among them Menzel, Osiander, Wutzer, and Lang-

enbeck. The plan of the last-named surgeon it is the object of M. Verhaeghe's (of Ostend) memoir[1] 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 recognized 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 perineal rupture, yet the suture has been condemned as useless, and even as mischievous, by not a few French surgeons and accoucheurs. Deuleurye[2] 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,[3] who has devoted an entire treatise to ruptures of the female generative organs and perineum, 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

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

[2] Traité des Accouchements.

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

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 recognized 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[1] is silent on the subject.

M. Velpeau[2] has a chapter on rupture of the perineum, 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 perineum, 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 incision mentioned. In fact, he evidently did not recognize the proceeding as an essential part of the operation.

MM. Paul Dubois and Chailly-Honoré advocate an oblique incision, about the third of an inch long, of the vulva, towards the perineum, 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.[3]

English Writers.—With English surgeons and accoucheurs, rupture of the perineum 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

[1] Mémoire de l'Art des Accouchements. Paris, 1836.

[2] L'Art des Accouchements.

[3] Lancet, vol. i. 1851. This plan is also proposed by Dr. Blundell, see p. 10.

Dr. F. Churchill's *Operative Midwifery*, nor in Burns.[1] 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 perineum, 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*,[2] relates several cases of laceration; but all the severe ones were either left to nature or treated unsuccessfully. Dr. Aitken[3] 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 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 perineum, 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 perineum, 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

[1] Principles of Midwifery. Dr. Burns.

[2] A Treatise on the Theory and Practice of Medicine.

[3] Principles of Midwifery. 1785.

of the perineum 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,[1] 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.

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 harelip 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

[1] On Laceration of the Perineum during Labour. 1853.

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 perineum, 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 removable by precautionary measures, of which the most important, as illustrated in the cases cited, are the parallel incisions in the long diameter of the perineum, 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 perineal 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 perineum, 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*[1] has appeared, containing a brochure by Dr. Lever on Laceration of the Perineum, 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 perineum, so that the feces 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 feces 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.

[1] Vol. viii. Part ii., 1853, p. 401.

"She complained of constant burning pain in the rectum, with inability to retain the feces 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."

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 perineum, 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 perineal 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 this 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 remained (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 Perineum, 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 *perineosynthesis.* 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 perineum."

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 perineum, the anterior side of the triangular space (formed by the two canals, vagina and rectum, with the perineum as the base). 3. The vivisection of the two lips of the laceration. 4. The insertion of the sutures. 5. The two semilunar 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 perineum 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 perineum 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 perineum 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 perineum.

The sutures of the perineum 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 horseshoe 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 chamomile 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 feces, 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 perineum. 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 22) 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 2. The first desire of defecation 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 fecal matters and of wind. From this day the nourishment was increased, and improved in character. 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 perineum, 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 the feces 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 fissures, 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 23d, 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 fecal 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 reopened 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 perineum. On the 27th, she quitted the hospital quite cured.

Case III. A woman, æt. 22, employed in field labour, suffered laceration of the perineum 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 fecal 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 three to form the new perineum. 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 chamomile 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 18. Progressing 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 a 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. 22d. 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. 23d. 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 chamomile one repeated. Catheterism and opium continued. Diet: broth, and rice milk. 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 perineum 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 perineum is a good inch long, and very firm.

In concluding, M. Verhaeghe calls attention to the great import-

ance 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 perineum. 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 first three cases I have enumerated (p. 14).

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 perineum 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 perineum, 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 Perineum," 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 perineum, 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 perineum, 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 post-

ponement, 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 perineum and the thickness of the tissues varying considerably in different persons. (See Figs. 1 and 2.)

Chloroform.—The operator will require at least two assistants. Unless contraindicated, 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.

Fig. 1.

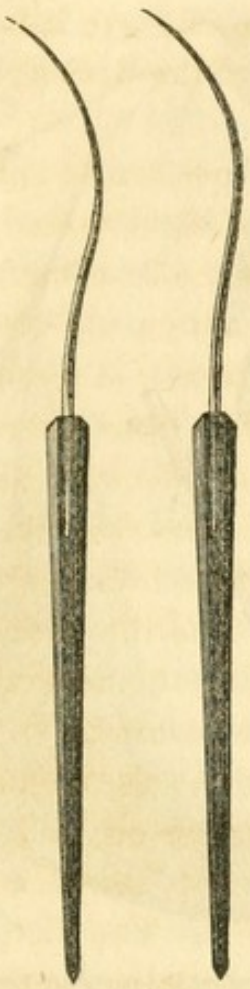
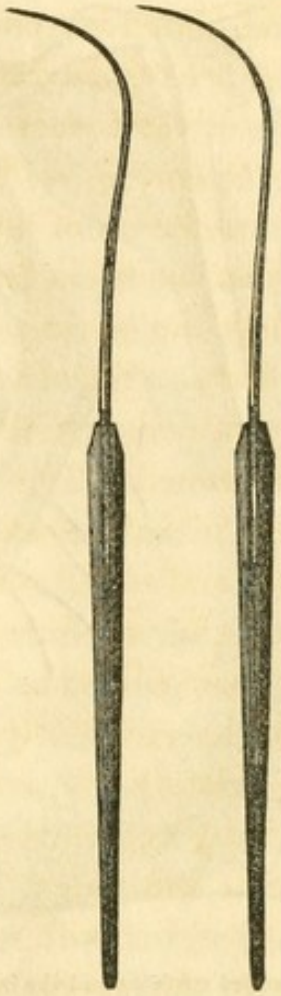


Fig. 2.



*** These figures, 1 and 2, represent one-half the size of the instruments actually used.

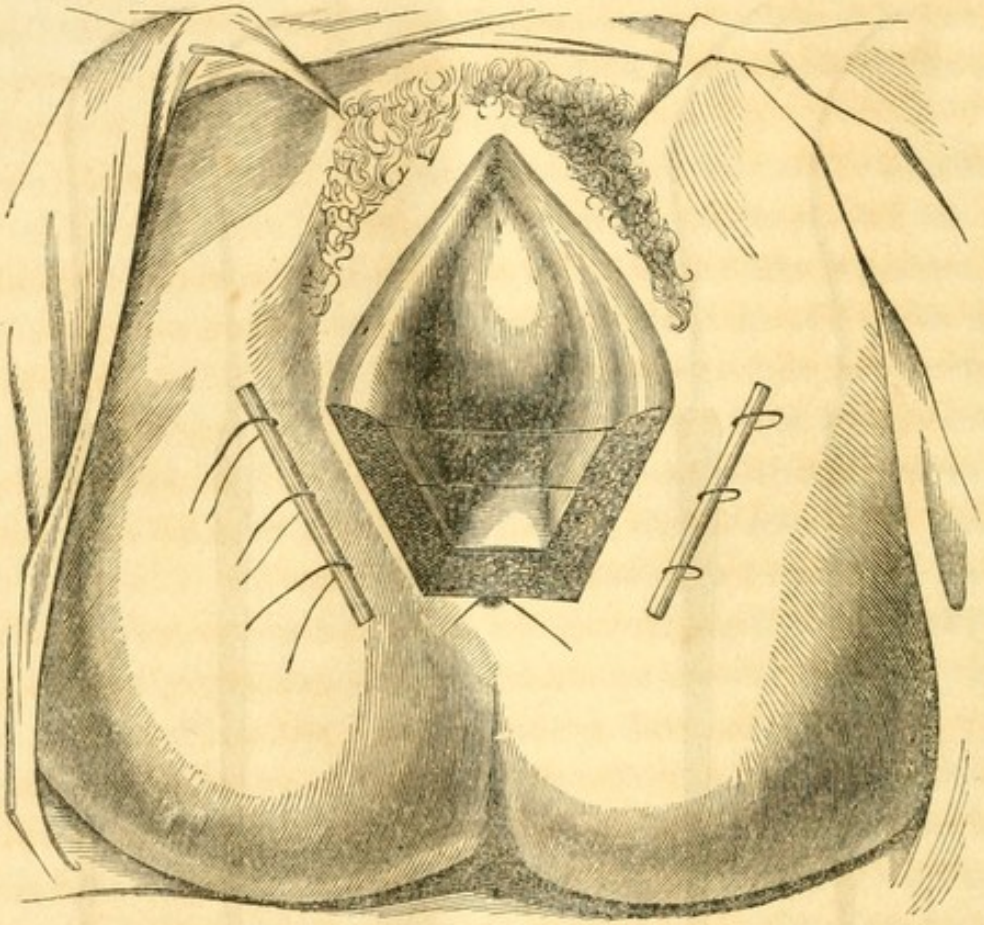
MODE OF OPERATING.

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 Fig. 3). 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 is 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.

Fig. 3.



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

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 onwards until it escapes at a point equidistant 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 Fig. 4, p. 42). 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.

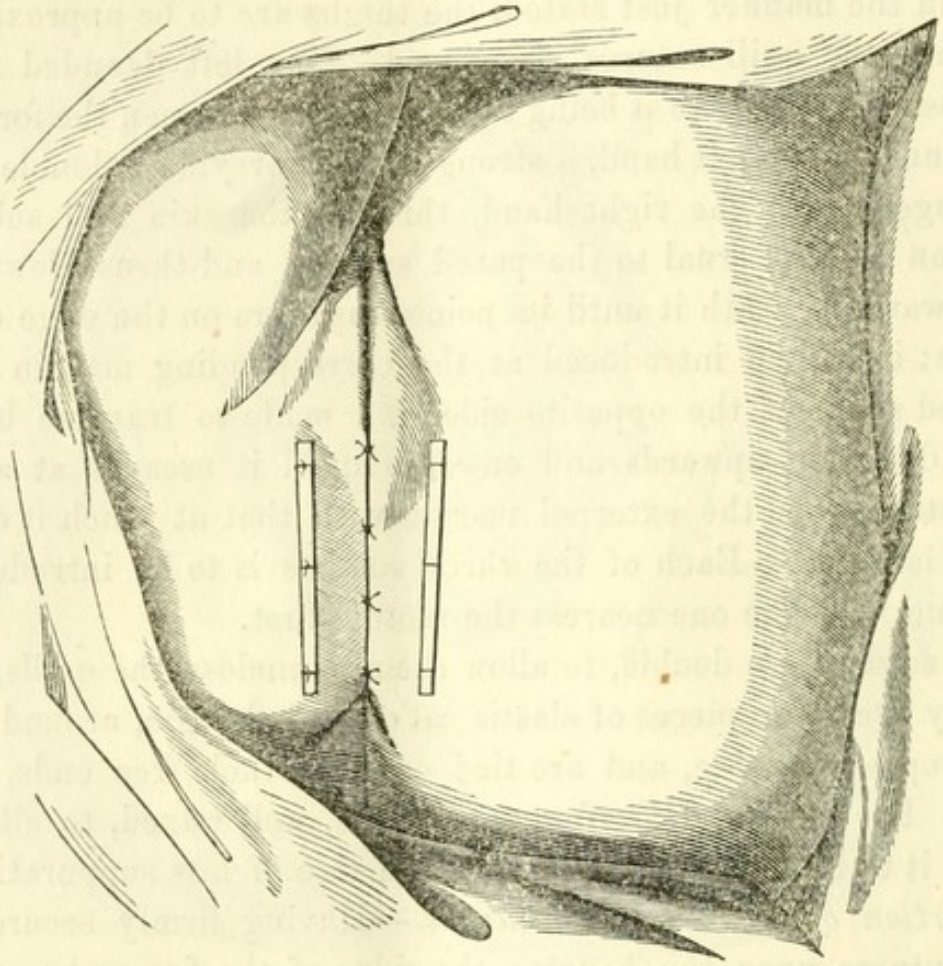
I should recommend, previously to bringing the operation to a close, that the forefinger of the right hand should be passed into the vagina and that of the left into the rectum, so as to ascertain that apposition is complete throughout.

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 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.

Fig. 4.



Shows the parts brought together by the deep and interrupted sutures.

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 elsewere; 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 or 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 perineum 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 in-

flammation 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 perineum, 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 laceration 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 Perineum.—Another general objection to the operation—indeed, to any similar operation—is that the restored perineum 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 recognized 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 perineum.

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 perineal 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 perineum, 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.[1] "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 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

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

—'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 Perineum, 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 organized—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 reabsorption. 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 caliber, 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 perineum advanced to the extreme degree. I will arrange my leading views under three propositions: 1. That the worst forms of lacerated perineum, 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 perineum.

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 perineum—that, viz: where the sphincter ani is not involved.

Moreover, I may observe that not a few of the recorded cases of perineal 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 I. *Complete Rupture of the Perineum, 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 perineum, 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 recognized, 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 perineum. 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 perineum 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.

22d. 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. 1–12. 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 perineum 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 perineum.

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 perineum, 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 recognized 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 perineum, 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 perineum.

Jan. 17, 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 membrane broke and the head proceeded to descend on the perineum, 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 perineum 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 perineum, 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 further, 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.

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

23d. 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 perineum is completely restored.

It seems clear, from the extent to which the perineum 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 perineum 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 perineum," 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 perineum 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 perineum, 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 Perineum, 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 7, 1851, into Victoria ward, under Mr. Brown, with lacerated perineum, 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 perineum. 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 feces. 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.

23d. 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 3. 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 Perineum, 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 aud the mucous membrane of the vagina; and there is but little loose integument about the margins of the chasm in the perineum, 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 out-

wards, 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 perineum 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 Perineum, of eight months' duration; Previous operation and failure; Operation; Result; Remarks.* —Jane McJ., æt. 19, admitted into Boynton ward, St. Mary's Hospital, March 12, 1852.

Eight months ago she was delivered of a male child, after a pro-

tracted labour and the use of instruments. The perineum 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 17. 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.

22d. 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 feces; 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 perineum, 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 perineum complete, and the anus perfect in its action.

CASE V. *Complete Rupture of Perineum, of seven weeks' standing; Destruction of Recto-vaginal Septum; Operation; Result.*—Mrs. W., æt. 39, admitted 23d 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 perineum, extending through the spincter 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 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 perineum.

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

May 2. 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 completly closed up; the patient had a perfect and strong perineum, 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 Perineum; Destruction of Recto-vaginal Septum; Operation; Result.*—Harriet M., æt. 46, admitted into Boyton ward, Feb. 25, 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 perineum. 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 perineal rupture, a destruction of a portion of the recto-vaginal septum.

March 9. 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 tablespoonful of brandy every four hours. Catheter again used.

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 perineal wound healthy. Ordered a mutton chop with the port wine. Continue pills every six hours. At night the perineum 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 perineum has re-

ceded 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 5. 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 3. Perineum 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 Perineum, 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 perineum was ruptured by the passage of the shoulders. No instruments were used.

On examination, the entire perineum 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. 12, 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 hemorrhage, 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 hemorrhage; 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 perineum, 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. Perineum 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 perineum looks quite sound. A digital examination could discover no recto-vaginal opening. Omit the opium.

23d. 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 perineum. 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 perineum 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 Perineum, of one year and eight months' standing; Weak Health; Operation; Result.*—Sarah S., æt. 22, admitted November 29, 1852, into Boynton ward, St. Mary's Hospital; is much marked with smallpox; states she has never been well since fourteen 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 perineum was ruptured one year and eight months ago, in her first and only confinement, when instruments were used. The laceration extends through the perineum 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 perineum was performed in the usual way on the 22d 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 Perineum, of five years' duration; Operation; Result.*—Mrs. E., æt. 39, came under my care in January 13, 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 perineum and anterior portion of the sphincter ani destroyed; the uterus pressed on the rectum, and ordinarily produced great difficulty to the passage of the feces 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 2. 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 Perineum; Destruction of Recto-vaginal Septum of sixteen years' standing; Operation; Death; Autopsy.*—C. B., æt. 42, admitted February 12, 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 perineum 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 bedtime.

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. ʒi., 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.

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

23d. 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. ʒss. mist. camph. ℥j.; statim. This draught was repeated at noon, and spt. camph co. ♏ xxx. ordered at bedtime. 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. ʒj.; 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 peritoneum 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 Perineum, 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 perineum." A proof of the last proposition is also furnished by cases I. and VI.

Case XI. *Complete Rupture of Perineum; 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 hemorrhage, and the perineum 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 perineum did not then tear. On finding the cord tightly twisted round the neck of the child, he relieved this, and entrusted the nurse with the support of the perineum. However, the shoulders were quickly and forcibly expelled, and in their passage the laceration took place.

December 30. 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 insure cleanliness, and to prevent the irritation of the united surfaces by the lochia.

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

3d. 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 perineum 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 perineal laceration, and, it may be, by hemorrhage, 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 hemorrhage and the formation of coagula.

Case XII. *Complete Rupture of the Perineum 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 perineum 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 perineum 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 perineal 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 perineum was firmly and entirely restored.

August 27, 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 perineum 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 perineum. A cresent-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 was removed, the head would tear through the perineum 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 cresent; 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 Perineum; 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 perineum, the practitioner in charge of the case had just used the forceps, and rupture of the perineum 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 perineum was restored.

On November 12, 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 perineum yielding kindly, the child was born safely 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 the Perineum; Immediate operation; Result; Observations.*—"Mrs. M. J., æt. 26, was taken in labour with her first child, June 19, 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 perineum 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 perineum 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 20. 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 1. 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 perineum 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 con-

tinued 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 Perineum; 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 perineum, 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 perineum, 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 forepart 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 favorably. 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 perineum, and illustrate its treatment.

Case XVI. *Incomplete Rupture of Perineum, 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 perineum 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 perineum, 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 perineum, 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 perineum—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 perineum: a third, in the restoration of the bodily health by attention to these mechanical causes of its decline.

Case XVII. *Incomplete Rupture of Perineum, five months' standing; Prolapsus Uteri; Operation; Result.*—E. A., æt. 23, admitted July 2d, 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 perineum 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 perineum 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 perineum 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 Perineum; Operation immediately after the accident; Result.*—Mrs. W., æt. 22, March, 1854. In labour with her first child. The head large; outlet small; perineum unyielding, and the expulsive pains strong. The constrictor vaginæ suddenly gave way, and the perineum 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 perineum was ruptured will be found among those detailed in the chapters on Vaginal Prolapse.

CHAPTER II.

PROLAPSE OF THE VAGINA.

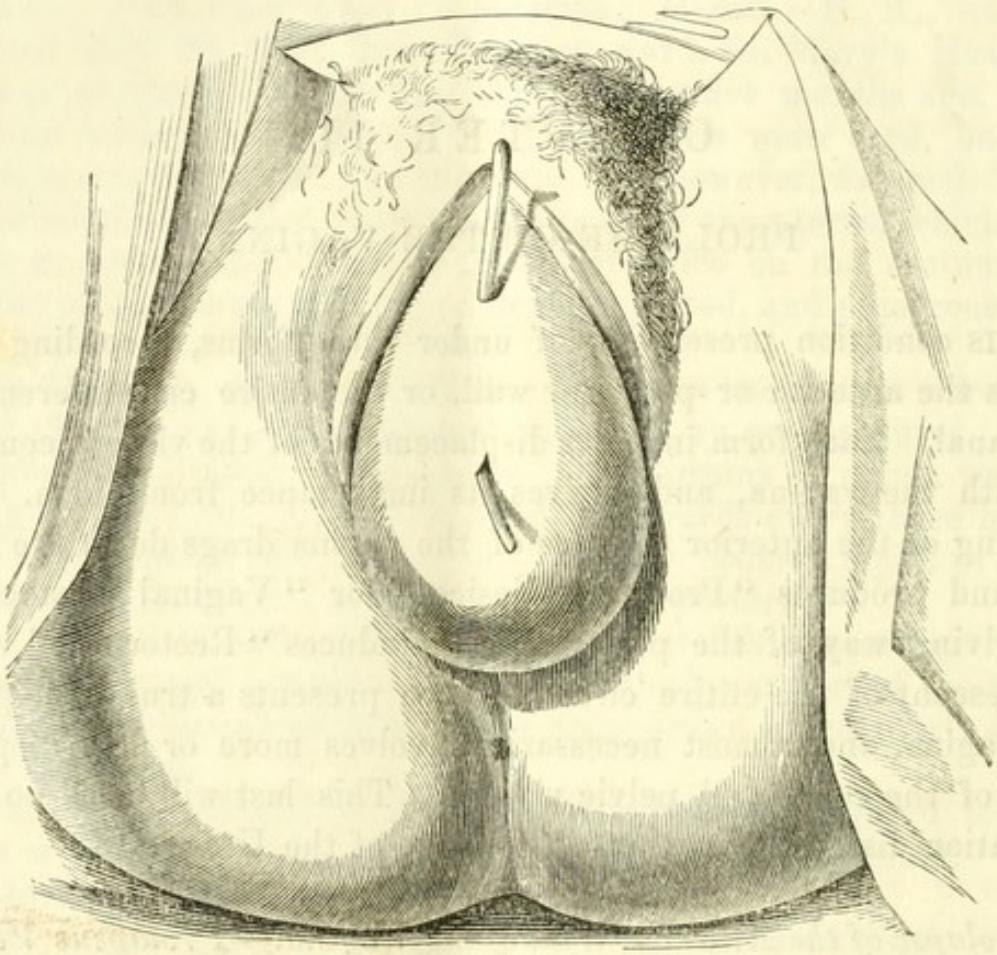
THIS condition presents itself under three forms, according as it affects the anterior or posterior wall, or the entire circumference of the canal. Each form involves displacements of the viscera connected with the vagina, and derives its importance from them. The yielding of the anterior parietes of 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 perineum, 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 Fig. 5.)

Fig. 5.



Shows 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.

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 fetid, 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 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, incloses 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. Recognizing 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:—

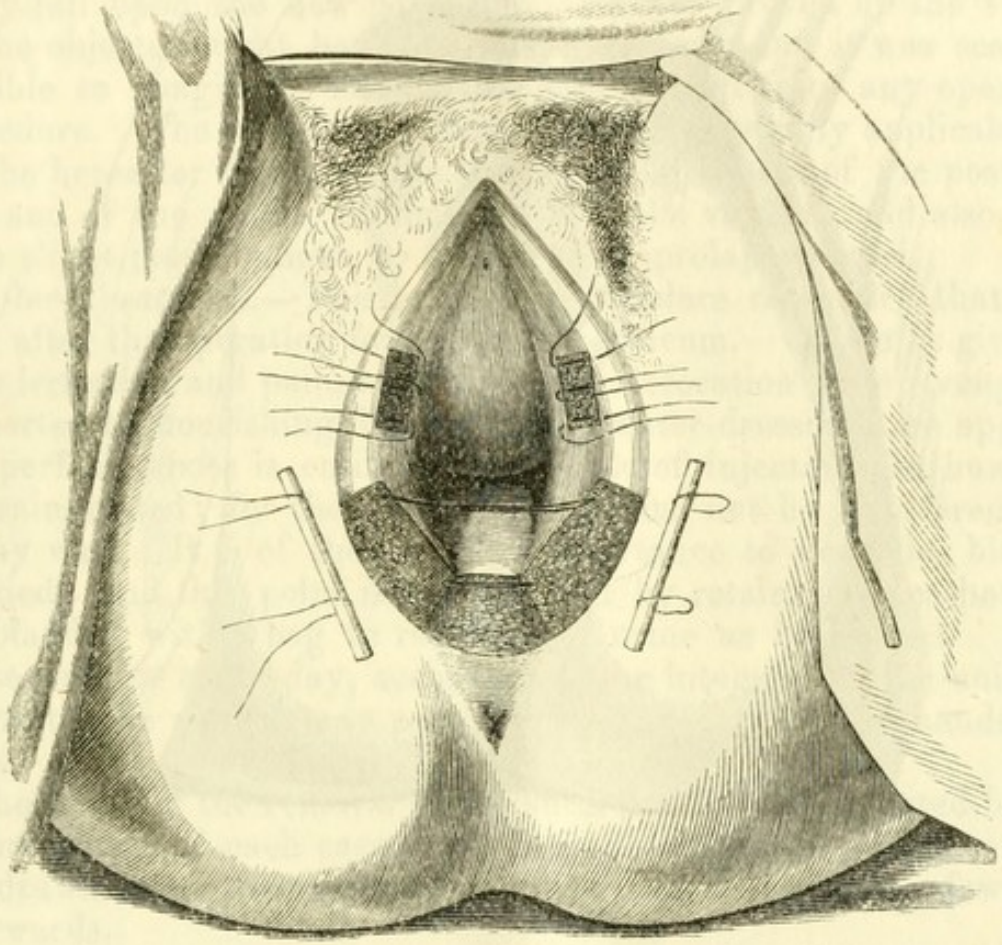
Case XIX. M. T., aged 52, has had ten children. She was admitted into St. Mary's Hospital, February 14th, 1853, suffering from severe prolapsus of the vagina and bladder, which first began to trouble her nine years ago, after her last labour. On the least exertion of walking, or even standing, or coughing 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 horseshoe, 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 Fig. 6.) Two deep sutures of twine were then

Fig. 6.

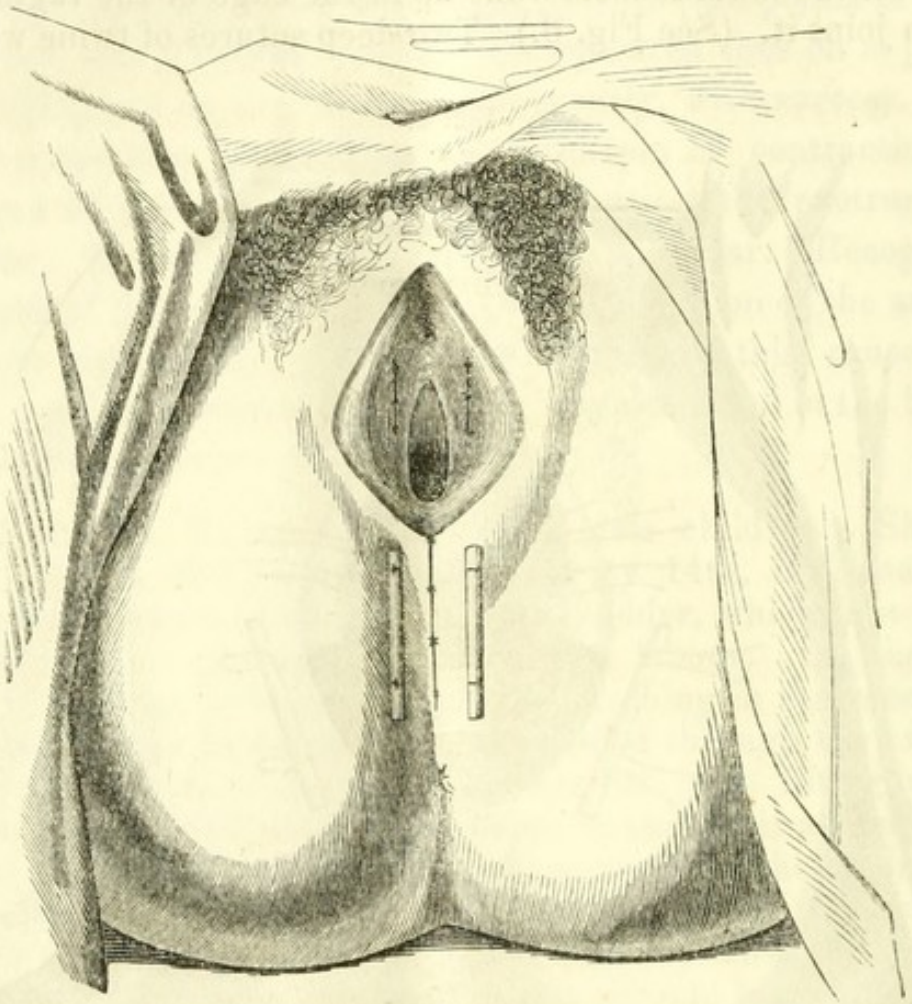


Shows the different surfaces denuded, and the insertion of the quill sutures posteriorly and the interrupted ones laterally for the operation for prolapsus of the vagina.

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 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 perineum. The edges of the new perineum were lastly united by interrupted sutures, and the patient placed in bed on a water-cushion. (See Fig. 7.) 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 22d, 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.

Fig. 7.



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

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 perineum, 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 perineum. 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 pursued after the operation for ruptured perineum. Opium is given to allay irritation and pain, and to prevent defecation; the strength is supported by nourishing diet and wine; water-dressings are applied; and perfect repose is enjoined. The use of injections is, however, contraindicated; 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 10. 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 3d 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. 6. 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 perineum, 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 Perineum.*—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 perineum 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 connection 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 14, 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 fecal 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 pugatives in persons of lax fibre.

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

4. Rupture of the perineum, 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 connection with the perineum, 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 perineum is the normal antagonist to the diaphragm, counteracting its downward thrust of the intestines, especially in the efforts at stool. Hence the perineum 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, as 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, perineal bandages, and such like expedients. If such fail, however, recourse to surgical measures should not be delayed. The operation I recommend and practice 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 soreness about 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 perineum 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 Fig. 6, p 79. 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 Perineum.*—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 perineum 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 perineum 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, ʒj., 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, fʒss; potassæ nitrat. gr. viij.; pulv. tragac. comp. gr. xv.; syr. papav. fʒss; aquæ, ʒj.: 4 tis 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 perineum 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. potasse, ℥xx.: tr. hyoscyami, ℥xx.; dec. lini. fʒj.: 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 perineum perfect.

Case XXVI. *Vaginal Rectocele, Prolapse of the Uterus, and Ruptured Perineum.*—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 perineum 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 perineum 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 perineum; 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 perineum, 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 Fig. 6, but with the omission of the anterior denudation,[1] consisted in dissecting off the mucous membrane from the sides and posterior wall of the vagina, in the shape of a horseshoe, 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 perineum. 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. 20. 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.

23d. 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

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

perineum united; the rectocele cured, and also the prolapsus uteri; and the patient can stand and walk with ease and comfort. One of my perineal 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 perineum, even when the rupture is but partial. The displacement of the uterus and vagina may be here attributed to it.

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 Perineum, 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 Perineum.
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 the 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 connections 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 stangury, irregularity of the bowels, and interference with the process of defecation, 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.

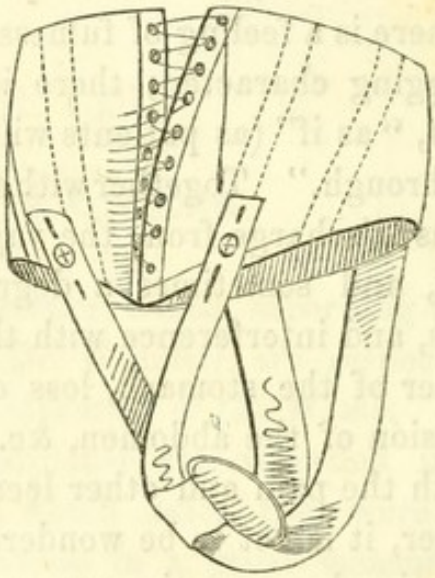
Treatment.—For a long period, in the progress of most cases, the uterus returns of itself or otherwise is easily replaced, on the patient assuming the recumbent posture. Hence in the early stage, this posture, with the hips considerably elevated, must be insisted on, and continued for a long time; attention 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 perineal bandage which I devised and described some years back, and have constantly used. (See Figs. 8 and 9.) Should these

Fig. 8.



Fig. 9.



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 perineum be much dilated, and have lost its usual tonicity, I should confine myself to the use of the perineal 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 perineum, 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 cauterization 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 rhinoplastic 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,[1] 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

[1] See published case in the American Journal of Medical Sciences, Aug. 1839.

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.[1]

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 New York, United States, which is described in *The American Journal of the Medical Sciences* for Jan. 1852, as follows: "The suture used by Dr. Sims he calls the 'clamp' suture. It is composed of annealed silver wire the size of horsehair 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, or by being turned twice round it. This done, the ends *b* are drawn

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

down till the bar is pulled close to the needle holes at *d*, after which it remains to attach a crossbar to the lower ends of the ligature and

Fig. 10.

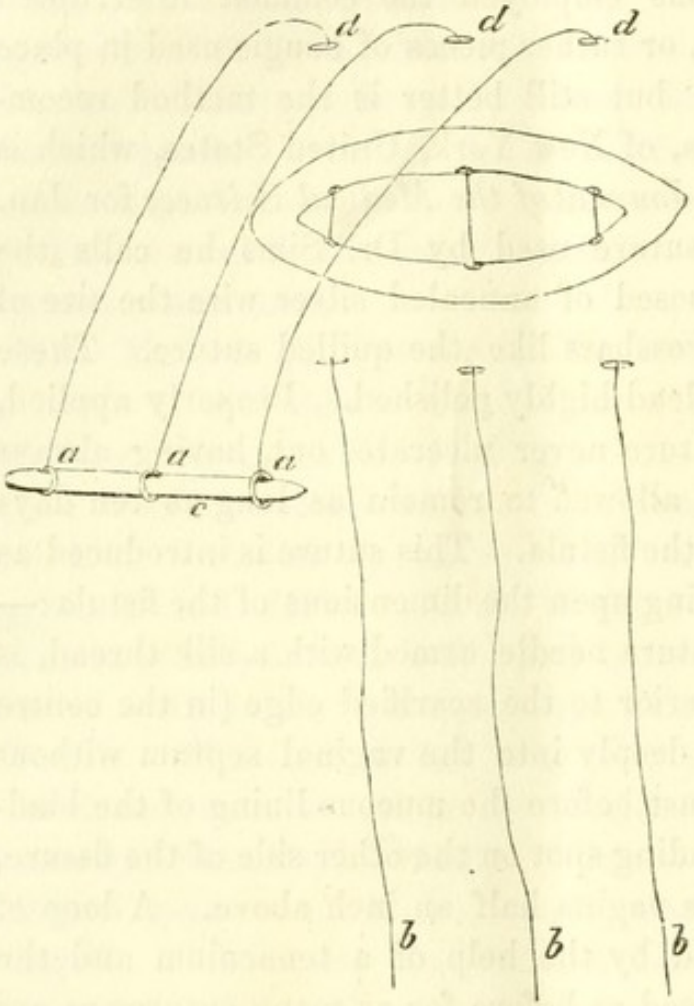
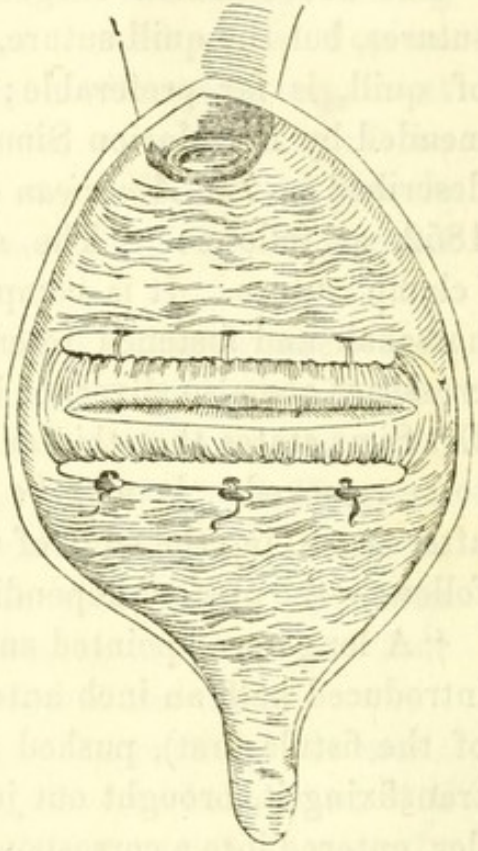


Fig. 11.



push it up to the lower perforations. 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. 11."

This plan has been successfully followed by my friend Dr. Druitt;[1] and I have myself used it with varied success, as will be presently seen in the cases recorded. On the whole, I am 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

[1] See "The Surgeon's Vade Mecum," 1854, page 572.

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 perineum, 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 Boston,[1] as follows: "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

[1] See American Journal of the Medical Sciences, for Jan., 1852.

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. 12), and then carefully dissecting off the mucous membrane; a pair of long forceps made on purpose (see Fig. 13) being used to seize it. This done, a needle armed with

Fig. 12.



Fig. 13.



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),

Fig. 14.

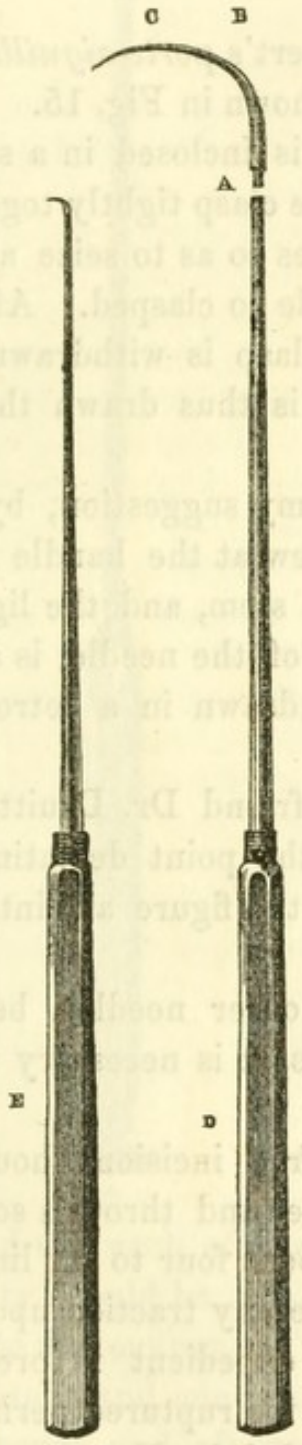
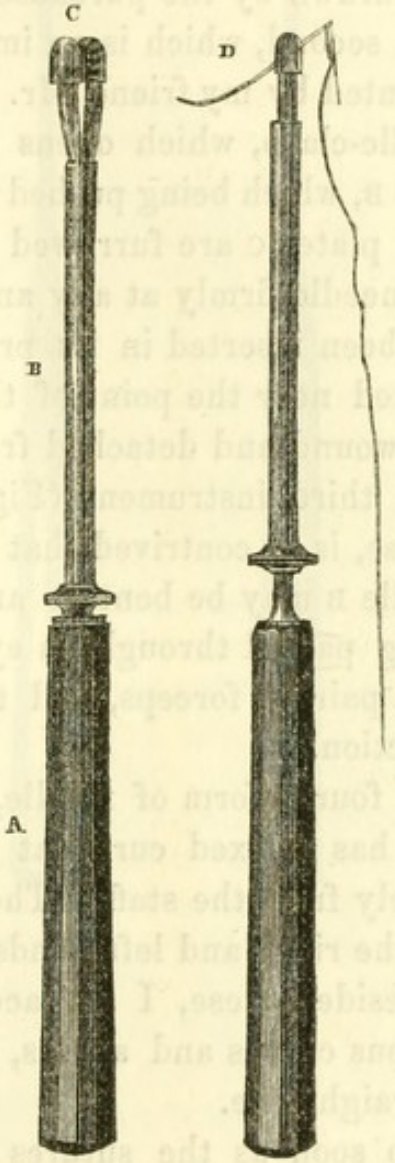


Fig. 15.



made at my suggestion by Mr. Blaise, of the firm of Savigny & Co.[1] One was suggested to me by Dr. Wilkes, of Philadelphia (as seen

[1] 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.

in Fig. 14), which represents the needle A, which has an eye at B 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. 15. 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 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 refixed near the point of the needle, which is thus drawn through the wound and detached from the ligature.

A third instrument (Fig. 16), 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 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. 17), 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 incision 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 opposed surfaces. The principle of this expedient is precisely similar to that recommended in my operation for ruptured perineum, 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

Fig. 16.

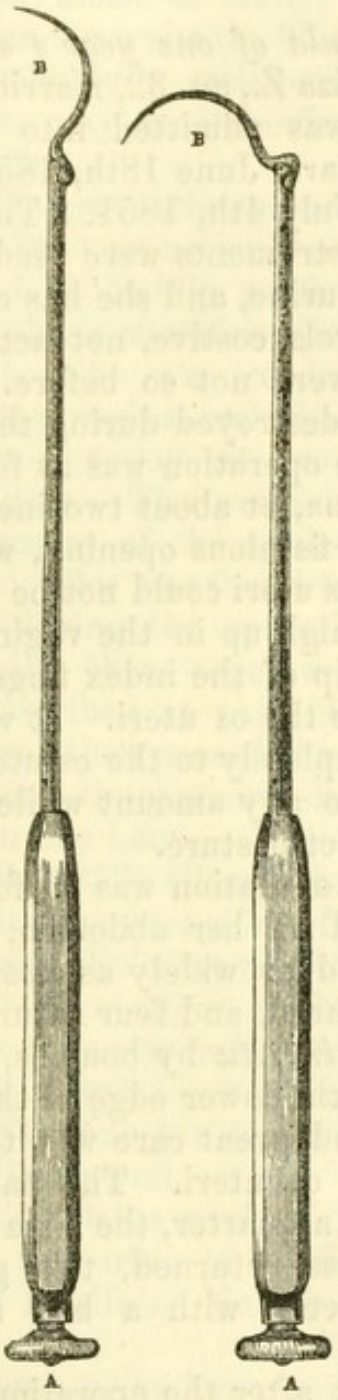
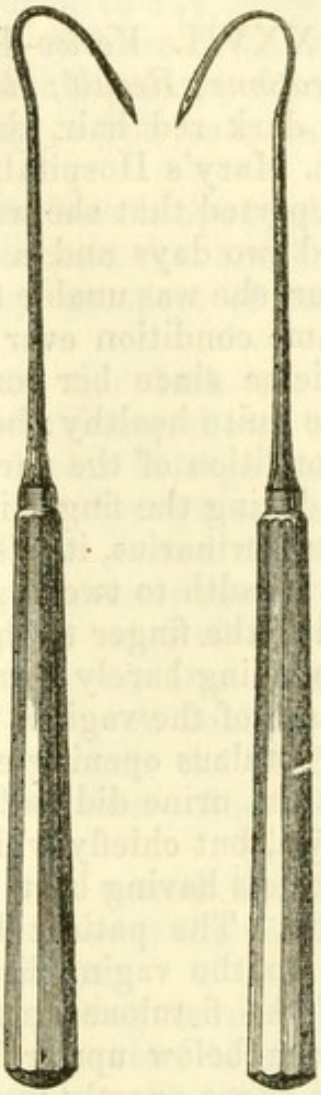


Fig. 17.



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* inclosing 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.

22d. 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. 11. She was readmitted, 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 perineum 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 97, figures 10, 11. 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. 16, 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. 15. 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.

22d. 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.

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

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

March 8. 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 5. 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 3. No urine passed per vaginam since the 28th.

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

Readmitted Oct. 31, 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. 19. To-day the same was applied to the fistulous orifice. The growth had disappeared, leaving some slight vascularity.

Dec. 6. 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 movable 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.

23d 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 feces came away.

March 1. 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 4. 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.[1] 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 feces accumulated in the rectum, and

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

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 three or four 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 24. Examination. There was a small fistulous opening near the os uteri; a large calculus could be felt within the bladder, 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 ether, and an ounce of camphor mixture immediately; and this was ordered to be repeated every 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 ether, 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 hemorrhage; all the urine escapes through the fistulous opening; takes beef-tea and barley-water.

April 5. 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 18, 1853. She gave the following history of herself:—

On August 1, 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 4, 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 with 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 hemorrhage. She had ice before the operation, and aftewards 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 hemorrhage; applied ice within the vagina and iced lint within the vulva.

5th. 9 A. M. No fresh hemorrhage: 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 hemorrhage. 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 bedtime.

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 31, 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 hemorrhage, principally venous. The hemorrhage 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 hemorrhage 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. 12. 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.

22d. 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.

23d. 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 reintroduced. 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 feces came away—no escape of urine.

March 1. 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 was 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 Perineum.*—Mrs. M., æt. 29, married, admitted into Boynton ward, St. Mary's Hospital, September 20, 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.

22d. 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. Perineum completely ruptured even through the anterior fibres of the sphincter.

November 2. 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 6. 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.

22d. 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.

23d. 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. 3. 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. 1. 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.

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

3d. 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 14. 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 feces 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 dressing, 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 perineum, then, putting the patient immediately in a quiescent state with the knees flexed, confining the bowels by opium, and applying a well-adapted perineal 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 fecal 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. 16. 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 then applied, and forty drops of laudanum administered.

Feb. 17. 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.

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

25th. Bowels acted without pain; no fecal 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 perineum. 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 feces 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 perineum, 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, was admitted into Boynton ward, St. Mary's Hospital, Dec. 23, 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 feces 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 feces 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 perineum, 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 perineum, 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. 3. 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 *résumé* of the principal facts, my chief object being to indicate the surgical treatment of these common morbid growths; especially the ordinary pedunculated fibrous tumors—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.[1] Many similar examples are mentioned by authors.[2]

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 distinguishing from what part

[1] Churchill on Diseases of Women, page 201.

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

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.[1] Sometimes a polypus will protrude though 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."[2]

The *cellular* polypus is the least frequent of either kind;[3] 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 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

[1] Denman's Midwifery, p. 50.

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

[3] See Clarke on Diseases of Females, (vol. i. p. 244.)

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.[1] 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 bloodvessels. 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 hemorrhage 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 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

[1] See Denman (p. 50), who dwells fully on this subject.

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.[1]

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 hemorrhage.

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, by their perfect sensibility to the touch, and by their being covered by a production of the mucous membrane of the vagina itself."[2]

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 hemorrhages 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 pro-

[1] Dublin Journal of Medicine, August, 1846.

[2] Obstetric Medicine, vol. ii. page 622.

jecting 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 hemorrhages 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 to 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 occurring in connection 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 hemorrhage 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 Bridge-

water 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 hemorrhage occured 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 hemorrhage. If hemor-

rhage 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 2, 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 hemorrhage, and her general health was much impaired. After a few months, the polypus gradually protruded out of the uterus, tightly encirled 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 12, 1852; the chest was examined, and no disease found except chronic bronchitis.

December 29. 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 bedtime.

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 arrowroot. 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. 1, 1853. The discharge from the vagina is fetid. 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.

2d. The bowels were quiet some hours after the powder, but are again very much relaxed this morning. Powder to be repeated.

3d. 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 arrowroot 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 3d 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 connection with it. The constitution of this patient was so shattered by her long suffering antecedent to the operation, that it was 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. 2, 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 hemorrhagic 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. 3. 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 bedtime.

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 ether, opium, and camphor mixture.

From this time she gradually improved in health, and on Dec. 3d 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 irritation. 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,[1] 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 movable, 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 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."[2]

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.

[1] "Lancet," May 28th, 1853.

[2] Cooper's "Lectures on Surgery."

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 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.[1] Dr. Molineaux 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. 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

[1] See Cooper's "Surgical Dictionary," (Art. *Lithotomy.*)

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, forever 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."[1] 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 107 of this work will be found a case in which I extracted a stone from the female bladder by dilating the urethra

[1] "Cooper's Lectures," p. 368. Renshaw, 1839.

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.

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 cystirrhœa.

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. 13. 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 vagina in the form of a semilunar 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 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

* Blundell's "Midwifery," p. 689.

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 3d, 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 something 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 recommend 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 hemorrhage 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 connection 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 with 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 hemorrhage 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 defecation, 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 insure 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 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 bluish 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 recognized 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 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.

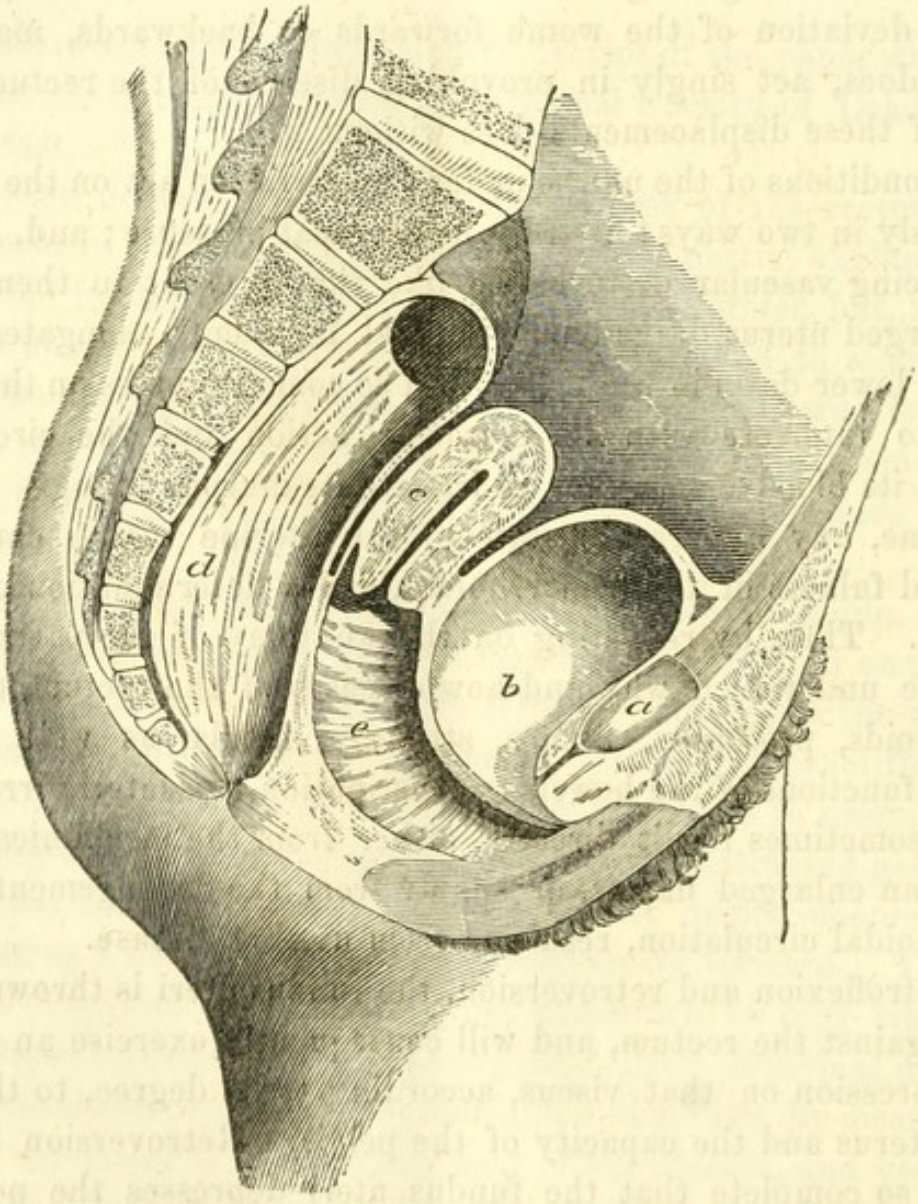
The conditions of the uterus under consideration act on the rectum injuriously in two ways: first, by mechanical pressure; and, second, by inducing vascular disturbance like that present in themselves. An enlarged uterus drags on its lateral ligaments, elongates them, subsides lower down in the pelvis, 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 hyperæmic state of the uterine vessels causes an increased fulness of the hemorrhoidal, 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 hemorrhoids, 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 hemorrhoidal 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. Retroversion 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.

Fig. 18.

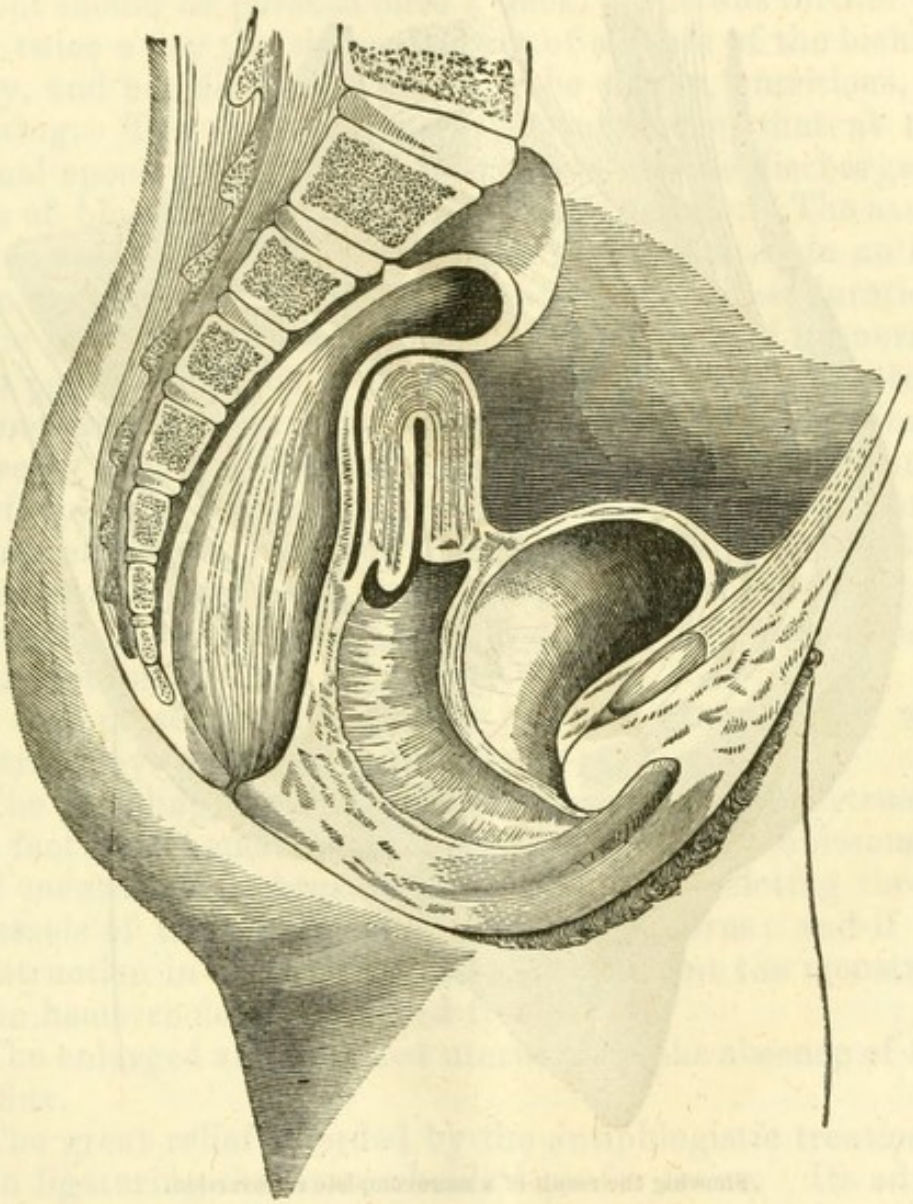


Normal condition of the pelvic viscera.
a. Symphysis pubis. *b*. The bladder. *c*. Uterus. *d*. Rectum. *e*. Vagina.

A reference to Figs. 18, 19, and 20, 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.

Fig. 19.

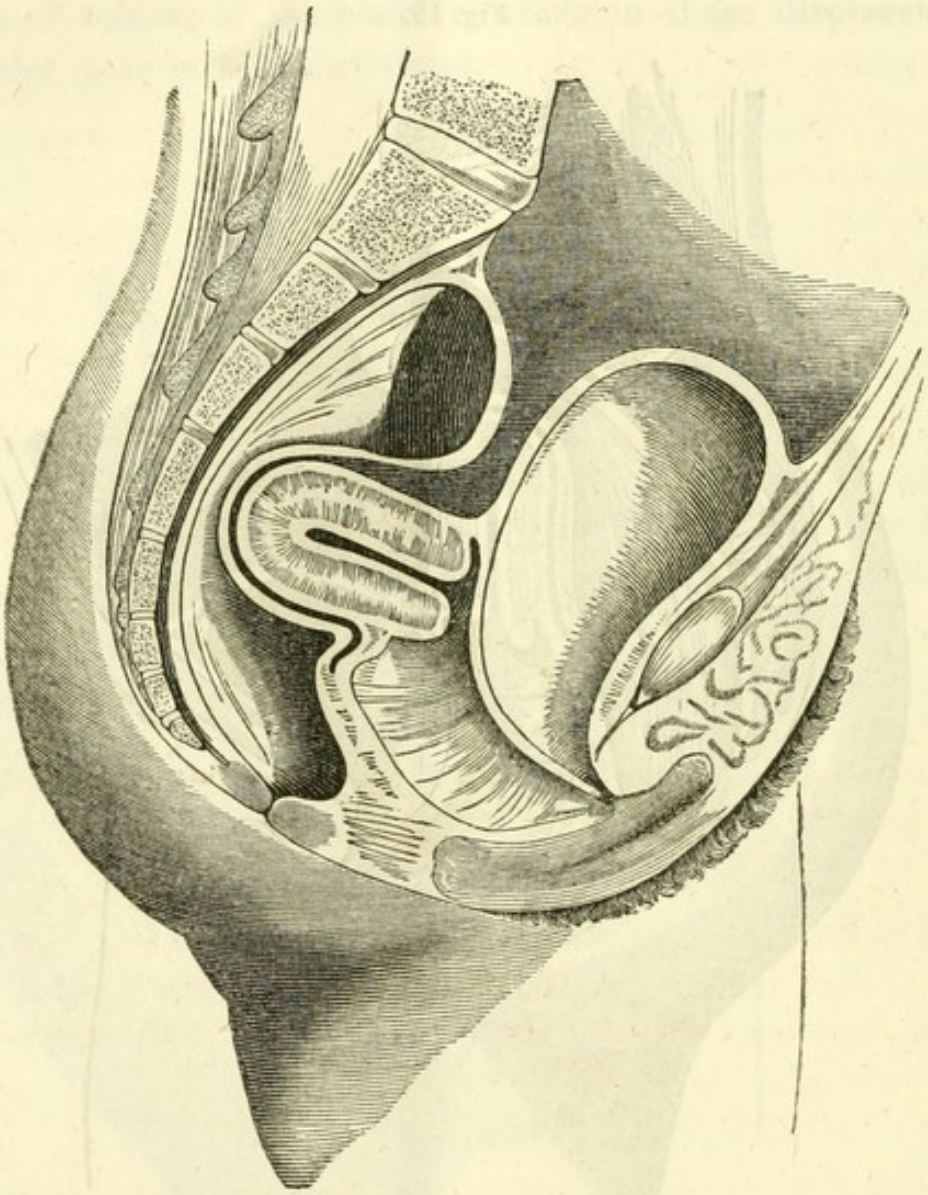


Showing partial retroversion of uterus pressing upon upper part of rectum.

Hemorrhoids.—The hemorrhoidal 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 excessively vascular and sensitive. I allude here entirely to internal hemorrhoids of a varicose nature.

Fig. 20.



Showing the result of a more complete retroversion.

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 defecation, 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 quan-

tity 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 hemorrhoids. 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 hemorrhoidal 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 hemorrhoids, 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 hemorrhoids at the menstrual epoch. It is a fact that hemorrhoids are always more troublesome at the time of menstruation, because more blood is circulating through the bloodvessels 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 hemorrhoids 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 hemorrhoids 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 hemorrhoids 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 defecation; 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, movable 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.

22d. Complained of a sharp cutting pain after the last dejection.

23d. 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 connection 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 defecation, because she suffered such excruciating pain a few minutes afterwards. She described the pain at the time of defecation 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 defecation 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 feculent 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 perineal bandages, to take internally steel, and zinc combined with extract of conium at bedtime; 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 defecation, 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 connection, but for some weeks afterwards. Before 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 defecation, 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 hemorrhoids, 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 defecation 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 recognize 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.

DISEASE 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 recognized, 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[1] 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[2] 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 capable of growth and of developing others. Mr. Paget[3] 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

[1] Lectures on Tumours, 1853.

[2] Clinical Reports of Ovarian and Uterine Diseases, p. 23. 1853.

[3] Op. cit.

—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[1] 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:[2] "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 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 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

[1] Edinburgh Medical and Surgical Journal, vol. lxv. p. 402.

[2] See op. cit., p. 22.

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,[1] 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,[2] 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, and by various coloured spots. A fibrinous exudation may entirely line a cyst, and, as pointed out by Professor Simpson,[3] become vascular, and eventually give rise to hemorrhage 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

[1] Provincial Medical and Surgical Journal, No. 2, p. 38, 1851.

[2] Ibid., pp. 35, 36.

[3] The Monthly Journal of Medical Science, vol. xv. p. 526, 1852.

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[1] 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[2]) "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 inclosed between them; or, more rarely, 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 envelops. Dr. Robert Lee would explain the formation of a compound tumour in another manner, as will be best shown by quoting from his account[3] 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

[1] On the Morbid Anatomy of Serous Membranes.

[2] Op. cit., p. 60.

[3] Lee, op. cit., pp. 22, 23.

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, 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 on 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,"[1] 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 tumors, from being but partially developed. The growth of such seems frequently to be only 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 tumor 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.[2]

Mostly the tumors 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,[3] 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,

[1] Paget, op. cit., p. 60.

[2] See case by Mr. Hunt, Lancet, vol. i. 1746; and Cases 2 and 5, published by me in the same Journal, vol. i. p. 371 and 373, 1846.

[3] Monthly Journal of Medical Science, vol. xv. p. 365, 1852.

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 tumor, 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 of being evacuated through the trocar than are the contents of the more condensed and undeveloped cysts of the tumor.

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 neighboring 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 favors 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[1] 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,[2] 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

[1] See Medico-Chirurgical Review, April, 1854, p. 465—in Analysis of the "Mémoires de la Société de Chirurgie de Paris," by Mr. Chatto.

[2] See subsequent page on Dropsy of the Fallopian Tubes.

frequently like the serum of the blood, of a pale yellow, or straw colour, but containing only a trace 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 substance may be commingled with either variety of liquid contents.

The quantity of contained albumen varies much in the fluid of ovarian cysts. Dr. Bruitt[1] 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 secreting 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.[2] 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 old analysis, by M. Jules Fontenelle,[3] detected, in eight pints of brown and turbid fluid, 6 parts of fibrin, 97 of albumen, 34 of congealed gelatin, 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

[1] The Surgeon's Vade Mecum, sixth edition, 1854, p. 465.

[2] Lancet, vol. ii. p. 9, 1849.

[3] Archives Générales de Médecine, tom. iv. p. 257.

with fat-globules and delicate plates of cholesterine. Dr. Hughes Bennett[1] 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 further on the subject.

The quantity of fluid which may accumulate in an ovarian tumor 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,[2] 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."[3] Dr. Copland adds,[4] "In a case under the care of my friend, Mr. 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 tumors are produced in connection with the cysts, both internally and externally, and soft or hard cancerous formations more rarely appear about and between them.

[1] Edinburgh Medical and Surgical Journal, vol. lxv. p. 40, 1846.

[2] Lancet, vol. ii. p. 9, 1849.

[3] Copland, Dictionary of Practical Medicine, vol. i. p. 664.

[4] Op. cit., vol. ii. p. 928.

"In rare instances," says Dr. Copland,[1] "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; 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.

[1] Op. cit., vol. i. p. 654.

"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[1] 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[2] have, according to my experience, borne no children though several years married. But Dr. F. Churchill believes[3] that those who have borne children are more obnoxious to it than the unmarried.

In a considerable number, ovarian disease has been ushered in 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;

[1] Lancet, Feb. 19th, 1848.

[2] Lancet, vol. ii. p. 10, 1849.

[3] On the Diseases of Women, 1850.

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 unmistakably 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 exces-

sive 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 the 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 hemorrhoids; or, instead of mechanical, sympathetical disorders may afflict those organs, and be evinced 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 connection 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,[1] 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

[1] Surgeon's Vade Mecum, p. 465.

Lee,[1] 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 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

[1] Lee on Tumours of the Uterus.

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[1] the following sketch of the course of 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 acquires 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 120 lbs., 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

[1] Burns's Midwifery, p. 139.

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,[1] 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 reaccumulated liquid. Such a case I have put on record in the *Lancet* (Case 5, 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. 164), 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 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

[1] Provincial Medical and Surgical Journal, 1851, No. 1, p. 7.

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[1] that he has seen several cases, and narrates one.[2]

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[3] 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 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

[1] The Monthly Journal of Medical Science, vol. xv. p. 527, *et seq.*, 1852.

[2] See some remarks by Dr. Simpson, quoted in section on tapping.

[3] Medical Dictionary, vol. i. p. 655.

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,[1] 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 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. 164).

[1] Monthly Journal of Medical Science, vol. xv. p. 528.

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, fecal 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 dis-

turbance 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 feces, 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 immovable 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 backwards towards the rectum, or bent forwards, or pushed to one side—the opposite to that from which the tumour springs. "If," says Dr. Churchill,[1] "the finger be introduced into the rectum 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,[2] "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 de-

[1] On the Diseases of Women. 1850.

[2] Blundell on The Diseases of Women, p. 108.

scend 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 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 of 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 recognized, 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 of 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 occurrences 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 *résumé*. 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?

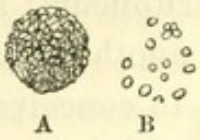
"Second. What are the fallacies to which a diagnosis, founded upon a microscopic examination of the fluid, is obnoxious?

"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

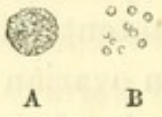
refer the reader to the annexed engraving, which will in some measure illustrate the idea I wish to convey respecting the gorged cells and granules.

Fig. 21.



A B

Fig. 22.



A B

A, In both figures represents the gorged cells.
B, Similarly the granules.

"In Fig. 22 it will be seen that both the cells and the granules are formed on a much smaller scale than in Fig. 21.

"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.[1] 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 tumour, and by withdrawing fluid where present, to obtain diagnostic signs by the microscope.

[1] These exploring needles are represented in vol. x. p. 197, of the Monthly Journal of Medical Science, 1850.

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,[1] 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 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 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 tumor will occupy a similar position.

[1] See his paper on its employment in Diagnosis in the London and Edinburgh Monthly Journal for 1843, pp. 701 and 712.

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:[1] "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 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

[1] Edinburgh Medical and Surgical Journal, 1846, p. 404.

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 hemorrhoidal, 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 feces 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 recognizable; 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,[1] 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[2] by him. He states that, on opening the peritoneum, "a multiplicity of convoluted vessels presented themselves, of various magnitude, from the thickness of a finger to that of a crow's quill. . . . . On minute examination, they were found to be the bloodvessels 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,

[1] Monthly Journal of Medical Science, vol. xii. p. 229, 1851.

[2] Observations on Extraction of Diseased Ovarian, 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.

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 up stairs. 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 dis-

eased 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 circumscribed 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. 177), 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),[1] "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. p. 478, 1851.

A case lately came under my notice, where pregnancy had been 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.

[1] Op. cit.

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 recognized 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 arises 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 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 recognized 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,[1] 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

[1] See abstract in the Association Medical Journal, Feb. 10th, 1854, p. 137.

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.[1] "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 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.

[1] Medico-Chirurgical Review, Jan. 1853, p. 293. The case quoted from The American Journal of Medical Science, Oct. 1852.

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 Feces 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 feces. 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 connection 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. 195.)

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.[1]

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. 179.) Tumours also confined to that space—the retro-uterine of some authors[2]—may be distinguished from ovarian by the differential signs already mentioned (p. 179) 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

[1] Lizars, J., Observations on Extraction of Diseased Ovaria, Edinburgh, 1825.

[2] See L'Union Médicale for May 31st, 1851, for M. Huguier's Observations. Also Dr. Tilt on Sanguineous Pelvic Cysts. Lancet, Dec. 11th, 1852.

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[1] 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. 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,

[1] Lancet, 1849, vol. ii. p. 387.

is almost hopeless, although conjoined with surgical means such may be of considerable avail. If a patient complains of uneasiness 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 prejudical 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 earily 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."[1]

In the always desirable endeavour to recruit and sustain the patient's health, hygienic measures should be attended to; a careful

[1] Principles and Practice of Physic.

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.[1] Besides difficulties from the employment of the compressing bandage, such

[1] 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.

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.[1] "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 wall be thick and fat, to make an incision through the integuments before attempting to plunge the trocar with its canula into the cyst.

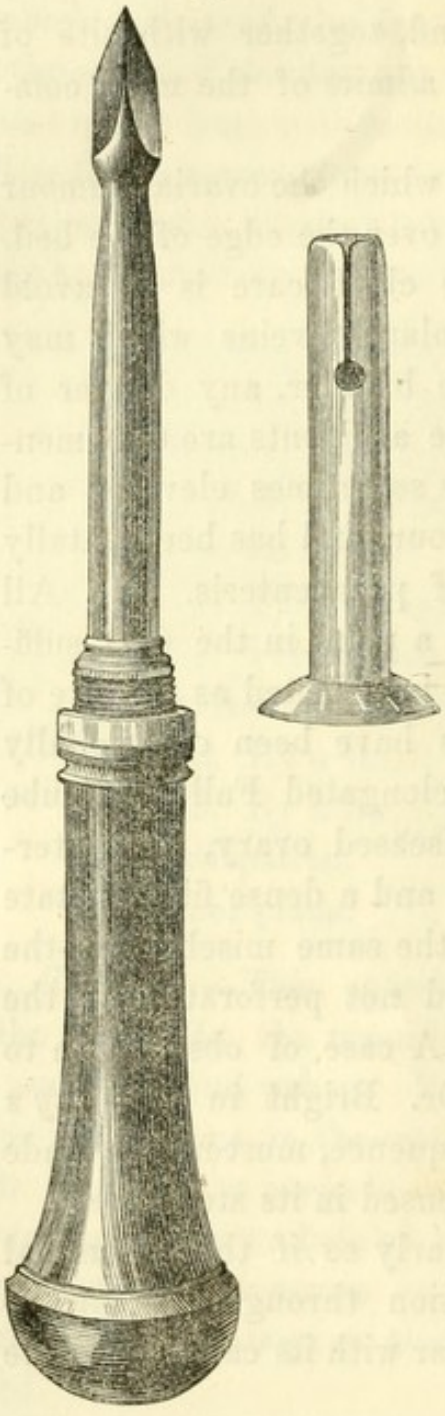
The trocar and canula should be much larger (see Fig. 23) than those in general use.[2] If the fluid be thin and transparent, it runs well enough through a small canula; but if of treacly, viscid consistence, it scarcely escapes at all; if there are albuminous flakes or cheesy matter, the tube becomes entirely clogged up. Moreover, the very large instrument I use, admits of free and rapid emptying

[1] The Monthly Journal of Medical Science, Oct. 1852, p. 363.

[2] This figure represents two-thirds of the size of the instrument I generally use.

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.

Fig. 23.



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,[1] this method may be adopted, if the cyst sufficiently points in that direction.

Dr. Simpson[2] looks upon this mode of tapping as more peculiarly applicable to unilocular cysts, and states that he has "more than

[1] See subsequent section on the Production of an Artificial Oviduct.

[2] Op. cit., p. 364.

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 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,[1] "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 reaccumulates 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 im-

[1] Monthly Journal of Medical Science, Dec. 1852, p. 528.

mediate danger to the patient's life. These objections[1] 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 compressive 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 cyst, probably by compressing mechanically the bloodvessels 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

[1] 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 surgeons 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.

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*.[1]

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 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

[1] 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.

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 recognized.

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. iij; ext. tarax. gr. iv; ferri sulph. gr. ij, in pil. iij: 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. 2d, 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 albuminous 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 readjust 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 feces 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 left leg, which a stimulating embrocation and friction dispersed. 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 ovaria 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.[1]

"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 injections 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.

"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.

[1] Monthly Journal of Medical Science, May, 1854, p. 467.

"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 :[1]—

"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 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 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.

[1] I have abridged the account where possible without altering the sense.

"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 recognize 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 reaccumulation 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 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 symp-

toms 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 connection 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 contract 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 bringing 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 semilunar 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 straw colour; the entire quantity evacuated amounting to eleven pints. Although relief followed, the cysts refilled, 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. 11. 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 superoir 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-size 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 contracted 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 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 (Fig. 24), 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,

Fig. 24.

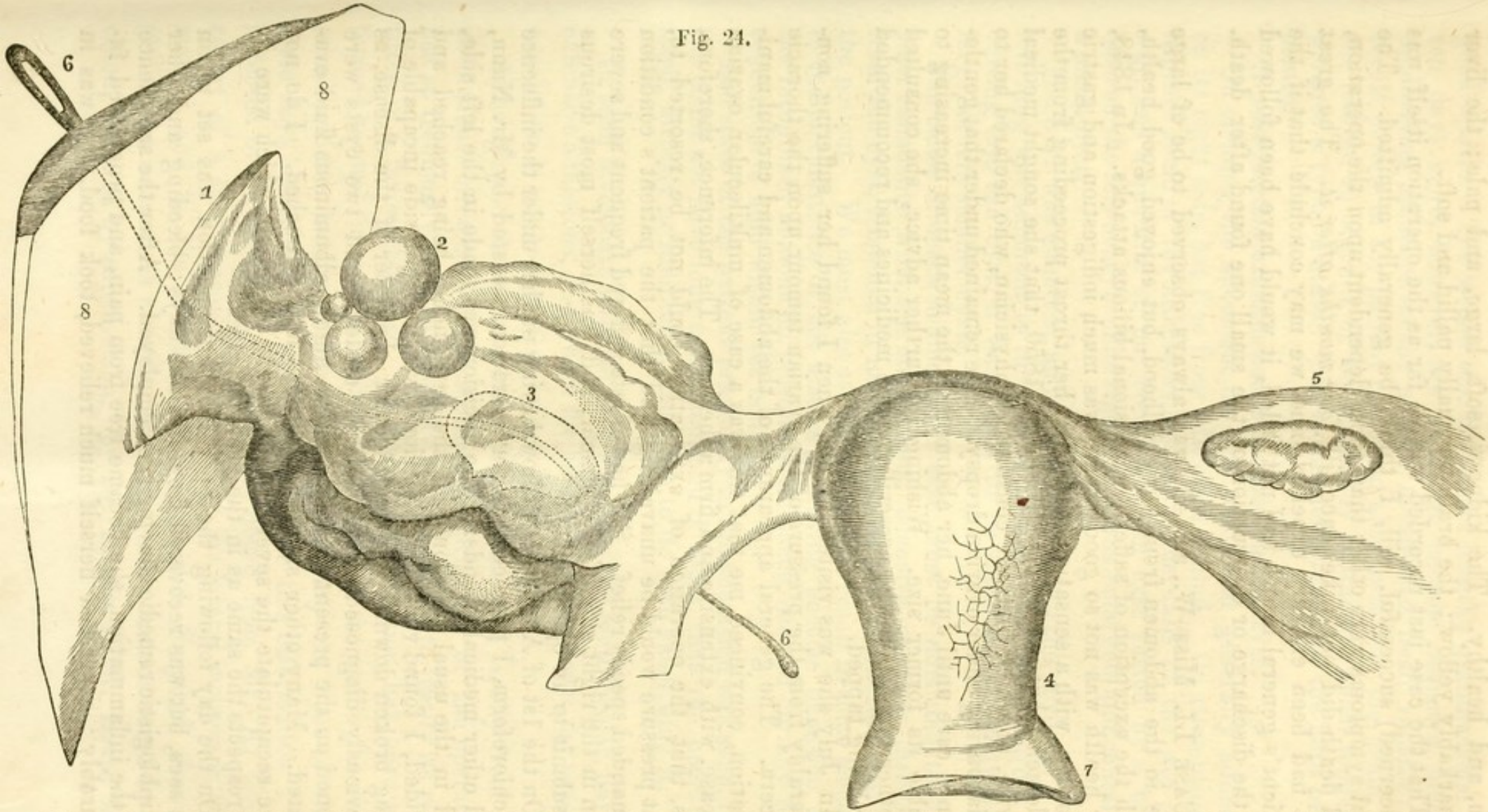


Diagram showing: 1. Original incision through abdominal wall. 2. Cysts, semitransparent, developed about the upper part of the old one. 3. Shows by dotted lines a ragged aperture on the posterior aspect of cyst. 4. A small patch of scarlet vessels on the front of uterus. 5. Left ovary, not in a healthy 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.

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 mean time 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 recognized 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, Mis-

souri.[1] 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. 162.)

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.

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 bloodvessels ramifying in the cyst which were divided by the knife. To this plan I gave the preference, for the above reasons,

[1] Abstracted from the "American Journal of Medical Science."

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 favor 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 hemorrhage 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,[1] 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 hemorrhage 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

[1] "Provincial Medical and Surgical Journal," Jan. 22d, 1851, p. 36.

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 have 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 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 blood-vessels 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 insure 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; venesection 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 tender-

ness 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.

22d. 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 3d. 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.

4. 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 13,	1851	1	39
June 5	"	2	26
July 22	"	3	26
Sept. 26	"	4	30
Nov. 12	"	5	28
Dec. 26	"	6	28
Feb. 19,	1852	7	28
April 15	"	8	24
June 19	"	9	23
Aug. 26	"	10	23
Oct. 25	"	11	24
Dec. 23	"	12	24
April 1,	1853	13	25
July 14	"	14	26
Dec. 16	"	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 recognize 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.[1] 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[2] 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* (3d 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 by 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,[3] 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 opera-

[1] The chief British Medical Practitioners who have performed ovariotomy are: Messrs. Clay, Lane, Walne, Frederick Bird, Crouch of Bruton, Borlase Childs, and Tanner.

[2] April 8th, 1854. See Report in the Journals.

[3] Surgeon's Vade Mecum, sixth edition, p. 467.

tion, 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 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 $2\frac{1}{4}\frac{8}{2}$. 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 $2\frac{1}{4}\frac{8}{2}$ 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 one 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 3,586 cases of 'amputation generally, primary and secondary, for accident or disease, and the deaths are 1 in $3\frac{1}{10}$.' In 4,937, 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 micro-

scope, 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 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 develop 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,[1] 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 177.)

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.

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.[2]

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

[1] Medico-Chirurgical Transactions, vol. xxxv.

[2] 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 contraindicates an operation as clearly as the latter disease. The nature of the contents may be readily discovered by withdrawing a little by an exploring needle.

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, 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,[1] 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

[1] Association Medical Journal, Jan. 13th, 1854, p. 37—39.

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[1] with myself on this point, as well as on most others with respect to extirpation.

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 insure 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.

[1] 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.

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 bloodvessels, 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

hemorrhage, and afterwards divided, but if they are spread out to a considerable breadth, it is better to desist from an 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[1] 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 space between the deep ones. It now only remains to prevent the end of the pedicle

[1] 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 have 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.* Hemorrhage; *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. Hemorrhage 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 hemorrhage from it, care being taken to leave the end of the pedicle out of the wound. Hemorrhage 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 hemorrhage. 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 cysts having refilled, 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 Hemorrhage; 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. gtt. ij, every four hours.

The sickness, rapid pulse, and general irritability continued with slight exacerbations until 5 A. M. on the 22d, when she was suddenly seized with symptoms of collapse, and died in about a quarter of an hour.

Death here resulted from hemorrhage, and that from a very unusual source, viz: the vessels of a band of adhesion, as is shown 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 1, 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 connection with the larger, easily breaking down under the slightest pressure or handling, and render-

ing 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 2. 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.

3d, 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 of 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 espe-

cially 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 29, 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 bloodvessel 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 arrowroot. 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.

2d, 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.

3d. 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 arrowroot, 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 hemorrhage from the numerous bloodvessels ramifying in the external tunic, and unless I had decided to extirpate the entire cyst, I must have applied ligatures to all the bloodvessels 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 16, 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 lbs. 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 17, 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 18, 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 teacupful 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. ♏xvj;
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. sulp. 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 bedtime.

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. ℥j;
Mist. camph. ℥ij;
Sodæ sesquicarb. ℥j, ℥j hâc nocte.
Repeat pil. saponis co. gr x, h. n. pro suppositorio.

22d. 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. ℥ij ;
Dec. cinchonæ ℥iv;
Aq. pimentæ ℥j ;
Tr. card. co. ℥ss;
Aq. ad ℥viij.
℥j 4-tis horis.

23d, 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 1. 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.

2d. Good night; bowels quieted by opium suppository; takes her food well.

3d. 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 addomen 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 peritoneum 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 cæcum was very remarkable, having caused thickening and congestion of the mucous lining. The interior of the ilium was much congested. The peritoneum 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. 29, 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 3, 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 3, 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 3d 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 27, 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 2d, 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 the

umbilicus and pubes, about three inches in length externally, I came down upon the peritoneum, 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 rung 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 3d, 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[1] opening ovarian cysts by Vienna paste, applied to the integuments in the median an inch 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 peritoneum 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

[1] Lancet.

favourable case,[1] 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 fetid, 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 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.

[1] Provincial Medical and Surgical Journal, Jan. 22, 1851.

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 Perineum of three and a half years' duration; Operation; Cure.*—Mrs. H., æt. 29, consulted me at the request of my friend Mr. Wilkin, May 10, 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 perineum 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 perineum; the anterior half of the sphincter ani lost, and I recommended an operation.

May 20. Having produced anæsthesia by chloroform, I operated in the usual manner; Messrs. Nunn, Spencer, Wells, Wilkin, Moulin, and my son being present. As the patient was young, and still apt to bear children, I did not restore the perineum 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.

22d. The pain continues severe, although opiates are largely taken.

23d. 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 1. The bowels have been freely relieved by several injections of warm water, and although several large and hard masses of feces escaped, the new structures were uninjured.

8th. Now has control over the bowels, and is up and feels well.

Case B. *Ruptured Perineum of fifteen years' standing; Procidentia Uteri; Operation; Erysipelas; Cure.*—Maria M., æt. 38, married. Admitted May 4, 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 perineum 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 feces, she has allowed her bowels to be very irregular in action. The catamenia have always been regular. On examination, a rupture of the perineum 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."[1]

[1] 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.

May 10th. Mr. Brown operated to-day in the usual way. Some slight arterial hemorrhage 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 hemorrhage 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 fetid discharge, which is nearly as great in quantity, persists.

℞.—Acid. nit. dil. ♏xv;
Tinct. cinchonæ ℥ij;
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.

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.

22d. 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.

23d. 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. ♏viij. Local application the same.

24th. Much the same. Erysipelas extending; is very weak; can scarcely turn in bed. Wine ℥viij daily. To have arrowroot 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 perineum 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 hemorrhage.

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.

23d. 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 hemorrhage; 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 wounds; 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 6. Allowed to get up.

8th. She suffers when walking about from no protrusion or bearing-down pains.

13th. Doing well.

22d. Discharged, but recommended not to work for a fortnight or more, and to wear a support to the new perineum 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 3½ 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 peritoneum, gluing the two together, and especialy 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 from 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 the 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 peritoneum, 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 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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THE END.

AN INQUIRY

INTO THE

PATHOLOGICAL IMPORTANCE

OF

ULCERATION OF THE OS UTERI.

BEING

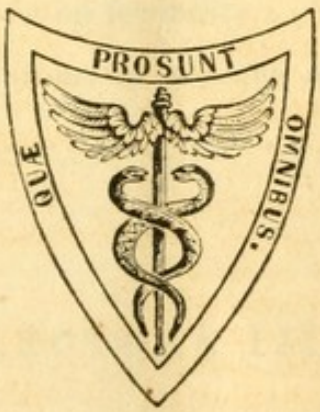
THE CROONIAN LECTURES

FOR THE YEAR 1854.

BY

CHARLES WEST, M.D.,

FELLOW OF THE ROYAL COLLEGE OF PHYSICIANS; PHYSICIAN-ACCOUCHEUR TO ST. BARTHOLOMEW'S HOSPITAL; PHYSICIAN TO THE HOSPITAL FOR SICK CHILDREN; AUTHOR OF "LECTURES ON THE DISEASES OF INFANCY AND CHILDHOOD," &C. &C.



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AN INQUIRY

INTO THE

PATHOLOGICAL IMPORTANCE

OF

ULCERATION OF THE OS UTERI.

LECTURE I.

Introduction—Imperfection of our knowledge concerning the Diseases of Women; reasons for it. State of opinion at time of first employment of speculum; facts which use of that instrument brought to light; different estimates of its value.

Important principles involved in the disputes on this subject—Proposed inquiry into them in these Lectures.

Preliminary remarks on some peculiarities of the uterus in health and in disease—Supposed cause of most uterine ailments—Alleged importance of ulceration of the *os uteri*—Description of those ulcerations—How they are supposed to react on the uterus; suggestions for their cure.

Doubt as to correctness of these opinions—Plan of proposed inquiry into them—I. Conclusions from anatomy and physiology unfavourable to them. II. Results of examinations after death hitherto unsatisfactory, and why—Observations of lecturer; inferences from them opposed to idea of great importance of ulceration of *os uteri*.

MR. PRESIDENT—

SIR: I enter on the honourable task which you have assigned to me, with much apprehension and misgiving. It is not merely that I appear in the teacher's garb before those from whom I have learned much, and might still be well content to learn all my life long—nor that I address an audience whose criticism I dread and whose unfavourable censure I would deprecate—which fills me with anxiety; but it is, that I am here to-day in some sort as the representative of those who follow a department of medical practice which, till but recently, this College scarcely countenanced—to whom it has but lately extended honourable distinctions—on whom

it has now for the first time imposed a still more honourable duty. While I rejoice, Sir, in the full recognition by this College, of the fact that all departments of our profession, by which suffering can be assuaged, disease arrested, or life prolonged, are alike honourable—that none are alien from the paths of scientific inquiry, nor unfriendly to that culture of the mind which confers distinction more precious far than any worldly honours—I dread lest anything that comes from me should seem unworthy of this body, undeserving of that liberality of sentiment and enlargement of view to which I owe it that I have now the opportunity of addressing you.

Never, Sir, have I wished so much as I do now for that insight into Nature's ways, which might enable me to justify your appointment of me as Croonian Lecturer for this year, by bringing before this assembly some new truth, or by throwing fresh light on some great principle but dimly seen, or partially understood before; or at least for those rare gifts of speech which can impart interest and freshness even to subjects trite and commonplace. But, while to such endowments I have no pretensions, my need of your indulgence is all the greater, since I have had most to do with small complaints and every-day diseases; and if from them I select a subject for these Lectures, though obscure, it still must seem familiar, and, with all the disadvantages of novelty, yet have none of its charms.

Frequent as is the occurrence, it must nevertheless be confessed that the Diseases of Women are those concerning which our knowledge is most defective. And yet there seems, at first sight, to be but little reason for these deficiencies; so little, indeed, that their existence has been made a constant ground of reproach against those who, having to do with ailments so simple as they are assumed to be, yet have left so much concerning them uncertain or unexplored. I believe, however, that many of the doubts and uncertainties which beset these subjects depend on the difficulties in the way of arriving at truth concerning them, far more than on any want either of diligence or of honest purpose, on the part of those whose special duty it was to engage in their investigation.

If, now, for a few minutes I occupy your time in the endeavour to point out whence those difficulties have arisen which did, and do still, retard the advancement of knowledge concerning uterine disease, you must bear with me, since my object is not only to account for the apparent omissions of obstetric practitioners in general, but also, by showing the uncertainty of much that we seem to know,

to excuse myself for the choice which I have made of a subject for these Lectures.

In wonder, says the ancient writer, all philosophy begins, in wonder it ends; but wide, indeed, is the distance which separates the marvelling of the ignorant from the admiration of the learned. Processes such as those by which the perpetuation of the species is accomplished, could not but excite in every stage, the wonder of all people, in all times. The principle of life, symbolized under various forms, was in the earliest ages the object of reverence, or of actual worship, while the happy issue of the mysterious process of parturition was sought to be secured by rites and ceremonies, and charms, propitiating the various deities who superintended it. If these failed of their looked-for result, or if some untoward event happened, passing the skill of the attendant women, the aid of the surgeon was sent for, though only to perform some barbarous operation. In the diseases of their own sex, it was natural that women should be first consulted; and the instances were comparatively few in which application was made for the assistance of any physician: hence it resulted, from sheer want of opportunity, that the anatomical and physiological discoveries which were made, though slowly and imperfectly, remained long unapplied; that for ages, all knowledge of the pathology of the female sex continued fragmentary, and all treatment of their diseases empirical.

Nor was this state of things as much amended as might have been expected by the general advancement of knowledge in comparatively modern times. Anatomists devoted themselves to the task of exploring the mysteries of generation, but passed by without inquiry the scarcely less mysterious process of parturition, and the changes which succeed to it; while, by their unquestioning adoption of many errors which time had rendered venerable, they lent to them a fresh sanction, and gave them, as it were, the stamp of truth. In subjects thought to be beneath the dignity of science, advances must needs be slow; and the whole history of the obstetric art is a most appropriate commentary on this fact. By slow degrees, indeed, and by steps which we cannot now stop to trace, improvement came, though amended practice in this, as in so many other instances, preceded correct theory; and even now we not infrequently do what experience has taught us to be right, although we are unable to assign a thoroughly satisfactory reason for our proceeding.

But if our knowledge be still incomplete concerning a process like that of parturition, which is transacted in a few hours, and is constantly offering itself to our observation, there is little cause for surprise that it should be still more imperfect with reference to the physiology and pathology of the generative system in the unimpregnated state. So recently, indeed, as thirty years ago, neither was the structure nor were the functions of the sexual organs at all correctly understood. The uterus, it is true, was known to be muscular; but neither the process by which its muscularity becomes so marked during pregnancy, while it ceases to be clearly apparent soon after delivery, nor the intimate nature of its structure in the virgin state, had been the subject of inquiry. The interior of its neck was seen to be invested by a membrane arranged in folds, between which minute glands or follicles were present in great abundance; but the existence of a distinct lining membrane in its cavity was rather inferred from the results of observation in some forms of disease, than demonstrated by anatomical investigation in a state of health. Though the structure of the ovaries was in the main understood, yet the ovarian ovule had not been discovered, and the function of the ovaries was supposed to be called into exercise only during the stimulus of sexual congress. Hence it resulted that the import of menstruation continued to be a riddle unread; all that was certainly known about it being that it was a function which bore an important, though undefined relation, to the generative process.

To have written, under such disadvantages, a work on the Diseases of Women—so full of sound observation—so abounding in practical instruction of the highest kind—that, like Pemberton's Treatise on the Abdominal Viscera, it has not only not been rendered obsolete by the lapse of time, but that it still remains, after forty years, our safest guide in the management of these diseases, is certainly not the least among the many honours which its author has won, and wears so well. But, in trying to judge fairly of the labours of our more immediate predecessors, or to estimate what remains for us to do, we must not forget that where the knowledge of healthy structure and of natural function is defective, the knowledge of diseased structure and of perverted function must be imperfect too.

Very few facts will suffice to illustrate the defective pathology of but a few years ago. It was assumed that an organ of such

dense structure as the unimpregnated uterus must be little liable to inflammation, and its kindred processes; though in some rare cases the neck of the womb was allowed to be their seat. Its lining membrane, supposed to be so rudimentary in the unimpregnated state, was not thought worth consideration among the possible seats of disease; and leucorrhœal discharges, supposed to be always furnished by the vagina, were usually regarded as the consequence and the index of constitutional debility. The different morbid growths were not properly discriminated; scirrhus, a disease of extreme rarity, was assumed to be of very frequent occurrence; and to it were attributed almost all chronic affections of the neck of the womb, attended with induration of its substance and increase of its size.

In this state of knowledge, when observation must have been perpetually clashing with preconceived opinions, M. Récamier first thought of employing an instrument—the Speculum—for the more convenient application of local remedies to cancerous ulcerations of the womb. Its use, however, was not long confined to this object; for practitioners found that by means of it they were enabled to discover various morbid conditions of the uterus, with which they were hitherto unacquainted, and to which it was but natural to attach importance, as the probable cause of many previously inexplicable symptoms. In fact, by its means one important question was speedily and decisively set at rest—for leucorrhœal discharges were ascertained to be derived in great measure, not from the vagina, but from the uterus; to be associated with various diseased appearances of its orifice, and to be, sometimes at least, removed by different remedies directed to that part and to the neck of the womb. So long as the lining membrane of the uterine cavity was supposed to exist in the unimpregnated state merely in a rudimentary condition, it was most natural that an exaggerated importance should be attached to the various morbid appearances of the os and cervix uteri; and so long as the ovaries were believed to be called into activity only at the time of sexual congress, it was to be expected that their share in the production of diseased phenomena should be rated very low. Ignorance, with reference to these two points, was shared alike by the advocates of the employment of the speculum, and by the opponents of its use; and under these circumstances their controversies were not likely to lead to any satisfactory result.

We need not, indeed, wonder that the disputants on both sides, thus imperfectly furnished for the debate, should have narrowed the question to one of details touching the expediency of employing an instrument which some pronounced to be all-important, while others decried it as useless, mischievous, and even immoral. It must be obvious, however, to us who enjoy the advantage of the additions to physiological knowledge which the past quarter of a century has brought with it, that our decision on this subject involves much more than the mere acceptance or rejection of a certain therapeutical proceeding, but that it really concerns the opinions which we entertain with reference to the main principles of uterine pathology. Regarded in this light, what might at first have seemed a trivial inquiry, at once assumes a greater importance, and becomes, I think, not unworthy the attention even of such an audience as the present.

It is not without reluctance that once again I venture to delay you with some further preliminary considerations touching the structure and the functions of the womb; though my doing so might perhaps be justified on the plea of the desirableness that we should, before entering on an examination of conflicting opinions, ascertain what facts are accepted as true on either side. But there is another reason for this course, in the circumstance that the womb presents peculiarities of situation, structure, and function, such as render it probable that the diseases of the organ may likewise exhibit distinctive features, and possible that their cure may call for modes of treatment which otherwise would not be expedient, nor even justifiable.

Now, it would not be easy to imagine a state of things more favourable to the occurrence of ailments dependent on venous congestion, or in which those ailments would be more difficult to remove, or more apt to return, than is observed in the case of the uterus during the whole period of activity of the generative powers. The return of blood from the organ, which is rendered difficult by its situation at the lowest part of the trunk, is still further impeded by the absence of valves from its veins; while every month, for several days together, this organ and its appendages are the parts towards which blood flows in superabundant streams. During this period, the natural secretion from the uterus and Fallopian tubes is much increased; the epithelium covering their surface is detached, and reproduced again and again; hemorrhage breaks forth along the

whole tract—and it is not until this has continued for some days, that the congestion ceases and the parts subside once more into their former state of quiescence—the uterus remaining, however, for a short time heavier, and its tissue looser, and more abundantly supplied with blood, than it was before. I need not stop to tell how a slight cause may protract this hemorrhage, or how some accident may check it; nor need I labour hard to prove that in either case there must be a general disturbance of the function of the organ—a general impairment of the health of the individual: exhausted in the one instance by loss of blood, broken down in the other by the suffering, both general and local, which the return of the periodical excitement of the generative organs, unrelieved by their customary depletion, cannot fail to bring with it. In what organ of the body does one find a parallel to this series of occurrences?

Again; the uterus is held in its position by supports which allow to it a large measure of mobility, and whose power is generally diminished by the very causes that increase the weight of the body they have to bear. Hence, it is very apt to become displaced, and to be displaced in a downward direction, or prolapsed. And such prolapsus not only brings with it a variety of painful sensations, due to the womb dragging upon its ligaments, but the moment the organ ceases to be suspended in the pelvic cavity, it becomes exposed to shocks of various kinds, to irritation from sources from which it was previously safe. The neck of the womb, even when that descent is not very considerable, becomes a sort of stem on which the organ rests upon the floor of the vagina. In this position it is liable to disturbing causes almost numberless—sitting, riding, exertion of any kind, the very passage of the feces along the rectum, produce pain, keep up congestion, and favour that slow increase of size which seldom fails to occur in parts the seat of long-continued irritation, and which offers one great impediment to the cure of many affections of the womb.

Another peculiar and fertile source of disorders of the womb is furnished by the changes that attend upon conception and parturition, and their frequent interruption. With these changes, even in the healthy state, our acquaintance is at present too imperfect for us to appreciate with accuracy the nature of the mischief which may result from their disturbance. We know, indeed, many things concerning these processes of which our predecessors were ignorant;

but our increased knowledge is as yet sufficient to show us the difficulties of the problem, not sufficient to furnish its solution. The growth of the pregnant womb is not, as it was once supposed to be, a mere increase in size and unfolding of texture of the muscular fibres already present there, but is as much the result of a new formation as is that of the fœtus contained within it; its tissues going through the same development from a rudimentary condition to a high organization. Cells elongate into caudate bodies; these unite into fibrillæ, while the mucous membrane increases in vascularity, grows in thickness, and becomes developed into decidua. The small, dense, lowly organized uterus becomes the large, vascular, powerful muscle which we see it to be at the end of pregnancy; when having served as the residence of the fœtus, and as the medium through which it derived its support, the organ accomplishes in the act of parturition the last of that wonderful series of processes to which it owed in old time its appellation Miraculum Naturæ. But even before this period has arrived, indications of decay have manifested themselves in the changes that have taken place in the decidua; while no sooner is the child born, than all the tissues of the womb evince the commencement of similar alterations, which go on with a rapidity such as is observed in no other body and under no other circumstances. The muscular fibres undergo fatty degeneration, and to a great extent disappear; nerve-matter ceases to be apparent within the sheaths which had contained it, while even the fibres of elastic tissue interwoven with the muscular substance of the womb, lose their distinctness or become entirely absorbed. The old uterus has done its work and is removed; but in the midst of its decaying fibres the elements of a new organ are developed, and the microscopist tells us of a new generation of spindle-shaped cells, which he can discover in its tissue, just like those which existed in the organ before pregnancy began, and which remain stationary at the same low stage of formation, till in their turn excited by impregnation to go through higher phases of development.

In these changes, the body of the uterus, and the lining of its cavity, bear a far greater part than either the substance of its cervix or the mucous membrane which lines that canal. The mucous membrane of the body only is developed to the decidua, and it alone is thrown off after delivery; the lining membrane of the neck undergoes much slighter alterations, and is not deciduous.

It is in the body of the uterus that its muscularity is most evident; firm fibro-cellular tissue predominates in the cervix, with which are interwoven here and there bundles of narrow, smooth, muscular fibres; and the stimulus of pregnancy, which works such changes in the former situation, brings to pass far slighter alterations in the latter.

At present, we are too imperfectly acquainted with the nature of those changes which I have thus briefly sketched, to be able to say exactly what influence is produced by accidents which interrupt the course of pregnancy and originate the processes of degradation of the uterine tissue prematurely; or what results follow from disease succeeding to delivery at the full period. We may confidently hope in time to know more; at present, we have learned from every-day experience that such occurrences interrupt the ready return of the womb to the size and condition which are natural to it in the unimpregnated state; that the organ is apt to remain permanently increased in size; that this enlargement is often especially marked in the more lowly organized cervix; that under such circumstances the menstrual function is usually in some respect or other ill performed, while secretions are likely to be furnished from the organ differing in quantity or quality from those which proceed from it in a state of health; that the performance of all the sexual functions is very apt to be attended by pain, that impregnation is less likely to occur, and that, if pregnancy should take place, there is very great probability of its coming to a premature termination.

This set of symptoms, however, or at least many of them, are met with independent of pregnancy and its consequences; supervening sometimes, indeed, under the influence of causes which evidently, and in a marked manner, interfere with the generative functions, but coming on at other times slowly, and, as far as we can discover, without cause. How are they to be explained? Do they proceed from an invariable pathological occurrence, which is present in every case, how wide soever may be in other respects the points of difference between them—or are they the indications of disordered function, which may depend on causes as various as those which produce vomiting or occasion dyspnœa? The inquiry is manifestly an important one; its elucidation will be the object of these Lectures. It has been said that there is an invariable, or almost invariable, cause of these symptoms—that, be the remote occasion of them what it may, inflammation and ulceration of the neck of the

womb is their immediate cause—that the key to the right understanding of uterine diseases is to be found in the correct appreciation of the importance of this condition; and the cardinal point in their treatment consists in the adoption of means for its cure.

The ulcerations to which such important results are attributed, are for the most part mere superficial abrasions of the epithelium investing the lips of the os uteri, whose abraded surface is of a vivid red colour, and finely granular. In other cases, in which the absence of epithelium is less complete, the surface seems beset by a large number of minute, superficial, aphthous ulcerations, between which the tissue appears healthy, or slightly redder than natural. The ulcerations of the os uteri seldom or never present an excavated appearance with raised edges, as ulcers of other parts often do; but either their surface is smooth or it projects a little beyond the level of the adjacent tissue. They are usually, but not constantly, of greater extent on the posterior than on the anterior lip, are sometimes confined to the former, but very rarely indeed limited to the latter. They appear to commence at the inner margin of the os uteri, whence they extend outwards, and sometimes, though by no means invariably, the short extent of the canal of the cervix uteri which can be brought into view by the speculum, appears denuded of its epithelium. The adjacent parts of the os uteri vary considerably in their appearance; sometimes their natural pale rose tint is preserved up to the edge of the abrasion, which is marked by a distinct, well-defined line, while at other times the whole surface is of a much more vivid red than natural, and the line of demarcation between the abraded and the healthy surface is irregular and indistinct, the one encroaching on the other. The orifice of the uterus is generally more open than in a state of health; and the disappearance of the abrasion, which always takes place from the periphery towards the centre, is accompanied by the gradual closure of the previously patent orifice. The state of the tissue of the os and cervix varies; sometimes there is a very marked softness of the parts, the condition resembling that of the uterus soon after abortion or delivery, while at other times it is much harder than natural; but it certainly is not at all a common occurrence for extensive abrasion of the os uteri to coexist with a condition of the organ such as would seem healthy to the touch. The secretion from the surface varies considerably in different cases, and the chief part of the leucorrhœal discharge from which patients suffer is derived from

within the canal of the cervix, or from the cavity of the womb—not from the abrasion itself. Still, in some instances, those especially in which the ulceration presents a very marked granular character, the discharge derived from this source alone is far from inconsiderable. The degree of sensibility which the ulcerated surface possesses also varies greatly; now and then the slightest touch is extremely painful; but, in the majority of cases, the ulcerated surface is not more sensitive than the adjacent parts, nor is the neck of the uterus, whose os is abraded, by any means constantly more tender to the touch than the same part of an organ entirely free from that affection.

Such, then, are the chief characters of these ulcerations or abrasions of the os uteri. I retain the old name of ulceration in spite of the objections which have been raised to it, because it seems to me better, as there is no risk of our being thereby led into error with reference to the appearances to which that name has been applied, to accept for the present the current terminology, and to avoid those disputes about words which are so proverbially fruitless.

The really important question is, whether ulceration of the os uteri is to be regarded as the first in a train of processes which are the direct or indirect occasion of by far the greater number of the ailments of the generative system; or whether, on the other hand, it is to be considered as a condition of slight pathological importance, and of small semeiological value—a casual concomitant, perhaps, of many disorders of the womb, but of itself giving rise to few symptoms, and rarely calling for special treatment?

The former opinion, according to which it would be difficult to overrate the pathological importance of ulceration of the os uteri, is supported by the following allegations, which I will endeavour to state as briefly, but at the same time as correctly as possible. It is stated that the mucous membrane of the cervix uteri, by reason of its vascularity and of the abundance of mucous follicles which are imbedded between its duplicatures, is extremely liable to inflammation; and that this predisposition is still further increased by the abundant afflux of blood towards the neck of the womb, as well as by the position of that part of the organ, and its consequent exposure to irritation and injury from various sources. This inflammation of the cervix is said to manifest itself by the secretion of an abundant albuminous matter from the cervical glands, and by

the opening of the otherwise closed os uteri—as also in by far the greater number of cases by abrasion or ulceration of the os uteri, which usually occurs at a very early period. The cervix becomes swollen and congested, and it increases in size; but, while in some instances it remains soft to the touch, even after years of disease, its substance becomes more frequently the seat of inflammation, lymph is effused into it, and it is not merely enlarged, but indurated—a change which takes place to a greater degree in those who have given birth to children than in the unmarried or the sterile. The different extent of the ulceration is the only cause assigned for the presence of induration of the cervix in one case, and its absence in another; but the relation of the two conditions does not seem to be by any means invariable. The degree to which the ulceration spreads appears also to be uncertain; in the great majority of cases it passes more or less deeply into the canal of the cervix, and sometimes occupies its whole extent, the internal os uteri, however, forming a barrier to its further progress, and preventing almost invariably its extension into the cavity of the womb. It is then inflammation, with its attendant ulceration of the os and cervix uteri, and usually with consecutive induration of its tissue, to which, according to these views, the sufferings of the patients are due; and all the varied disorders of the uterine functions, the pain, the leucorrhœa, the hemorrhages, the irregular menstruation, the sterility, or the frequently occurring abortions, are attributed to the sympathies of contiguous parts with that small portion of the womb which is the seat of disease. Ulceration, too, when once it has occurred, is alleged to have scarcely any tendency to heal; while, so long as it remains, there may perhaps be a lull in the patient's sufferings, and some temporary mitigation of her symptoms; but there can be no real cure until the time when, the period of sexual vigour having expired, the organs which subserved it pass into a common state of atrophy—while cure, even then, is uncertain, and the consequences of disease outlast, by no means rarely, the uses of the part.

This picture (and I have added nothing to its colouring) of all the ills which follow from the seemingly trivial ulceration of the os uteri, must certainly be allowed to warrant those who drew it, if only it be a faithful portraiture, in attaching great importance to this affection—in trying to discover it as early, to cure it as speedily as possible.

As uterine pathology is simplified beyond expectation by the dis-

covery of an almost invariable cause of the most diverse symptoms, so uterine therapeutics also are made easy, according to the writers whose opinions I am relating, by one remedy being found almost always applicable for its cure, be the duration of the disease or its severity what it may. If the evil be slight, its removal will be speedy; if severe, a longer time will be required; but to modify the vitality of the part by caustics is the one unfailing indication; and, this accomplished, the ulceration and the inflammation and its results disappear together, and the sufferings of years are thus almost infallibly got rid of in a few weeks, or, at latest, in a few months. There are, indeed, some cases of slight mischief, which rest, antiphlogistic treatment, and vaginal injections may cure; but these are rare. There are also some circumstances under which the local abstraction of blood may be of service; but what caustics to use, how often to repeat their application, how to prevent or to remove those inconveniences which sometimes result from their employment, are questions discussed as of chief importance; since to these remedies all other local measures, as well as all general treatment, are but secondary and subservient.

If I thought that the accuracy of these opinions were beyond a doubt, or, on the other hand, that their entire fallacy had been satisfactorily demonstrated, I would not now venture to occupy your time in conducting you over twice travelled ground. I believe, however, that the profession is much divided, both as to the facts and as to their interpretation; and that it may, therefore, prove no profitless task to endeavour to bring both to the test of a rigid inquiry, and to ascertain, as far as may be, where an error has been committed in observation, or where wrong inferences have been drawn from right observations. In doing this I must crave your indulgence, and that of all persons from whom I may differ; for I am fully sensible how often I may need for myself that candid interpretation of my statements, and that lenient judgment of my errors, which I hope always to manifest to others.

The evidence by which to try the accuracy of those statements that I have endeavoured faithfully to set before you, is very various in its kind, and also of very various worth. It may, however admit of being arranged under four principal heads, to each of which, in succession, our attention must be directed.

In the *first place*, we may inquire how far these statements receive

confirmation from what we know of the anatomy and physiology of the uterus in a state of health.

Still, what answer soever we may receive to this question, it cannot, from its very nature, be conclusive; it may render a certain occurrence probable or improbable, may substantiate or disprove the correctness of certain opinions or explanations, but cannot invalidate the evidence of positive facts.

In the *second place*, we may try to ascertain whether examination of the dead body shows the morbid conditions of the os uteri which have been described to be frequent or rare, slight or extensive; and we may also endeavour to make out what connection subsists between ulceration of the mucous membrane of the os and cervix uteri, and other changes in the tissue of the organ.

It must, however, be borne in mind that many evidences of disease, such as are very obvious during life, may be greatly obscured, or may even entirely disappear after death: and further, that uterine disorders of the class which we are considering, though exceedingly painful, and seriously interfering with a woman's health and comfort, are yet not of a kind to prove the direct occasion of her death. Evidence derived from this source will therefore be open to the objection that it understates both the frequency and the importance of these diseases.

We may inquire, in the *third place*, whether there is any condition in which ulceration of the os uteri comes under our notice unconnected with other disease, and with such circumstances as to admit readily of our observing its characters and watching its course and consequences. Such a state of things presents itself to us often in the case of the procident uterus, since the irritation to which the displaced organ is unavoidably exposed has the almost invariable effect of producing ulceration of the surface of the os uteri, and of the immediately adjacent parts of the organ.

But, whatever conclusions we may deduce from this source are open to all the objections inseparable from analogical reasoning. The probabilities of certain occurrences taking place in the uterus under other circumstances may be increased or weakened; but the evidence still falls short of absolute proof, either of the affirmative or of the negative of the question.

The *fourth* and most important inquiry of all concerns the frequency of these ulcerations of the os uteri under those circumstances in which they ordinarily come under our notice, and call,

or are supposed to call, for our interference. This inquiry, however, must include not only the frequency of ulceration, but also the conditions generally associated with it, and the symptoms to which it commonly gives rise. If the alleged symptoms of ulceration are found to be not rarely present without ulceration, and if ulceration is discovered even where there are no symptoms; or if, in the same case, the ulceration may vary in extent, with no corresponding change in the symptoms; if an indurated state of the cervix exists without ulceration, and ulceration even of long standing, without induration—the conclusion, especially if supported by the answers obtained to our previous inquiries, seems to me irresistible that the importance of inflammation of the cervix and of ulceration of the os uteri has been overstated; that they are not the cause of all the symptoms which they have been alleged to occasion, and that, in the treatment of uterine disease, many other considerations must influence us more than the mere removal of ulceration of the orifice of the womb.

If this were proved, it would still remain for us to consider whether, in any case, we may fairly look upon the ulceration of the os uteri as a symptom calling for distinct recognition and special treatment. There are, I am aware, some persons of deserved repute who will look upon this inquiry as superfluous; but, for my own part, I do not conceive that, even if we arrived at a conclusion never so unfavourable to the supposed great importance of ulceration of the os uteri, we should be thereby entitled to regard its symptoms as a mere delusion, its very existence as little more than a figment of the fancy.

I. It was observed that, in the *first place*, something of additional probability or improbability might be imparted to those views which we propose to investigate by what anatomy and physiology teach us of the uterus and its functions. Now it is alleged, as one reason for the liability of the cervix uteri to affections from which the body of the organ is comparatively free, that it receives a greater amount of blood, that it is endowed with a higher degree of vitality than other parts of the organ. But surely this statement is erroneous; and it suffices to examine the healthy uterus for any one to satisfy himself of the smaller vascularity of the neck than of the body of the womb. It is the body which chiefly grows as the period of puberty approaches, it is the body to which the great determination of blood takes place during each menstrual period, and from the

lining membrane of the body that the menstrual flux is poured out. The looser tissue, the large vessels, the congested mucous membrane characteristic of the menstruating uterus, are limited, or nearly so, to the body and fundus of the organ; and it is the epithelium of its cavity, not that of the neck of the womb, which is abundantly intermixed with the menstrual fluid. When conception takes place, it is the body of the uterus which first and chiefly enlarges, its mucous membrane which becomes developed to the decidua, its tissue which grows and is metamorphosed into muscular fibre; while the changes in the membrane of the cervix are limited to an increased activity of its mucous follicles, and the alterations in its substance to an increased formation of fibro-cellular tissue, with a comparatively scanty growth of muscular fibre. After delivery, the retrograde processes are much more striking in the body than in the neck of the womb. The mucous membrane of the cervix, stretched during pregnancy till the folds which it presented in the unimpregnated condition are obliterated, resumes once more its former plicated arrangement, while that of the body is detached and reproduced again and again before the organ reverts to its former state. The cervix is less sensitive than the body of the uterus: the sound which passes along the canal of the former almost unfelt, generally finds the lining of the uterine cavity acutely sensitive. The cervical canal has been forcibly dilated, it has been incised; the tissue of the cervix has been burnt with the strongest caustics, or with the actual cautery, or portions of it have been removed by the knife, generally with no injurious consequence; often with so slight a degree of constitutional disturbance, or even of local suffering, as to surprise those who advocate, little less than those who condemn, such proceedings.

But, if structurally so lowly organized—if physiologically of such secondary importance—if so much less subject than the body of the uterus to alterations in its intimate structure—and if so comparatively insensible even to rude modes of therapeutical interference—it certainly does appear to me that the assumption that some slight abrasion of the mucous membrane covering this part is capable of causing a list of ills so formidable as are attributed to it, ought to rest for its support upon some other and stronger foundation than any inference fairly deducible from anatomical or physiological data.

II. We will now, however, inquire, in the *second place*, into the

nature of the evidence on this subject which can be deduced from anatomical investigation. At first sight, indeed, it seems somewhat strange that those who believe in the frequency and importance of ulceration of the os uteri, have made no attempt to demonstrate those facts by examination of the body after death; while the only persons who have appealed to its results, allege this condition to be very rare and very trivial. It must not be forgotten, however, that appearances, the most striking characters of which consist in increased vascularity, and in that vital turgescence which disappears soon after life has departed, cannot be expected to be very marked some days after death. Indeed, no one who has felt the large firm growth of cauliflower excrescence sprouting from the neck of the womb during life, and has contrasted with it the small bundle of collapsed filaments which are all that remains of it after death, but must be prepared to admit that a condition of the os uteri very obvious during life, and the cause of very grave symptoms, may yet leave but very few traces after death.

Besides, it must, I think, be acknowledged that the data on which the negative assertions of morbid anatomists rest are not so faultless as to command by any means implicit confidence. Neither M. Lair,[1] who, in 1828, gave some of the results of the inspection of 500 female subjects, nor M. Pichard,[2] who, in 1846, added to them the results of 300 more, gives the least information as to when, where, or how these examinations were made. They do not even state the age of any of the subjects, nor afford, either directly or indirectly, the slightest guarantee that these inspections were made with due care; on the contrary, indeed, the appearances observed are described so loosely that, with reference to many of them, it is by no means easy to determine their exact nature. Of this want of exactness no better proof can be given than the fact that while M. Lair discovered but 12 ulcerations of the os uteri out of 500 examinations, and M. Pichard but 5 out of 300 more, the latter mentions that in 54, or rather more than a sixth of his cases, a granular state of the os uteri was present; while M. Lair makes no reference to his having ever met with such a condition. But I

[1] Nouvelle Méthode de Traitement des Ulcères, etc., de l'Uterus, 8vo., Paris, 2d edit. 1828.

[2] Des Abus de la Cautérisation, etc., dans les maladies de la matrice, 8vo., Paris, 1846.

need say no more about these two writers, since any attempt to reconcile their statements leaves us in hopeless bewilderment, satisfied of but one thing, namely, that facts so collected and so arranged are available for no useful purpose.

I fear that a very similar statement must be made with reference to the facts bearing on this subject which have been collected in our own country. Not only is there no evidence of their having been observed with that minute care which is needed to render them thoroughly trustworthy; but, with reference to many hundreds of the cases, if not to all, conclusions have been drawn as to the frequency of certain morbid conditions of the uterus, from the examination alike of the infant of a few weeks old and of the old woman of seventy; an oversight, to call it by the mildest term, which renders any results deduced from such data worse than useless.

It is idle to expect to meet with frequent indications of uterine disease before the generative organs have arrived at maturity sufficient to commence the performance of their functions; while, after the time of sexual vigour has passed, the only diseases we are likely to find are such as commenced at an earlier period, or such as may be incidental to the mere tissue of the organ, wholly independently of the function which it once performed.

The question then is, with what frequency, and associated with what other changes, do we meet with indications of inflammation and ulceration of the os and cervix uteri, in the bodies of women after puberty, and especially during the period of sexual activity?

My own observations, which amount only to 62, are too few conclusively to settle this inquiry; though I cannot but hope that the care with which they were made may compensate to some extent for the smallness of their number, and that they may serve at least to indicate the side towards which the weight of evidence inclines. Each examination was recorded according to a printed form, on which were specified for separate notice the dimensions of the uterus, the condition of the os, the length and breadth of the cervix uteri, the size of the uterine cavity, the thickness of the walls of the organ, and so on;—points some of which were of practical interest, while the enforced attention to others had at least this advantage, that it prevented anything from being overlooked.

The uteri were taken from patients who died in the medical wards of St. Bartholomew's Hospital of other than uterine disease.

Of the total number, 13 were above forty-five years of age, the remaining 49 between the years of fifteen and forty-five. Concerning all of the former class, and 30 of the latter, making a total of 43, it was either known with certainty, or concluded with great probability, that they were married, or had had sexual intercourse; the remaining 19 were believed to be virgins.

The subjoined table shows the general results of the examination of the uterus in these cases, and the relations borne to ulceration of the os uteri by the more important morbid appearances.[1]

TABLE

Showing the chief results of the examination of 62 *uteri:*

Uterus healthy in		33
" diseased in		29
Ulceration of os uteri in		17
" existed alone in	11	
" with diseased lining of uterus in	3	
" with induration of walls of uterus in	3	—17
Induration of walls of uterus, without ulceration of os		5
Disease of lining of uterus, without ulceration of os		7
Total of diseased uteri,		29

The os uteri was abraded in 1 of the subjects above 45 years of age; and the lining of its interior was diseased in 5 of that number. In 11 of the 19 patients, all under 45 years old, who were virgins, the uterus was perfectly healthy; in 8 it presented some sign or other of disease. This consisted 5 times in slight abrasion of the os uteri, which existed alone in 3 cases; but was associated in the other 2 with some morbid state of the interior of the womb. Twice the interior of the uterus was the only part affected; and once the uterine walls were much harder than natural.

There is certainly something at first not a little startling in the result at which we arrive, that the womb was found in a perfectly healthy condition in little more than the half of 62 women, none of whom died of uterine disease, nor were supposed to be suffering from any grave uterine ailment. But it may, it ought indeed to be, asked, what is the value of these appearances? Some of them

[1] In the above table, and in the general statements of the state of the uterus, no notice is taken of morbid conditions of the uterine appendages, nor of those affections of the womb (such, for instance, as fibrous tumors) which obviously stand in no necessary relation to inflammation of the organ, or to ulceration of its orifice.

may be of little moment, and the very frequency of their occurrence, instead of substantiating the opinion that they are of great importance, rather militates against that supposition. When ulceration of the os uteri was first observed, it was natural enough to attribute to it many symptoms, and to refer to its influence many structural changes. But what if such ulceration be found to be usually very limited in extent, and so superficial as to be unassociated with changes in the basement membrane of the affected surface, and exercising so little influence on the state of the uterus in general, as to be unconnected in a large number of instances with changes either in the interior of the womb, or in its substance; while induration of the uterine tissue and disease of the lining membrane of the womb are found independently of it, or of each other? Should such appear to be the case, it will, I think, be rendered in the highest degree probable that this abrasion of the os uteri has not the long train of sequences which have been supposed to follow it, but that it is of comparatively small pathological import; that it may be found to vary under the influence of comparatively trifling causes; and not unfrequently to be dependent on functional disorder of the uterus, just as the mucous membrane of the tongue and mouth betrays the disturbance of the digestive system; that it may, in short, be the consequence, and sometimes the index, but rarely the occasion, of the ailments with which it is associated.

Abrasion of the os uteri was observed in 11 instances unconnected with any other morbid condition of the womb. In 6 cases it was extremely slight, affecting just the edges of the os uteri, but not extending for more than a line in breadth; the mucous membrane lining the canal of the cervix was in all of these instances quite pale, but twice the lining of the uterine cavity was of a brighter red than natural. In the other 5 cases, the abrasion, though retaining the same character, was more extensive; once the abraded surface presented a finely granular aspect, but was quite uniform; but in the other four cases it had an uneven worm-eaten appearance, probably due to a partial destruction of the papillæ which beset the os uteri.[1] In 4 of these cases the abrasion extended for a short distance up the canal of the cervix, while once it was limited to that exclusively, the lips of the os being perfectly pale and healthy, and

[1] As in the delineation, by Drs. Hassall and Tyler Smith, in vol. xxxv. of the Medico-Chirurgical Transactions.

the mucous membrane of the cervix unaltered, except along a strip a third of an inch in breadth by an inch in length, where the posterior wall was abraded. In 3 of the above 4 instances there was some increase of vascularity in the mucous membrane of the cervix, which on one occasion extended for nearly half an inch up its canal; and once this condition was very marked, and the mucous membrane appeared swollen and infiltrated, but in no other case was there any appearance of thickening of the membrane either at the seat or in the immediate neighbourhood of the abrasion.

It is alleged, as we have already seen, that in the great majority of instances ulceration of the os uteri gives rise to induration of the cervix, the result of the extension of inflammation to it, and of the effusion of plastic lymph into its structure, which lymph comes by degrees to be more and more organized. This description, however, of the manner in which induration of the cervix uteri takes place is purely imaginary; there are no observations whatever bearing on the subject, and the difficult task of tracing the results of chronic inflammation in any tissue is obstructed by so many special impediments in the case of the uterus, that it will probably be long before we shall be in a position to speak with any measure of certainty concerning it. The account of the process by which induration of the cervix uteri is produced may possibly be correct, but at any rate it is not proven; and few things have so retarded the advance of medical knowledge as the accepting some plausible hypothesis as if it were a statement of well-ascertained facts, and then proceeding to reason from it as if from some secure basis.

Under what circumstances is induration of the uterine tissue met with, and in connection with what other changes in the organ? It existed in 9 cases; in 5 of which it was not associated with any other disease of the uterine substance; in 3 it coexisted with ulceration of the os; and in 1 with a morbid state of the interior of the uterus. In an unmarried girl, aged eighteen, who died of cardiac dropsy, the tissue of the fundus, and of the upper half of the body of the uterus, presented its usual characters; but about half-way down the body of the organ there began a strip of a dead yellow colour, and much denser texture, resembling fibro-cartilage or the elastic coat of an artery. The dense tissue lay immediately beneath the lining membrane of the uterus, and being at first only one line in thickness, increased in width till it came to constitute the whole thickness of the cervix uteri. In the case of another patient, aged

forty-seven, a similar condition was met with in the body of the uterus, but scarcely at all involved the cervix; and in the three other cases, in all of which the women were under thirty years old, the cervix uteri alone was affected, being white, hard, creaking under the knife, and seeming under the microscope to be composed of an extremely dense fibrous tissue.

It appears, then, that most marked induration of the tissue of the cervix, and of part of the body of the womb, may exist where there is no other trace of inflammation, either past or present. It may also occur in connection with inflammation and ulceration of the lining membrane of the uterine cavity. In a woman who died at the age of fifty-six, about a third of the thickness of the wall both of the body and of the neck of the womb was exceedingly firm, and creaked under the knife. Abundant glairy secretion from the cervical glands, and some want of transparency of its lining membrane, were the only unusual conditions of the interior of the uterine neck; but the cavity of the organ contained a copious purulent secretion mixed with blood; its mucous membrane was thickened, vascular, and destitute of polish, and about the middle of the posterior wall completely destroyed, leaving the substance of the womb beneath uneven, rather soft, and presenting the appearance of a granulating surface.

Ulceration of the os uteri, and induration of the uterine walls, were associated together in three instances. On one occasion the ulceration was but slight, and the interior of the cervix extremely pale, though there was great injection of the lining of the uterine cavity. In this instance the cervical wall was much indurated, that of the body of the uterus rather less so. Extreme induration of the cervix existed in one case where there was rather extensive ulceration of the os uteri; and in this instance the cervix was considerably hypertrophied. The patient from whom this uterus was taken had been under my care for some years previously, suffering from symptoms such as Gooch describes under the name of irritable uterus; her sufferings had been most severe, and the enlargement of her womb most considerable at a time when there was no abrasion of its orifice. In one case only, in which there was considerable induration of the cervix, there was a distinct line of congestion, about half a line in depth, between the ulcerated surface and the pale tissue of the indurated cervix.

In 10 cases, the condition of the lining membrane of the uterine

cavity deviated from that which characterizes it in a state of health. Thrice this state of the interior of the womb coexisted with ulceration of its orifice of moderate extent, and presenting its ordinary appearance; but in the remaining 7 instances the os uteri was perfectly healthy. In 7 of the 10 cases the uterine mucous membrane was vividly injected, so as to present a bright rose tint, and was more or less swollen and softened. Once very extensive disease of the lining membrane of the uterine cavity, probably of a tuberculous character, was discovered in the body of a woman fifty-six years old. In a second case, in which the patient was stated to have had a copious leucorrhœal discharge, and to have complained of pain and of a sense of heat at the lower part of the abdomen, the intensely red mucous membrane of the uterine cavity presented an almost gelatinous appearance, and looked not unlike decidua. In this instance, though there was some ulceration of the os, yet the lining membrane of the cervix was quite pale; no secretion occupied its canal, and the tissue of the uterus was quite healthy. In a third case a small patch of ecchymosis was present beneath the lining of the uterine cavity; and in a fourth, where the patient had not menstruated for five months, the lining membrane, though of a pinkish colour, had lost its polish, and looked more like an injected serous membrane than like the mucous lining of the womb.

It has not been from want of perception of the hopeless tediousness of such details, that I have ventured to take up your time so long with an account of the morbid appearances of the uterus, observed in these cases. Many, probably very many, of these conditions ought to be classed with pseudo-morbid, rather than with pathological appearances; but the data at present fail us for distinguishing with accuracy the one from the other. But, be this as it may, it is yet abundantly evident that many of them imply deviations from a healthy state more considerable than the trifling abrasion or ulceration of the os uteri, which existed on several occasions. We have seen that, in by far the majority of cases, the ulceration, when present, was not merely trifling in extent, but that it had not given rise to so much irritation of the neighbouring tissues as to produce any appreciable congestion of the mucous membrane in its vicinity; while the changes in the uterine substance alleged to depend upon it were oftener present without than in connection with it; and, moreover, none of the alterations about

the os and cervix of the womb were so considerable as those which were apparent in its cavity.

Other evidence, indeed, must be adduced than that which analogical reasoning from the facts of physiology has suggested, or than that which examinations after death have furnished, before we shall be entitled to reject the opinion that inflammation of the cervix, and ulceration of the os uteri, are occurrences of very serious pathological importance—the occasion of nearly all the ills which affect the physical well-being of woman. That other evidence must be reserved till the next Lecture; but yet, unless I have altogether failed in my endeavours, the question is not left to-day quite where it was before; since, tempting though this hypothesis may be, and numerous the difficulties which it may appear to solve, we yet have found that it is opposed by the facts of physiology, unsupported, to say the least, by the results of anatomical investigation.

LECTURE II.

Inquiry continued. III. Course and consequences of ulceration of the prolapsed uterus; they do not seriously disorder the uterine functions, or alter its structure. IV. Results of clinical observation. Examination of prostitutes suffering from gonorrhœa or syphilis shows susceptibility of cervix uteri to have been over-estimated. Question considered with reference to importance of ulceration when present. Three different solutions of it suggested. Tests by which it is proposed to determine it. Nature of materials for this purpose stated.

Influence of ulceration of os on fecundity inconsiderable—Its occurrence connected with activity of sexual functions, as shown by patient's age and alleged cause of illness. Similarity in these respects to cases where ulceration is absent shown further by duration of symptoms, by disorder of menstruation, by occurrence of leucorrhœa, by complaints of pain, and in the main by condition of the uterus.

Further examination into relation of ulceration of the os uteri to induration of its cervix shows it not to be constant, nor bearing any necessary relation in degree.

General inferences from inquiry unfavourable to first two solutions of question concerning importance of ulceration of os uteri; and consequently to opinion that it is a condition of great importance.

MR. PRESIDENT—

SIR: The facts and considerations which I had the honour to submit to you in my former Lecture, were, as you will remember, not brought forward as conclusive of the question that they were intended to elucidate. They seemed, however, to raise a presumption against rather than in favour of the opinion, that inflammation of the cervix and ulceration of the orifice of the uterus are conditions of great pathological importance; and at any rate to warrant us in scrutinizing very closely such other evidence as may be adduced to substantiate its correctness.

I purpose to-day to advance further in this investigation; to abandon for the present physiological reasoning, to lay aside the scalpel of the anatomist, and to learn what we may of this subject from the study of the living.

The complex character of disease offers one great impediment to our thoroughly understanding it: the having surmounted this difficulty constitutes the great difference between the experienced

physician and the novice. In the matter of uterine disease, we are, I fear, all novices; and it was this consideration which induced me to propose that we should, if possible, study—

III. As the *third point* in this inquiry, ulceration of the os uteri, under some condition in which it presents itself to our notice unconnected with other disease, and with such circumstances as to admit readily of our observing its characters, and noting its course and consequences.

Fortunately, the opportunities for this study abound; and in almost every woman whose uterus has become prolapsed beyond the external parts, we may observe the effects which ulceration of the os uteri commonly produces, the symptoms to which it generally gives rise; we can trace it in its progress, can watch it for weeks or months together, and see what it has led to where it has existed even for years.

A previously healthy woman leaves her couch too soon after her delivery, while her vagina is still lax, and its power of supporting the uterus is perhaps still further diminished by laceration of the perineum. The retrograde process by which the bulk of the womb should be eventually reduced to its former dimensions is still incomplete; while the outstretched uterine ligaments have not had time to contract to their former size, nor to recover their former resiliency. The heavy uterus, thus ill-supported, sinks down in the pelvis, approaches by degrees nearer and nearer to the external parts, and at length occasionally projects beyond them; and in the course of a few weeks or months the occasional prolapse becomes habitual. At first, it is only a portion of the womb which thus projects; but often the whole uterus comes in the course of time to hang externally; while in many instances, a portion of the bladder in front, and of the rectum behind, descends into the sac of the tumor and increases its bulk. The delicate lining of the vagina, dragged down and inverted by the descent of the womb, furnishes an investment to the whole mass, and, assuming by degrees the characters of ordinary integument, becomes adapted to its new condition. The lips of the os uteri, however, and the immediately adjacent portion of the cervix which the vagina does not cover, retain in most cases much of their original delicate structure, while their very position at the most depending part of the tumor exposes them more than any other part to external injury; so that, with

comparatively few exceptions, they are, permanently in a state of abrasion or superficial ulceration.

These ulcerations are generally indolent, though by no means so much so as the ulcers of the inverted vagina itself, which are apt to become deep and excavated with raised and callous edges, and exactly to resemble chronic ulcers of the skin of other parts of the body. The abrasions of the os, however, after weeks or months still retain much the same characters as they originally presented. They extend, indeed, at one time over a larger extent of surface than they occupy at another; but they very rarely increase in depth, or extend into the subjacent tissue. The ulcerated surface is denuded of epithelium; now and then it is partially covered by a thin layer of yellowish lymph, but usually it is of a rather vivid red colour, and of a granular appearance. This granular character is generally more marked in proportion to the age of the ulceration; while in a few instances the granulations are distinct from each other, rather elongated in form, and look exactly like hypertrophied papillæ. A transparent albuminous secretion in general covers the ulcerated surface, and is sometimes poured out freely from it; but there is seldom any abundant discharge from the interior of the uterus, or even from the canal of the cervix.

In almost all cases of procidentia uteri (those alone excepted in which the misplacement of the womb occurs in advanced life, as a consequence of that general wasting of the tissues within the pelvis which takes place when the generative functions have been long extinct), the organ becomes in the course of time more or less considerably hypertrophied. This hypertrophy usually affects the neck of the womb more than its body, involving it in all its dimensions, though mostly to a greater degree in length than in thickness. It seems to be a simple increase of growth, such as we find occurs in other parts when subjected to constant and long-continued irritation; but nowhere, except perhaps in the female mamma, is it observed so frequently or to so great a degree as in the uterus, since nowhere else does there exist the same store of formative material, which needs but a stimulus to excite it to active development. To the touch the enlarged cervix presents no remarkable hardness; but its substance feels generally healthy, and the knife of the anatomist detects no alteration in its tissue. There is overgrowth of the part, but nothing more.

That such is the case, we have additional proof in the fact that a

uterus misplaced, enlarged, with its orifice even abraded, and retained within the pelvis only by some mechanical contrivance, is nevertheless capable of performing all its functions, even its highest; and this in many instances with a remarkably small degree of disturbance. Not only does conception take place readily in spite of the existence of prolapse of the womb, but pregnancy and labour are not seldom passed through with no additional suffering beyond that which attended those processes on former occasions, or, at the worst, the increased discomfort of the patient is obviously due to purely mechanical causes.

It can scarcely be necessary to say, that it is not my intention for one moment to assert that misplacement of the womb produces no inconvenience, or that ulceration of its orifice, when it is thus misplaced, is of no importance. Daily experience yields abundant proof to the contrary; but a detail of the symptoms of prolapse of the uterus forms no part of our present object. I referred to the accident and its consequences only for the sake of suggesting the reasonable inference, that if inflammation of the neck of the womb were as frequent as has been supposed, or ulceration of its orifice the necessary occasion of such serious disorder of function and alteration of structure, we ought to meet with some of the most striking illustrations of these facts in cases where the womb, by its misplacement, is exposed to injuries from without, such as it was never intended to encounter.

But though it be conceded, as I think it must be by all observers, that the symptoms supposed to characterize inflammation of the neck of the womb, and ulceration of its orifice, are not met with either constantly or in a specially marked degree in cases of prolapsus or procidentia uteri; still, we should not be justified in drawing an absolute conclusion from what we observe in the misplaced uterus, as to the effects produced by similar ailments attacking the organ when in its natural position. It may be alleged, and with plausibility, that during the gradual process of its misplacement, the sympathies of the womb have been rendered less keen than they were while the organ retained its natural position; and that thus it comes to bear, with comparative impunity, injuries which might otherwise have produced great disorder of its functions and great alteration of its tissue.

Bearing in mind, then, the necessity for care, lest from any facts we draw a wider inference than they really warrant, let us now turn

to the *fourth* and most important part of this inquiry, and seek to ascertain—

IV. What clinical observation generally teaches us concerning ulceration of the os uteri—its course, its symptoms, and its importance.

Before entering on the general consideration of the subject, however, there is one point specially elucidated by a particular class of patients, and concerning which it may not be inappropriate to say a few words. The peculiar susceptibility of the cervix and os uteri, the extreme readiness with which they become the seat of inflammation and ulceration, are much insisted on by those writers whose opinions we are considering. Now, assuming such views to be correct, we may, I think, expect them to receive full confirmation from the medical history of those wretched women who live by prostitution. In them, more than in any other class of persons, do we meet with the conditions best calculated to inflict local injury on the neck of the uterus. It will therefore be reasonable to expect that they will present, with remarkable frequency and intensity, an ulcerated condition of the os uteri, an indurated and hypertrophied state of its cervix. It is true that the severest forms of these affections must prevent persons labouring under them from exercising their disgraceful calling; but yet no one who is familiar with the state of wretchedness, suffering, and disease, in spite of which the lower order of prostitutes continue to ply their trade, but would expect to meet among them with many instances of those ailments in their acute stage, if they were in reality very frequent. Moreover, as a hypertrophied cervix uteri returns, even under favourable circumstances, extremely slowly to its original size, there would be many occasions in which the chronic effects of bygone inflammation must be evident in those who had devoted themselves for months or years to a vicious life.

Observation, however, seems to show that, be the causes of ulceration of the os uteri, of inflammation, hypertrophy, and induration of its cervix, what they may, sexual excesses, at any rate, have no great share in their production. Four years ago, being anxious to satisfy my mind on this point, I examined, by permission of Mr. Lawrence, forty women on their admission into the venereal wards of St. Bartholomew's Hospital. Of these 40 patients, 18 suffered from gonorrhœa alone, 10 from gonorrhœa and syphilis, and the remaining 12 only from syphilis. The cases were unselected, and

the examinations were made as soon as possible after the admission of the patients into the Hospital.

In 27 instances, the os and cervix uteri were absolutely healthy, or presented only, and this but rarely, a slight blush of redness, deepening the natural hue of those parts. In 10 of the remaining thirteen, the ulceration, if indeed it deserved the name, was a mere excoriation not above a line in breadth, partially or completely circumscribing the os uteri, but associated with no other change of its tissue. In the remaining 3 cases, the abrasion was more extensive, surrounding the os uteri for about a third of an inch; and in the case of one of these three, that of a woman who had given birth to children, the lips of the os were noted to be elongated: this, however, was the nearest approach to a hypertrophied state of the cervix met with in the whole forty cases; while in no instance was there any such alteration of the texture of the part as to deserve the name of induration.

These facts, however, after all, prove no more than this—that the susceptibility of the os and cervix uteri to the effects of local injury has probably been over-estimated; they do not bear, or bear but very slightly, on the more important inquiry as to the value to be attached to ulceration of the os uteri when present. In approaching this question, as we are bound to do with no conscious bias of the mind in one or the other direction, three different possibilities at once suggest themselves to us, of which any one may be correct.

1st. Ulceration of the os uteri may be the cause of all the symptoms of uterine disease which have been attributed to it; and consequently it may be of no less importance to remove it when present, than to ascertain the fact of its existence.

2d. Though not in itself the cause of the symptoms, or at least of the greater part of them, it may yet be the concomitant of certain forms of uterine disease; of the state and progress of which its extent and degree may be a trustworthy index. In this case, though of small importance as far as therapeutical proceedings are concerned, it may yet be of great semeiological value.

3d. Neither the one nor the other of these suppositions may be correct; but either the ulceration may exist alone, giving rise in that case to few symptoms, or to none at all; or it may, in other instances, complicate different uterine ailments, though not an index of their state, nor varying with their changes.

Considering that, in the opinion of some writers, so large a proportion as 81 per cent. of all women presenting symptoms of uterine ailment, are suffering from inflammatory disease of the tissue or canal of the cervix uteri, and 70.4 per cent. likewise from ulceration of the os uteri, this inquiry can scarcely be expected to detain us long. The evidence in support of such a view may fairly be expected to be overwhelming; and the symptoms of ulceration of the os uteri to be characteristic, either from their peculiarity or their severity, or from both together; and to differ in important respects from such as attend upon those uterine ailments which are not associated with that condition. Fortunately, too, the presence or absence of ulceration of the mouth of the womb is a fact easily ascertainable; so that there can be no difficulty in making this the ground of a division of cases of uterine disease into two grand classes for the purpose of comparison.

I purpose, then, to inquire whether sterility is more frequent, whether the rate of fecundity is lower, and whether abortion occurs oftener in the one class of cases than in the other? Whether menstrual disorder is more common, more severe, or different in kind; whether leucorrhœa is more abundant, or furnished from a different source; or whether pain is less tolerable when the os uteri is ulcerated, than when that condition is absent? And lastly, whether similar or different causes produce the uterine affections in the two classes of cases; whether the duration of illness is the same; whether the structural alterations of the womb are alike or diverse?

If this inquiry should discover marked differences between the two classes of cases, it will then be for us to determine whether the ulceration is to be regarded as the *cause* of the coexisting disease, or only as a constant attendant upon it? That it must hold one or other of these places, will, I think, be established beyond cavil; and it will follow that, on either supposition, the importance of ascertaining its existence can scarcely be overrated.

If, on the other hand, we find that a very great degree of resemblance exists between the two classes of cases; that women of the same age, under similar circumstances, present the same symptoms, leading to the same results, having the same duration, and attended with similar structural changes, whether ulceration of the os uteri be absent or present; it may then be inferred with equal certainty that ulceration of the womb can neither be regarded as a general cause of uterine disease, nor as a trustworthy index of its progress;

but that it is a pathological condition of secondary moment, and this even though there be still some difficulty in assigning to it in every instance its proper value.

The materials from which I hope to make some approach to a satisfactory answer to these questions are derived from 1226 cases, of which records were preserved while the patients were under my care, either at the Middlesex or at St. Bartholomew's Hospital. Of these, 300 were in-patients of one or other institution, and the remaining 926 were out-patients of St. Bartholomew's Hospital, between Jan. 1, 1850, and Oct. 15, 1853. Conclusions as to the results of treatment can of course be drawn only from the in-patients of a hospital; but the history of out-patients yields, if carefully recorded, trustworthy data with reference to the symptoms of disease. It has been my custom for the past three years to keep a minute account of the history of my out-patients at St. Bartholomew's Hospital—recording with reference to each one her age, the number of years she has been married; if a widow, the duration of her widowhood, the number of children to whom she has given birth, as well as that of the abortions which she has experienced, with the date of her last pregnancy. Further, the date of her first menstruation, with the manner in which that function has generally been performed, as also the ordinary presence or absence of leucorrhœal discharge, have always been noted; together with the date of the commencement of her present illness, its symptoms, and the result of vaginal examination; which last I have invariably made, and dictated the account of, myself. These particulars have been taken of all cases without selection—or if any were omitted, they were only some of those cases of trivial ailment which all who have had much experience of hospitals know to be never absent, in certain proportions, from these institutions; cases sometimes of mere loitering idleness, but oftener of destitution, where the symptoms are those of want, not of disease, and food, not physic, is the appropriate remedy.

In 268 of the 1226 cases, the symptoms appeared to me to justify the use of the speculum; and in 125 instances, the os uteri was found to be the seat of ulceration; while in the remaining 143 it showed no sign of that condition. Though for some purposes conclusions may be drawn from the whole number of patients, yet obviously the solution of the questions before us must be attempted

by a comparison of the smaller number of instances in which examination with the speculum was instituted.

Thus much premised as to the grounds on which the different conclusions rest, to which I now have to crave your attention, we are in a position to take up successively the various points that I have already referred to as likely to elucidate the question of the influence of ulceration of the os uteri in the production of uterine disease, or in occasioning functional disorder of the generative system.

The perpetuation of the species being the highest function of the generative apparatus in either sex, it is but natural to expect that any serious disease of the organs which subserve that function shall produce some appreciable effect in interfering with its performance, and that it shall, in the case of women, show its influence either in the production of absolute sterility, in lessening the number of conceptions, or in increasing the number of abortions.

For our purpose it is not sufficient as a standard of comparison to know the proportion of children to a marriage generally throughout this country (which is about 4.2); but we ought to ascertain the general fecundity of women in the same class of life, and placed under the same general circumstances with those who apply as patients at the hospital.

In the subjoined table, therefore, the first division represents the proportion of pregnancies which reached their full term, and also the proportion of abortions to a marriage in 980 married women at different ages who were attended in their confinement by pupils of St. Bartholomew's Hospital. The second division represents the same fact in the case of 980 women married above one year, who applied during the childbearing period of life for relief on account of any ailment of the uterine system, and shows also the proportion of cases in which marriage had proved absolutely sterile. The third division represents the same facts with reference to 125 of the above 980 persons in whom, examination with the speculum having been made, the os uteri was found unaffected by ulceration; and its results may be compared with those in the fourth division, which refers to 117 of the same number of patients in whom ulceration of the os uteri existed.

TABLE I.

AGES.	HEALTHY WOMEN.			TOTAL PATIENTS WITH UTERINE SYMPTOMS.				PATIENTS WITH UTERINE SYMPTOMS WITHOUT ULCERATION.				PATIENTS WITH UTERINE SYMPTOMS, WITH ULCERATION.			
	Number.	Children to each marriage.	Abortions to each marriage.	Number.	Proportion of sterile marriages.	To each fruitful marriage.		Number.	Proportion of sterile marriages.	To each fruitful marriage.		Number.	Proportion of sterile marriages.	To each fruitful marriage.	
						Children.	Abortions.			Children.	Abortions.			Children.	Abortions.
Under 20 years	25	1.1	.08	10	1 in 3.3	1	...	...	...	...	...	3	1 in 1.5	1	...
Between 20 and 30 years . . .	525	2.6	.4	343	1 in 7.7	2	.9	40	1 in 4.4	1.25	.6	63	1 in 6.3	2	.84
" 30 " 40 " . . .	384	5.7	.85	350	1 in 6.8	4	.9	62	1 in 4	4	1.29	43	1 in 10.7	4.5	1.1
" 40 " 50 " . . .	46	7.3	1.5	277	1 in 17	3.8	1	23	...	4.86	2.47	8	...	6.5	1.75
Totals and averages	980	4.17	.7	980	1 in 8.5	2.7	.47	125	1 in 5.2	3.3	1.3	117	1 in 7.3	3.5	.89

With reference to the results of this table, there can be no doubt but that the proportion of sterile marriages is really less, especially in the case of women between twenty and thirty years old, than is here represented. It is true that no cases are included in it in which the women had been married for only a year, or for a shorter time; but instances are by no means uncommon of conception not taking place till after a lapse of two years or more from marriage, although there be no obvious cause in the health of either husband or wife to account for this delay.[1] But leaving the sterile marriages out of the question, we cannot but be struck with the great diminution in fecundity in those women who were suffering from ailments of the generative system. This result, however, instead of being more marked in cases of ulceration of the os uteri, than in those where no such condition existed, appears in reality to be less so; while a comparison of the third and fourth divisions of the table with the second, indicates that other causes (such, I believe, as ovarian diseases and uterine tumors) exert a more unfavorable influence on female fecundity than the various morbid conditions of the cervix or os uteri.

Though the table seems to show that the number of successful pregnancies was slightly greater; and the number of abortions slightly less, in those cases in which ulceration of the os uteri was present, than in those in which it was absent, I do not wish to draw from it such a conclusion. The difference between the two classes of cases is but small, and the number of facts from which this table is constructed are too few to justify any such inference; but I do think that we are warranted in concluding that ulceration of the os uteri does not interfere with the performance of the most important function of the generative system in any peculiar manner, or to a greater degree than many other uterine ailments.

So many other causes, however, besides the state of a woman's sexual health, may interfere with conception, that we must be extremely guarded in drawing conclusions with reference to it from the rate of her fecundity alone. The manner in which her menstrual function is performed affords a better index to the healthy or diseased state of her generative system; and to that we shall presently direct our attention. But the more numerous the points of view from which we compare cases of ulceration of the os uteri with other cases of uterine disease, unattended by ulceration, the greater will be the

[1] See M. Villermé's observations on this subject in Annales d'Hygiène, tom. v. p. 86.

probability of our coming ultimately to a correct conclusion with reference to the value of that condition. Before inquiring into the state of menstruation in the two classes of cases, we will therefore compare them in one or two other respects.

The facts to which I called your notice this afternoon with reference to the comparative immunity of prostitutes from serious ulceration of the os uteri, showed that mere excessive sexual intercourse does not exert a special influence in the production of that affection: the table we have just examined has proved that a woman's fecundity is not peculiarly diminished by its existence. This second table, however, seems to render it probable that some connection exists between the period of the most vigorous performance of the sexual functions and that state of the uterus in which ulceration of its orifice is most apt to occur; since, while 43 per cent. of the cases where ulceration was absent occurred after the age of 35, only 13.6 per cent. of those in which ulceration existed were met with subsequent to that age.

TABLE II.

Showing the Age of the Patients in the two Classes of Cases.

AGE.	ULCERATION.	
	Absent.	Present.
Under 20 years	...	4
Between 20 and 30 years . . .	47	69
" 30 " 35 " . . .	36	35
" 35 " 40 " . . .	31	9
" 40 " 50 " . . .	23	8
" 50 " 60 " . . .	3	...
Above 60 years	2	...
	142	125
Of 1st class	9 single	3 not one year married
Of 2d "	6 "	2 " "

The same fact may, perhaps, be thought to receive some slight confirmation from the circumstance that if we inquire into the cause of the patient's symptoms in the two classes of cases, we shall find that they were attributed to marriage, pregnancy, or delivery, in 48 per cent. of those in which the os uteri was ulcerated, and only in 41 per cent. of those in which ulceration was absent—a difference however, which is less marked if those cases only are included in which a definite cause was assigned for the symptoms.

But be this as it may, there is at least one point which the subjoined table clearly illustrates, namely, the general identity of the causes which produce the symptoms of uterine disease, whether ulceration of the os uteri is present or absent.

TABLE III.

Showing alleged Causes of Uterine Ailment.

CAUSES.	ULCERATION.			
	ABSENT.		PRESENT.	
	Actual numbers.	Proportion per cent.	Actual numbers.	Proportion per cent.
None assigned	55	38.4	41	32.8
Of the remaining	88	61.6	84	67.2
Marriage	10	11.3	7	8.3
Pregnancy	3	3.4	2	2.3
Abortion	17	19.2	16	19
Delivery	27	30.7	32	38
Lactation	2	2.2	3	3.5
Gonorrhœa or syphilis . . .	13	14.7	11	13
Disordered menstruation . .	3	3.4	...	...
Uterine or abdominal inflammation	1	1.1	3	3.5
Injury, operations on, or diseases of Uterus	7	7.9	4	4.7
Sedentary occupation . . .	2	2.2	3	3.5
Other causes	3	3.4	3	3.5
	88	99.5	84	99.3

Nor, indeed, as far as can be judged from the duration of the symptoms before their severity or their continuance impelled the patients to seek relief at the hospital, do we find materials for drawing any distinction between the two classes of cases. It appears that, while 46 per cent. of those cases in which ulceration was absent applied at the hospital within a year after the commencement of their ailments, not more than 47 per cent. of those in which ulceration existed sought relief during the same period. From this fact it is, I think, fair to infer that the patients suffered about equally under both circumstances, and that the symptoms were not materially aggravated by the presence of ulceration of the os uteri.

TABLE IV.

Showing Duration of Symptoms at Commencement of Treatment.

DURATION.	ULCERATION.			
	ABSENT.		PRESENT.	
	Actual numbers.	Proportion per cent.	Actual numbers.	Proportion per cent.
Under 1 month	7	5.1	7	5.9
Between 1 and 3 months	14	10.2	15	12.7
" 3 " 6 "	27	19.1	13	11
" 6 " 9 "	10	7.3	7	5.9
" 9 " 12 "	6	4.4	14	11.8
" 12 " 18 "	8	5.8	6	5
" 18 months and 2 years	11	8	9	7.6
" 2 and 3 years	12	8.8	16	13.5
" 3 " 5 "	16	11.7	19	16.1
" 5 " 10 "	15	11	10	8.4
From 10 years and upwards	10	7.3	2	1.6
	136	98.7	118	99.5

If we pursue this inquiry further, and endeavor to ascertain, as I proposed doing a few minutes ago, whether the manifestations of menstrual disorder are alike or diverse in the two classes of cases, we shall but obtain another proof of the same general correspondence between them.

TABLE V.

Showing the State of Menstruation.

MENSTRUATION.	ULCERATION.			
	ABSENT.		PRESENT.	
	Actual numbers.	Proportion per cent.	Actual numbers.	Proportion per cent.
Natural	52	37.6	36	30
Ceased from age	8	5.7	...	...
In the remainder	78	56.9	84	70
Modified as follows:—				
Suppressed from suckling or pregnancy	6	7.6	13	15.4
Suppressed	2	2.5	1	1.1
Irregular	5	6.4	5	5.9
Scanty, or postponing	10	12.8	12	10.7
Painful	17	21.7	9	10.7
Profuse, or anticipating	30	38.4	37	44
Always unnatural in some respect	8	10.2	7	8.3
	78	99.6	84	99.6
Gross total	138		120	

This table, like the others, comments on itself, and needs but little to be said in the way of explanation; for such differences as are observed between the two classes of cases show no more than a somewhat greater activity of the sexual function in those where ulceration was present than in the others. In them, pregnancy or lactation was more frequent; scanty, irregular, suppressed, or painful menstruation was rarer; while excessive or over-frequent menstruation occurred with greater frequency.

TABLE VI.

Showing the Relation of Leucorrhœa to Ulceration of the Os Uteri.

LEUCORRHŒA.	ULCERATION.			
	ABSENT.		PRESENT.	
	Actual numbers.	Proportion per cent.	Actual numbers.	Proportion per cent.
Absent	13	10.4	5	4
Present	125	89.6	115	96
	138	100	120	100
Its quantity estimated in . . .	101	80.8	68	59.1
Of these—Profuse . . .	38	37.6	30	44.1
Scanty	21	20.7	10	14.7
Moderate . . .	42	41.5	28	41.1
	101	99.8	68	99.9
Its sources determined in . . .	80	64	85	73.8
Of these—from Uterus . . .	54	67.5	53	62.3
Vagina . . .	19	23.7	6	7
Both	7	8.7	8	9
Also to an appreciable degree from ulceration in	...	...	12	14.1
From ulceration alone . . .	...	...	6	7
	80	99.9	85	99.8

But there are other respects in which, though at the risk of seeming tedious, a comparison may be instituted between the two classes of cases, with the view of determining whether the presence of ulceration of the mouth of the womb alters the character of the symptoms, or increases or otherwise modifies their severity. Leucorrhœal discharges are enumerated as among the most constant and most characteristic symptoms of ulceration of the os uteri. The discharge is sup-

posed to be furnished either from the ulcerated surface itself, or from the inflamed and irritated canal of the cervix; and the healing of the ulceration is conceived to be the first step towards the cure of the discharge—often, indeed, all that is necessary for its removal. Let us, therefore, see whether leucorrhœa is greatly more frequent, more profuse, or furnished from a different source, where ulceration exists, than in cases where it is absent (see Table VI.).

Now Table VI. appears to me to show very clearly that leucorrhœal discharges are not dependent for their cause upon any peculiar condition of the uterus, such as of necessity gives rise to ulceration of the os uteri, or such as is itself consequent upon ulceration of the os; and still more, that they are not furnished to any considerable degree by the ulcerated surface itself. It will be seen that, in 67 out of 85 cases in which the source of the discharge was determined by the speculum, or in 78.8 per cent., no appreciable amount of secretion was furnished from the abraded surface; while the instances in which the abrasion seemed to be the sole source of the discharge did not exceed 6 out of 85 cases, or 7 per cent. of the total number.

If the same kind of inquiry be extended to another symptom seldom absent in uterine affections—namely, pain—we shall once more find a close correspondence between the two classes of cases.

TABLE VII.

Showing the Frequency and the Seat of Pain in the two Classes of Cases.

PAIN.	ULCERATION.			
	ABSENT.		PRESENT.	
	Actual numbers.	Proportion per cent.	Actual numbers.	Proportion per cent.
No complaint of pain . . .	21	14.6	18	14.4
Pain referred to uterus . . .	36	25.1	28	22.4
" back . . .	31	9	6	4.8
" pubic or iliac region .	7	4.8	3	2.4
" uterus and back .	24	16.7	20	16
" uterus and pubic or iliac region . .	12	8.3	9	7.2
" back and iliac region	9	6.2	11	8.8
" all these regions .	21	14.6	30	24
	143	99.3	125	100

The only difference, indeed, seems to be a slight one in degree, such as has been already exemplified in other instances.

Menstruation was found to be oftener excessive, leucorrhœa to be more frequently profuse, in cases where the os uteri was ulcerated; and, in like manner, the existence of that condition seems to be accompanied by pain diffused generally over the whole pelvic region more frequently when the os uteri is ulcerated than when ulceration is absent.

Lastly, it remains for us to inquire what was the condition of the uterus, in as far as it could be ascertained by examination, in the two classes of cases, selecting for comparison those points which admit of being ascertained most readily (see Table VIII.).

TABLE VIII.[1]

Showing the State of the Uterus, in as far as it could be ascertained, in the two Classes of Cases.

STATE OF UTERUS.	ULCERATION.			
	ABSENT.		PRESENT.	
	Actual numbers.	Proportion per cent.	Actual numbers.	Proportion per cent.
Uterus apparently healthy . .	29	20.8	36	30
Not healthy in some respect or other	110	79.2	84	70
Misplaced in	36	32.7	31	36.9
Lower than natural . . .	28	25.4	21	25
Retroverted or retroflected . .	3	2.7	5	7.9
Anteverted or anteflected . .	5	4.6	5	7.9
Its body enlarged	30	27.2	36	42.8
Body alone	20	18.1	12	14.2
Os or cervix also enlarged or indurated	10	9	24	28.5
Its cervix or os enlarged or indurated, or both	44	40	47	55.9
Cervix or os alone	34	30.9	23	27.3
Body also	10	9	24	28.5
Its orifice more or less congested .	58	52.7		
With otherwise healthy uterus .	20	18.1		
With enlarged uterus . . .	9	8.1		
With misplaced uterus . . .	12	10.9		
With enlarged or indurated os or cervix	17	15.4		

This last table once more exemplifies the same general correspondence as we have already noticed between the two classes of cases;

[1] It is almost needless to observe that this table represents only those morbid conditions of the uterus which bear upon the subject of these Lectures, and even they existed in several other combinations besides those which are here represented.

but it also shows that enlargement of the body of the uterus, and enlargement or induration of its cervix, existed much more frequently in connection with ulceration of the os uteri than independently of that condition. Still, the exceptional cases are far too numerous to allow of the assumption that the latter state is usually the cause of the former. Moreover, in two-thirds of the cases where ulceration was absent, and in one-third of those in which it was present, the enlargement was confined to the body of the womb—a fact easily reconcilable with the belief that that part of the organ, as it is of the greatest physiological importance, so is also the more frequent seat of the gravest pathological processes, or, at any rate, their most usual point of departure.

It also seems questionable, from the data which this table furnishes, whether induration of the os or cervix uteri is so generally dependent on ulceration of the os uteri as has been asserted, since it was present in 40 per cent. of the cases where no ulceration existed. Besides, if such a connection as that of cause and effect subsisted between ulceration of the os uteri and induration of its cervix, or even if there were any necessary relation of degree between them, we ought to find the most extensive ulceration coexist with the greatest hypertrophy and most considerable induration; while slight ulceration of the os, and an otherwise healthy state of the cervix, might be expected to be usually found together. Facts, however, as will be presently seen, do not bear out this opinion.

The tables to which I now beg your attention show the data on which this assertion is rested.

TABLE IX.

Showing the Different Seats and Comparative Frequency of Different Forms of Ulceration of Os Uteri.

ULCERATION.	SIMPLE ABRASION.		GRANULAR.		BOTH VARIETIES.	
	Actual numbers.	Proportion per cent.	Actual numbers.	Proportion per cent.	Actual numbers.	Proportion per cent.
Of anterior lip	5	4.1	...	...	5	4.1
Of posterior lip	11	9	4	3.3	15	12.3
Of both lips	57	47.1	44	36.3	101	83.4
	73	60.2	48	39.6	121	99.8

TABLE X.

Showing the Degree in which the Different Forms of Ulceration existed.

ULCERATION.	SIMPLE ABRASION.		GRANULAR.		BOTH VARIETIES.	
	Actual numbers.	Proportion per cent.	Actual numbers.	Proportion per cent.	Actual numbers.	Proportion per cent.
Slight	31	25.6	15	12.4	46	38
Moderate . .	33	27.2	26	21.2	59	48.4
Extensive . .	9	7.4	7	5.7	16	13.1
	73	60.2	48	39.3	121	99.5

In 121 out of the total 125 cases of ulceration of the os uteri, its seat, character, and extent were described with minuteness sufficient to warrant conclusions being drawn from them. I have endeavored to discriminate between that form of abrasion which is smooth, consisting in a mere absence of the epithelium, or slightly aphthous, presenting somewhat of a worm-eaten appearance—the epithelium being removed only from small circumscribed spots or points—and the other distinctly granular variety of the affection. I have also considered as slight those abrasions which neither extended along the canal of the cervix nor reached for more than a line around the os uteri; as moderate, those which, whether on one lip or on both, occupied a surface of two or three lines in extent; and as considerable, all those of greater dimensions.

A further examination of the cases represented in the two preceding tables elicited two important facts.

1st. That in 25 out of the 46 cases in which the ulceration is stated to have been slight, more or less considerable induration or enlargement of the lips or neck of the womb was present.

2dly. That in 9 out of 16 cases in which the ulceration was stated to have been considerable, there was no induration nor enlargement either of the cervix or os uteri.

The following table represents the further particulars of the above-mentioned 16 cases.

TABLE XI.

Showing the Various Conditions of the Uterus associated with Extensive Ulceration of its Orifice.

	Simple abrasion.	Granular.	Both varieties.
Uterus otherwise healthy	2	3	5
Body of uterus large	1	1	2
Uterus lower than natural	2	...	2
Uterus large, cervix hard	2	...	2
Uterus healthy, but cervix hard . . .	1	2	3
Uterus healthy, but lips of os hard . . .	1	1	2
	9	7	16

It seems, then, that while, on the one hand, very slight ulceration of the os uteri may coexist with induration of the cervix of the organ, very extensive ulceration of the os may, on the other hand, be compatible with an apparently healthy condition of the cervix; and that, consequently, ulceration of the mouth of the womb and induration of its cervix stand in no constant nor necessary relation to each other.

It would be possible, and perhaps not without some profit, to compare together the two classes of cases which we have been studying from some other points of view. But we have examined all their more important features, and each separate examination has seemed to me to lead to the same conclusion. More numerous cases would doubtless have cleared up some obscure questions—would have imparted a greater exactness to some of our deductions; but I venture to think they would not have materially altered the results which the facts laid before you in this Lecture appear to warrant.

These results may be best summed up under the five following heads; and the order in which they are enumerated nearly corresponds with that in which the facts whence they are deduced were successively brought under your notice.

1st. Uterine pain, menstrual disorder, and leucorrhœal discharges—the symptoms ordinarily attributed to ulceration of the os uteri—are met with independently of that condition almost as often as in connection with it.

2d. These symptoms are observed in both classes of cases with a vastly preponderating frequency at the time of the greatest vigor of the sexual functions, and no cause has so great a share in their

production as the different incidents connected with the active exercise of the reproductive powers. But it does not appear that ulceration of the os uteri exerts any special influence, either in causing sterility or in inducing abortion.

3d. While the symptoms are identical in character in the two classes of cases, they seem to present a slightly increased degree of intensity in those instances in which ulceration of the os uteri existed.

4th. In as far as could be ascertained by careful examination, four-fifths of the cases of either class presented appreciable changes in the condition of the uterus—such as misplacement, enlargement, and hardening of its tissue, while frequently several of these conditions coexisted. An indurated or hypertrophied state of the cervix uteri was, however, more frequent in connection with ulceration of the os uteri than independently of that condition.

5th. The inference, however, to which the last-mentioned fact would seem to lead, as to the existence of some necessary relation, such as that of cause and effect—between ulceration of the os uteri and induration of its cervix, is in great measure negatived by two circumstances:—

1. The number of instances in which an indurated cervix coexisted with a healthy os uteri.

2. The fact that, while induration of the cervix was present in 25 out of 46 cases in which the ulceration of the os was very slight, it was altogether absent in 9 out of 16 cases in which the ulceration was noted as having been very extensive.

These inferences sufficiently show that I do not subscribe to either the first or second of those three conclusions, one or other of which, it was stated at an early period of this Lecture, would probably be found to represent the truth of this matter; that I do not regard ulceration of the os uteri either as the general cause of the symptoms which have been attributed to it, or even as a general concomitant of them, and index of their degree and severity. It would, indeed, have simplified the study and the treatment of uterine disease very much, to have found that a slight erosion of the mucous membrane of the least important part of the womb was the cause of four-fifths of those painful ailments to which the female sex is liable; but I will venture to add that it would have shown diseases of the womb to constitute a most marvellous exception to the ordinary rules of pathology.

If, then, there be no more here than elsewhere, any royal road to knowledge, it remains for us only to make out, as best we may, with what varied states of the general health, or of the sexual system, the various signs of uterine disease are connected; to learn how, in different cases, we may surely distinguish, or even shrewdly guess, their import. The task is tedious, perhaps, but it is the same as in all other departments of medical inquiry we have to encounter.

LECTURE III.

Causes of uterine ailments very various—sometimes independent of local disease, as in the case of chlorosis, of hepatic disorder, of granular disease of the kidneys, of the gouty or rheumatic patient—all illustrate the dependence of uterine disorder on constitutional disease. Ulceration of the os uteri, when present in such cases, of secondary importance; and equally so in many instances where disease really begins in the uterus itself, as in ailments succeeding to pregnancy, abortion, delivery, etc.

Sketch of the history of a patient in whom menorrhagia succeeds to delivery or to abortion; case in illustration of defective involution of the uterus, and its results. Inquiry as to the result of inflammation attacking the uterus under these circumstances; case in illustration—reasons for believing the mischief in such cases to begin in the interior of the womb, confirmed by history of patient in whom uterine inflammation succeeded to gonorrhœa; extension of this hypothesis to explanation of other somewhat similar cases. Importance of affections of canal of cervix uteri believed to have been overrated, and why.

Ulceration of os uteri not absolutely unimportant; case illustrative of symptoms of its simplest form—characters which it presents—uncertainty as to nature of some of them—remarks on so-called Granular Metritis. Question of local treatment in some instances in which ulceration persists after subsidence of original ailment.

Explanation suggested of alleged cures of uterine ailment by local use of caustics—mischievous result, both to patient and practitioner, of the opinions on which their indiscriminate employment is founded. Cases considered in which the stronger caustics are alleged to be required; practice objected to, and why. Reference to exceptional cases of ulceration calling for local treatment; peculiarity in case of uterus modifies nature and mode of employment of local remedies.—Concluding observations.

MR. PRESIDENT—

SIR: The task of to-day is a far more difficult one than was that of either of the two previous days; and in my endeavor to fulfil it, I shall stand more than ever in need of your kind indulgence. Hitherto, I have been engaged in the attempt to show what I believe to be the fallacies of certain opinions which come before us not only recommended by high authority, but also attractive from their simplicity, from the easy explanation that they profess to offer of very varied and very complex processes of disease, and from the uniformity of the treatment that they suggest as applicable alike to all.

It may not unnaturally be expected that, before undertaking so invidious an office, I was prepared with some other solution of these different morbid phenomena equal to that which I reject in its simplicity and in the universality of its application, but claiming to rest on stronger grounds, and to be open to fewer objections.

Unfortunately, I can put forward no such pretensions, for I believe that instead of the different symptoms which are supposed to depend on ulceration of the os uteri being produced by that or by any other single cause, they in reality arise from very various causes; that at one time they attend on general constitutional disorder, at another on some ailment of the sexual system, and that ailment by no means the same in every instance. If this be so, however, instead of the consideration of one pathological condition of the uterus and its possible consequences, we have to inquire into little less than uterine disorders in general, their causes and their symptoms—an undertaking which would occupy not one Lecture, but several; and the preparation for which would be the study of a lifetime.

All, then, which I can attempt will be to furnish a few illustrations of the subject, such as may serve, if to do no more, at least to show the direction that investigation should take in order to remove the difficulties by which it is surrounded.

A not infrequent instance of disorder of the uterine function, independent of ailment of the organ itself, is afforded us in the case of the chlorotic girl, in whom the menses scarcely show themselves for months together, while an abundant white discharge is often poured forth from the uterus, either constantly or with an ill-marked periodicity, and uterine and lumbar pains attend upon the symptoms. Remedies improve the general health, correct the morbid state of the circulating fluid, and step by step the local ailments improve too; the leucorrhœa subsides, the pain ceases, and all indications of uterine disorder disappear, although the womb itself has never been the object of special treatment.

Or, in another and usually a much older person, the liver performs its functions but imperfectly; constipation, headache, an icteroid tinge of the skin, mark its disorder: at length menstruation comes on with unusual profuseness, and the signs of hepatic disturbance disappear. This may occur but once, or it may occur several times; the slightest error in diet, the slightest neglect of the state of the bowels, or some cause too trivial to be discovered, may produce the same derangement of the function of the liver, which may

again give rise to the same train of symptoms, and cease on the recurrence of a similar hemorrhage. But nature's healing power is often ill-regulated; and, erring in too little or too much, the regular periodicity of the menstrual function becomes deranged; many weeks pass without the appearance of the menses, and then they appear again and again with a frequency and profuseness which seriously impair the patient's health, which sometimes even threaten her life.

Or, again, the kidneys, from unsuspected disease, perform their duties incompletely, and the blood, imperfectly depurated, its red particles diminished, its watery elements increased, pours forth at the return of each periodical congestion of the womb in larger quantities than when the patient was in health. Leucorrhœal discharges follow in the intervals of menstruation; pain is felt in the back; bearing-down follows any exertion; the frequent micturition seems to indicate the sympathetic suffering of the bladder, while the loss of muscular tone, and the long persistence of congestion of the womb at every period, favor the actual prolapsus of the organ. The patient seems to be sinking under menorrhagia; she is really dying from the effects of granular degeneration of the kidneys, and consequent albuminuria.

Or, lastly, to take another illustration of the mode in which uterine symptoms depend on constitutional causes,[1] let us notice how important a part the gouty and rheumatic diathesis sometimes plays in the production of uterine symptoms. A casual attack of cold is in some instances referred to as the occasion of the patient's illness, while in other cases the ailment comes on by degrees, and with no definite exciting cause. Menstruation begins to be more painful than was its wont, often more scanty; an unusual degree of constitutional disturbance attends each period; the pulse at those times is very frequent, the skin hot though perspiring, and lithates abound in the urine. In the intervals, profuse leucorrhœal discharges take place; the pain, though less intense, is yet severe, and is aggravated by trifling causes, or without any obvious reason. The pain at one time is most severe in the back, at another is referred to one or other iliac region, shooting down the legs, in the course of the

[1] The observations of Dr. Todd on this subject, in Section ix. of Practical Remarks on Gout, Rheumatism, Fever, &c. 8vo. London, 1843, and those of Dr. Rigby, in his work on Dysmenorrhœa, published in 1844, have more specially called attention to this subject.

crural nerve, or, like sciatica, affecting the back of the thighs; while occasionally, in addition to these abiding discomforts, the patient is kept in bed for a day or two at a time by slight feverish attacks, accompanied by wandering pains in the limbs, though seldom attended by inflammation and swelling of any of the joints.

Cases of this kind are met with in all classes of society; and wherever they occur they are chronic in their course and difficult of cure. Among the poor they do badly out of a hospital; for rest, uniformity of temperature, and a suitable diet can seldom be obtained; while they do but ill in a hospital, since the absence of regular occupation and of exercise cannot but be injurious, while the listlessness of mind which the patient's state and circumstances engender is favourable to hypochondriasis, and to the exaggeration of any ailment of the nervous system. The affection is one not unusual among young women who follow the occupation of book-folding, working, as they are compelled to do, in a heated, but at the same time in a damp atmosphere, and for the most part in ill-ventilated apartments. A very obstinate case of it came under my notice some time since in a young person who had been compelled, by lameness from birth, to lead a very sedentary life, and who had always suffered from vague rheumatic pains. And not long since, a washerwoman, whose finger-joints were enlarged by chalk-stones, but in whom menstruation had already ceased, applied at the Out-Patient room of St. Bartholomew's Hospital on account of profuse leucorrhœa and rheumatic pains, which disappeared simultaneously under the use of colchicum and iodide of potassium.

The rich enjoy no immunity from this ailment. A lady, who had suffered severely from rheumatism in India some twenty years before, experienced more or less of these symptoms ever since; and when I saw her, menstruation having ceased for more than a year, leucorrhœa still persisted, associated with abundant deposits of lithates in the urine, a tendency to eczema of the vulva, and most intense tenderness of the uterus, though that organ had already begun to undergo the atrophy of age. An unmarried lady, aged 35, who inherited gout from her father, displayed the symptoms just mentioned, with the exception of the cutaneous affection, most severely; and, in addition, suffered much from pain in the back and dysuria, excreting from time to time very large quantities of lithic acid crystals. Errors in diet, and all the accidents inseparable from mixing in society, render this ailment almost as unmanageable among

the wealthy as it is among the poor, and the chances of relapse nearly as great. In either class of patients improvement in the general health is associated with amendment, though not with an equivalent amendment, in the uterine symptoms; while any exacerbation of suffering is accompanied by most abundant deposits of lithates in the urine, and by a specific gravity of that fluid as high as 1030° or 1035°.

That the muscular tissue of the uterus should, under these circumstances, be the seat of extreme pain is just what might be expected. The distinction, indeed, between rheumatic and neuralgic pain is not very clear; and many cases resembling those of irritable uterus, as described by the late Dr. Gooch, with all that graphic skill of which he was so great a master, may be referred to this category. The treatment which affords relief is just such as the state of the urine and the assumed rheumatic character of the symptoms would seem to indicate. Colchicum, iodide of potassium, diaphoretics and sedatives, alkalies and vegetable bitters, are the remedies on which we must rely to obtain amendment, and by which, under favourable circumstances, we may even accomplish a cure.

Now it scarcely need be observed that, in the different classes of cases glanced at, disease of the womb is not the cause of the symptoms, nor can it be by medication of that organ that we can hope to cure the patient. I have known a lady in whom amenorrhœa and menorrhagia alternated, associated with obstinate functional disorder of the liver, flood to death from a uterus which was small and, as far as careful examination during life could ascertain, quite healthy. Pain and exquisite tenderness of the uterus existed in another case just referred to, together with abundant leucorrhœal discharge, although the menstrual function had not only ceased, but the uterus had begun to undergo the atrophy of age. True it is, that a uterus from which hemorrhage takes place more frequently and more abundantly than natural, may be found larger and heavier than it will be weeks afterwards, when treatment has stanched the bleeding or reduced its occurrence to the proper times, and confined its quantity within the natural limits. It is also true that a limited abrasion of the os uteri is now and then present in some of these cases, but it is neither considerable in extent nor uniform in its presence; it exists one day, and is not to be discovered a week afterwards; and then again it reappears, once more to vanish. But what of that? The dyspeptic patient has a congested palate, or enlarged tonsils, or

even aphthous ulcerations of the mucous membrane of the mouth; and, as the extremity of the digestive tube sympathizes with the disorders of its important parts, so does the orifice of the womb often afford an index to the condition of its interior. With the restored health, the swollen tonsils or the soreness of the mouth disappear; and so, when the uterine congestion subsides, its orifice resumes a natural aspect. The abrasion of the os in these cases is indeed very slight, much slighter than we shall find it to be in other instances in which the cause of the symptoms is seated in the sexual organs themselves; but, if I do not mistake, the explanation just suggested of the import of ulceration will be found to be often applicable even to them.

The tables to which reference was made in the last Lecture showed that, in a very large proportion of cases—between 40 and 50 per cent.—marriage, pregnancy, abortion, or delivery, was referred to as the exciting cause of the symptoms from which the patients suffered; while these symptoms were just of that kind which are often attributed to ulceration of the os uteri.

According to the opinion of some observers, these causes act by producing inflammation of the cervix uteri, and consequent ulceration of its orifice, of which occurrences all the different phenomena we have noticed are the direct or indirect results. Others, however —and I confess myself to be of that number—demur to this explanation, and believe that these cases not only allow, but require, a different interpretation. We will select for examination one of the most frequent, and at the same time of the simplest kind. A woman, after delivery, leaves her bed too soon, or makes some injudicious exertion at a time when the uterus is still heavy, its vessels are still large, and the process of involution of its tissue is still incomplete, while the persistence of some lochial discharge shows that exfoliation of the mucous membrane of its cavity, which is repeated again and again after parturition, has not come to an end. Perhaps no striking ill effect is produced at the time, but blood still continues to flow through vessels which, under other circumstances, would long since have ceased to convey it, and whose collapsed walls, undergoing the same fatty degeneration as the rest of the old uterine tissue, would have been in course of removal. The lochial discharge, indeed, persists, but the patient experiences no other inconvenience until the lapse of about a month after her delivery. Then, however, the ovaries, in obedience to the law of their periodic activity, make

a slight effort to resume their wonted function—an effort which, in the healthy subject, is just indicated, and no more. But, under the less favourable circumstances in which this woman has placed herself, the undue congestion of her sexual organs that before existed becomes now raised to a point at which hemorrhage breaks out from the interior of her womb. This hemorrhage lasts for some days and then subsides, but abundant secretion from the mucous membrane still continues; and before long—probably under the influence of a return of ovarian excitement—a fresh outbreak of hemorrhage occurs, and then another, until, by the frequent return of bleeding, and by the profuse secretion from the mucous membrane in the intervals, the blood becomes impoverished and the health enfeebled. If we examine such a patient, we shall probably find her uterus lower down than natural, its size and weight increased, its orifice open, its cervix short, and its tissue soft, while the epithelium of the os may or may not be somewhat abraded. Whence, now, in this case comes the hemorrhage? whence the abundant leucorrhœa? what importance is to be attached to the abrasion of the os uteri when it is present? The discharges are doubtless furnished in great measure from the uterine cavity, within which all the important physiological processes of pregnancy, labour, and its consequences have been recently transacted; in part, perhaps, from the whole tract of the Fallopian tubes, which may be found, at an ordinary menstrual period, distended to double or treble their usual caliber by a thick mucus stained by admixture of blood to a rose colour, or even to a deeper tint. The lining membrane of the cervix uteri doubtless participates in the general congestion; its mucous crypts probably pour out their secretion with more than usual abundance, and thus add to the leucorrhœa; but no one can suppose that, in such a case as this, the source of the symptoms is to be found in the neck of the womb, or that the absence of epithelium for a few lines around its orifice is here a matter of the slightest pathological importance.

The same occurrence may follow after abortion, and happens, indeed, more frequently then than after delivery at the full period, since the necessity for care is less apparent. The symptoms which attend it are the same, and under their persistence the involution of the uterus may for weeks be completely arrested.

A married woman, the mother of five children, and who had miscarried three times, but not successively, was received into St.

Bartholomew's Hospital on account of symptoms which she had experienced since a miscarriage at the third month six weeks previously. She suffered from a constant discharge, almost always tinged with blood, and sometimes from profuse hemorrhage. She complained of great pain at the lower part of her back and of her abdomen, and of a constant bearing-down sensation, which was much aggravated on any attempt at exertion, or effort at defecation; her countenance was pale, and expressive of pain, and her pulse was feeble. On examination, the uterus was found low down, retroverted, its orifice looking directly forwards, and about two inches from the vulva; its body and fundus enlarged, so as to form a globular tumour, about the size of a small apple, the walls of which were elastic. The anterior lip of the uterus was thin and small, the posterior somewhat thicker, and about half an inch longer. The os uteri was open, and the finger could be passed for a short distance without occasioning pain. The uterine sound was introduced with the concavity directed backwards: on turning it round, the tumour before mentioned completely disappeared, the sound passing to the extent of $5\frac{3}{4}$ inches, showing the uterus to be three inches larger than natural.

Rest, tonics, and the cold douche to the uterus, arrested the hemorrhage, greatly checked the discharge, and improved the patient's health. The uterus, however, remained of about the same dimensions at the end of a fortnight, when the outbreak of smallpox in the ward necessitated the woman's discharge from the hospital. I saw her again once six weeks afterwards, and the uterus was greatly diminished in size; but I had not then the opportunity of ascertaining its exact dimensions by means of the uterine sound. Other cases of a similar kind have at different times come under my notice, but I do not remember any in which the uterus remained of so large a size as in the instance just related.

In the above-mentioned instance, and in many others of a similar kind, there is no evidence of any other morbid condition than a mere deficient involution of the uterus.[1]

It must, however, be at once apparent that such a state is one in which processes akin to inflammation will be very likely to supervene,

[1] See, with reference to this subject, a short but very interesting paper, by Professor Simpson, on Morbid Deficiency and Morbid Excess, in the Involution of the Uterus after Delivery, in the Monthly Journal for 1852.

and to aggravate the patient's condition; while, even should that not be the case, the law which connects hypertrophy of an organ with long-continued congestion of its vessels, will, at any rate, not meet with an exception in the case of the uterus. No organ of the body presents naturally conditions so favourable to the occurrence of hypertrophy as the uterus, since nowhere else is there the same store of formative material, only awaiting some stimulus to excite it to development. The presence of an impregnated ovum in its cavity, is the appropriate stimulus which awakens to the full its dormant vital energies. But I need not mention how the development of an extra-uterine ovum, the formation of a polypus in the cavity of the womb, the growth of a fibrous tumour in its wall, even the cancerous disease which destroys its substance, will also call those energies into activity, and cause the uterus to grow to dimensions far exceeding those which it naturally presents. It may, indeed, be stated that excitement of the uterus of almost any kind during the period of sexual activity tends to increase its size: and further, that this increase of size will be marked in proportion as the stimulus acts upon the cavity of the organ, and not simply upon its cervix. How different is the amount of uterine enlargement produced by a small fibrous tumour imbedded in its walls near to its cavity, from that which accompanies even a large cancerous growth from its cervix! Enlargement of the neck of the womb may, probably generally does, accompany enlargement of its body; but that the latter is the consequence of the former appears to me to be, in the majority of instances, not merely not proved, but even opposed to probability.

But it may be asked, what does inflammation do if it attacks the uterus in these cases? If this question be put as to the intimate nature of the changes which it works in the uterine tissue, I must confess that I do not know; and may add that, to the best of my knowledge, no one competent to attempt the investigation has applied himself to the elucidation of this so difficult problem. If, however, the inquiry be limited to those obvious results apparent to the ordinary observer, I think I may say that it produces pain of a severer kind than is experienced in the other cases; pain presenting somewhat of a paroxysmal character, and sometimes even being excruciating from its intensity; while even in its absence there is extreme tenderness of the uterus, with great heat of the vagina, and usually a very abundant purulent leucorrhœa, often, though by no means invariably, tinged with blood. Moreover, these local symp-

toms are associated with more or less considerable constitutional disturbance; while on their subsidence, the uterine tissue, as far as its state can be ascertained, is felt to be harder in texture than before; and lastly, these symptoms, when once they have occurred, are apt to return at uncertain intervals during a period of many years, presenting on each occasion the same characters, amenable to the same treatment, but in spite of it retaining the same disposition to recur over and over again.

In September, 1851, a married woman, aged 41, was admitted into St. Bartholomew's Hospital, and told the following history of her ailments: Having married at sixteen, at which time the menstrual discharge was scanty, and irregular in its return, she at once became pregnant, but miscarried at the third month. A second pregnancy terminated at the full period after a lingering labour of two days and a half duration, in the eighteenth year of her age; and a third pregnancy soon afterwards likewise terminated prematurely at the fourth month. Her symptoms dated from the time of her lingering labour; and consisted of leucorrhœal discharge, sometimes very copious, occasionally also very offensive; constant sense of discomfort in the uterine region, with occasional sharp stabbing pain, chiefly referred to the right groin, and always aggravated at a menstrual period; while the menstrual discharge, which for years had been gradually increasing in quantity, and was now extremely profuse, was always succeeded by temporary relief to the patient's sufferings. The pain and the hemorrhage together had worn down her health; her countenance was anxious, and her pulse 128, and feeble. The uterus was found to be rather low down, but not much enlarged, though very tender; the cervix uteri was indurated, somewhat elongated, and very painful; and the os uteri, which was small and circular, presented no trace of abrasion, either affecting its lips or extending into the canal of the cervix, though the congestion of that part was very marked. Rest, frequent local leeching, and sedatives, relieved the patient's sufferings, improved diet restored her strength, and when she left the hospital, in November, she had lost the sense of pain and bearing-down; there was but little leucorrhœa, the tenderness of the uterus was much diminished, and the congestion of its orifice had entirely disappeared. It may be added that once, during the course of her treatment, superficial abrasion of the os uteri showed itself, but disappeared of its own accord in a few days. Great as the relief was which this poor woman

had obtained, I did not anticipate that she would continue free from suffering if she returned home to bear a part in the duties, and to submit to the hardships, which are inseparable from poverty. Accordingly, in less than twelve months, she returned to the Hospital, presenting the same symptoms as before, and submitted to a similar plan of treatment with the like result. The os uteri on this occasion also presented no abrasion, though frequent examinations were made with the speculum to ascertain this fact. The patient remained this time somewhat longer than before in the Hospital, and took small doses of the bichloride of mercury for several weeks, though never in such quantities as to affect the mouth. For six months after her discharge she continued almost free from suffering; but in September, 1853, her symptoms began to return: menstruation, though not so profuse as before, became once more very painful: and for some days before her admission into the Hospital on October 20, she had paroxysms of such intense severity that she rolled about the bed in uncontrollable agony; which large doses of sedatives were unable to subdue. On her admission, there was the same intense congestion of the os uteri as on former occasions, with a very abundant, highly offensive, purulent discharge, slightly tinged with blood from its interior; the womb itself being low down, somewhat larger than natural, and the cervix large, hard, swollen, and intensely tender; but no trace of abrasion of the os was perceptible. The application of six leeches to the uterus was followed by bleeding so profuse as to cause syncope; but for several days subsequently the patient continued perfectly free from pain, and though it afterwards returned, yet it never again attained the same degree of intensity. She remained in the Hospital for six weeks; during which time local leeching was occasionally resorted to, small doses of the bichloride of mercury were again given, together with the syrup of the iodide of iron; and under this treatment improvement once more took place, and the neck of the womb at the time of the patient's discharge was at least a third smaller than it had been at her admission.

In this instance, we observe symptoms of the greatest severity recurring again and again without ulceration of the os uteri, or of the canal of the cervix (for the slight abrasion apparent once, and then vanishing spontaneously in the course of a few days, cannot be regarded as of importance); and this was observed during three distinct attacks of illness, spread over a period of three years. I

apprehend that one does not err in connecting the patient's illness with some inflammatory affection of the mucous membrane of her uterus, which, supervened upon her delivery, and which, during the many subsequent years, was every now and then lighted up afresh by causes which in the household of the poor are not far to seek. In this instance it is true that the most marked enlargement of the uterus was perceptible in the neck, not in the body of the womb; but I doubt whether a difference from other cases in this respect is a matter of so much importance as at first it may appear. When a woman has frequently given birth to children at the full period, the portio vaginalis of the cervix uteri, or in other words that portion of the neck of the womb which projects into the vagina, becomes greatly shortened, sometimes almost completely disappears, while it commonly remains of considerable length in the case of women who have only aborted, or at most have given birth only to one or two children at the full period. The deficient involution of the uterus after a miscarriage, will in such cases be shared in its measure by the cervix uteri, and by as much of the portio vaginalis as exists; and to this circumstance, rather than to any essential difference, I am disposed, in a large proportion of instances, to attribute the difference in size of the portio vaginalis. But admitting even that this explanation is not conclusive, and that the condition of the cervix is of more importance than I have just suggested, the fact still remains that all the symptoms of ulceration of the os uteri, and even that enlargement of the cervix which is said to depend upon it, were observed during a period of many months, and observed to be unconnected with any such state during the whole of that period.

It would not be difficult to multiply cases of this description if time allowed; but, in further illustration of the subject, I will just refer to one other of a kindred nature. In some few, happily very few cases, the inflammation, which in gonorrhœa is usually limited to the vagina, not only attacks the mucous membrane of the bladder, but affects the lining of the uterus also, and even extends to the peritoneum, sometimes endangering the patient's life. But without causing those most formidable results, acute inflammation of the vagina sometimes extends beyond its original seat, and gives rise to symptoms such as we are now considering. A patient, aged thirty-five, was admitted into St. Bartholomew's Hospital, complaining of dysuria and frequent micturition, of painful and profuse menstruation, and of leucorrhœal discharge—symptoms which she referred

to a somewhat severe attack of gonorrhœa three months before. Her uterus was found much enlarged, anteverted, and fixed in its unnatural position, while its tissue generally was much harder than natural, and the margins of the os uteri, though free from the slightest trace of abrasion, presented a very marked congestion, and discharge was poured out from the interior abundantly. It is here, I think, no unfair assumption to suppose that all these symptoms, from which the patient had never suffered previous to the gonorrhœa, were excited by it; that that had affected the interior of the uterus, and had also bound down the organ in its unnatural position by adhesions consequent on peritoneal inflammation. At any rate, here was no ulceration of the orifice of the womb, and yet here were all the symptoms which are usually described as indicative of its presence.

It is well, also, to bear in mind, with reference to cases of this and of a similar kind, that the assumption of inflammation affecting the body of the womb is not sufficiently negatived by the absence in the patient's history of any mention of symptoms so grave as we might be inclined to imagine that inflammation of the more important parts of this viscus must of necessity produce. In making examinations after death, we constantly find adhesions between the uterus and rectum, or matting together of the parts within the fold of one or other broad ligament, although the patient during her lifetime may never have mentioned any attack of uterine or abdominal inflammation. Not unfrequently, too, we find the uterus firmly fixed in the pelvis, with most obvious thickening of the broad ligament, or of the pelvic cellular tissue; while yet the closest inquiry will fail to elicit anything more definite than the statement that a bad confinement or a bad miscarriage some time before was succeeded by a painful and tedious convalescence.

Other cases might be mentioned which, I believe, admit of the same interpretation—cases where the symptoms have succeeded to marriage, or where they have followed suppressed menstruation; nor would I propose a different explanation of those instances in which uterine misplacements, as anteflexion or retroflexion, are succeeded by signs of sexual disorder such as we have been considering, or where they have been associated with misplacement of the ovary. In all of these instances it is, I believe, the interior of the uterine cavity which suffers first—it is thence that the hemorrhages are derived, thence that the greater part of the leucorrhœal discharge

is furnished; and it is the irritation of that part of the organ in which its most important functions are transacted, which leads to the increase of its size so apparent in the great proportion of cases of long-continued uterine ailment. That the ovaries suffer too, constant observation proves; and facts illustrative of the affection of the neck of the womb are also perpetually coming under our notice; but that, as a general rule, inflammation of the canal of the cervix is the first step in the disease, and ulceration of the os uteri the second; and that these two conditions are the two factors producing all the symptoms we have been studying, is an assumption which I cannot but regard as unsupported by facts, and as opposed to any fair inference from what anatomy, physiology, or analogical reasoning teach us.

There are, however, some writers who, while they concede the comparatively small importance of ulceration of the os uteri, yet appear to me (and I trust that these my doubts are always expressed with that respect and deference for the opinions of others which I sincerely entertain) scarcely to attach due weight to the ailments of the uterine cavity. The elaborate secretory apparatus of the cervix uteri, so minutely described and so beautifully delineated by Dr. Hassall and Dr. Tyler Smith, seems indeed to furnish an ample source for almost any conceivable amount of discharge. But it must be remembered that, like many other secreting apparatuses, this is by no means in constant activity. Its full action seems to be called forth only during pregnancy; and my own observation does not by any means confirm the statement, that in the intervals between the menstrual periods a mucous plug is secreted, hermetically closing, as it were, the canal of the cervix; for I have observed any such secretion, to say the least, quite as often absent as present in uteri which I have examined. Moreover, at each menstrual period it is the mucous membrane of the body of the uterus which is congested, and from which the mucus and epithelium, as far as we can ascertain, are derived, which form at its commencement and end the greater part of the menstrual flux, and constitute the white discharge that not infrequently continues in the healthy subject for twelve or twenty-four hours after the cessation of all admixture of blood. Nor must it be forgotten that the mucous membrane of the uterine cavity is furnished with appropriate glands to furnish such secretion almost infinite in number, curiously convoluted to increase the extent of their surface, and susceptible of a peculiar hypertrophy more re-

markable than any which is observed to take place in the glands of the cervix. Observation also not infrequently discovers the membrane of the uterine cavity abundantly moistened with secretion; while cases are now and then met with in which inflammation having attacked it, it pours out abundance of pus.

Such a case sometime since came to my knowledge; and the uterus, removed from the patient after death, is now in the Museum of St. Bartholomew's Hospital. A fibrous tumour growing in the substance of the posterior uterine wall occasioned an unusual amount of irritation of the pelvic viscera, the cause of which was not detected during the patient's life. After death, this tumour, of the size of a small apple, was seen to be most intensely injected, while the mucous membrane of the uterine cavity, into which, however, the tumour did not at all project, was of the brightest possible rose tint, and looked like red velvet. Pus had been poured out from the inflamed mucous membrane, and collecting within the uterine cavity all the more readily from the neck of the womb having become bent upon itself, so as to prevent the ready escape of fluids from the interior, had distended it, as may be seen in the specimen, to the size of a hen's egg.

It is true, indeed, that our means of investigation do not enable us, during the lifetime of our patients, to ascertain beyond a doubt whether a discharge poured out from the os uteri is furnished from the cervical canal, or from higher up in the body of the uterus, or from both. Probability appears to me to incline to its being chiefly derived from the uterine cavity; though I do not doubt but that it is often furnished in a measure by the cervix also. The weight of proof seems to me to lie upon those who see in leucorrhœa only a hypersecretion from the glandular apparatus of the cervix uteri. Moreover, it is not only the excessive mucous or purulent discharge which in these cases attracts our notice and calls for our interference, but menstrual disorder, abdominal and pelvic pain, uterine enlargement—all that category of symptoms, in short, which have been so often dwelt on in these Lectures, that to refer to them again, even in the briefest manner, seems an almost needless tediousness.

But it may not unnaturally be asked, whether I then believe that the condition of so-called ulceration of the os uteri is one of absolutely no importance, adding nothing to a patient's sufferings, in no respect protracting her illness, calling for no treatment? I do not believe this; though at the same time disease of the os uteri is so

almost invariably associated with other evident ailments of the organ as to render it very difficult to distinguish accurately one set of symptoms from the other. That the existence of an abraded condition of the os uteri is capable of producing under some circumstances very considerable discomfort, is, however, certain; and is proved by cases such as the following:—

A woman, twenty-seven years of age, who had lived in sterile marriage with two husbands, was admitted into St. Bartholomew's Hospital on account of dysmenorrhœa. The canal of the cervix uteri was extremely narrow; and, under the impression that the case was one of those comparatively rare instances of menstruation rendered difficult by mechanical causes, sponge tents were introduced to dilate the contracted cervix. The presence of the sponge tent, though causing no other inconvenience, occasioned a very distressing sense of itching referred to the uterus: on the withdrawal of the tent, the edges of the os uteri and the cervical canal, as far as it could be seen, were observed to be very red, and quite denuded of their epithelium, while a rather abundant glairy secretion was poured out from their surface. So long as the abrasion continued, and it did not disappear till three days after the removal of the sponge tent, the sense of itching and the discharge continued, though with gradually diminishing severity. Causes so purely local in their action are of course very rare; but symptoms such as were here produced by mechanical irritation are sometimes observed in other cases in which disease, as far as can be ascertained, is confined to the os uteri.

I will but just allude here, by way of illustration, to cases in which the earliest stage of uterine cancer has been attended with some vague sense of itching, burning, or smarting, referred to the mouth of the womb: to do more than merely mention them would take us away from our more immediate subjects. But, independent of such cases, it happens now and then that without any other, or at any rate with very little other, appreciable evidence of uterine disease, one observes the orifice of the womb present a red, coarsely granular surface, from which a glairy secretion is poured forth abundantly. This surface is somewhat tender to the touch, and bleeds so readily that even the most careful examination with the speculum causes the blood to flow. Much more rarely I have also seen what looked more like an ordinary ulcer with sharply cut edges; its surface apparently a little depressed below the adjacent tissue, partially covered by a thin layer of dirty yellowish lymph, but red,

and bleeding on its removal. Both of these conditions I have usually noticed in women whose previous history contained mention of some syphilitic infection only a few months previously; though I should hesitate to class the appearances among secondary syphilitic symptoms.

I apprehend that the marked granular appearance is due to hypertrophy of those papillæ covering the surface of the os uteri, for our acquaintance with which we are indebted to the late Dr. Franz Kilian, of Mayence; whose early death it may be permitted me here to deplore, since it was as much too soon for science as for his own fair fame; while unanswered problems remind one painfully every day of the loss of him who had proved himself so well fitted to attempt their solution. In these cases, the analogy between the state of the os uteri and that granular condition of the palpebral conjunctiva observed in purulent ophthalmia, would seem to be complete; and no one who has observed the abundant secretion poured out from between the lids of the infant affected by that disease, need wonder at the amount of discharge furnished from so comparatively small a surface as the os uteri. That sometimes there is an actual destruction of substance over and above the mere abrasion of epithelium, can also not be doubted; but I believe that this is not generally the case. With reference to the morbid states of the os uteri, however, there is much need of careful microscopic research. We hear of phlebitis of its minute vessels, of herpes and eruptive diseases affecting its surface: terms expressive sometimes of a theory, at other times descriptive of the character of an appearance which presented itself to the observer; but such phraseology cannot at present be accepted as a statement of any well-ascertained pathological fact.

One of these conditions I must notice, because it is met with independent of other uterine disease, and presents characters so marked as to have attracted the notice of Boivin and Dugés, and to have received from them a distinct name as granular metritis. Under this not very appropriate name, two different conditions at least have been described. In one, numerous small, rather hard, miliary prominences beset both lips of the os uteri, usually, but not invariably, destitute of epithelium, giving exit when pricked to a small drop of mucus or muco-pus, and being probably hypertrophied follicles. The other condition is produced by a number of small, soft, red papulæ, similar in size to those just mentioned, very vascu-

lar, bleeding easily, but solid, and probably identical in structure with the granulations ascertained by M. Robin to be small hypertrophied points of mucous membrane; and which, occasionally developed in the uterine cavity, have been the object of a somewhat over-active treatment on the part of M. Récamier and some other practitioners, who, believing them to produce obstinate leucorrhœa, menstrual irregularity, and other ills, scrape out the uterine cavity with a blunt instrument, and find in the blood-stained débris of the mucous membrane the proofs of their diagnostic skill, and the trophies of their chirurgical dexterity. These states of the os uteri, however, though by no means common, are unquestionably attended with leucorrhœal discharge, often very profuse, with a tendency to slight bleeding from their surface; while they produce uncomfortable sensations of itching, smarting, and the like, not amounting, indeed, to actual pain, but quite sufficient to keep alive all the patient's anxiety lest they should be the portent of some worse ailment to follow.

Affections such as these have seemed to call for local treatment, and when resorted to, I have seen them yield under it, and the patient return rapidly to health. These cases, however, are, I believe, exceptional ones, and, in the majority of instances, the morbid state of the os uteri is but a part of the general disease which has attacked the organ; the ulceration persisting, now larger, now smaller, presenting different aspects, not as the cause of the symptoms, but with them dependent on, and expressive of, the influence of another and a common cause. What causes these may be I have already stated. But even in such cases, it has seemed to me that the ulceration has itself sometimes outlasted the graver evils under which it arose, and has remained; causing discomfort, leucorrhœa, and slight sanguineous discharge, and keeping up a perpetual disposition to uterine congestion, which but for it would subside. That, under such circumstances, a tendency to slow increase in the size of the cervix uteri should exist, is surely no matter for wonder, since the neck of the womb is more exposed to irritation of every kind than any other part of the organ; while, slight though the morbid state may be, it yet is sufficient to produce some increased afflux of blood thither, whence its return is more difficult than from any other part; and we have already seen how great is the tendency in the uterine tissue under any stimulus, either natural or morbid, to

some degree of that hypertrophy which, during thirty years of life, represents its highest physiological condition.

It cannot be necessary that I should say a word to point out the difference between these opinions and those which I have ventured to criticize, and according to which inflammation of the cervix and ulceration of the os uteri are the first and the last in uterine pathology. It may, however, be asked, how is it that such successful results have followed a course of treatment directed exclusively to the cure of the ulceration—that the application of caustics to the os uteri has been succeeded by the restoration of the patient to health? Now, I think it should be borne in mind that, in connection with this mode of treatment, various other measures are of necessity adopted, eminently calculated to relieve many of the slighter forms of uterine ailment. The married woman is for a time taken from her husband's bed; the severe exertion to which either a sense of duty urged, or a love of pleasure prompted her, is discontinued; while rest in the recumbent posture places the uterus and the pelvic viscera in just that position in which the return of blood from them encounters the smallest difficulties. The condition of the bowels, probably before habitually neglected, is now carefully regulated, and the patient's diet, bland, nutritious, and unstimulating, often differs widely from that with which, while all her functions were overtaxed, she vainly strove to tempt her failing appetite. Add to this, that the occurrence of the menstrual period is carefully watched for; that all precautions are then redoubled, and each symptom of disorder, such as on former occasions had been borne uncomplainingly, though often not without much suffering, is at once encountered by its appropriate remedy; while generally returning convalescence is met in the higher classes of society by a quiet visit to the country, or to some watering-place, in pursuit not of gayety, but of health; and we have assembled just those conditions best fitted to remove three out of four of the disorders to which the sexual system of woman is subject. But the very simplicity of these measures is a bar to their adoption; for you will bear me out in saying, that the rules which common sense cannot but approve, but which seem to require nothing more than common sense to suggest them, are just those to which our patients least readily submit. The case is altered, however, when these same rules are laid down not as the means of cure themselves, but only as conditions indispensable to the success of that cauterization which, repeated once or oftener in

the week, is the great remedy for the ulceration that the doctor has discovered, and which he assures his patient, and with the most perfect good faith, produces all the symptoms from which she suffers. The caustic used in these milder cases is the nitrate of silver; the surface to which it is applied is covered by a thin layer of albuminous secretion, which it is not easy to remove completely, and which serves greatly to diminish the power of the agent, while the slightly stimulating action that it nevertheless exerts seldom does harm, sometimes, I believe, does real good, though no more than might have been equally attained by vaginal injections, or other similar remedies, which the patient might have employed without the intervention of her medical attendant.

There is no more difficult problem in therapeutical inquiry than how to distinguish between the results which really depend on our remedies, and such as only casually follow their employment. The patient had symptoms of uterine ailment; the orifice of her womb was abraded, caustic was applied, and the healing of the abrasion and the subsidence of the uterine symptoms took place simultaneously. From these facts a formula is framed, which is applied to the management of uterine ailments generally—to three-fourths or four-fifths of the diseases of the female sex that come under the care of the practitioner. So far, indeed, are these views sometimes carried, that even the utter absence of all signs of uterine disease is not always thought a sufficient reason for doubting its existence; but examination with the speculum is made, and the detection of some slight speck of abrasion of the os uteri is thought to furnish an explanation of chronic ailments of the most dissimilar kinds; and a panacea for those ills is sought in the use of the caustic. There are those here who can bear me out in the assurance that this is no overcharged statement; but the annals of medicine are full of instances of the extent to which preconceived ideas modify the experience of men whose honesty is as much above suspicion as their ability is beyond question; and no fellow of this college will doubt the integrity or the talent of either of the would-be combatants who, some hundred and twenty years ago, drew their swords in Cheapside to settle the proper treatment of the smallpox.

It would be a matter of comparatively little moment whether the views which I believe to be erroneous really were so or not, if they led to nothing more than an over-estimate, on the part of some practitioners, of the value of a certain kind of therapeutical pro-

ceeding. But their evil, if they be erroneous, does not cease here; they exert an injurious influence, both on the patient and the practitioner. No one engaged in the practice of medicine, but must have been often struck with the important part which the sexual system plays, unconsciously to herself, in almost all the diseases of woman. The frequent sadness and low spirits in celibacy, the grief, the almost shame of childless marriage, depend on causes more deeply seated than reason can dispel, and are familiar to us as often stamping a peculiar character on the diseases of our patients. To the same cause is due the nervous susceptibility which women often manifest on the least symptom of ailment affecting their uterine system; to control which, and to prevent the disposition to unconscious exaggeration of their symptoms, becomes often one of our most important, and at the same time one of our least easy, duties. Any course of proceeding, then, which, without the most urgent and absolute necessity, directs the patient's attention in the slighter ailments painfully and frequently to her uterine system, is in the highest degree objectionable. The patient recovers from her illness, but with the impression that all the sensations that for weeks or months before she had experienced were exclusively due to the local disease which had called for local remedies. On the first return of any symptoms resembling them, all her apprehensions are revived, lest the same painful investigation, the same distressing manipulations as before, should be again required. The fact that it needs but to watch the beatings of one's heart for a few minutes in order notably to quicken its pulsations, and to become painfully conscious of its action, is one of the most familiar illustrations of that influence of attention upon the functions of the body of which, both in health and in disease, we see so many instances. Digestion, watched through its different stages with the not unnatural anxiety of a dyspeptic invalid, often leaves him a hypochondriac, unable to take other than certain articles of diet, and those cooked in some peculiar fashion; while in many instances, neither in the food itself, nor in its mode of preparation, is there any reason to be found why that alone should be tolerated by his fastidious stomach. More or less discomfort—often, indeed, much positive pain—attends in the great majority of women upon the performance of the menstrual function, precedes or follows it. These pains are now thought to be of more importance than before; their occurrence is watched for, the suffering of one month is weighed against that of the month

before, as the woman thinks she finds in its increase or diminution grounds for hope or for apprehension. But the sensations thus attended to increase in intensity and in persistence; the slight ailment, which, but for the coming evil that it is supposed to portend, would in a few days be forgotten, is noted with anxious vigilance; and the more it is observed, the more it seems to grow; she fears she never shall be well again, and at length makes up her mind once more to go through the same treatment as before relieved her, though it brought to her the painful revelation of the grave cause on which her sufferings, once thought so little of, in reality depended. Such persons among the poor come to our hospitals; and on questioning them as to their ailments, they at once, and without waiting to describe their symptoms, say that they are suffering from ulceration of the womb; though on examination one finds no trace of it, or at most a little redness of the edges of the os uteri, or it may be even that slight abrasion which I trust that I have shown to be as trivial in importance as it is frequent in occurrence. But though they have no serious disease, they are not the less, or perhaps one might say all the more, real sufferers, and sufferers most difficult to cure. The treatment they perhaps are once more subjected to serves but to confirm the morbid habit of mind which has been gradually increasing upon them, and destroying both their present happiness and their capacity for it in future years. They are the victims, I believe, not of the want of honest purpose or of high motive in those who practise our art, but of an erroneous opinion.

This erroneous opinion, however, reacts injuriously upon the practitioner himself. He unlearns what physiology might teach him of the uterus and its functions, and sees in all the varied manifestations of disorder the expression of one fact, and of one alone; namely, the existence of ulceration of the womb, and its reaction first on the uterine system, then on the general health. For him, indeed, there is little more to learn in uterine pathology; for when once a case has been ascertained not to be one of fibrous tumour, polypus, or cancer, then ulceration of the os uteri is the almost invariable cause to which the symptoms are referred, and the cure of this ulceration is the one grand object at which he endeavours. All the evils inseparable from the practice of a specialty are thus aggravated, and the natural tendency of such practice to subside into routine, or to degenerate into empiricism (I use the word in no invidious sense), becomes almost unavoidable.

There was a time in a neighbouring country, and not very long since, when the clue to the understanding of all diseases, the essential cause on which they depended, was supposed to be Gastro-Enteritis. It was conceived to be the primary pathological condition, or proximate cause of fevers, to play a most important part in the disorders of the cerebral and respiratory systems; and all that ingenious argument could do was done by M. Broussais to support his new doctrines. For years, France was divided into two schools—the supporters and the opponents of M. Broussais's theories; and though truth was elicited by the contest, yet medical science advanced during the time much more slowly than, but for these divisions, it doubtless would have done. In the same way, I believe that the progress of uterine pathology has been retarded by the disputes about ulceration of the os uteri; for while one party has denied its very existence, and another has exaggerated its importance, both have allowed numerous important questions to pass without even an attempt at a reply.

But though it is my conviction that, in the great majority of instances in which the nitrate of silver is applied to the os uteri, the proceeding is simply superfluous, it yet would not be right to leave unnoticed other cases in which the neck of the womb being more or less enlarged, stronger agents are employed. On these occasions, the caustic potash is generally used, and by some with the view of destroying outright a certain portion of the enlarged cervix, by others with the intention of getting rid of the enlargement by means of the inflammation which it sets up in the uterine tissue. With whichever object resorted to, this proceeding is confessedly devoid neither of suffering nor of danger. If the caustic be introduced, as is usually done, within the cervical canal, it is allowed that the pain produced, and which sometimes lasts for two or three days, is very intense, causing nausea or sickness, and sometimes even syncope, or occasioning extreme depression, prostrating a patient so completely as to render her unable to quit her bed or sofa for several days. Thus much for the present effect of this remedy, for which its strongest advocates can scarcely lay claim to such an epithet as *jucunde*. But it does not fare much better with it as far as *cito* is concerned. The application of the potassa fusa, so as to produce an eschar, implies a subsequent course of treatment with frequent applications of the nitrate of silver for a period of about forty days, at the end of which time, the action of

the remedy being supposed to be exhausted, unless the patient is cured, it will be necessary to repeat the same treatment again and again. This treatment, too, it will be observed, confines the patient during the whole time that it is in progress to her room, and almost to her couch, and entails upon her the necessity of one or two examinations with the speculum every week during its continuance. But if it can be said to act neither *cito* nor *jucunde*, it might be hoped that this mode of proceeding had at least the third merit of *tuto;* but it has not. The tendency to contraction or obliteration of the cervical canal after these proceedings is very considerable, and is referred to even as a frequent occurrence, while inflammation, both of the uterus generally, and of its appendages, is a contingency far from uncommon. Of the last of these accidents I have seen several instances among patients at the Hospital, who, previous to their coming under my care, had been treated with the stronger caustics for ulceration of the os uteri.

I will not attempt to follow the advocates of this practice through the explanation which they give of its mode of action; and the rather, since where some see a healthy stimulus to the affected tissues, others discern what they consider to be a dulling, stupefying influence, as they term it, weakening the vital force; while, throughout the language used with reference to this subject, there is a mingling of metaphor with scientific terminology, from which it is extremely difficult to arrive at a clear notion of what is meant. I do not doubt but that, by either mode of applying the caustic potass, the cervix uteri may be reduced in size; but my dissent from the practice is founded on the fact that it has none of the three recommendations of painlessness, speed, or safety; while my own experience would lead me to believe that, when adopted, it is usually either out of place or superfluous. During the presence of any active symptom of inflammation, such a proceeding as the destruction of a portion of the uterine tissue by caustics cannot but be perilous; after their removal, the womb will return slowly, often indeed but imperfectly, to its previous size. This return, however, does take place, as far at least as my experience goes, in the immense majority of cases; and takes place as surely, and not much more slowly, under just those conditions which best promote the general health, as under a course of treatment which, apart from other evils, confines a woman for weeks and months to her chamber and her couch, to the grievous impairment of her general health, and the utter ruin of her cheerful-

ness, as on several occasions I have had the opportunity of observing. Moreover, very wide variations in the size of the womb seem to be equally compatible with the healthy performance of its functions; while the special tendency which it exhibits, under any circumstances that produce congestion of its vessels to increase in size, must never be forgotten in estimating the pathological importance of hypertrophy, either of the whole or of a part of the organ. In this opinion, too, I am further strengthened by the fact that some of the most marked instances of enlargement of the neck of the womb, with increased hardness of its tissue, which have come under my observation, occurred in cases where there was no trace of ulceration either of the os uteri or of the canal of its cervix.

At the same time there are some exceptional cases, which I have already referred to, where ulceration, or some allied morbid condition of the os uteri, is found to exist independent of any appreciable disease elsewhere; and others, equally rare, in which, after symptoms of uterine ailment have been subdued, a morbid state of the os uteri persists, which is benefited by stimulant applications. In such cases, I use either the nitrate of silver or the acid nitrate of mercury, though neither of them frequently; and for weeks together no case appears among my patients at St. Bartholomew's Hospital in which the employment of either appears to me indicated. In justice to others, it should, I think, be observed, that we have no right to infer that the majority of practitioners, who resort to those agents with much greater frequency than some of us feel warranted in doing, regard them as absolutely the best remedies that could be used, but merely as the best under the peculiar circumstances in which uterine diseases have to be treated. Were it possible to keep any of those milder agents in contact with the abraded os uteri, which can generally be applied to an irritated or ulcerated surface elsewhere, this would doubtless be allowed in many instances to be a preferable proceeding. The problem, however, is to find some agent sufficiently powerful to exert an influence which may continue for several days, and thus to obviate the necessity for that frequent painful interference which would otherwise be required. That lotions, baths, and other remedial agents which may be safely intrusted to the patient herself, will answer the desired ends more frequently than some practitioners imagine, is my firm conviction; but I could not refrain from stating what seems to me to be the candid interpretation of their conduct who pursue a different course of proceeding.

Time forbids that I should enter into further detail—nor, indeed, does my subject need it; for I proposed to myself only "To inquire into the Pathological Importance of Ulceration of the Os Uteri." In doing this, I have had of necessity to refer to opinions from which I differed. It was no want of respect for many of those who entertain those opinions, and whose talents have done so much to render them popular, which has led me studiously to abstain from referring to them by name; but I believe, and have high authority for acting on the belief, that "The cause of truth gains much by a course, which not only avoids personal controversy, but confines attention to the real merits of the case, independently of the extraneous circumstances which ought not to influence the decision."

I have treated this inquiry, Sir, into what is after all but a comparatively small ailment, as gravely as though it were one of those dire diseases, in the study and the cure of which the highest skill of the greatest votaries of our art has found its fit employment. But you will not blame me, I trust, for this: the thousand smaller ills to which mankind is subject bring, in their frequent repetition, as much suffering, cause as much sorrow, and therefore are as worthy or our heartiest labour to understand, and of our best efforts to relieve, as those perilous visitants—inflammations, fevers, apoplexies, which threaten life only at long intervals or on rare occasions. If, however, it should still seem to any that I have chosen a theme beneath the dignity of this College, may I remind them that Sydenham himself has told us, he should not deem his life ill-spent if he had contributed to even the least improvement in the very humblest branches of practical medicine;[1] and, taking shelter behind his great name, plead in extenuation of my poor performance, "Quantacumque fuerint aliorum conamina, semper existimavi mihi vitalis auræ usum frustra datum fore, nisi et ipse in *hoc* stadio versatus symbolam aliquam utcunque exiguam in commune medicinæ ærarium contribuerim."

[1] "Etsi nihil magnificentius," says he, "quam odontalgiæ, aut clavorum pedibus innascentium curatio."

THE END.

THE

PATHOLOGY AND TREATMENT

OF

PULMONARY TUBERCULOSIS;

AND ON THE

LOCAL MEDICATION OF PHARYNGEAL AND LARYNGEAL DISEASES

FREQUENTLY MISTAKEN FOR, OR ASSOCIATED WITH,

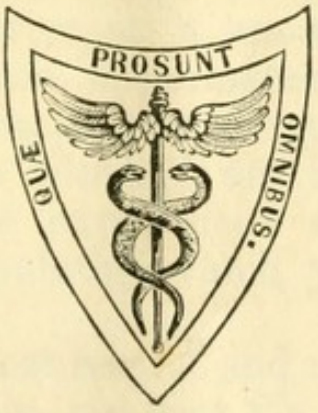
PHTHISIS.

BY

JOHN HUGHES BENNETT, M.D., F.R.S.E.,

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1854.

Time forbids that I s

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TO

P. C. A. LOUIS, M.D.,

PHYSICIAN TO THE HOTEL DIEU; PERPETUAL PRESIDENT OF THE MEDICAL SOCIETY OF OBSERVATION, PARIS; MEMBER OF THE NATIONAL ACADEMY OF MEDICINE, ETC. ETC.

My dear Sir:—

In the last edition of your admirable work on Phthisis, you observe: "The study of phthisis under the present point of view—that of its curability—has as yet made but little progress, and consequently does not at the present day possess all the interest which ought to belong to a subject of such great importance. In the cases of cure hitherto known, the morbid state has always been very limited in extent, and this limitation has not been the result of any circumstance which, although fortuitous, was still appreciable, and hence more or less easily producible at will in other cases, but the effect, no doubt, of circumstances peculiar to each individual case. The nature of these circumstances is at the present hour utterly unknown, and to the steady investigation of them medical observers should henceforth sedulously apply themselves." (*Sydenham Society's Translation*, by Walshe, pp. 475, 476.)

If, in following out the recommendation thus given, I have been enabled to collect facts which prove that a cure may occasionally take place, although phthisis has existed to a very great extent; and if, from a consideration of these facts, I have been enabled to approximate towards, if not completely to arrive at, a knowledge of the circumstances which produce a permanent arrestment of the malady, you will perhaps excuse my dedicating this work to you—a liberty to which I am impelled as much by the kindness I have experienced at your hands, as by the distinguished reputation which you have achieved in medicine.

With the utmost respect and regard,
I remain, my dear Sir,
Yours very sincerely,
J. HUGHES BENNETT.

Edinburgh, 1 Glenfinlas Street,
September 22, 1853.

PREFACE.

In the years 1839–40, the Author found a remedy administered in the hospitals of Germany in cases of Pulmonary Tuberculosis, which had never been employed in his own country for that disease, although it had been successfully used there in Rheumatism. This was Cod-liver Oil. He could not fail to be struck with the marked benefits which resulted from its employment in patients, who, had they been treated in British hospitals, would certainly have died. In 1841, therefore, he published a Monograph, giving an account of what was then known concerning that substance, and recommended it to his countrymen, from theoretical and practical considerations, as a valuable remedy in Phthisis Pulmonalis.

For five years (1843–1848), the Author held the position of Pathologist to the Royal Infirmary of this city, during which period he performed and recorded the results of upwards of two thousand *post-mortem* examinations. Gradually, one great fact became impressed upon his mind, viz: that all organic diseases occasionally presented a tendency to spontaneous cure. He was repeatedly meeting with instances where, although death was occasioned by disease in one organ, there were others which presented traces of previously existing lesions which in some way had healed. In no organs were such appearances more common than in the lungs, and of no disease was evidence of a spontaneous cure more frequent than of Pulmonary Tuberculosis.

Although it was generally considered by the profession that no remedy and no plan of treatment yet proposed could be depended on in cases of consumption, it was obvious to the Author that if the process employed by nature could be discovered, and then imitated by art, we might ultimately arrive at the true principle of cure. Whenever, therefore, decided and unmistakable evidence of a spontaneous cure came before him, he carefully studied the circumstances which preceded it; and connecting these with the numerous observations which were simultaneously going on, as to the good effects of Cod-liver Oil, he was gradually led to the rules of treatment which are developed in the following pages. These he has tested on a large scale in hospital and private practice. They have also been extensively tried by others who have followed his suggestions, so that he can now confidently recommend them to his professional brethren.

It may happen, however, that the practical rules and the principles on which they are founded are no longer new to some who may read the following pages. This will be accounted for if it be remembered that during the last twelve years the Author has published various papers in connection with Tubercle and Pulmonary Tuberculosis, the substance of which is embodied in the present work.[1] For the last eleven years, also, he has been constantly engaged in giving lectures, both on the Theory and Practice of Medicine, systematically and clinically, and has naturally communicated to his pupils the various facts and views now set forth, as they were gradually arrived at or reached maturity in his own mind. Further, it may be observed in some places that the language and ideas are similar to those long since published in certain Reviews, which have appeared in the *Monthly Journal of Medical Science*, and, whenever these are identical, it may be assumed with truth that he is the writer of those Reviews.

[1] The Author is not disposed to enter into controversy with regard to a mere question of priority; but with the object of regulating any discussion on this point, should it arise, he appends a list of his contributions to the pathology and treatment of tuberculosis, with the dates of their publication.

1. *Treatise on the Oleum Jecoris Aselli, or Cod-liver Oil, as a Therapeutic Agent in certain forms of Gout, Rheumatism, and Scrofula, with Cases.* London and Edinburgh. 1 vol. 8vo. 1841.
2. *Description of a Cryptogamic Plant found Growing in the Sputa and Lungs of a Man who laboured under Pneumothorax.*—"Transactions of the Royal Society of Edinburgh." 1842.
3. *On the frequent Spontaneous Cure of Pulmonary Consumption, and the indications furnished by Pathology for its Rational Treatment*—"Edinburgh Medical and Surgical Journal." 1845.
4. *On the Minute Structure and Chemical Composition of Tubercular Deposits.* 6 wood-cuts.—"Northern Journal of Medicine." 1846.
5. *On the Elementary Forms of Disease.* Wood-cuts.—"Monthly Journal of Medical Science." 1846.
6. *On the Structural Relation of Oil and Albumen in the Animal Economy, etc.*—"Read to the Royal Society of Edinburgh," 19th of April, 1847; "Proceedings of the Royal Society of Edinburgh, 1846–7;" and "Monthly Journal of Medical Science," September, 1847.
7. *Appendix to the Treatise on the Oleum Jecoris Aselli.* 8vo. November, 1847.
8. *On Cancerous and Cancroid Growths.* 1 vol. 8vo. Numerous wood-cuts. Edinburgh. 1849. See pp. 195–7, and pp. 204–6.
9. *On the Course of Tubercle in the Lungs.*—"Monthly Journal of Medical Science." 1849.
10. *On Simple Tubercular and Cancerous Exudations—their Pathology and General Treatment.*—"Monthly Journal of Medical Science," February, 1850.
11. *On the Treatment of Phthisis Pulmonalis.* 2 Coloured Plates.—"Monthly Journal of Medical Science." 1850.
12. *Report on the Cases of Pulmonary Diseases treated in the Clinical Wards of the Royal Infirmary, during the latter half of the Summer Session* 1851.—"Monthly Journal of Medical Science," December, January, and February Nos. 1851–2.
13. *Illustrations of Laryngeal and Pharyngeal Diseases, which are frequently mistaken for, or associated with Phthisis Pulmonalis.*—"Monthly Journal of Medical Science." December, 1852.

In 1849, Dr. C. T. B. Williams, of London, published a paper on the treatment of Phthisis Pulmonalis by Cod-liver Oil, in which he confirmed all that the Author had stated eight years previously as to the therapeutic effects of that remedy. Dr. Williams also adopted the molecular theory of its action which the Author published in November, 1847. Unfortunately, in adopting his theory as well as practice, Dr. Williams seems to have imagined that he had arrived at something new—a conclusion which, as it has been very ably dealt with by a critic in the *Dublin Quarterly Journal of Medical Science*, for May, 1850, demands no further notice. There can be no doubt, however, that Dr. Williams's confirmation of the Author's experience (although tardy), still further supported by an able Report of the Medical Officers of the Brompton Consumptive Hospital in 1851, and the concurrent testimony of several Hospital Physicians, tended to extend the confidence of the profession in its use, which has since become as general in England as it had long previously been in Scotland.

Any well-informed medical practitioner who looks back on the treatment of Phthisis as it existed ten years ago, and compares it with the practice recommended in this work, must come to the conclusion that the one is essentially different from the other. The Author has attempted to show: 1. That tubercular diseases will heal of themselves, if the faulty nutrition of the system can be removed; 2. That, with this object, our efforts should be directed to the digestive rather than to the respiratory system; and 3. That the kind of abnormal nutrition which exists is dependent on increased assimilation of the albuminous, and diminished assimilation of the fatty portions of the food. Hence, he recommends that the general plan of treatment should be to cause the reception of the deficient elements of nutrition; and is, therefore, not tonic or stimulating, but *analeptic* (from αναλαμβανω, to restore). With regard to the symptomatology, morbid anatomy, and diagnosis of Pulmonary Tuberculosis, he has nothing to add to the many masterly works which treat of those parts of the subject, and consequently he has not entered into them further than was necessary to evolve the principles on which he considers a correct treatment should be based. But, if he has been fortunate enough to show that such treatment is founded on a true pathology, and that a class of diseases which destroys one-sixth of the population in this country may in any way be alleviated, he leaves to the candour of his medical brethren the question of how far he has been instrumental in effecting it.

JOHN HUGHES BENNETT.

EDINBURGH, 1 GLENFINLAS STREET,
September 22, 1853.

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ON PULMONARY TUBERCULOSIS.

CHAPTER I.

PATHOLOGY OF PULMONARY TUBERCULOSIS.

It has been noticed by many observing physicians, and especially by Sir James Clarke, that phthisis pulmonalis is ushered in with a bad and capricious appetite, a furred or morbidly clean tongue, unusual acidity of the stomach and alimentary canal, anorexia, constipation alternating with diarrhœa, and a variety of symptoms denominated dyspeptic, or referable to a deranged state of the primæ viæ. Moreover, it can scarcely be denied that, in the great majority of cases, these are the symptoms which accompany phthisis throughout its progress, becoming more and more violent towards its termination. Now, as the nutritive properties of the blood are entirely dependent on a proper assimilation of food, and as this assimilation must be interfered with in the morbid conditions of the alimentary canal, the continuance of such conditions necessarily induces an impoverished state of that fluid, and imperfect growth of the tissues. When, under such circumstances, exudations of the liquor sanguinis occur, they are very liable to assume the form of tubercles, and if they are poured into the lungs, there are then produced those changes and that condition which have been denominated by the German pathologists pulmonary tuberculosis.

The term tubercle is of Latin derivation, and literally implies a little swelling. In this sense it is still used by dermatologists, and serves to distinguish a class of skin diseases. The same name was unfortunately applied to the rounded masses so frequently found in the lungs or other organs. It has also been employed to characterize the same substance when infiltrated in masses, or under circumstances

where its original signification cannot apply. At present, tubercle is generally considered to be a peculiar morbid deposit, sometimes gray, but more frequently of a yellowish colour, varying in size, form, and consistence, which sooner or later undergoes a process of softening.

This definition of tubercle is very vague, and may be applied to various kinds of exudation which materially differ from each other. Indeed, every morbid anatomist must frequently have experienced much difficulty in endeavouring to determine by the naked sight whether a certain morbid deposit be or be not tubercle. With a view to establishing a correct pathology, therefore, our first efforts must be directed to determine what tubercle really is; how it can be accurately separated from the ordinary products of inflammation on the one hand, and from malignant or other morbid growths on the other. To arrive at these points we must inquire into the minute structure and chemical constitution of this substance.

SECTION I.

Histology of Tubercle.

Tubercle has been spoken of as presenting a miliary, infiltrated, or encysted form; but these distinctions have no reference to structure, but merely to the extent and age of the exudation. It generally presents a yellowish or dirty white colour, and varies in consistence from that of a substance resembling tough cheese to that of cream. Sometimes it is soft at one place and indurated at another. On section, when tough, it presents a smooth or waxy, and when soft, a slightly granular, surface. On pressure it is friable, and may break down into a pulpy matter, but never yields a milky juice.

A small fragment of tolerably firm miliary tubercle, squeezed between glasses with a drop of water, and examined under a magnifying power of 250 diameters linear, presents a number of irregular shaped bodies, approaching a round, oval, or triangular form, varying in their longest diameters from the $\frac{1}{4000}$ to the $\frac{1}{2000}$ of an inch. These are the so-called *tubercle corpuscles*. They are composed of a distinct wall, containing generally three or more granules, without any distinct nucleus, and are mixed with numerous granules and molecules, varying in size from a point scarcely measurable, to the $\frac{1}{6000}$ of an inch in diameter (Fig. 1, *a*). If we add to these bodies

a drop of weak acetic acid, all the corpuscles become more transparent, but are otherwise unchanged, and many of the granules disappear, as in Fig. 1 (*b*). Ether and alcohol produce little change. Ammonia partially dissolves the corpuscles, and renders them capable of being easily broken down. They are immediately and completely dissolved in a solution of potash.

Fig. 1.



Tubercle corpuscles from the peritoneum. *a*. The same after the addition of acetic acid.

Again, if we simply squeeze a portion of soft yellow tubercle between glasses, and examine it with a like magnifying power, we shall see similar corpuscles, mixed with numerous molecules and granules, as in Fig. 2. Sometimes softened tubercle seems partially or wholly composed of a granular matter. At others, we only observe it to be molecular, the molecules being exceedingly minute. In some forms of tubercle, the corpuscles are much larger and rounded than they are represented in Fig. 2; still, however, preserving their peculiar character, as in Fig. 3. In this manner, they approach in form to the corpuscles observed in scrofulous pus.

Fig. 2.



Tubercle corpuscles, granules, and molecules, from a soft tubercular mass in the lung. 250 diameters linear.

The gray semi-transparent granulation is of semi-cartilaginous hardness, and presents to the eye a very different appearance from ordinary tubercle. On making a thin section of it, however, it will be found to be composed of similar elements, although more tranparent and not so well defined. The addition of acetic acid, by rendering the fibrous tissue more transparent, and dissolving the granules, will permit the same corpuscles to be seen in it as are represented in Fig. 1.

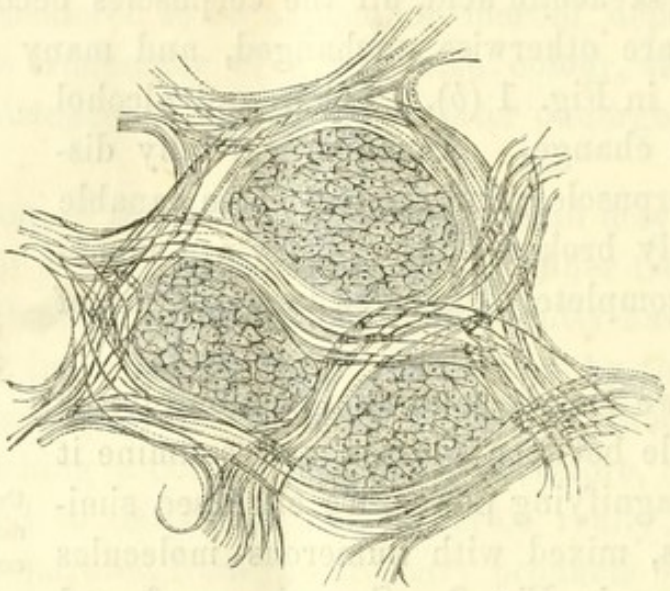
Fig. 3. Fig. 4.



Fig. 3. Tubercle corpuscles from a mesenteric gland. Fig. 4. Scrofulous pus from a lymphatic gland. 250 diameters linear.

When tubercle presents the cretaceous or calcareous transformation in any degree, the different elements we have described

Fig. 5.



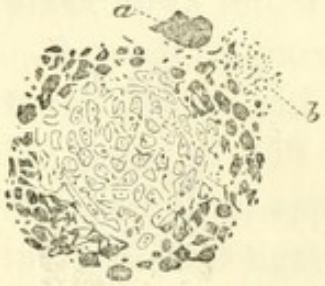
Section of a gray granulation in the lung after the addition of acetic acid, showing the pulmonary air-vesicles filled with tubercle corpuscles. 250 diameters linear.

Fig. 6.



Fragments of phosphate of lime, crystals of cholesterin, and tubercle corpuscles, from a cretaceous mass in the lungs.

Fig. 7.



Corpuscles mixed with pigmentary matter, in a small tubercle taken from the peritoneum. *a*. Irregular masses of black matter, which may be broken down into (*b*) granular and molecular matter. 250 diameters linear.

become mixed up with hard gritty particles of earthy salts. These are of irregular form and size, and are larger and numerous in proportion as the tubercle is more and more calcareous. Crystals of cholesterin may also frequently be seen in cretaceous concretions (Fig. 6). When tubercle is converted into a mass of stony hardness, a thin section presents a granular appearance, made up of a congeries of minute earthy particles, without any distinct form. We frequently find tubercle conjoined with more or less pigmentary matter. This usually appears under the microscope in the form of irregular black masses (Fig. 7, *a*), which are composed of exceedingly minute molecules (*b*). These molecules may be occasionally seen infiltrated into many of the tissues, and among morbid deposits, especially tubercle. They often surround the minute tubercles deposited on the surface of the peritoneum, as in Fig. 7. Their occurrence in considerable masses round chronic tubercle in the lung or bronchial glands, is almost uniform, giving a black or bluish tinge to the tissues. Indeed, it may be said that the older the tubercle, the greater is

the amount of pigmentary matter surrounding it. In the lungs and bronchial glands, however, the black pigment, although it resembles that observed in the peritoneum morphologically, differs from it chemically. In the former case, it is pure charcoal, and indestructible by all chemical reagents; whereas, in the latter, the colouring matter disappears under the action of mineral acids, and an immersion for some time in alcohol. A portion of intestine sprinkled over externally with miliary tubercles, surrounded by a black ring, one of which is represented magnified 250 diameters (Fig. 7), was put up by me in alcohol as a preparation, and in three weeks the black pigment had entirely disappeared.

From what has preceded, it must be evident that tubercle presents different appearances, according as it is hard or soft, cretaceous or calcareous. When recent and hard, the corpuscles are crowded together, and the granules accompanying them are comparatively few in number. When soft, the number of granules is much increased, and the corpuscles are easily separated. Lebert[1] is of opinion that at first the corpuscles are kept together by an intermediate substance, which afterwards softens. We can only regard this inter-globular substance as the blastema in which the corpuscles are formed. The softening, then, is more probably owing to the development and breaking down of the latter, similar to what we observe in inflammatory exudations generally.

Gulliver[2] and Vogel[3] agree in saying, that at an early period, more especially when in a miliary form, nucleated cells may be observed in tubercular matter. This is denied by Lebert, and I must confess that I have never been able to discover nuclei in the corpuscles of tubercle. They appear to me to be nuclei themselves, which are formed slowly, and have no tendency to produce cells, before they break down into a molecular matter. Hence, no danger is to be apprehended from the spread of tubercle itself by an inherent power of growth, and if fresh deposits could be prevented, the tendency of this substance to disintegration, is highly favourable to its absorption. Schroeder Van der Kolk also supposes them to be nuclei; but considers that they result from the disintegration of epithelial cells in the ultimate bronchi and air-vesicles—a view which seems to me negatived by the fact that they occur in

[1] Physiologie Pathologique, p. 527, *et seq.*

[2] Gerber's Anatomy, Appendix, p. 85.

[3] Icones Histologicæ, Tab. 4.

textures destitute of epithelium, as in the substance of the brain (Figs. 8 and 9).

Fig. 8.



Fig. 9.



Fig. 8. Structure of the central portion of a tubercular mass, imbedded in the cerebellum. Fig. 9. Structure of the external portion of the same mass, where it was in contact with softened cerebellar substance. 250 diameters linear.

Numerous instances occur in which it is utterly impossible to distinguish tubercle from fibrinous exudations on the one hand, or cancerous growths on the other, except by paying attention to the minute structure previously described. I have often been deceived in endeavouring to determine this by naked sight, and found, on a microscopic examination, that so-called tubercular masses were composed of filaments more or less mixed up with plastic or granular corpuscles. Again, not unfrequently tubercle has been mistaken for cancer, or the latter for the former. If, then, we are asked to determine what is positively tubercle, as distinguished from all other morbid products, we must answer, that deposition which is composed of the peculiar corpuscles and granules described and figured in the preceding pages. From pus-corpuscles they are readily distinguished

Fig. 10. Fig. 11. Fig. 12. Fig. 13. Fig. 14.



Fig. 10. Tubercle corpuscles from the lung. Fig. 11. Pus-corpuscles. One shows the double granular nucleus after the addition of acetic acid. Fig. 12. Plastic or pyoid corpuscles. Fig. 13. Granular corpuscles from cerebral softening. Fig. 14. Cancer cells from the uterus. 250 diameters linear.

by the action of acetic acid, which in them causes no granular nucleus to appear. From plastic corpuscles they may be separated by their irregular form, smaller size, and the absence of primitive filaments. With the granular corpuscle they can scarcely ever be confounded, on account of its large size, brownish or blackish colour, and nucleated or granular structure. The cells of cancer are large,

transparent, and distinctly nucleated, and consequently easily distinguished from the small, non-nucleated corpuscles of tubercle. The general characters of these different corpuscles will be gathered from a glance at the above figures.

The only other structure likely to be confounded with tubercle is the reticulum of cancer, which not only presents a yellowish appearance closely resembling it, but is composed of nuclei and molecular matter, resulting from the disintegration of cancer cells. But, as this reticulum is always associated with cancerous formation, it may at once be distinguished by the cell elements which accompany it. It should farther be noticed that every form of exudation, at a certain period, presents a molecular and granular structure throughout, and that then it becomes impossible to determine its nature, unless it be associated with the more characteristic elements distinctive of the simple, tubercular, or cancerous exudations.

Fig. 15.



Corpuscles, etc. in the reticulum of cancer. 250 diameters.

As regards chemical composition, Dr. Abercrombie[1] showed that a mass of tubercle, on being plunged into boiling water, contracted and became more dense and firm, when it presented all the characters of coagulated albumen. This was well observed in the mesenteric glands, which, when only slightly affected, lost a considerable amount of their weight. This loss became less and less as the tubercular deposition increased, until at length the whole gland appeared to be converted into solid coagulated albumen, and scarcely lost any of its weight by boiling.

Dr. Abercrombie observes: "The deposition of albumen, therefore, in these glands, appears to be a process of disease. In the early stages of the disease it seems to be deposited in a soft state, and to be involved in the structure of the gland; the gland, in other respects being vascular and organized, and probably capable of performing its functions. It is in this state that we see the albumen coagulated, when the gland is plunged into boiling water, producing so immediate and remarkable a change in its appearance and texture. As the disease advances, the proportion of albumen seems to increase, while, at the same time, it assumes a more concrete state,

[1] Medico-Chirurgical Transactions of Edinburgh, i. 887.

and the mass in general becomes less vascular and less organized. In the last stage, the vascular structure of the gland seems more and more to disappear, until it passes into a mass presenting the properties of coagulated albumen, with little or no organization."

Tubercle has farther been made the subject of special analysis by Thenard,[1] Hecht,[2] Lassaigne,[3] Preuss,[4] Gueterboeck,[5] Wood,[6] Simon,[7] Scherer,[8] Felix Boudet,[9] Wright,[10] and especially by Dr. Glover of Newcastle,[11] from whose various analyses the following conclusions may be drawn :—

1. That tubercle consists of an animal matter, mixed with certain earthy salts.

2. That the relative proportion of these varies in different specimens of tubercle. That animal matter is most abundant in recent and earthy salts in chronic tubercle.

3. That the animal matter certainly contains a large amount of albumen. Some chemists have also detected casein, the existence of which is probable; others gelatin, the presence of which is more doubtful. The statement of Gueterboeck, that it contains a peculiar animal matter (phymatin), has not been confirmed by other analysts. Fibrin and fat exist in small but variable proportion, as a constituent of tubercle.

4. The earthy salts are principally of the insoluble phosphate and carbonate of lime, with a small proportion of the soluble salts of soda. The statement of Boudet, that cretaceous concretions are principally formed of the latter, is directly opposed by other chemists, and is quite incompatible with their long persistence in the body.

5. That very little difference in ultimate composition has yet been detected between recent tubercle, and other so-called compounds of protein.

[1] Andral, Precis d'Anatomique Pathologique, t. i. 417. 1829.

[2] Traité d'Anatomie Pathologique, 1829, t. i. 378.

[3] Dupuy, Journal Prat. de Med. Veterenaire, 1838, p. 98.

[4] Tuberculorum pulmonis crudorum analysis chemica. Dissert. Berol, 1835.

[5] De pure et granulatione. Berol, 1837.

[6] De puris natura atque formatione. Berol, 1837.

[7] Animal Chemistry, 1842. Trans. by Day, 1846, ii. 478.

[8] Jahresbericht von Canstatt, 1844. Leistungen in der Pathologischen Chemie von Scherer.

[9] Bulletin de l'Acad. Roy. de Medecine, t. ix. 1163.

[10] Medical Times, ii. 418, 419.

[11] Pathology and Treatment of Scrofula, 1846, p. 54, *et seq.*

SECTION II.

The Nature of Tubercle.

If, from the histological facts previously stated, we seek to deduce the nature of tubercle, it can scarcely be doubted that it is an exudation of the liquor sanguinis, but one which presents marked differences from the simple or inflammatory exudation on the one hand, and the cancerous exudation on the other. Thus:—

We observe, in a simple or inflammatory exudation, that it may occur at all epochs in life; that it may attack all tissues, and most commonly those which are very vascular; that it may be poured out in large or small quantities; and that it may occur with greater or less rapidity—hence the terms acute and chronic. We farther observe, that the acute exudations are generally attended with symptoms of a peculiar character (inflammatory), and have a great tendency to cell or temporary formations, which rapidly break down, are absorbed, and excreted by the emunctories; that the chronic exudations, on the other hand, have a tendency to fibrous or permanent formations, producing adhesions, strictures, hypertrophies, etc.

We observe, in a cancerous exudation, that it occurs for the most part in persons of adult or advanced life; that it may also occur in every tissue, but is by far most common in glandular or fatty organs, such as the liver or female mamma, and is very apt to attack the lymphatic glands *secondarily;* that its progress, although sometimes slow when very fibrous, becomes rapid when corpuscles abound in it; that there is a great tendency to the formation of the most perfect forms of cell life, which have the power of self-development, and thereby of spreading to neighbouring tissues; and lastly, that when, by pressure, ulceration is produced on free surfaces, it bursts through these in exuberant fungoid excrescences.

We observe, in a tubercular exudation, that it occurs for the most part in young subjects, between the periods of dentition and of adult age; that it may also occur in all tissues, but is by far most common *primarily* in the lymphatic glands, and afterwards in fibrous or albuminous textures, as the lungs and serous surfaces; that its progress is generally exceedingly slow; that there is no disposition to the formation of perfect cell-formation, but rather to abortive corpuscles, which form slowly, and slowly break down; that there is little tendency to absorption, but great liability to disintegration

and ulceration; and finally, that the local changes are almost always preceded by derangement of the primæ viæ, and a group of symptoms known under the name of dyspepsia.

Taking, then, the products of simple inflammation (say pus) as a standard, we cannot fail to remark, that whilst the cell development of tubercle is below, that of cancer is above, this standard. Of the three kinds of exudation, tubercle is the lowest, and cancer the highest, in the scale.

On what this difference in the formative power of the exudation depends, we are ignorant; but every kind of reasoning must lead us to the conclusion, that these different changes and effects depend, not upon the vascular system, which is the mere apparatus for the production of exudation; not upon the nervous system, which conducts impressions to and from this apparatus; and not on the texture, which is the seat of the exudation, as that varies, whilst the cancerous or tubercular formation is the same—but on the inherent composition or constitution of the exudation itself. On this point most pathologists are agreed, and hence the supposed existence of various kinds of dyscrasiæ, originating in the blood, which, it is imagined, explain the different results produced. But here pathologists pause—having once traced these lesions back to the blood, they are content; and they have not sufficiently taken into consideration, that the blood itself is dependent for its constitution on the results of the primary digestion in the alimentary canal on the one hand, and the secondary digestion in the tissues on the other. Yet it must be evident to every physiologist, that if it be the constitution of the blood which determines that of the exudation, the causes which produce this must be sought in those circumstances which operate on the composition of the former fluid.

Now, numerous facts render it probable that while the blood is normal in simple exudation, it contains an excess of nutritive materials in cancerous, and a deficiency of them in tubercular, exudation. These are points, however, which can only be established after examining instances of such exudations in detail. But it must not be forgotten, in the mean time, that as the blood is continually undergoing changes—is receiving and giving off new matters, it can scarcely happen that it remains the same for many hours together. An exudation at one time may be very different from that at another. At one period it may abound in elements which do not exist in it at the next. Hence, it may often happen that a concurrence of circum-

stances is necessary to occasion a certain result. A cancer once formed, may remain local until such a concurrence of events arises, comprising, first, a peculiar constitution of the blood; secondly, the phenomena leading to and producing an exudation; and thirdly, the occurrence of this exudation in some tissue or organ sufficiently predisposed for the purpose. Hence why the histologist is continually finding all kinds of intermediate formations between the three leading kinds of exudation, and why, even when the constitution is thoroughly tubercular or cancerous, simple exudations may be poured into tissues as the result of recent wounds or injuries. But, whilst a recent tubercular or a cancerous exudation may be found to accompany, or alternate with, a simple exudation, they are seldom, if ever, met with together—a circumstance which still farther points out the wide difference between the constitutional causes producing them.

The views now advanced dispose of the disputes formerly so prevalent among pathologists as to the inflammatory or non-inflammatory nature of tubercle. If by inflammation be understood pain, heat, redness, and swelling, or the presence of lymph and pus, then certainly tubercle is not inflammatory. But, if we consider inflammation to be an exudation of the blood-plasma, then it, as well as lymph and cancer, are inflammatory products. The modern view, of considering all these pathological states to be only different forms of exudation, is the only one which is consistent with our knowledge of existing facts, which reconciles past and present observations, and holds out general principles on which our treatment may be based. Indeed, the modern histologist would be at a loss to understand why so much importance should have been attached to the question of the inflammatory or non-inflammatory origin of tubercle, were he not aware that the former idea has been associated in the minds of practitioners with bleeding, low diet, and tartar emetic, as remedies.

In the same manner, the slightest consideration of tubercle as a coagulated exudation, must point out that it must have the same seat as all other exudations. It transudes in a fluid state through the capillaries, and collects in those places outside the vessels that offer least resistance. Thus in the lungs, although a small portion may insinuate itself between the elementary fibres of the pulmonary structure, it will principally pass into the air-vesicles, and by coagulating in them, obstruct the entrance of air. Hence numerous specimens in my histological collection show the tubercular to hold exactly the same position in the lungs as the simple and cancerous exudations.

If now we endeavour to inquire more particularly into the nature of that change in the blood which communicates to the exudations from it those peculiar characters we denominate tubercular, we must arrive at our knowledge from the results of physiological researches. Thus, a healthy nutrition of the body cannot proceed without a proper admixture of mineral albuminous and oleaginous elements. This may be inferred from the physiological experiments of Tiedemann and Gmelin, Leuret and Lassaigne, Magendie, and others; from an observation of the constituents of milk, the natural food of young mammiferous animals; from a knowledge of the contents of the egg, which constitute the source from which the tissues of oviparous animals are formed before the shell is broken; and from all that we know of the principles contained in the food of adult animals. The researches of chemists, such as those of Prout, Liebig, and others, point to the same generalization, when they assert that carbonized and nitrogenized, or, as they are now called, respiratory and sanguineous food, are necessary to carry on nutrition, inasmuch as oil is a type of the one, and albumen of the other, while the mineral matter is dissolved in both. The chemical theory is imperfect, however, because it does not indicate *how* these elements form the tissues; for it is not every form of carbonized or of albuminous food that is nutritious, but only such kinds of them as are convertible into oil and albumen.

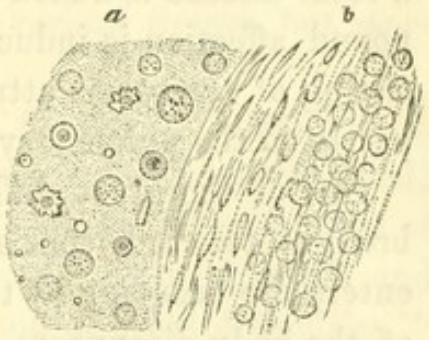
The reason of this was first pointed out by Dr. Ascherson of Berlin, in 1840, and made known by me to the profession in this country in 1841. I have since endeavoured to show,[1] that the elementary molecules formed of a particle of oil, surrounded by a layer of albumen, which are produced, as he described, by rubbing these two substances together, are not developed directly into blood-globules and other tissues, as he supposed, but must first pass through a series of transformations—a knowledge of which is highly important, not only to a comprehension of nutrition generally, but especially to that abnormal condition of it which occurs in phthisis. Thus the successive changes which occur for the purposes of assimilation in the healthy economy may be shortly enumerated as follows: 1. Introduction into the stomach and alimentary canal of organic matter; 2. Its transformation by the process of digestion into albumi-

[1] On the Structural Relation of Oil and Albumen in the Animal Economy. Read to the Royal Society of Edinburgh, April 19, 1847.

nous and oily compounds; this process is chemical; 3. The imbibition of these through the mucous membrane in a fluid state, and their union in the termini of the villi and lacteals to form elementary molecules; this process is physical; 4. The transformation of these, first, into chyle-corpuscles, and, secondly, into those of blood, through the agency of the lymphatic glandular system; which is a vital process. It is from this fluid, still farther elaborated in numerous ways, that the nutritive materials of the tissues are derived, so that it must be evident, if the first steps of the process are improperly performed, the subsequent ones must also be interfered with. Hence, we can readily comprehend how an improper quantity or quality of food, by diminishing the number of the elementary nutritive molecules, must impede nutrition.

When we examine a drop of chyle taken from the thoracic duct of an animal three hours after it has eaten a meal, we observe that it contains, first, a molecular basis (Gulliver) of incalculably minute particles; and, secondly, numerous corpuscles in different stages of development into blood-globules. This molecular basis has been proved by numerous chemical analyses to consist principally of fat, emulsionized by its admixture with albumen. In short, these two important principles, fat and albumen, constitute essential elements of the nutritive chyme; and the former, divided into exceedingly minute particles by the latter, pass through the villi and form the milky fluid called chyle. It is unnecessary for me to trace the subsequent changes this chyle undergoes by its passage through the mesenteric glands, and the successive stages of elaboration produced in it by the operation of the blood, glands, and the lungs. No one can doubt that the oil and albumen so derived from the food, and so altered chemically and mechanically in the body, constitute the material from which blood is formed; neither can there be any question that the presence and emulsionizing of these elements in proper proportions, are absolutely necessary to supply and keep up the vital properties of the blood.

Fig. 16.



Chyle from the thoracic duct of a dog three hours after eating a meal. *a*. Fluid chyle, showing its molecular basis and corpuscles in various stages of development into those of blood. *b*. Corpuscles of chyle imbedded in fibrillated fibrin. They are round in the centre, but more or less compressed and elongated towards the margin. 250 diam.

The peculiarity of phthisis, however, is, that an excess of acidity

exists in the alimentary canal,[1] whereby the albuminous constituents of the food are rendered easily soluble, whilst the alkaline secretions of the saliva and of the pancreatic juice are more than neutralized, and rendered incapable either of transforming the carbonaceous constituents of vegetable food into oil, or of so preparing fatty matters introduced into the system, as will render them easily assimilable. Hence an increased amount of albumen enters the blood, and has been found to exist there by all chemical analysts, while fat is largely supplied by the absorption of the adipose tissues of the body, causing the emaciation which characterizes the disease. In the meanwhile, the lungs become especially liable to local congestions, leading to exudation of an albuminous kind, which is tubercle. This, in its turn, being deficient in the necessary proportion of fatty matter, elementary molecules are not formed so as to constitute nuclei capable of farther development into cells;—they therefore remain abortive, and constitute tubercle corpuscles. Thus a local disease is added to the constitutional disorder, and that compound affection is induced which we call phthisis pulmonalis—consisting of symptoms attributable partly to the alimentary canal, and partly to the pulmonary organs.

One of the great difficulties in the pathology of phthisis as now brought forward, consists in the fact that whilst little fatty food enters the economy by the primary digestion, and the adipose tissue of the body disappears, fat is apt to be stored up in certain organs as the result of secondary deposition, especially in the liver. This fact, however, only proves that the formation of fat by the secondary digestion, and as a secretion of certain organs, like the liver and female mamma, are excretory products, and as such are, *per se*, incapable of being reabsorbed or of affording nutrition. In short, such fat must undergo those changes and that elaboration which the digestive functions produce, before it can be made available for the formation of good blood, which, in its turn, is only a preliminary step to healthy nutrition. There is every reason, however, to believe

[1] A French critic, when noticing this statement, asked upon what proof it was founded. The proof, I thought, consisted in the frequent sour taste and acid eructations in phthisical cases. But since this question has been asked, I have seized every opportunity of testing the amount of acidity in the alimentary canal of persons dying from phthisis, and comparing it with what was observed in the bodies of those who died of other diseases. In this way, I have several times demonstrated, in the Pathological Theatre of the Infirmary, that there existed a marked difference in the amount of intestinal acidity, between the phthisical body and that affected with other lesions.

that the various fatty compounds are convertible into one another—that fat, for instance, introduced into the alimentary canal, or formed from the starchy and saccharine parts of the food, are, through elaboration, transformed into the fat of the liver, cholesterin, margarin, butter, etc., etc., in which condition they constitute products to be excreted. But that these, introduced into the alimentary canal, acted upon by the juices of its various glands, and farther changed by the blood-glands, may again be resolved into elements capable of nutrition. The true chemistry and effects of vital changes on the fatty compounds, however, have yet in a great measure to be worked out by micro-chemical research. In the mean time, we may conclude with certainty:—

1. That an oily emulsion must be formed to constitute a proper chyle to be converted into blood.

2. That in pulmonary and other forms of tuberculosis, this process is interfered with; so that,

3. A depraved state of the constitution is induced, favourable to the deposition of tubercular exudation into various tissues, but especially into the pulmonary organs.

This theory has been objected to by Dr. Glover of Newcastle, 1. Because, so far as his analyses go, the fats are not deficient in blood; 2. Because tubercle itself often contains a considerable quantity of fat; and 3. Because the theory "is altogether too mechanical, and vitiates itself by giving a too easy explanation of great difficulties."[1]

With regard to the amount of fats in the blood, it must undergo great variation, which, in respect to the process of digestion, has not yet been determined. The molecular basis of the chyle must pass in large quantity into the blood after each meal, where it may frequently be detected in the serum, constituting chylous or fatty blood. What becomes of this fatty matter diffused throughout the circulating fluid? Is it consumed in the lung, according to the view of Liebig? or does it go directly to constitute the adipose texture? It may be disposed of in both ways. The blood-globules, although for the most part soluble in acetic acid, have lately been determined by Dr. Sanderson[2] to contain a certain amount of cholesterin; and Donné long ago showed that, after all the globules had been separated from milk, and could not be detected by the microscope,

[1] On the Pathology and Treatment of Scrofula, pp. 115, 116.

[2] Physiological Society's Report for May 14, 1853.

chemical analysis still exhibited the presence of fat in the residuum. It cannot be an objection to the views advanced, therefore, that because the small amount of fat found by the chemist in blood has undergone no diminution, that therefore the fatty molecules introduced by the chyle have no connection with the nutritive and morphological changes in the economy.

As to the argument derived from the fact that tubercle itself is fatty, I have already disposed of it, when drawing a distinction between oily molecules formed as a primary and evolving element, and similar ones formed as a secondary and disintegrating element. The source of fat in tubercle is evidently the albuminous compound, which, like muscle, fibrinous exudation, and blood, may be transformed into oily granules by a chemical process not yet accurately determined. Flesh, by exposure to a running stream of water, is, as is well known, converted into adipocere. Here, again, the occurrence of such secondary fatty degenerations is in no way opposed to the theory which ascribes nutrition essentially to the emulsion formed in the villi and lacteals.

With regard to the notion that the theory is too mechanical and too easy, this, so far from being an objection in itself, would, were it correct, be a strong argument in its favour. The progress of physiology has in no way been more advanced than by encroaching upon the so-called vital and unknown functions, and showing that several of them may be reduced to the well-known laws of physics and chemistry. Unfortunately, however, those who conceive the molecular theory of organization to be mechanical and easy, do not seem to understand it very thoroughly; for, granting the first form detectable by our microscopes to be molecular; that these molecules, by uniting into masses, constitute nuclei; that around these, cells are formed by the production of other molecules, and so on, how are we to explain the successive elaboration of solids and fluids without a knowledge of the influence of numerous organs and textures, and of the delicate chemical and physical alterations which are simultaneously proceeding in all of them at once? I am much afraid that, if an "easy explanation of difficulties" be with some an insurmountable obstacle to the reception of a theory, the one I have advanced ought not to be excluded on that ground. Indeed, its complexity is still so great as to puzzle the thoughts of all the physiologists in Europe.

Still, I believe that, on the basis of the molecular theory, physi-

ology and pathology are destined to advance and give rise to a more perfect therapeutics. I consider the pathology of tuberculosis to be an instance in point. For although it is very probable some of the details of this theory may require modification, it will, I am firmly persuaded, be found to possess a general harmony with all known facts, while it suggests to the medical practitioner resources, the advantages of which continued experience is daily rendering more evident.

SECTION III.

Natural Progress of Tubercular Exudation—Its Tendency to Ulceration—Its Modes of Arrestment.

At first, tubercle is deposited in a fluid state from the capillaries in the same manner that lymph is. In this condition it insinuates itself into the interstices of the pulmonary parenchyma, passes through the lining membrane of the air-vesicles, and fills their interior. Numerous successful injections of pneumonic, tubercular, and cancerous lungs, in my possession, demonstrate that the exudation in all is poured out in the same manner, and occupies the same position in the pulmonary texture. A miliary tubercle may, in this manner, block up from three to twenty of these air-vesicles. It now coagulates and constitutes a foreign body, which can only be removed by being again broken down and rendered capable of being either absorbed or excreted. Thus the miliary or infiltrated forms, whether gray or yellow, after a time soften—a process which may commence at any part of the mass, and gradually affect the whole. This softening is a disintegration or slow death of the tubercular exudation, constituting true ulceration, which is more or less extensive, according to the amount and superficial extent of the morbid deposit. When recent, the pulmonary parenchyma in the immediate neighbourhood is more or less congested; and when chronic, it is thickened and indurated, often forming a capsule which surrounds the tubercular deposit. The pleura also is very liable to be affected; when recently so, presenting soft fibrinous exudations with more or less adhesion; whereas, when chronic, these become fibrous and reach a thickness and density seldom seen in other diseases. The bronchi are necessarily involved; their terminal extremities are among the first structures affected; and, as the tuberculosis proceeds, all the appearances

characteristic of chronic bronchitis are produced. As the ulcerative process extends, the lung is more and more destroyed, until at length it can no longer carry on its important functions, and the patient dies, or the fatal result, as very commonly happens, is hastened by disease in other organs.

The ulcerative or destructive tendency of the tubercular exudation has generally been supposed to be its chief characteristic; but there are very few cases in which its progress is uniform. It is continually checked, and for a time slumbers; and all morbid anatomists have recognized, even in the worst specimens of tubercular lungs, numerous cicatrices and evidences of attempts to heal. These attempts are more or less perfect, and when ineffectual, it is owing to the circumstance that, as one portion of lung cicatrizes, another becomes the seat of recent tubercle.

Cicatrices present different appearances, according as the cavities from which they were formed have been superficial or deep seated. In the first case, it will generally be observed that the pleuræ are more or less adherent and thickened, and this frequently forms an external boundary to the tubercular cavity. As the matters which the cavity contains are expectorated or transformed, the lymph gradually contracts, draws the lung closely to the thoracic walls, from which it cannot be separated without great violence. Sometimes, however, it is deeper, and the adhesion is very slight or does not exist. In this case, when the walls of the cavern contract, the pleural surface of the lung is drawn inwards, and in this way the irregular puckerings visible on the surface are produced.

Occasionally, no traces of tubercular matter are discovered either within or in the vicinity of these cicatrices. Under such circumstances they appear to be formed of dense fibrous tissue, and the parenchymatous substance in their vicinity is of a bluish-black colour, from increased pigmentary deposit, and of peculiar induration and density, owing to chronic exudation. More generally, however, the contraction and puckering will be found to have occurred around tubercle which has undergone various transformations. Occasionally, there are round masses of crude tubercle surrounded by a cyst. They are of unusual density, still of a yellowish colour; but contain granules of earthy salts more or less numerous. Often, they are white and friable, resembling chalky matter. In this state the soft portions have been apparently absorbed, and the whole consists, under the microscope, of irregular masses of earthy matter, mixed

with numerous granules and crystals of cholesterin. At other times the whole has been converted into a solid calcareous mass, frequently round, at others having numerous prolongations and irregularities, which accurately fit the surface and bronchi with which they are in contact. These cretaceous and calcareous concretions may remain an indefinite time in the parenchymatous substance of the lungs, or they may be evacuated through the bronchi with the sputa. The cyst which incloses them then forms a dense linear cicatrix.

Such appear to be the usual modes in which tubercular ulcers heal. They occur in exactly the same manner as abscesses in other parenchymatous tissues, the result of simple exudation; and that the process in both is identical, is proved by the frequency with which in the latter calcareous deposits also take place.

If, then, the further deposition of tubercle could be arrested, there seems no reason why cavities in the lung should not heal with the same frequency as ulcerations or abscesses in other internal organs. Indeed, the careful dissections of morbid anatomists have recently shown that this arrestment, instead of being a rare or occasional occurrence, really happens with extreme frequency.

In 1845, I made a series of observations with reference to the cretaceous masses and puckerings so frequently observed at the apices of the lungs in persons advanced in life. The conclusion arrived at was, that the spontaneous arrestment of tubercle in its early stage occurred in the proportion of from one-fourth to one-third of all the individuals who die after the age of forty. The observations of Rogée[1] and Boudet,[2] made at the Salpetrière and Bicêtre Hospitals, in Paris, amongst individuals generally above the age of seventy, showed the proportion in such persons to be respectively one-half and four-fifths.

The wood-cut on the next page represents a characteristic specimen of these cretaceous and calcareous concretions in the apex of a lung, accompanied with puckerings and increased deposition of carbonaceous black pigment. It will be observed also that the pulmonary tissue, besides being indurated and contracted, is also somewhat emphysematous.

That such appearances are really evidences of arrested tubercles, is established by the following facts:—

1. A form of indurated and circumscribed tubercle is frequently

[1] Archives Générales de Médicine, vol. v. 1839.

[2] Comptes Rendus, tome 6me. 1843.

met with, gritty to the feel, which, on being dried, closely resembles cretaceous concretions.

2. These concretions are found exactly in the same situations as tubercle. Thus they are more common in the apex, and in both lungs. They frequently occur in the bronchial, mesenteric, and other lymphatic glands, and in the psoas muscle, or other textures which have been the seat of tubercular depositions or scrofulous abscesses.

3. When a lung is the seat of tubercular infiltration throughout,

Fig. 17.



Section of the summit of the right lung in Elliot's case, p. 41, exhibiting the cretaceous masses, more or less loaded with and surrounded by carbonaceous deposit. Many air-vesicles are enlarged, constituting incipient emphysema. The preparation now in my possession exhibits a characteristic specimen of the mode in which a considerable amount of tubercular exudation is arrested by calcareous degeneration. Natural size.

whilst recent tubercle occupies the inferior portion, and older tubercle, and perhaps caverns, the superior, the cretaceous and calcareous concretions will be found at the apex.

4. A comparison of the opposite lungs will frequently show, that whilst on one side there is firm encysted tubercle, partly transformed into cretaceous matter, on the other the transformation is perfect, and has occasionally even passed into a calcareous substance of stony hardness.

5. The seat of cicatrices admits of the same exceptions as the seat of tubercles. In a few cases, I have found the puckering and

cicatrix in the inferior lobe only; and have met with three where the inferior lobe was throughout densely infiltrated with tubercle, whilst the superior was only slightly affected.

It has indeed been argued that, occasionally, these cretaceous masses may be the result of a simple exudation, or of what Dr. Gairdner has called bronchial abscess in the lung. When they are found isolated in the middle or base of the organ, such certainly may be the case, and consequently the fifth argument may be affected. But this is rare, and can scarcely make any alteration in the vast proportion of those concretions and puckerings which are undoubtedly the result of abortive tubercles. With these facts before us, and with the knowledge that there is nothing in the nature of tubercle itself which is opposed to the arguments derived from anatomy, the frequent spontaneous arrest of this form of exudation may now be considered established.

Since these observations, however, have become known, it has been stated that after all, practically speaking, phthisis pulmonalis does not mean the existence of a few isolated tubercles scattered through the lung, and that what is really meant, is that advanced stage in which the lung is affected with ulceration, and in which the bodily powers are so lowered that perfect recovery seldom or never takes place. But here again, a careful examination of the records of medicine will show that many even of these advanced cases have recovered. Laennec, Andral, Cruveilhier, Kingston, Pressat, Rogée, Boudet, and others, have published cases where all the functional symptoms and physical signs of the disease, even in its most advanced stage, were present, and yet where the individual survived many years, ultimately died of some other disorder, and on dissection, cicatrices and concretions have been found in the lungs.

M. Louis, however, observes:[1] "I have not, in a single instance, discovered, in the midst of *healthy* pulmonary tissue, cavities communicating with the bronchi, and lined, like *old existing* tuberculous excavations, with a false membrane of slightly grayish colour, and opaque semi-cartilaginous appearance." Now, considering the large number of observations made by so distinguished a pathologist and physician, the inference to be derived from this statement, as well as from the whole tenor of his remarks on the cicatrization of tubercular cavities, is that, without absolutely denying their rare occurrence, they are of little practical importance. It is a matter of

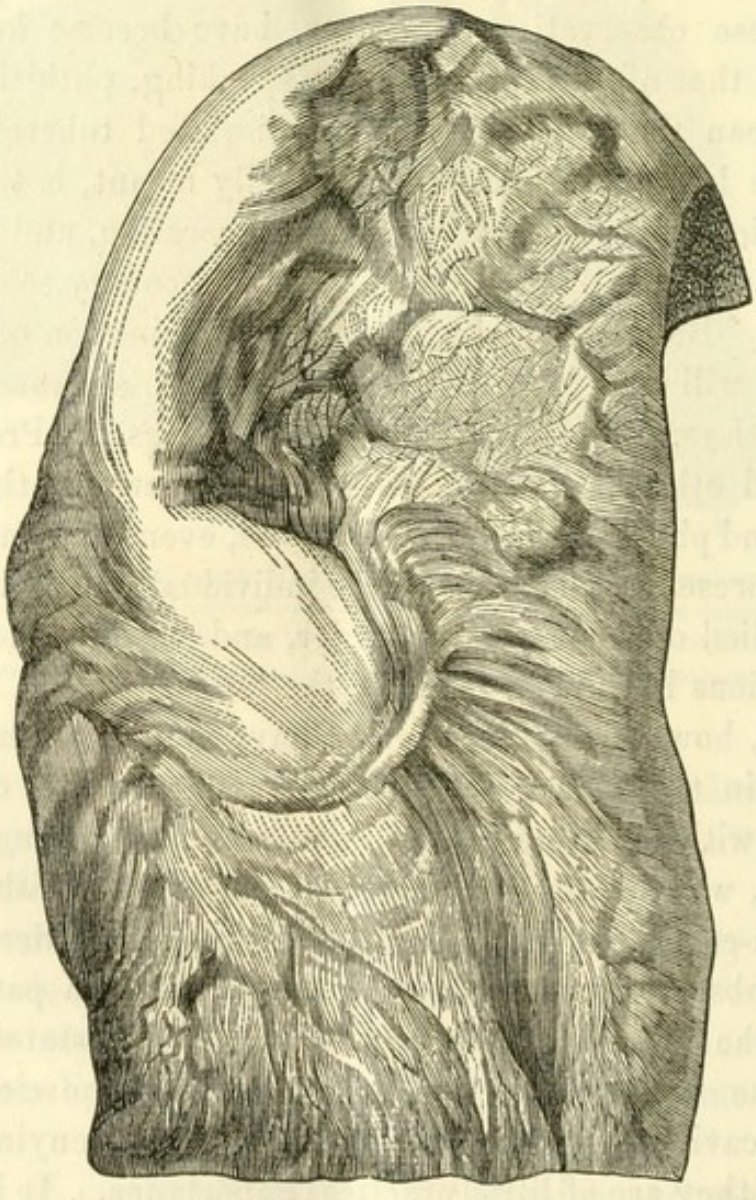
[1] Sydenham Society's Translation, p. 24.

very great moment, therefore, to show, not only that tubercles may be arrested at an early period of their development, and when they are limited in extent, but that cavities of large size may be completely healed, and leave, even in the midst of healthy lung, unequivocal traces of their tubercular origin. On this point the following case must, I think, convince the most skeptical:—

CASE I.—*Advanced Phthisis; Restoration to Health; Death many years afterwards from Delirium Tremens; on Dissection, a Cicatrix, three inches long, in the Apex of Right Lung, and Cretaceous Concretions, with Puckering at the summit of Left Lung.*

John Keith, æt. 50, a teacher of languages, was admitted into the Royal Infirmary, February 8, 1844, in a state of coma, and died an

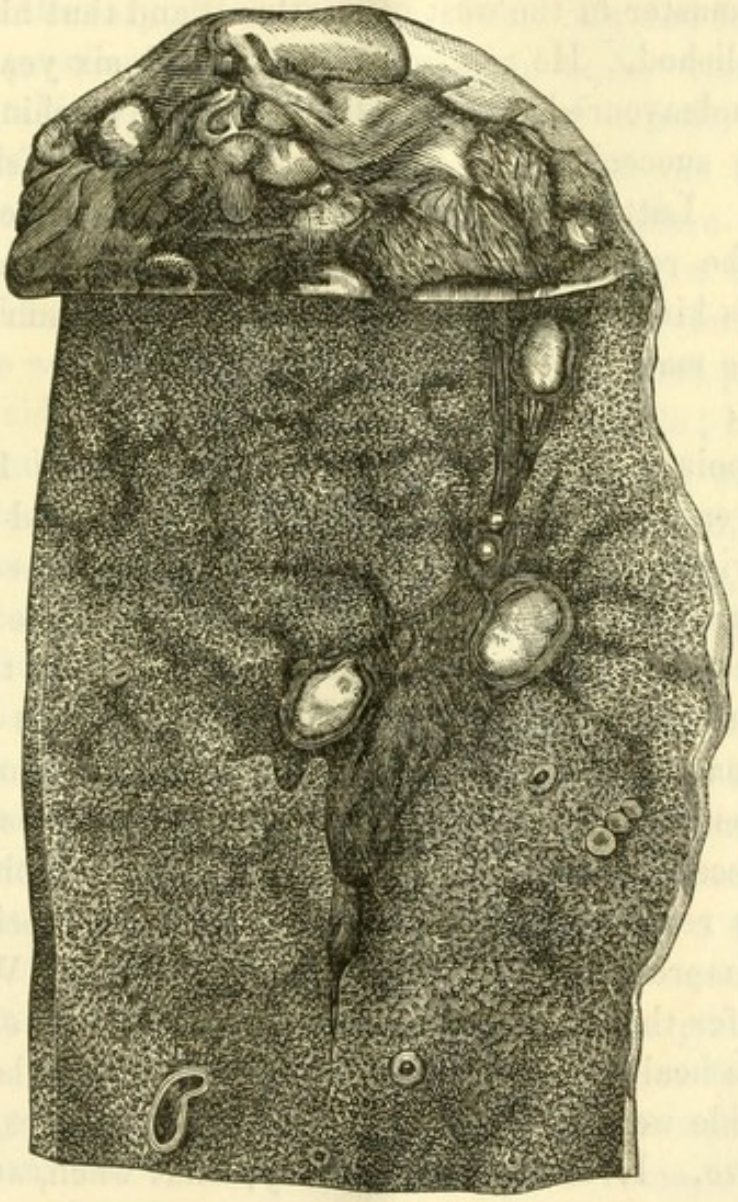
Fig. 18.



External view of the summit of the right lung in Keith's case, representing the fibrous cicatrix. Natural size.

hour afterwards. On examination, the membranes of the brain, at the base, were unusually congested, and covered with a considerable exudation of recently coagulated lymph, here and there mingled with bloody extravasation. The apex of the right lung presented a remarkable cicatrix, consisting of dense white fibrous tissue, varying in breadth from one-fourth to three-fourths of an inch, and measuring about three inches in length (Fig. 18). The pleural surface in its neighbourhood was considerably puckered. On making a section through the lung, parallel with the external cicatrix, the substance immediately below presented linear indurations, of a black colour,

Fig. 19.



The section of the same portion of lung seen from within, the apex having been left entire to show the deep puckerings which covered its surface. The line of the healed cavity is densely loaded with black carbonaceous deposit, in which are seen five cretaceous concretions, three of them encysted. This preparation, now in my possession, is, perhaps, a unique specimen, proving the healing, by cicatrization, of an enormous tubercular excavation in the lung. Natural size.

together with five cretaceous concretions, varying in size from a pin's head to that of a large pea (Fig. 19). The surrounding pulmonary substance was healthy. The apex of the left lung was also strongly puckered, and contained six or seven cretaceous concretions, each surrounded by a black, dense, fibrous cyst.

A very respectable-looking and intelligent man, who attended the *post-mortem* examination, informed me that Keith, in early life, was in very indifferent circumstances, and had supported himself as a writer. At the age of two-and-twenty, or three-and-twenty, he laboured under all the symptoms of a deep decline, and his life was despaired of. About this time, however, he was lost sight of by his friends; but it was afterwards ascertained that he had become a parish schoolmaster in the west of Scotland, and that his health had been re-established. He returned to Edinburgh six years before his death, and endeavoured to gain a livelihood by teaching Latin and French. He succeeded but very imperfectly, and fell into dissipated habits. Latterly, he had become subject to attacks of mania, apparently the result of drink. It was after an unusually severe attack of this kind that he was brought into the Infirmary, where he died in the manner previously described.

This case points out the following important facts: 1st, That, at the age of twenty-two or twenty-three, the patient had a tubercular ulcer in the right lung, the size of which must have been very considerable when the contracted cicatrix alone was three inches long. 2d. That tubercular exudations existed in the apex of the left lung. It is, therefore, very probable that the statement made by his friend at the examination was correct—namely, that he laboured under all the symptoms of advanced phthisis pulmonalis. It is shown, 3d. That, after receiving the appointment of a parish schoolmaster, after changing his residence and occupation, while his social condition was greatly improved, these symptoms disappeared. We may, consequently, infer that it was about this period that the excavation on the right side healed and cicatrized, while the tubercular exudations on the left side were converted into cretaceous masses, and so rendered abortive. It demonstrates, 4thly, That when, at a more advanced age, he again fell into bad circumstances, and even became a drunkard, tubercular exudations did not return, but that delirium tremens was induced, with simple exudation on the membranes of the brain, of which he died.

In the following case, not only did the examination of the body after death exhibit the anatomical changes which occur in chronic phthisis when undergoing a cure, but the previous history indicates how that cure was brought about by remedial means :—

CASE II.—*Advanced Phthisis; General Health restored; Death eighteen months afterwards from Typhus Fever; on Dissection, two Cavities in the Left Lung, contracted and healing; in the Right Lung Cretaceous Concretions, Puckering and Incipient Emphysema.*

Robert Elliot, æt. 28, was admitted into the clinical ward, No. 2, of the Royal Infirmary, December 30, 1844. He had left the house two months previously, having then been under treatment four months, and taking cod-liver oil with marked benefit. On admission he was much emaciated, and there were all the symptoms of phthisis in its advanced stage. On percussion, there was dulness under both clavicles, but to a much greater extent on the left than on the right side. Under the left clavicle, and posteriorly above the scapula, there was loud gurgling râle, with imperfect pectoriloquy. On the right side, there was occasional sibilant râle ; harshness of inspiratory, and prolongation of expiratory, murmur ; with bronchophony. He took cod-liver oil readily ; and was treated, in addition, with numerous remedies to meet occasional symptoms, more especially diarrhœa and hæmoptysis. He left the Infirmary March 10, 1845, conceiving himself to be nearly well. His strength and general appearance had greatly improved, the physical signs on the right side were unaltered ; but on the left, gurgling râles had been for some time absent, and been replaced by dry blowing sounds. Some months afterwards, he applied at the Royal Dispensary for some cod-liver oil, and was supplied with it regularly for a considerable time. He entered the Infirmary on two separate occasions subsequently, under different physicians, and was discharged in his own opinion well. In the summer of 1846, I was requested by one of the Dispensary pupils to visit one of his patients, affected with fever. It was this man Elliot, in a state of complete coma, and with the usual symptoms of typhus. I gave directions for conveying him to the Infirmary, but before this could be carried into effect he died.

Post-Mortem Examination.—Permission for the examination was obtained with great difficulty, and the chest only was examined.

The pleuræ covering the apex of the right lung were very slightly adherent. The summit of the lung itself was deeply corrugated and puckered, and felt hard and nodulated. On being bisected, it was found to contain numerous cretaceous masses, several of them inclosed within an indurated cyst of grayish fibrous matter. The surrounding lung was condensed, puckered, and loaded with black pigment; and the spongy substance in the neighbourhood of the indurated portions presented numerous enlarged air-cells—in short, incipient emphysema. (See Fig. 17, p. 36.) The left lung presented

Fig. 20.



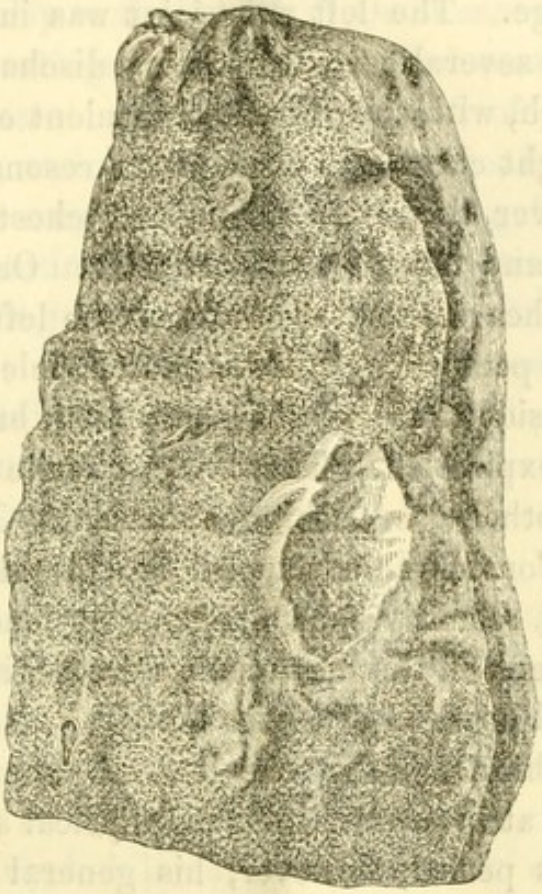
Internal section of the summit of the left lung in Elliot's case, p. 41, showing the stellate puckering at the apex, and another lower down. Corresponding with the former may be seen a cavity the size of an almond, in process of contraction, and surrounded by dense fibrous radii. Natural size.

two distinct stellate puckerings—one at the summit of the lung, the other about two inches below. Both these puckerings corresponded to a distinct oval cavity. (Figs. 20 and 21.) They both possessed a distinct lining wall, and were surrounded by an indurated capsule, connected with radiating cicatrizations in the pulmonary tissue. In the upper one (see Fig. 20), this was very distinct.

Now, I think there can be little doubt that, if this man had lived longer, the cavities in the left lung would have contracted still

more, and produced either linear cicatrices, or remained as small permanent dilatations. That some tubercular ulcers of the lung, even when very extensive, may, by the evacuation or absorption of

Fig. 21.



External section of the same portion of lung, showing another cavity also in the act of healing, in relation with the stellate puckering, lower down. This preparation, now in my possession, exhibits the intermediate stage of cicatrization in tubercular cavities, all the tubercle having been absorbed or expectorated, and the walls not yet collapsed. Natural size.

tubercles, be transformed into chronic cavities, with smooth lining membranes, the following case is a remarkable proof:—

CASE III.—*Advanced Phthisis; General Health improved; Death in two years from a Fall, and Abscesses in the Kidneys; on Dissection, Left Lung contracted to the size of the Human Fist, and filled with Cavities having smooth Membranes; no Tubercle; in the Summit of the Right Lung, Cretaceous Concretions.*

John Finlay was admitted at the age of 19 into the clinical ward of the Royal Infirmary, December 20, 1850. He had been troubled with cough, expectoration, and occasional diarrhœa, for six years, and for three weeks he had been in the Surgical Hospital, under

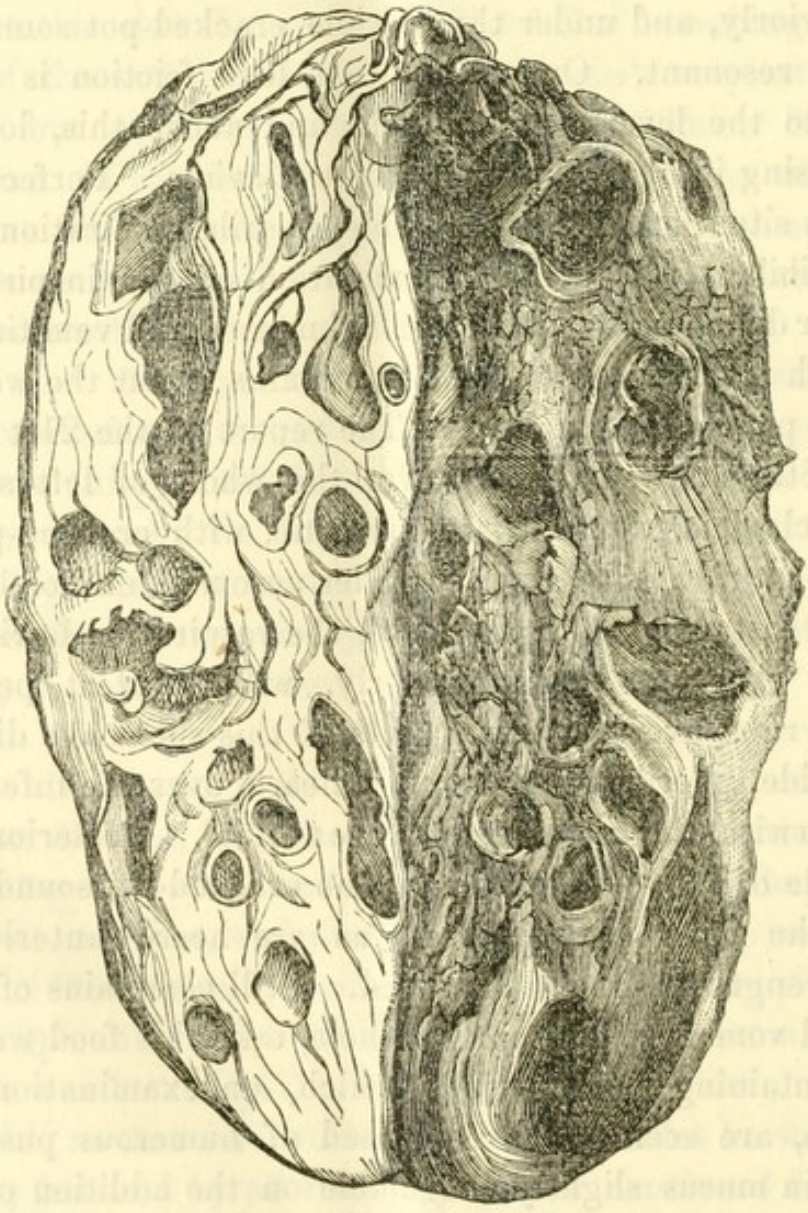
Mr. Syme, with scrofulous caries of the left wrist-joint. He had spat blood now and then, but to no great extent. On admission, his external appearance was pale, presenting all the so-called characters of the scrofulous diathesis. There was great emaciation, and development seemed to have been arrested, as he did not look above twelve years of age. The left wrist-joint was immovable, considerably swollen, with several carious openings discharging pus. There was frequent cough, with copious muco-purulent expectoration. On percussion, the right chest was everywhere resonant; but there was marked dulness over the whole of the left chest, most complete in the sub-clavicular and supra-scapular regions. On auscultation, loud mucous râle were heard over the whole of the left chest, anteriorly, with gurgling and pectoriloquy under the clavicle. Posteriorly and inferiorly on this side there was harsh tubular breathing, with prolongation of the expiration. There was puerile respiration on the right side, but otherwise nothing abnormal. Pulse 80; feeble. Tongue clean. Considerable nausea, and total loss of appetite. His diarrhœa had recently been checked by lead and opium pills. Careful management of the diet was ordered, with a tonic alkaline mixture, and small doses of cod-liver oil.

For the next three months, the loss of appetite, sickness, and vomiting occurred at intervals, and the physical signs remained the same. From this period, however, his general health underwent gradual improvement, the cough was not so severe, and the expectoration became more mucous. The sweating greatly diminished, and he took food more readily. Towards the end of May he had evidently gained much in flesh, and the discharge from the scrofulous sores in the wrist was trifling. The physical signs were so far altered that the mucous râles over greater part of left side were not so coarse or diffused, and the gurgling under the clavicle was now of a splashing character and more limited. Pectoriloquy in this situation was complete, and there was absence of expansion during respiration. There could now also be heard harsh inspiration with prolonged expiration under the right clavicle; the resonance on percussion also was here slightly impaired. During June, he was much troubled with nausea and vomiting. On the 21st he wasattacked with rigors, followed by all the symptoms of continued fever, which terminated by diaphoresis on the seventh day. Shortly after, he was attacked with variola, which ran its usual course. During July and August, there was gradual but marked improvement of his gene-

ral health. At the end of the last-named month, the left wrist-joint was firmly anchylosed, and all the carious openings had closed up. He has had occasional diarrhœa. There was still dulness on left side, but the mucous râles were not heard so low down anteriorly. Fine crepitation, and increased vocal resonance, were now audible under the right clavicle. Up to the middle of October, he continued slowly to improve, the sweatings and diarrhœa had ceased, and the cough was much less severe. He now complained of considerable pain during micturition, and on examining the urine, it was found to contain numerous pus-corpuscles, and to be coagulable by heat and nitric acid. He continued to feel pain on urinating, and to pass pus by the urethra during the month of October. On the 3d of November, the report is: "Marked dulness on percussion over the left chest anteriorly, and under the clavicle cracked-pot sound. Posteriorly it is resonant. On auscultation, loud friction is heard from below up to the level of the nipple, and above this, loud mucous rattles passing into gurgling under the clavicle. Perfect pectoriloquy in this situation. On right side, puerile respiration; and posteriorly, sibilant râle at the termination of the inspiration. No sweating or diarrhœa. Still occasional nausea and vomiting. General strength much improved, and now walks about the ward, sitting up a great portion of the day." The report on the 21st of December is: "Still marked dulness over the whole of left side, except under the clavicle, where it is tympanitic, with cracked-pot sounds. Resonance on right side good. Under acromial end of left clavicle feeble and distant gurgling is heard, the respiration having more of a blowing character than formerly, with perfect pectoriloquy. The moist râles over the other parts of this side have disappeared. On right side, puerile respiration is heard over the inferior half of lung; otherwise, the breath-sounds are normal. Posteriorly, dulness of the whole of left side, but there is no cracked-pot sound. On auscultation, the signs are the same as are heard anteriorly. His general strength has much improved. Still complains of occasional nausea and vomiting, but, on the whole, takes his food well. Urine limpid, containing small shreds, which, on examination with the microscope, are seen to be composed of numerous pus-corpuscles imbedded in mucus slightly coagulable on the addition of heat and nitric acid. Pain on micturition diminished." From this time he continued, on the whole, to improve steadily, and was so well during the summer of 1852, as to walk about constantly in the open air,

and went out of the house, by his own desire, on the 1st of the following August. About the middle of October, however, having been well in the interval, he fell down and injured his back. On the following day, he experienced rigors, followed by febrile symptoms, total loss of appetite, and hematuria. He was readmitted November 1, when it was ascertained that considerable quantities of pus were passed with the urine, which, he says, had also been occasionally tinged with blood. There was pain on micturition, but none in the lumbar region. On examining the left lung, loud gurgling was heard both with inspiration and expiration, extending from the clavicle down to the upper margin of the third rib. There was great

Fig. 22.



A drawing of the entire left lung of Finlay, of its natural size, bisected, and the two halves separated, as it may now be seen in the University Museum. The right half is exactly copied, showing the anfractuous cavities, lined with a smooth membrane, and the dense fibrous tissue between them. The left side is drawn in outline.

dulness on percussion. Below the clavicle, loud pectoriloquy, and lower down, œgophony. Under the right clavicle there was fine moist râle on inspiration, and increased vocal resonance, but the chest expanded well on this side, and was otherwise normal. The fever, prostration, and discharge of pus by urine continued without intermission, and he died December 4, 1852.

Sectio-Cadaveris, Dec. 6.—Body greatly emaciated; the right carpal bones anchylosed, with marks of numerous old sinuses on the skin in their neighborhood.

Chest.—Pleuræ on the right side adherent at the apex, by loose bands of chronic lymph. The right lung indurated at the apex over an extent the size of a hen's egg, and strongly puckered externally. On section, this indurated portion was seen to contain several encysted cretaceous concretions, with the intervening pulmonary substance condensed, hard, and fibrous. A few chronic miliary tubercles were also scattered through the upper lobe; but the rest of the lung was spongy, crepitant, and healthy. The pleuræ on the left side were everywhere firmly adherent, and over the superior half of the lung, which was much atrophied, they were converted into a dense white fibrous mass, three-fourths of an inch thick, which gradually diminished in thickness inferiorly. The left lung was not the volume of the closed fist; it was non-crepitant, felt indurated, but at the same time, flaccid, evidently from internal cavities. On section, the entire mass was riddled with cavities more or less communicating with each other, containing purulent matter, and having a smooth lining membrane. Many of them presented a pouch-like form, and were identical with what has been described as dilatations of the bronchi. At the apex were two encysted calcareous concretions, of the size of millet seeds, but there were no other traces of tubercular deposits. The fibrous structure between the cavities consisted of a close dense fibrous texture, of bluish colour, pigmentary deposits, in which no remains of pulmonary structure could be found. The bronchi contained a considerable quantity of viscid, muco-purulent matter. Heart, larynx, and trachea healthy.

Abdomen.—The large intestines, especially the cæcum, were congested, exhibiting here and there patches of slate-coloured pigment, with traces of cicatrized ulcerations, together with one superficial chronic erosion about half an inch in diameter, of irregular form. The kidneys were of natural size, and on section displayed dilatation of the pelves, with pouch-like enlargements, the result of scrofulous ab-

scesses, filled with pus. The secreting substance was everywhere atrophied, and the tubular substance in many places obliterated. Mesenteric glands and other organs healthy.

A careful microscopic examination of the lining membrane of the pulmonary abscesses, exhibited nothing but fibrous tissue, destitute of epithelium. There was nowhere any trace of a mucous surface.

The treatment of this case was conducted on the principles, and according to the rules afterwards to be detailed. It was directed principally to improve the appetite, diminish the nausea, vomiting, and diarrhœa, and support the strength by means of cod-liver oil and generous diet. Externally, repeated blisters were applied. During the attack of febricula and variola, antimonials were given in small doses. Latterly, numerous remedies were administered to lessen the pains during micturition: such as anodynes; uva ursæ; bals. copabæ; diuretics, etc.; but an enema of starch and solution of morphia succeeded better than anything else. It was always observed that in proportion as the dyspeptic symptoms were relieved, and the assimilation of cod-liver oil and food took place, so his health improved; and by great care he was only kept alive for two years; but I had sanguine expectation of an ultimate recovery, when he met with the accident which, by exciting acute disease in the kidneys, caused his death.

I have detailed this case, however, principally with the view of pointing out another mode in which tubercular ulcerations of the lung are occasionally arrested, namely, by the formation of pouches or cavities, the lining membranes of which become smooth and cease to exude tubercle. This condition of the lung has been described by morbid anatomists under the name of dilated bronchi, and by Dr. Corrigan as cirrhosis of the lung.[1] In the first case, it has been imagined to result from chronic bronchitis, whereby the bronchi are dilated from within;[2] and in the second, from the formation of fibrous matters, the contraction of which causes this enlargement from without. A consideration of the details of this case, however, must convince every physician that we had here to do with large tubercular excavations, which, by compressing the lung, had obliterated the whole of its texture and converted it into a contracted

[1] Dublin Medical Journal, vol. xiii. 1838.

[2] Laennec, vol. i. p. 201.

fibrous envelop of these excavations. All trace of tubercular matter had disappeared, with the exception of two small cretaceous concretions, and the respiratory function was entirely carried on by means of the opposite lung, in which chronic tubercle to a limited extent, and very latent, was found. Whether, under such circumstances, the pulmonary lesion would ultimately have healed, it is difficult to say; but there can be no doubt he must have lived a long time in this condition before he met with the accident which caused his death. But that many such lesions may be arrested, and life continue, is proved by the observations of Reynaud, who has given figures of what he calls dilatations of the bronchi, many of which were evidently the result of tubercular ulceration.[1] Cruveilhier[2] has also figured a lung presenting similar appearances; and Dr. W. T. Gairdner[3] has convinced himself that not only are these appearances the result of bronchitis, but of tubercular ulceration also.

In the case of another man, called Joseph Finnie, which closely resembled that of Finlay, I diagnosed, during life, the same contraction of the lung from tubercular excavations, and the same chronic dilatations in connection with the bronchi. This man died of Bright's disease in the Royal Infirmary, January 1853; and on dissection, a similar state of the pulmonary texture was discovered, with the exception that the atrophy of the organ was not so great, whilst traces of tubercular infiltration were more evident.

What has been now stated, must, I think, show that the arrestment of tubercular ulceration may take place in three ways: 1. By the gradual transformation of the exudation into cretaceous and calcareous concretions. 2. By expectoration and absorption of the exudation, the collapse of the ulcerated walls, and formation of a cicatrix. 3. By the ulcerated walls becoming covered with a smooth membrane, remaining open, and constituting chronic cavities, which have occasionally been mistaken for dilated bronchi. It should not be overlooked that one or all of these modes of arrestment may be detected in the same lung, and that great diversities of appearance in the pulmonary texture may be thus occasioned. Moreover, the occurrence of black carbonaceous deposits is very apt to take place

[1] Mémoires de l'Académie Royale de Médecine, tome 4me., Plate 4, Fig. 1; Plate 5, Fig. 1; Plate 7, Fig. 2.

[2] Anatomie Pathologique Livraison, 32, Plate 5, Fig. 3.

[3] On the Pathological Anatomy of Bronchitis. Edinburgh, 1850, p. 77.

in the neighbourhood of the cretaceous concretions and cicatrices, thus communicating increased density to the texture. This density and contraction in the pulmonary tissue also is, as Dr. Gairdner has shown, a cause of pulmonary emphysema in the air-vesicles, a circumstance which has attracted the attention of many pathologists, and has even been considered to be essentially connected with the spontaneous cure of pulmonary caverns (Ramadge). This occasional result, however, is much to be dreaded, as it causes the dyspnœa not unfrequently observed to follow the removal of pulmonary tubercle. But the frequency with which all these various lesions are discovered, and their connection with the spontaneous cure of pulmonary tuberculosis, points out how much more commonly this lesion is arrested, than for a long period has been generally believed by the profession.

From the preceding facts and observations, therefore, we are warranted in drawing the conclusion that, if, during the advance of phthisis pulmonalis, those means can be discovered which check further tubercular exudation, and keep up the strength and nutritive processes of the economy, such tubercular exudations as have occurred will be rendered abortive, and that even large ulcerations will heal up and cicatrize. The important point practically is to ascertain what these means are, and how they may be put into operation.

I have conversed with most of the distinguished physicians in this country, and on the Continent, and find that they are all enabled to refer to cases, which they are now satisfied have undergone a permanent recovery, even when cavities have existed in the lungs, and all the advanced symptoms of the disease have been present. I once made an effort to accumulate the experience of these distinguished men, on this point alone, and, had I done so, it would have constituted an unanswerable amount of evidence as to the curability even of the worst cases of phthisis. Want of time, however, prevented them from writing down the facts. But it is unnecessary to refer to recorded experience, when the fact itself is established by the cases already given. Its comparative frequency, indeed, might be illustrated by such an inquiry, and I believe this to be much greater than is generally supposed; but to the great fact itself, nothing more can be added in the way of evidence than that presented by the remarkable cicatrix found in the lung of Keith. So deeply rooted, however, has been the opinion of the necessarily fatal nature

of this disease, that the generality of practitioners have concluded that, *because* phthisical cases recovered, the disease was *not* phthisis; that is, they have rather distrusted their own diagnosis than ventured to oppose a dogma of general belief.

An observation of the circumstances which precede the disease, or its so-called causes, clearly indicate imperfect digestion and assimilation as its true origin. Thus phthisis is essentially a disorder of childhood and youth—that is, of a period of life when nutrition is directed to building up the tissues of the body. Diminish the proper quantity of food taken by a healthy man, tubercular diseases are not induced, but if this be attempted with children or young persons, they are a most common result. Thus, scrofula and tubercle do not originate among the *able-bodied* men in armies and fleets, whatever privations they may be exposed to; but they may be observed to do so in the young of foundling hospitals, factories, and the poor and labouring classes of the community, and especially among tailors, sempstresses, and others who follow sedentary employments. In the higher classes, they result from imperfect and insufficient lactation during infancy, or the irregular diet caused by carelessness or over-indulgence. No doubt they may frequently be observed in persons whose parents or relatives have been similarly affected. From facts of this kind it has been supposed that hereditary predisposition, a vitiated atmosphere, changeable temperature, certain occupations, humidity, particular localities, absence of light, and so on, predispose to phthisis. Very frequently several of these are found united, so that it is difficult to ascertain the influence of each. When they so operate, however, they invariably produce, in the first place, more or less disorder of the nutritive functions, and are associated with dyspepsia, or other signs of mal-assimilation of food. Cases analogous to the following are exceedingly common:—

Case IV.—An Irish girl left her own country at the age of 17, to work as a field labourer in Scotland. In Ireland, she lived on potatoes and sweet milk, and once a week had fish or a little meat. The quantity was abundant. In Scotland, she lived on coarse oatmeal porridge and dry bread, with buttermilk, and did not taste fish or meat once a month. Under this diet her health gradually became affected, and she entered the Royal Infirmary at the age of 21, with all the symptoms and signs of advanced phthisis.

Case V.—A lad, aged 16, of robust health, whose parents and relations were equally healthy, committed a theft. He was imprisoned in jail for three months, confined in a damp stone cell, and lived on the ordinary prison fare. His health insensibly declined. On being liberated he could not obtain employment, and found that his strength had greatly diminished. Two months afterwards, he applied at the Royal Dispensary, labouring under phthisis pulmonalis in its advanced stage.

Case VI.—A woman, aged 26, applied at the Royal Infirmary in 1843, who was greatly emaciated, and complained of harassing cough and expectoration. On examining the chest, perfect dulness existed under the right clavicle, with loud mucous râle, and imperfect pectoriloquy. The apex of the left lung was healthy. She had a son, aged six years, a perfect picture of health, and an infant a the breast, seven months old, also quite healthy. The mother died in 1844; both children are living, and are quite healthy; for the father, having good wages, was enabled to give them plenty of food.

Case VII.—A young lady was induced to leave the country, and take charge of her brother's house in town. Deprived of her usual exercise and avocations, obliged to become a sharer in numerous anxieties, and go daily through a routine opposed to her domestic and retiring disposition, her appetite became affected, she grew thin, and highly dyspeptic, and, in a few months, hacking cough and harsh inspiration, prolonged expiration and increased vocal resonance, with impaired resonance on percussion, were developed under one clavicle. She struggled on some time longer, but at length I recommended return to her former residence and occupations. From that moment the disease was arrested, and she may now be considered as restored to health.

It is unnecessary to multiply cases of this description. The more they are examined into, the more do I feel persuaded it will appear that the causes of phthisis are not hereditary influences, vitiated atmosphere, etc. etc., although *these may co-operate*, but almost invariably such circumstances as induce impoverished nutrition, resulting from an improper quantity, quality, or assimilation of food.

I cannot bring this chapter to a close without alluding to the diagnosis of phthisis, and expressing my conviction that the general notion of its incurability is mainly attributable to the fact that it is not recognized until it be far advanced. And yet there is, perhaps, no disease which, by one practised in auscultation, may be more readily detected. The harsh or tubular inspiration, the prolonged expiration, the increased vocal resonance, followed by dulness on percussion, together with the well-known general symptoms, can leave little doubt in the minds of the observant. True, there will always be instances so nicely balanced between health and disease, as well as pathological conditions so fine, that they do not furnish indications that will enable us to speak positively. Still, if practitioners only accustomed themselves to detect the signs above mentioned, phthisis would, in a great measure, be disarmed of its terrors. In short, it is not that medical art is destitute of means of detection, but that the necessary skill is not sufficiently diffused among medical practitioners; for, notwithstanding all that has been said and written on auscultation since the days of Laennec, it must be acknowledged among ourselves, that comparatively few have sufficiently educated their ears to detect the finer thoracic murmurs.

The following are a few of the many instances which have come under my notice, illustrative of errors in diagnosis:—

Case VIII.—An unmarried lady, æt. 25, quitted one of the northern Scottish cities, in 1842, to reside in Edinburgh. She had been harassed with distressing cough, dyspnœa, and weakness, for three years, and during that time had undergone all kinds of treatment, general and local, to combat a supposed phthisis pulmonalis. Knowing her family, and noticing her condition, I was confidentially informed by the friends that her case was hopeless, and that her medical advisers considered her lungs to be unalterably diseased. So strong was this opinion, that it was with some difficulty I persuaded the family to allow me to examine the chest. On doing so, I found the pulmonary organs quite healthy. On percussing over the sixth and seventh dorsal vertebræ, she screamed aloud, and jumped from her seat, as if she had received a shock of electricity. The case was one of spinal irritation and amenorrhœa, which yielded to counter-irritation and appropriate treatment. At the present moment she enjoys excellent health.

Case IX.—A young lady, æt. 22, complained, in 1844–5, of great languor, weakness, irregular menstruation, and trifling cough. She applied to two surgeons, of great respectability in general practice, who happened to be attending another member of her family. The friends were informed that nothing was the matter but slight female derangement, and purgatives and emmenagogues were prescribed. In the autumn, she and her family visited a watering-place, and the practitioner there took the same view of the case, and continued the treatment. One morning she was discovered dead in bed; and, to the astonishment of all parties, both lungs were afterwards discovered filled with tubercles and anfranctuous cavities.

Case X.—I met a practitioner, some miles from town, in consultation on the case of a gentleman, who, I was informed, was labouring under acute pneumonia. In addition to the intense fever, I was told there was distinct crepitating râle over the whole of the right side, and that he had been actively treated by a large bleeding, purgatives, and tartar-emetic. On examining the patient, I found him in the last stage of phthisis, with loud mucous and gurgling râles in the upper half of the right side. He sank rapidly.

Case XI.—The daughter of a medical man became very slowly unwell—indeed, so slowly that the parents never noticed it. Three weeks before her death, Sir James Clarke was consulted, who detected caverns in the lung, not only to the great grief, but to the unbounded astonishment, of the father.

Case XII.—A medical student hurried over from Paris, to attend the medical classes in this University, at the commencement of the session 1843–4. In crossing the Channel, he became very ill, and on arriving in Edinburgh, laboured under great febrile excitement. The case was considered one of fever, then very prevalent in the city, and treated accordingly. He died in a few days, and, on dissection, the lungs were found to be filled with miliary and infiltrated tubercle. It was a case of acute tuberculosis.

Case XIII.—A domestic female servant, whose sister was said to have died of phthisis, had been suffering from cough for two years, and had been treated during that time by various practitioners in vain, so that she herself was firmly convinced that she also was

dying of consumption. On examining her chest, I could find no evidence of disease in the pulmonary organs, but in searching further for the cause of the cough, I found that the uvula was so long that its apex rested on the dorsum of the tongue. The uvula, at my request, was shortened by Mr. Spence, and she has not coughed since, and her general health has become robust.

Cases of this kind could easily be multiplied. They appear to me capable of showing, that the fatality of phthisis pulmonalis is in a great measure owing to its insidious progress, to its reaching an advanced stage before it is detected, or to carelessness in medical examination, rather than to any peculiar virulence of the disease itself. Many diseases, undoubtedly curable in an early stage, if undiscovered and allowed to proceed unchecked, might be considered equally fatal. In this point of view, it has always appeared to me that our large charitable institutions are incapable of checking the evil. At our dispensaries, and among the out-cases of a large hospital, it is scarcely possible for the physician, on the stated days, to do justice to his patients. I have no hesitation in confessing that, on more than one occasion, I myself have been prevented from carefully examining patients, from sheer fatigue. The following is a common history of many applicants to these charities:—

Case XIV.—A girl, æt. 19, applied to one of the Dispensaries, complaining of irregular menstruation, constipation, want of appetite, and various dyspeptic symptoms. She was ordered twelve purgative pills, and directed to take two every other night. Her chest was not examined. Three months afterwards, she again applied, with hacking dry cough. She was ordered an anodyne and squill mixture, which increased the nausea and dyspeptic symptoms; but she had her bottle filled regularly for two months. Diarrhœa now came on, which greatly reduced her; and, on applying for the third time at the Dispensary, it was *now* seen that she was consumptive. The disease ran a very rapid progress, and she died in the Royal Infirmary.

Now this, I believe, is the case of thousands of persons who perish from consumption; and I feel satisfied that, had the diagnosis of the disease been properly established at an early period, its onward march might have been arrested. Phthisis, in its incipient stage, may be considered a very curable disease; indeed, so much so, that cure is, as we have seen, spontaneously accomplished by nature, in

a vast number of cases. So long as misery and poverty exist on one hand, and dissipation and enervating luxuries on the other, so long will the causes be in operation which induce this terrible disease. But the means of checking and controlling it on a large scale must be sought, not in drugs, but in hygienic conditions, and the diffusion among medical men of that knowledge and skill requisite for detecting the existence of the disease in its early stages. In short, one of the most efficacious remedies consists in those practical instructions of the medical student at the bedside, which are now systematically carried on in the clinical wards of this and some other schools of medicine.

In conclusion, let no one undervalue percussion and auscultation. And I say this, because I feel satisfied that, notwithstanding everybody nowadays carries about a stethoscope, there are few who derive from it all the advantages it is capable of bestowing. I would take the liberty of recommending to certain writers, in their popular expositions of medicine, in future to avoid sarcasms which are only calculated to excuse indolence in students, and to depreciate the value of the scientific investigation of disease among practitioners. What advantage, for instance, can medicine derive from publishing the following passage: "We wonder how many of the century of graduates sent forth from our University every year, armed with microscope, stethoscope, uroscope, pleximeter, etc., and omniscient of *râles* and *rhonchi*, sibilous and sonorous; crepitations, moist and dry; *bruits de râpe, de scie, et de soufflet;* blood plasmata, cytoblasts, and nucleated cells, and great in the infinitely little—we wonder how many of these eager and accomplished youths could 'unsphere the spirit of Plato,' or read with moderate relish and understanding one of the Tusculan dissertations, or who had ever heard of 'Butler's Three Sermons on Human Nature,' 'Berkeley's Minute Philosopher,' or of an 'Essay on the Conduct of the Understanding.'"[1] On this subject, I am of opinion that, if our University graduates can detect the *râles* above alluded to, and know their diagnostic value, it must be a matter of comparative indifference to mankind whether they are able to "unsphere the spirit of Plato," or not. It is, certainly, a good thing to possess the sagacity and practical tact of a Sydenham or an Abercrombie; but it is better still to have, *in addition* to this, the practised ears and pathological knowledge of a Laennec or a Louis.

[1] North British Review, November 1849.

CHAPTER II.

GENERAL TREATMENT OF PULMONARY TUBERCULOSIS.

From a study of the symptoms, causes, morbid anatomy, and histology of pulmonary tuberculosis, we have been led to the conclusion that it is a disease of the primary digestion, causing: 1. Impoverishment of the blood. 2. Exudations into the lung, which present the characters of tubercular exudation; and 3. Owing to the successive formation and softening of these, and the ulcerations which follow in the pulmonary or other tissues, the destructive results which distinguish them. It has also been shown that circumstances which remove the mal-assimilation of food frequently check the tendency to repeated tubercular exudations, while those which previously existed become abortive, and that occasionally extensive excavations in the pulmonary tissue may, owing to like circumstances, heal up and cicatrize.

But although the fact of the recovery from phthisis pulmonalis, even in its most advanced stage, can no longer be denied, it has been argued that this is entirely owing to the operations of nature, and that the physician can lay little claim to the result. Andral, who early admitted the occasional cicatrization of caverns, states this in the following words: "No fact," he says, "demonstrates that phthisis has been ever cured, for it is not art which operates in the cicatrization of caverns; it can only favour this, at most, by not opposing the operations of nature. For ages, remedies have been sought either to combat the disposition to tubercles or to destroy them when formed, and thus innumerable specifics have been employed and abandoned in turn, and chosen from every class of medicaments." But if it be true, according to Hoffman, that "*Medicus naturæ minister non magister est*," it follows that, by carefully observing the operations of nature, learning her method of cure, imitating it as closely as possible, avoiding what she points out to be injurious, and furnishing what she evidently requires, we may

at length arrive at rational indications of treatment. In short, a correct interpretration of the processes gone through during a spontaneous arrestment of the disease, must be the foundation for those principles which should regulate the interference of art.

Now, a careful examination of phthisical cases will, I think, show that the great obstacle the practitioner has to contend with are the dyspeptic symptoms, which render all his efforts at nourishing the patient in the ordinary way useless. Such individuals have a most capricious appetite, frequently loathe all kinds of animal food; and it will be found that, even when they *say* that the appetite is good, and that they live well, the diet actually consumed is either deficient in quantity or in quality. Nothing, again, is more common in the progress of such cases than the temporary improvements which follow a change of diet, of locality, or of temperature. How frequently do poor patients, on coming into an hospital, get better merely from enjoying rest and the regular diet of the institution. How often, after a short journey, or on reaching what has been considered a favourable locality, are the friends of consumptive patients in the higher classes rendered happy by the temporary marked improvement which takes place. I consider that such amendments will always be found commensurate to the stimulus given to the nutritive processes of the economy.

From the foregoing considerations, it follows that the cure of pulmonary tuberculosis by art, will be proportionate to our power, 1. Of improving the faulty nutrition which is the cause of the exudation assuming a tubercular character. 2. Of favouring absorption of the exudation already poured out; and 3. Of preventing the recurrence of fresh exudations by careful attention to hygienic regulations. I propose making some observations on each of these heads, as preliminary to the special treatment of individual cases.

First Indication—To improve the Faulty Nutrition, which is the Cause of the Exudation assuming a Tubercular Character.

To improve the faulty nutrition which originates and keeps up the disease, it is of all things important to cause a larger quantity of fatty matter to be assimilated. A mere increase in the amount, or even quality, of the food, will often accomplish this, as in the case of Keith (Case I. p. 38). But in order that animal diet should be digested and assimilated, the powers of the stomach and alimentary canal must not have undergone any great diminution. In most

cases it will be found that the patient is unable to tolerate such kind of food, and that it either lies undigested in the stomach, or is sooner or later vomited. Under these circumstances, fluid fatty matters themselves are directly indicated, by giving which we save the digestive apparatus, as it were, the trouble of manufacturing or separating them from the food. By taking a considerable quantity of oil, a large proportion of it is at once assimilated, and is rendered capable of entering into combination with the albumen, and thereby forming those elementary molecules so necessary for the formation of a healthy chyle. Such, it appears to me, is the rationale of the good effects of cod-liver oil.

Since I introduced cod-liver oil to the notice of the profession in this country, as a remedy for phthisis, in 1841, I have continually prescribed it in hospital, dispensary, and private practice. I need not perhaps say that I have given it in a very large number of cases, and have observed its effects in all stages of the disease, and under almost every circumstance of age, sex, and condition. I have had the most extensive opportunities of examining the bodies of those who have died after taking it in considerable quantities, and am still observing the cases of many persons who may be said to have owed their lives to its employment. Further, I have carefully watched the progress it has made in the good opinion of the professional public, and perused all that has been published regarding it in the literature of this and other countries. It were certainly easy for me, therefore, to write at great length on this subject; but it appears to me unnecessary to dwell on the utility of a remedy which the experience of the last twelve years in Scotland, and twenty years in Germany, has rendered so obvious. It need only be said with regard to cod-liver oil, that, although at first many eminent practitioners have felt more or less skeptical as to its value, and have therefore delayed giving it, I have not heard of one who, after employing it in a few cases, has retained any doubt as to its importance in scrofulous and consumptive cases.

The general opinion of the profession, with regard to cod-liver oil, may be said to have fully confirmed what I formerly stated concerning it, in the following words, viz: "That no remedy has so rapidly restored the exhausted powers of the patient, improved the nutritive functions generally, stopped or diminished the emaciation, checked the perspiration, quieted the cough and expectoration, and produced a most favourable influence on the local disease. Many individuals

presenting the emaciation, profuse sweats, constant cough and expectoration, as most prominent symptoms, with a degree of weakness that prevents their standing alone, after a few weeks' use of it, are enabled to get up with ease and walk about, with a visible improvement in their general health, and an increased amount of flesh. The physical signs of the disease may continue unaffected for some time, but if the treatment be continued, the moist gurgling rattles are exchanged for dry blowing sounds, which become more and more persistent, pectoriloquy is merged into bronchophony, the respiration is easier, and a check is evidently given to the ulcerative process, and the formation of purulent matter in the air-passages."[1]

The following is a summary of my views regarding cod-liver oil, as a remedy for pulmonary tuberculosis:—

1. Cod-liver oil is, as M. Taufflieb pointed out, an *analeptic* (αναλαμβανω, to repair), and is indicated in all cases of deranged nutrition dependent on want of assimilation of fatty matter.

2. It is readily digestible under circumstances where no other kind of animal food can be taken in sufficient quantity to furnish the tissues with a proper amount of fatty material.

3. It operates by combining with the excess of albuminous constituents of the chyme, and forming in the villi and terminal lacteals those elementary molecules, of which the chyle is originally composed.

4. Its effects in phthisis are, to nourish the body, which increases in bulk and in vigour; to check fresh exudations of tubercular matter; and to diminish the cough, expectoration, and perspiration.

5. The common dose for an adult is a tablespoonful three times a day, which may often be increased to four, or even six, with advantage. When the stomach is irritable, however, the dose to commence with should be a tea or dessert spoonful.

6. The kind of oil is of little importance therapeutically. The pure kinds are most agreeable to the palate; but the brown coarser kinds have long been used with advantage, and may still be employed with confidence whenever cheapness is an object.

7. I have never observed its employment to induce pneumonia, or fatty disease of the liver or kidney, however long continued, although such complications of phthisis are exceedingly frequent.

It has been argued that, if it be merely the assimilation of fatty

[1] Appendix to Treatise on the Oleum Jecoris Aselli, p. 189.

matter which is required to improve the faulty nutrition in tuberculosis, any kind of oil would answer the purpose. Now, as I have previously stated, whenever fat in any form, or food rich in fat, can be digested, benefit is sure to follow; and hence, in certain cases, the well-known good effects which have been obtained from the use of milk, especially asses' milk. Cream and butter have also been given largely. Ascherson has recommended caviar, and Popken fat bacon, with partial success. I have seen mutton and pork chops do wonders, but then the appetite and stomachic functions have been far better than is usually to be found among phthisical cases. I have also been informed that, in some parts of America, cures have been brought about by living on the bone marrow of the buffalo, and that the consumptive patient gets so strong in this way, that he is at length able to hunt down the animal on the prairies. Again, vegetable oils have been tried, but the purest of them, such as the almond and olive, produce, in the majority of cases, a purgative action, and thereby diminish instead of improving the strength. Linseed oil has been largely tried by Rust and others, who have given it in mistake for cod-liver oil, and found it to be of little service. On the whole, therefore, although the occasional success of various kinds of fatty matters and of fatty food, when assimilated, confirms the general principle, which, under the head of pathology, I have endeavoured to establish, the universal result of experience is, that no substance hitherto known is so easily tolerated by the stomach, and is of such general application as an analeptic in tubercular diseases, as cod-liver oil.

But even this substance, in a few rare cases, cannot be retained on the stomach, and efforts have been made to introduce fat into the economy by some other channel, such as by the skin or rectum. Frictions with oil and unguents were largely employed by the ancients, and constituted part of the system of training their athletæ. More recent observations have shown that butchers, cooks, oil-men, tallow-chandlers, tanners, and other individuals who are continually coming in contact with fatty matter, are for the most part particularly robust and well nourished, and are less liable than others to tubercular disease. Dr. Simpson[1] has lately noticed, that the children and young persons employed in wool factories, where large quantities of oil are daily used, are generally exempt from scrofula and

[1] Monthly Journal, April 1853.

from pulmonary consumption. This renders it probable that a certain amount of fat may, by entering the lymphatics of the skin, so affect the chyle as to render it more nutritive; and that, in cases where oil cannot, without great difficulty, be tolerated by the stomach, advantage may be derived from introducing it through the integument. Such a practice, indeed, has been recommended by Dr. Baur of Tubingen,[1] who has given several instances where the scrofulous disposition has been removed by rubbing in different kinds of oil. I have adopted this plan in a few cases, but having rarely met with patients who could not be induced to take the oil internally, under proper management, my experience of its effects, administered by the skin, has been very limited. Some time ago, I caused a cod-liver oil ointment, manufactured by the Messrs. Parker of Leith Walk, to be used externally; but, unfortunately, the constant smell proved to be more disagreeable than the unpleasant taste and eructations. Even the purest vegetable oils, used externally, cause great trouble in applying them, stain the linen and dress, occasion in some, unpleasant sensations of uncleanliness, and, to the poor, are very costly. Still, if oil be assimilated, however administered, it must, according to the principles I am contending for, be beneficial; and as the practice of inunction is now being very extensively tried, we shall soon have more exact means of judging of its value.

In a letter which I received from Dr. Buist of Aberdeen, on the 23d of last June, he informs me that he was induced, by the consideration that the rectum was a more reasonable channel than the skin for introducing nourishment, to try oleaginous enemata. These were composed of a couple of wineglassfuls of cod-liver oil, a tablespoonful of wine, the same quantity of arrowroot, beat up with eight or ten ounces of warm water, to which was added sixty drops of laudanum. I have since tried this mode of administering oil, and in a few cases with temporary advantage. I fear, however, that the objection to the constant use of enemata will, by the majority of persons in this country, be stronger than that against continued inunction. In cases, where the stomach is obstinately intolerant of food, one or both modes of introducing oil should be tried, with a view of reanimating the vital powers and of gaining time. But after all, it must be evident that, as nature never intended mankind to be

[1] Archiv für die gesamente Medicin. von Haser. Bd. 1. s. 256; and the Author's Treatise on Cod-Liver Oil, p. 56.

permanently nourished either by the skin or by the rectum, so, in imitation of her processes, the object of an analeptic treatment in pulmonary tuberculosis, must be to cause the elements of food to be taken by the mouth; to diminish the dyspeptic symptoms, and induce assimilation by the lacteal rather than by the lymphatic vessels.

Second Indication—To favour Absorption of the Exudation already poured out, and subdue the Symptomatic Fever produced.

We have seen that the changes which occur in the bloodvessels and their contained blood, preliminary to a local tubercular exudation, are of exactly the same character as when a simple or inflammatory exudation occurs, and that the difference between the two consists in the diminished power of growth possessed by the former. The symptoms which accompany the actual period of exudation vary in intensity according to its amount, extent, and the rapidity with which the local changes occur. In their nature, however, they are exactly the same as characterize the various so-called inflammatory diseases of the lungs, such as pneumonia, bronchitis, and pleuritis. Indeed, these lesions are the constant accompaniments of pulmonary tuberculosis, and occur more or less rapidly—that is, they are acute or chronic. Hence, all kinds of intermediate changes between the simple and tubercular exudations are constantly going on in the progress of a case, and the phenomena of phthisis, pneumonia, pleurisy, and bronchitis, in their acute or chronic forms, may appear together, and be inextricably mingled, or they may succeed each other at intervals. This circumstance, which is so puzzling to the inexperienced practitioner, and often leads to such errors in diagnosis and treatment, affords to the pathologist who can detect them by auscultation, the most accurate information as to the progress of the disease, and the character of the remedies he should employ.

Pulmonary tuberculosis is undoubtedly, for the most part, a slow and insidious complaint, but the careful observer will not fail to remark, that it is scarcely ever free from exacerbations, characterized either by their febrile character, or by increased cough and local pain. These are only too frequently attributed to "attacks of cold" by the patient, and their nature is not even guessed at, unless a careful diagnosis has been made by a physician. But when phthisis has been recognized, these febrile attacks and so-called "colds" resolve themselves either into the occurrence of a repetition of the tubercular exudations, or into intercurrent pneumonia, pleurisy, or

bronchitis. In some cases, indeed, these attacks are scarcely perceptible, and the disease runs a slow and insidious course throughout; in others, they are frequent, and occasionally so violent and severe that the individual dies rapidly, constituting a so-called "galloping consumption." Between these two extremes there is every kind of gradation, which defy description, but which will be readily understood by the pathologist. Consequently, the great problem to be worked out in the treatment of pulmonary tuberculosis is that, while on the one hand it is originally a disease of diminished nutrition and weakness, and consequently requires a general invigorating and supporting system of treatment, that, on the other, it is accompanied by local excitement, which demands an antiphlogistic and lowering practice. These two opposite indications have created the greatest confusion in the minds of practitioners; and hence the long disputes about the phlogistic and antiphlogistic nature of phthisis, whether it be inflammatory or non-inflammatory, whether it should be treated by bleeding and tartar-emetic, or by tonics and good diet.

Although the general notion of those who have maintained the inflammatory origin of tubercle is pathologically correct, in so far as it depends upon an exudation of the liquor sanguinis, the practice founded upon this doctrine has led to the most unfortunate results. Experience in recent times has demonstrated that even uncomplicated cases of pneumonia, where hepatization is well marked, so far from being benefited by bleeding and antiphlogistics, will frequently recover sooner and better under an opposite line of treatment. This fact, indeed, is now universally acknowledged; and although some endeavour to explain the present revolution in practice, by supposing that the disease has undergone a change in its type, it seems to me more probable it is not because an inflammation is different now from what it was thirty years ago, so much as to an improved diagnosis and pathology, that we must ascribe the alteration. But if it has been shown that pure and uncomplicated pneumonia, in healthy constitutions, is frequently injured by bleeding, how much more should we avoid this practice in cases where weakness and defective nutrition are the essential characters of the disease.

When an exudation is poured into the pulmonary air-vesicles and bronchi, the rapidity of its resolution will depend upon its extent, constitution, and the general vital power of the individual. Should it remain fluid for any time, it may repass into the vessels without

further change, and there is every reason to suppose that a bleeding at this moment, that is, before it has solidified, and when commencing crepitation is heard, may, by impoverishing the general mass of blood, favour this result. But in the great majority of cases it coagulates; and histological observation has shown that its subsequent absorption is dependent on its being transformed into cells, which are more perfect and more rapidly developed and disintegrated, and consequently sooner got rid of, according as the vital powers and state of nutrition of the individual are more perfect. On the other hand, whatever lessens the general strength of the system, checks this cell-development in the coagulated exudation, and delays the transformation through which it must pass before it can be absorbed. Hence the great effort of the practitioner, so far from diminishing the strength, ought to be to support it, and favour cell growth and disintegration;—then, when the blood is loaded with the effete matter thus introduced into it, to assist its excretion by means of diaphoretics, diuretics, and purgatives, according to circumstances.

Hitherto, bleeding in pneumonia has been made dependent, not so much on the pathological state of the lung, as upon the general condition of the patient, and upon the force of the pulse. It has been supposed that, by abstracting a considerable quantity of blood from the system, we act upon the vessels of the inflamed part, and prevent the extension of the disease. But venesection can only lessen the amount of blood in any internal organ, by operating on the system generally, and diminishing the force of the heart. In doing so, however, we weaken the powers of the economy, and this at a time when the febrile symptoms prevent nourishment from being introduced by the alimentary canal. But it has always appeared to me, that when hepatization has occurred to any extent, our chief object should be, not to attempt lessening the blood in the inflamed part, the possibility of which, by means of a general bleeding, is very doubtful; not to diminish the congestion of the neighbouring parts, under the idea of preventing an extension of the disease—but to relieve the affected organ of the coagulated exudation which is pressing upon the vessels, impeding the circulation, and obstructing the entrance of air. Indeed, it must be clear that this latter is the essential process to be favoured, and all known facts prove that a check to the vital powers of the economy is directly opposed to its accomplishment.

Such are the views which, for some time, have regulated my practice in pulmonary lesions, and they appear to me capable of accounting pathologically for the good results of that remarkable change in practice which has lately taken place with regard to bleeding in these diseases. If they be sound with regard to a simple pneumonia, I need not say that they apply with increased force to cases labouring under an essentially debilitating disorder like pulmonary tuberculosis. Accordingly, universal experience has lately demonstrated that, in the last-named disease, not only are a good diet, cod-liver oil, and abstinence from lowering remedies, the best means for correcting the general nutrition, but that they also secure the most rapid disappearance of the exudation; convert the moist rattles of the lung into dry sounds; favour the contraction of cavities, and convert such tubercles as have not softened into cretaceous matters, by inducing absorption of their animal matter.

What has tended, perhaps, more than anything else, to favour moderate general bleedings in acute phthisis, as well as local bleedings during the exacerbations in the course of chronic phthisis, is the temporary relief they occasion. I consider that there is no fact better established in practical medicine than that a considerable amount of relief, consisting of less local pain, a more free respiration, and diminished febrile action, may frequently be seen to follow the use of moderate, general, or local bleeding. Indeed, the benefit is sometimes so marked as to induce their frequent repetition. But every one of the cases I have seen so treated have terminated fatally. On the other hand, by carefully avoiding depletion: husbanding the patient's resources during the exacerbations and fever; simply favouring excretion by means of antimonials; then, on their subsidence, once again cautiously administering nutritives, and following the first indication, I have succeeded, as the cases subsequently detailed will prove, in causing a permanent arrestment of the disease, and ultimately a complete cure.

The plan, therefore, which is best adapted for checking the local changes producing acute exudation, and for subduing the symptomatic fever, ought to be much the same as guides us in the treatment of a typhus fever. In this disease the administration of active lowering remedies at first, is well known to increase the subsequent collapse, and retard convalescence—so in pulmonary tuberculosis, however we may flatter ourselves that by bleeding or mercury we have checked inflammation, the real disease, so far from being

arrested by these remedies, is, for the most part, accelerated. For some years, therefore, I have depended solely on small doses of antimony, with occasional diuretics, to relieve the acute symptoms, exacerbations, and febrile excitement, and have never had occasion to repent the practice.

In the chronic forms of the disease, the second indication is only to be followed out by topical counter-irritation. Hence a seton, or issue, a succession of blisters, tartar emetic ointment, and croton oil, are all beneficial, and may be used according to circumstances. Cold sponging, employed with great precaution, so as not to produce a chill, but rather a glow of heat afterwards, is also beneficial. The application of leeches should be avoided, as it is not easy to see how abstracting a few ounces of blood from the thoracic integuments, which are furnished with blood from the mammary and intercostal arteries, can operate upon such vascular organs as the lungs, receiving their blood entirely from the pulmonary and bronchial arteries.[1] It is true that a few leeches applied under the clavicle often relieve certain symptoms; but I have never been able to satisfy myself that they have ever been of permanent benefit; and although I am far from saying that they are always injurious, I have occasionally thought that the exposure of the person, the warm fomentations, and unpleasant trickling of blood, have increased rather than diminished the uneasiness of the patient.

Third Indication—To prevent the recurrence of fresh Exudations by careful attention to Hygienic Regulations.

If we can succeed in renovating the nutritive processes, arresting the disease, and favouring absorption of the exudation already poured out, it becomes very important to prevent the recurrence of fresh exudations. This is only to be accomplished by avoiding all those circumstances likely to deteriorate the constitution on the one hand, or induce pulmonary congestion on the other, and offers a wide field for the judicious practitioner, especially in his character of a watchful guardian of the patient's health. One of the great difficulties we have to overcome in this climate, is the frequent variations of temperature, and the sudden changes from fervent heat to chilling cold. Supposing that we have the means of sup-

[1] On this point I would refer to some very able remarks by Mr. John Struthers, on "Local Bloodletting in Affections of the Internal Viscera." Monthly Journal for April, 1853.

porting nutrition, and arresting local irritation, it is by no means certain that good will be accomplished, from the impossibility of securing those hygienic regulations and that equable climate, which are necessary to carry out the third indication. In the first place, nutrition itself is more connected with proper exercise and breathing fresh air than many people imagine. It does not merely consist in stimulating the appetite, and giving good things to eat. It requires: 1. Food in proper quantity and quality; 2. Proper digestion; 3. Healthy formation of blood; 4. A certain exchange between the blood and the external air on the one hand, and between the blood and the tissues on the other; and 5. It requires that there should be proper excretion, that is, separation of what has performed its allotted function and become useless. *All* these processes are necessary for nutrition, and not one or more of them, for they are all essentially connected with, and dependent on one another. The means of preventing, not only pulmonary tuberculosis, but tuberculosis in general, therefore, consist in carrying out those hygienic regulations which secure these different nutritive acts. The most important of these undoubtedly are attention to climate, exercise, and diet.

Much has been written on climate, and more especially on the sanative influence of certain foreign climates in cases of consumption, and nothing is more difficult than for a medical man, practising at home, to arrive at correct notions on this subject. He may read books on climate generally; he may study monographs on the special advantages of particular places, and he may further converse with sensible men who have practised there, without being in any degree more enlightened. As a general rule, every local practitioner speaks highly of the superior merits of his own place of residence. He is ready to give you a list of the most extraordinary recoveries. He instances the cases of Lord this and Lady that, who, on their arrival, were in the worst possible condition, and who, during their sojourn in his locality, even surprised *him* by their rapid recovery. In short, when listening to these accounts, we feel astonished that any case of phthisis should die, did not all such practitioners, in reply to a straightforward question, acknowledge that deaths, notwithstanding, were very common; and that, after all, these remarkable cases were the exception and not the rule.

The real questions to be answered, in reference to the sanative influence of climate, are; 1. What is the proportion of cases in

which arrest of the disease takes place, as determined by a strict diagnosis, the stage of the disorder, and the age and general strength of the patient? 2. Are such arrests more frequent in foreign countries than they are at home? So far as I am aware, no series of facts exist capable of satisfying us on these points. On the other hand, is it not certain that if a phthisical person recovered his bodily strength in Madeira, Spain, or Italy, the benefit is at once ascribed to the influence of climate; whereas, if the same thing happens at home, the case is considered one of bronchitis, or at all events its phthisical character is denied? Yet it has of late become sufficiently evident, that, with proper care and treatment, phthisis may be arrested in this country much more frequently than was formerly supposed; and we have no reason to believe that such arrestment is more common in Madeira, Egypt, or Italy, than it is in Edinburgh or London.

It may then, fairly be asked—whether the practice which has so long prevailed, of sending consumptive patients abroad is beneficial or not? My own experience is, on the whole, hostile to the propriety of sending confirmed phthisical patients abroad in search of health. I have now met with many consumptive individuals who, so long as they remained at home, continued in a satisfactory condition, enjoyed life, and carried on their usual occupations in comfort; but who, seized with an unconquerable desire of completely getting well, through the agency of a warm climate, have gone to Italy, Malta, or other favoured locality, and died most miserably. Such cases have been so frequent as to have given rise in my mind to a feeling of great skepticism as to the utility of expatriating such persons—a feeling which would have become absolute, were it not counterbalanced by a conviction engendered by foreign travel, and dependent on what may be called personal sensation, rather than actual experience of any beneficial result obtained by others. I allude to that exhilarating feeling which the traveller experiences in the south of France, or the borders of the Mediterranean, caused by the clear atmosphere, balmy air, and luxuriant landscape. He who has felt that delightful sensation, and paid attention to its influence on his own bodily powers, will not easily abandon the idea that such influence, if rightly directed to the relief of certain morbid conditions, must have some effect. I believe that such a feeling insensibly constitutes the real basis of all our belief concerning the good effects of climate; and as, notwithstanding repeated disappoint-

ments, I cannot help thinking that, in certain cases, it is really beneficial, it may be worth while to inquire why it often fails, and why it sometimes succeeds.

Supposing, then, that residence or travel in certain foreign countries, may be beneficial in particular cases, and the chief argument in its favour are the sensations to which I have alluded, it cannot be denied that many fallacies are liable to enter into our reasonings. For instance, it does not follow that the same elastic feeling experienced by a healthy, vigorous individual on the mountain side, on the sea-shore, or in the beautiful valley, should be felt by a debilitated, worn-out person in a similar situation. Nor is it reasonable to suppose that the qualities of mind, power of exertion, and consciousness of bodily strength—all of which are elements in the production of the feeling alluded to—should be alike in the two cases. Hence, while some persons may be benefited, and the nutritive powers stimulated under such circumstances, others will feel languor, depression of spirits, or increased fatigue, and find themselves much worse. The difficulty, therefore, is to discriminate between these two classes of persons—a difficulty which defies all general rules, dependent as it is not only on the stage of the disease and bodily strength of the individual at the time, but also on his peculiar constitution, habits, general excitability, powers of imagination, and cultivation of mind. Hence, before sending patients abroad, all these points must be anxiously considered; and even then, the whole will resolve itself into the fact, which can only be determined by experiment, whether, upon actual trial, they feel better or worse.

I believe, however, that in most cases the change is at first beneficial, and that it would be to a considerable extent permanent, were it not for another fallacy which extensively prevails. I allude to the idea that the climate itself has a sanative tendency, and that the breathing this or that air is like taking so much medicine, and ought to do good *per se*. But it should be considered that the best climate is only useful as a means of taking exercise, and promoting the nutritive functions, without exposure to those drawbacks which are more or less common at home. It is by regarding exercise as necessary to securing active digestion that its importance as a therapeutic agent becomes obvious in phthisis, and any locality which will enable the sensitive invalid to go out daily on foot, horseback, or in a carriage, without the chance of meeting cold winds or showers of rain, must possess an advantage over one where these occurrences

are common. All accounts agree in representing Madeira, and some other places, as more favoured in this respect than even the best localities in England—and if so, they may, in the sense referred to, be more beneficial as places of residence.

In searching for such benefits in a foreign climate, the patient has often to sacrifice the occupations he may be accustomed to at home, and the society of his friends. But if this can be done without inconvenience, and without causing mental depression or a sense of *ennui*, it may even be advantageous. Mental impressions must not be overlooked. Then, he will experience a great difference between the comforts of an English residence and those in a foreign house, which, even to the healthy traveller, often prove annoying, and to the invalid are injurious. In Rome, Dr. Burgess[1] says the streets are built to exclude, as much as possible, the rays of the sun, and in winter are as damp and cold as rain and frost can make them. And then he adds: "What a difference between the warm carpet, the snug elbow-chair, and the blazing coal fire of an English winter evening, and the stone staircases, marble floors, and starving casements of an Italian house!"[2]

It is well pointed out by Dr. Burgess, that those who go to the large Italian cities are exposed to other dangers connected with the desire of seeing celebrated places, works of art, churches, vaults, etc., which induce great bodily fatigue, and often chill the body by long exposure to damp air, or from standing on cold marble floors.

Another evil of large continental cities consists in the attractions of fashion, so that the young can seldom resist the late evening parties, the dance or public amusements, when, flushed with excitement or exertion, they return to their homes late at night, exposed to the chill air, the injurious effect of which is augmented by the previous heat and foul air of crowded assemblies. All such irregularities and every kind of over-fatigue are more than enough to counterbalance the supposed good effects of climate. Hence places of quietude, offering no temptations to gayety, and possessing only natural advantages of scenery, and the gentle stimulus of a clear atmosphere, mild temperature, and cheerful society, are the best.

Another fallacy is the idea that warmth is the agent which, in

[1] The Climate of Italy in Relation to Pulmonary Consumption. London, 1852.

[2] In a case in which I was recently consulted, a gentleman was advised by Professor Skoda, of Vienna, to visit England rather than Italy, on account of the superior comforts of the houses in the former country.

such cases does good; and people talk of a warm climate as synonymous with a healthy climate. But unaccustomed warmth is most relaxing, and tends, instead of checking, to occasion increased development of the tubercular exudation. Nothing is more common to observe in this country how phthisical patients get worse on the approach of sultry weather in summer, and how comparatively better they are in winter, so long as they avoid exposure to cold winds. In fact, it is not a warm climate which is sought for by the invalid, but a temperate climate during the winter, and a steady climate during the spring. As summer approaches, many parts of the British isles are infinitely preferable.

It follows, from all the information I have been able to collect, that that climate is best which will enable the phthisical patient to pass a few hours every day in the open air, without exposure to cold or vicissitudes of temperature on the one hand, or excessive heat on the other. Wherever such a favoured locality may be found during the winter and spring months, its advantages should be considered as dependent on exercise, and on the stimulus given to the nutritive functions, rather than to its influence on the lungs directly. It is a matter also of great importance to remember, that the comforts of home, a well-arranged diet, general hygienic rules, and a proper treatment, are as necessary in Madeira, Italy, Spain, or Egypt, as they are in Great Britain.

But, after all, the great mass of those affected with phthisis have not the means of searching out a favourable climate on the Continent, or even of maintaining themselves in a sheltered nook on the western or south-western coasts of this country. It may, therefore, be thought easy for us, by confining patients in a suite of rooms in which the heat is regulated, to secure immunity from cold and change of air; but such a contrivance is most intolerable to the patient; the mind becomes peevish, which in itself is a powerful obstacle to the proper performance of the digestive functions. But above all, the body is deprived of exercise—that necessary stimulus to the appetite, respiration, and other functions. Some years ago, I succeeded in confining a consumptive patient, whose case will be afterwards given, to his room for an entire winter. His spirits suffered greatly; but on the whole he supported the imprisonment with resolution. Next winter, however, nothing could induce him to remain at home, and one day he rushed out of the house, ascended Arthur's Seat, and was much better in consequence. Since

then I have been convinced that, although by confinement you may gain some advantages, on the whole it is a prejudicial practice, if rigorously carried out.

What is required in these cases is the means of exercise, whether on foot, on horseback, or in a carriage, where the patient is protected from cold winds, and where the mind can be amused by pleasant sights and cheerful conversation. Such is the case in all those favoured localities considered best for consumptive people, and some such advantages will be derived from the new Crystal Palace at Sydenham near London. Delicate individuals can be transported there by means of a close carriage, in the worst seasons, without difficulty, and on entering it, could breathe for hours a pure, balmy air, meet their friends, take exercise in various ways, read, work, or otherwise amuse themselves. Such an out-door means of recreation, combined with careful hygienic regulations at home, will go far to remove many of the difficulties which we have to encounter in the ordinary treatment of consumption. So great would be the boon to the community, that, once established near London, we may soon see similar buildings in all the large cities of the kingdom. Indeed, its advantages are so obvious, that the new Hospital for Consumption, erected in Victoria Park, London, it is said, will possess an extensive Greenhouse, or Sanatorium, which is to form part of the institution. It has also been suggested that some of the public squares in London should be covered in with glass for a like purpose, and I need not say how readily this plan could be carried out in Edinburgh.

With regard to diet, it may be said, in general terms, that one of a nutritious kind, consisting of a good proportion of animal food abounding in fat, is best adapted for phthisical cases, whilst everything that induces acidity should be avoided. But, as previously stated, the difficulty consists in causing such diet to be taken, on account of the bad appetite and dyspeptic or febrile symptoms which prevail. No effort, therefore, should be spared to overcome the obstacles which prevent food of sufficient quality and quantity from being digested, the appropriate means for doing which must vary, according to the circumstances of the case, and will be treated of in the next chapter. The strongest stimulus to the appetite, however, is exercise, and hence the importance of the considerations already entered into, with reference to securing what is essential in

the treatment of the disease, namely, good digestion and proper assimilation.

If the pathology of pulmonary tuberculosis formerly described be correct, it indicates what are the means best adapted for preventing, as well as arresting, the disease when it has already commenced. These are, for the infant, a healthy nurse, cleanliness, and careful attention to all those circumstances which tend to increase the bodily vigour and secure good digestion. At the time of weaning and of teething, the most watchful care becomes necessary, so that local irritation and its effects may be prevented as much as possible, and a proper diet, containing a sufficient amount of the fatty principles be taken. During adolescence, indulgence in indigestible articles of food should be avoided, especially pastry, unripe fruit, salted provisions, and acid drinks, while the habit of eating a certain quantity of fat should be encouraged, and, if necessary, rendered imperative. The same precautions, conjoined with proper bodily and mental exercise, avoiding exhausting and too fatiguing occupations, should subsequently be maintained until the predisposition to tubercular disease has been completely overcome. In short, everything that can support and invigorate should be adopted, and everything that can exhaust and depress should be shunned. As vitiation of the chyle and blood precedes the local deposition of a tubercular exudation, it necessarily follows that that numerous class of delicate invalids, whose chief complaint is derangement of the digestive process, with languor and debility, may by the hygienic means now indicated, and proper treatment of the dyspepsia, be restored to health.

Were it possible in all cases for these three indications to be carried out, I feel satisfied the prevention and cure of phthisis would be more frequent; but in the treatment of this disease, the physician has to struggle not only with the deadly nature of the disorder, but with numerous difficulties over which he has no control, such as, among the poorer classes, the impossibility of procuring good diet, and the thousand imprudences which not only they, but the majority of invalids, are ever committing. Then another great difficulty is, to convince the patient that, notwithstanding the removal of his urgent symptoms, the disease is not cured, and that these will return, if the causes which originally produced them are again allowed to operate. Indeed, it is when the marked improvement

has taken place which follows successful treatment, that the embarrassment of the physician commences. In our public institutions, the patients often feel so well that they insist on leaving the hospital, or on giving up their attendance on a dispensary. I have frequently found it impossible to prevail on such persons to continue the treatment; and the consequence is, that again returning to their often unhealthy employment and bad diet, and exposed to the other causes favourable to the production of the disease, the distressing symptoms again recur. Many cases, with one or more caverns in the lungs, in this manner have returned to the Infirmary, under my care, or that of the other physicians, from four to eight times, and on each occasion have gone out in their own opinion perfectly cured, though assured to the contrary, and urged to remain. In private practice, and especially among the higher classes, the patients are equally indisposed to persevere, though satisfied of the great benefit they have experienced. They are seduced by the pursuit of pleasure, or governed by fashion; and, on the return of their symptoms, fly from one vaunted system of practice to another, visit watering-places or foreign climes, and in vain seek for that benefit which a steady continuance of a proper treatment can alone secure.

Notwithstanding the difficulties which thus present themselves in bringing about a complete cure of the disease, I have succeeded, in several cases, in ascertaining that the caverns have completely healed up, while all the symptoms and physical signs indicating their presence have disappeared, and only slight dulness on percussion, and increased vocal resonance, have remained as a proof of the puckering and induration of the pulmonary parenchyma attendant on the cretaceous concretions and cicatrices. In many of these cases, I am satisfied that, had not cod-liver oil been given at the commencement of the treatment, the constitution would never have rallied from the state of exhaustion and depression under which it laboured. Some of these cases will be subsequently detailed, and they will serve to show not only the importance of the nutritive or analeptic treatment, but of the necessity of perseveringly continuing it after the more urgent symptoms have been subdued.

The general treatment for pulmonary tuberculosis now recommended, is based upon the following pathological propositions: 1. That tubercular diseases will heal of themselves, if we can support the nutrition of the system; 2. That, with this view, our efforts

should rather be directed to the digestive than to the pulmonary system; and, 3. That the kind of morbid nutrition which exists is excess of albuminous, and deficiency of the fatty element, in the chyle. The kind of treatment applicable to correct both the lesion of the blood, as well as of the subsequent tubercular deposits, is not tonic, stimulating, or antiphlogistic, but truly analeptic or reparative, and directed to the supply of those elements of nutrition which pathology indicates are deficient in this class of diseases.[1]

It has been endeavoured to be shown that these principles of treatment have been long understood and put in practice. Passages have been cited from the lectures of Dr. Gregory, and from the writings of Fuller, Morton, Christopher Bennett, and even the ancient Greek physicians, to prove that nutrients and oil were administered by them. Any one, however, who will consult the writings of these physicians, will find that, although in some cases a greater or less approach to an invigorating system of practice was tried, and, as it is said, with occasional good effect, yet it was never based upon pathological principles, or advocated as the only method capable of arresting and overcoming the disease. In consequence, the general treatment of the profession has, on the whole, been antiphlogistic, to combat supposed inflammation; lowering, to subdue febrile irritation; and palliative, to relieve occasional symptoms. It consisted of antimonials, cough mixtures, and opiates, leeches applied frequently to the chest, and occasionally general bleeding; sulphuric acid to relieve the sweating; astringents to stop diarrhœa or hæmoptysis; now and then counter-irritants, and towards the termination of the disease, wine and stimulants. As diet, milk and farinaceous food were the rule, and meat the exception. Under such a system of practice, it need not be wondered that consumption should be regarded as almost a uniformly fatal disorder. A few practitioners, it is true, adopted an opposite line of practice, and, like the late Dr. Stewart, of Erskine, they conjoined the exercise recommended by Sydenham, with the free administration of beefsteaks, porter, and cold bathing. But such practice, whatever partial success it may have met with, has never been general, because opposed to the theory which ascribed the disease to inflammation, and the idea that inflammation must be combated by antiphlo-

[1] See Report of Discussion in the Edinburgh Medico-Chirurgical Society.—Monthly Journal, April, 1853.

gistics. "Hence," says Sir James Clark, "the cases likely to be cured by the stimulating plan of treatment—by the beefsteak and porter system—bear so small a proportion to those which would be injured by it, that I do not consider it deserving of notice."[1] During the last twelve years, however, a revolution in practice has gradually been going on. The good effects of cod-liver oil have been made apparent, the pathology of the disease has been advanced, and the necessity of causing assimilation of the fatty elements of nutrition is now recognized. Why a meat diet and stimulants do not succeed in the majority of cases, I have previously explained; and how it is oil and fat, in whatever way they are introduced into the system, whether by the mouth, by inunction, or by the rectum, does produce the desired effect, we trust has also been made apparent. Should, therefore, the analeptic or reparative system of treatment become general, a perceptible diminution in the mortality of phthisis may be confidently expected; a result which, according to Dr. Wood, of Philadelphia,[2] has already been made apparent in the principal cities of the United States, where, since cod-liver oil has been extensively used, the deaths have diminished from 14.8 to 12 per cent.

[1] On Pulmonary Consumption. 1837. P. 397.

[2] Practice of Medicine, vol. ii. pp. 63–95. 3d edit.

CHAPTER III.

SPECIAL TREATMENT OF PULMONARY TUBERCULOSIS.

UNDER the head of General Treatment of Phthisis Pulmonalis, I have pointed out the means of meeting the three indications which should never be lost sight of in this disease. But every case requires a special treatment in addition, which will depend on the unusual severity of this or that symptom, or the existence of peculiar complications. It is to the undue importance given to this special, as distinguished from the general treatment, that I attribute much of that want of success experienced by practitioners. Thus, it is by no means uncommon to meet with patients who are taking at the same time a mixture containing squills and ipecacuanha to relieve the cough; an anodyne draught to cause sleep and diminish irritability; a mixture containing catechu, gallic acid, tannin, or other astringents, to check diarrhœa; acetate of lead and opium pills to arrest hæmoptysis; sulphuric acid drops to relieve the sweating; quinia, iron, or bitters, as tonics; wine to support the strength; and cod-liver oil in addition. I have seen many persons taking all these medicines, and several others at one time, with a mass of bottles and boxes at the bedside, sufficient to furnish an apothecary's shop, without its ever suggesting itself apparently to the practitioner, that the stomach, drenched with so many nauseating things, is thereby prevented from performing its healthy functions. In many cases there can be little doubt that this treatment of symptoms, with a view to their palliation, whilst it destroys all hope of cure, ultimately even fails to relieve the particular functional derangement to which it is directed. Hence, although the special treatment of phthisis is a matter of great importance, it should be subordinate to general rules.

One or more of the following symptoms may be complained of during the progress of an individual case, and require to be treated according to the curative indications formerly given.

Cough and Expectoration.—At first, the cough in phthisis is dry and hacking. When the tubercle softens or bronchitis is present, it becomes moist and more prolonged. When excavations exist, it is hollow and reverberating. In every case cough is a spasmodic action, occasioned by exciting the branches of the pneumogastric nerves, and causing simultaneous reflex movements in the bronchial tubes and muscles of the chest. The expectoration following dry cough is at first scanty and muco-purulent, and afterwards copious and purulent. When it assumes the nummular form—that is, occurs in viscid rounded masses, swimming in a fluid clear mucus, it is generally brought up from pulmonary excavations. The accumulation of the sputum in the bronchial tubes is an excitor of cough; and hence the latter symptom is often best combated by those means which diminish the amount of sputum. When, on the other hand, the cough is dry, those remedies should be used which diminish the sensibility of the nerves. In the first case, the amount of mucus and pus formed will materially depend on the weakness of the body and the onward progress of the tubercle. Hence, good nourishment and attending to the digestive functions are the best means of checking both the cough and expectoration; whereas, giving nauseating mixtures of ipecacuanha and squills is perhaps the worst treatment that can be employed. There is no point which experience has rendered me more certain of than that, however these symptoms may be palliated by cough and anodyne remedies, the stomach is thereby rendered intolerant of food, and the curative tendency of the disease impeded. On the other hand, nothing is more remarkable than the spontaneous cessation of the cough and expectoration on the restoration of the digestive functions and improvement in nutrition. When the cough is dry, as may occur in the first stage, with crude tubercle, and in the last stage, with dry cavities, counter-irritation is the best remedy, employed in various forms. Opium may relieve, but it never cures. (See also Chapter IV.)

Loss of Appetite and Anorexia.—These are the most constant and important symptoms of phthisis, inasmuch as they interfere more than any other with the nutritive processes. If food, or its substitute, cod-liver oil, cannot be taken and digested, it is vain to hope for amelioration in any of the essential symptoms of the disease. Here we should avoid a mistake, into which the inexperienced

are very liable to fall. Nothing is more common than for phthisical patients to tell their medical attendants that their appetite is good, and that they eat plentifully, when more careful inquiry proves that the consumption of food is altogether inadequate, and that they loathe every kind of animal diet. We should never be satisfied with general statements, but determine the kind and amount of food taken, when sufficient proof will be discovered in the vast majority of cases, of the derangement of the appetite and digestive powers formerly alluded to. Very commonly, also, there will be acid and other unpleasant tastes in the mouth. In all such cases, especially if too much medicine has been already given, the stomach should be allowed to repose itself before anything be administered, even cod-liver oil. Sweet milk, with toasted bread, and small portions of meat nicely cooked, so as to tempt the capricious appetite, should be tried. Then ten drops of the Sp. Ammon. Aromat., given every four hours in a wineglassful of some bitter infusion, such as that of Columbo or Gentian, with a little Tr. Aurantii, Tr. Cardamomi, or other Carminative. In this way the stomach often regains its tone, food is taken better, and then cod-liver oil may be tried, first in teaspoonful doses, cautiously increased. Should this plan succeed, amelioration in the symptoms will be almost certainly observed.

Nausea and Vomiting.—Not unfrequently the stomach is still more deranged; there is a feeling of nausea and even vomiting on taking food. In the later stages of phthisis, vomiting is also sometimes occasioned by violence of the cough, and the propagation of reflex actions, by means of the par vagum, to the stomach. In the former case, the sickness is to be alleviated by carefully avoiding all those substances which are likely to occasion a nauseating effect, not overloading the stomach, and allowing it to have repose. In cases where too much medicine has been administered, a suspension of all medicaments for a few days will frequently enable the practitioner to introduce nourishment cautiously with the best effect. I have found the following mixture very effectual in checking the vomiting in phthisis. ℞. Naphthæ. Medicinalis ʒj; Tr. Cardamomi comp. ʒj; Mist. Camphoræ ʒvij. M. ft. Mist. Of which a tablespoonful may be taken every four hours. When it depends on the cough, those remedies advised for that symptom should be given. I have tried emetics for the relief of nausea and vomiting, but with no good result.

Diarrhœa.—This is a very common symptom throughout the whole progress of phthisis, at first depending on the excess of acidity in the alimentary canal, to which we have alluded, but in advanced cases, connected with tubercular deposition and ulceration in the intestinal glands. The best method of checking this troublesome symptom, is by improving the quality and amount of the food. The moment the digestive processes are renovated, this, with the other functional derangements of the alimentary canal, will disappear. Hence at an early period we should avoid large doses of opium, gallic acid, tannin, and other powerful astringents, and depend upon the mildest remedies of this class, such as chalk with aromatic confection, or an antacid, such as a few grains of carbonate of potash. When, on the other hand, in advanced phthisis, continued diarrhœa appears, and is obstinate under such treatment, then it may be presumed that tubercular disease of the intestine is present, and the stronger astringents with opium may be given as palliatives.

Hæmoptysis.—This symptom sometimes appears suddenly in individuals in whom there has been no previous suspicion of phthisis, and in whom, on careful examination, no physical signs of the disease can be detected. On other occasions, the sputum may be more or less streaked with blood; and lastly, it may occur in the advanced stage of the disease, apparently from ulceration of a tolerably large vessel. In all these cases the best remedy is perfect quietude, and avoidance of every kind of excitement, bodily and mental. Astringents have been recommended, especially acetate of lead and opium; but how these remedies can operate, I am at a loss to understand; and I have never seen a case in which their administration was unequivocally useful. I have now met with several cases where supposed pulmonary hemorrhage really originated in follicular disease of the pharynx or larynx, and which, with the supposed phthisical symptoms, were removed by the use of the probang and nitrate of silver solution. (See Chapter IV.)

Sweating I regard as a symptom of weakness, and therefore as a common, though by no means a special, one in phthisis. Here, again, the truly curative treatment will consist in renovating the nutritive processes, and adding strength to the economy. It will always be observed, that if cod-liver oil and good diet produce their

beneficial effect, that the sweating, together with the cough and expectoration, cease. On the other hand, giving acid drops to relieve this symptom, as is the common practice, by adding to the already acid state of the alimentary canal, is directly opposed to the digestion of the fatty principles, which require assimilation.

It should not be forgotten that consumptive patients, and all those suffering from pulmonary diseases, are especially sensitive to cold. The impeded transpiration from the lungs in such cases, is counterbalanced by increased action of the skin, which becomes unusually liable to the action of diminished temperature. Again, cold applied to the surface immediately produces, by reflex action, spasmodic cough and excitation of the lungs. Every observant person must have noticed how cough is induced by crossing a lobby, going out into the open air, a draught of wind entering the room, getting into a cold bed, etc. etc. The mere exposure of the face to the air on a cold day, takes away the breath, induces cough, and obliges the patient instinctively to muffle it up. The numerous precautions, therefore, that ought to be taken by the phthisical individual, should be pointed out, especially the necessity of warm clothing, to which large additions should be made on going out into the air. Thus, covering the lower part of the face is important as a means of extra clothing, and not as a means of breathing warm air, as the favourers of respirators imagine. The patient should always sit with his back to the horses or to a steam-engine, and if by accident his shoes or clothes become wet, they should be changed as soon as possible. In the house, ladies should have a shawl near them, to put on in going from one room to another, in descending a stair to dinner, etc. By attention to these minutiæ, much suffering and cough may be avoided.

Febrile Symptoms.—The quick pulse, general excitement, loss of appetite, and thirst, which are so common in the progress of phthisical cases, are dependent on the same causes which induce symptomatic fever in general. Vascular distension, resulting in exudation and its absorption, is proceeding with greater or less intensity in the lungs, and frequently in other organs. This leads to nervous irritation and increase of fibrin in the blood, accompanied by febrile phenomena. The intensity of these is always in proportion to the activity of local disease, or to the amount of secondary absorption going on from the tissues, or from morbid deposits. Nothing is more

common than attacks of so-called local inflammations in phthisis, and the careful physician may often determine by physical signs the supervention of pleurisy, pneumonia, or bronchitis, in the previously observed lesion, and not unfrequently laryngitis, enteritis, or other disorders. In such cases, nature herself dictates that the analeptic treatment otherwise appropriate, is no longer applicable—food disgusts, and fluids are eagerly demanded. Under these circumstances, it has been common to apply leeches to the inflamed part, and extract blood by cupping, measures which undoubtedly cause temporary relief, but which are wholly opposed to the plan of general treatment formerly recommended, and to what we know of the pathology of the disease. Every attack of febrile excitement is followed by a corresponding collapse, and it should never be forgotten that in a disease which is essentially one of weakness, the patient's strength should be husbanded as much as possible. Hence the treatment I depend on in such circumstances, consists of the internal administration of the neutral salts, especially of tartar emetic in small doses, combined with diuretics, in order to favour crisis by the urine. I have satisfied myself that such attacks are not to be cut short by leeches or cupping, and although in many cases, as previously stated, temporary relief is produced, the exposure of the person, and unpleasant character of the applications, the trickling of blood, and wet sponges, as often irritate, and give rise to unnecessary risk. Still, there may be cases where topical bloodletting, if it cannot be shown to advance the cure, neither can it be proved to have done harm ; but these cases of late years have, as far as my observation goes, been very few in number. In the rapidly febrile cases, or the so-called instances of acute phthisis, mercury has been recommended, which I have never seen produce the slightest benefit.

Debility.—This is a very common symptom of phthisis from the first, and frequently leads the patient into indolence both of mind and body, a condition very unfavourable for stimulating the nutritive functions, upon the successful accomplishment of which its removal depends. It is to remove the weakness that tonics have been administered, but I have never seen quinia, bitter infusions, or even chalybeates, of much service alone, while the continual use of nauseous medicine disgusts the patient, and interferes with the functions of the stomach. Here again the great indication is to remove the dyspeptic symptoms, give cod-liver oil, an animal diet, and improve

the appetite by gentle exercise and change of scene. Should the practitioner succeed in renovating the nutritive functions, it is often surprising how the strength increases, in itself a sufficient proof as to what ought to be the method of removing the debility. I have frequently seen patients who have been so weak that they could not sit up in bed without assistance, so strengthened by the analeptic treatment, that they have subsequently walked about and taken horse exercise without fatigue, and this after all the vegetable, mineral, and acid tonics have been tried in vain.

Despondency and Anxiety.—It is impossible for the careful practitioner to avoid noticing the injurious influence of depressing mental emotions on the progress of phthisis. Indeed, the worst cases are those of individuals with mild, placid, and unimpassioned characters, who give way to the feelings of languor and debility which oppress them. Such persons are most amiable patients—they give no trouble, anything will do for them—they resign themselves to circumstances, and state that they are eating well and getting better up to the last. These are cases of bad augury, and it is exceedingly difficult to inspire them with sufficient energy to take exercise, or to carry out those regulations which are absolutely essential to renovate the appetite or nutritive functions. Such persons are benefited by slow travelling, cheerful society, and everything that can elevate the spirits, and, insensibly to themselves, communicate a stimulus to the mental and bodily powers. Anxiety, on the other hand, though it may sometimes depress and interfere with the digestive functions, is often a most useful adjunct to the physician. They who experience it are most careful of their health, sometimes indeed too much so; but if once satisfied of the benefit of any particular line of treatment, they pursue it with energy. These are cases of good augury, and most of the permanent cures I have witnessed have been in such persons—medical men, and others acquainted with the nature of their disease, who have exhibited resolution, a noble fortitude, and bravely struggled against local pain, general debility, and nervous fear.

The excessive confidence placed in particular remedies, such as cod-liver oil, or especial modes of proceeding, whether a sea voyage or residence in a particular climate, has done much mischief in phthisical cases. For instance, it is rare that the administration of

cod-liver oil will prove sufficient to conduct a case of pulmonary tuberculosis to a happy conclusion. It is the more important to notice this, since it has become an object of commercial enterprise, and its use in every disease advocated; for, although it will frequently check phthisis for a time, and nourish the exhausted frame, great attention to the future progress of the case, and a careful management of the various symptoms and conditions presented, will be necessary, before the crude tubercles become cretaceous and encysted, or ulcerations in the lungs completely cicatrized. At present this remedy is very extensively given, and its temporary good effects are allowed; but few persons in this country have watched for a sufficiently long time the progress of phthisical cases placed under its influence, so as to enable them to speak with any confidence as to the ultimate result. To prevent disappointment, therefore, and the abandonment of a valuable remedy from its excessive and injudicious administration, it may be useful to detail, shortly, a few cases of phthisis which have been under my observation, for periods varying from five to ten years, and indicate the other circumstances it will be necessary to attend to, with a view of rendering even cod-liver oil of permanent advantage. It is only by thus studying individual examples of the disease, and observing the numerous and varied combinations of symptoms and indications that each presents, that the special treatment of phthisis and the difficulties the practitioner has to combat, can in any way be understood. Statistical details, by which the effects of any plan of treatment are tested, by jumbling together cases essentially different in their nature and progress, so far from assisting the practitioner, or advancing our knowledge, are not only useless at the bedside, but, by causing an idea of certitude, which has no real existence, must ultimately lead to great disappointment.

The following case, which has been under my observation for ten years, will exhibit some of the numerous conditions that present themselves, and the watchful care necessary in order to conduct the disease towards a favourable termination:—

CASE XV.—*Advanced Pulmonary Tuberculosis*, 1842; *A Large Cavity in the Apex of Right Lung, and Condensation in the Apex of Left Lung, with all the Phthisical Symptoms, including repeated Hæmoptysis, in* 1843; *Arrestment of the Disease, and complete Recovery in* 1846; *Health remains good*, 1853.

A medical student requested me to examine his chest, in the autumn of 1842. He was tall, thin, and sallow, aged twenty, with frequent cough, accompanied by purulent expectoration. On percussion, there was marked dulness on the right side, beneath the clavicle. On listening in this situation, a loud mucous râle accompanied the inspiratory murmur, and there was loud bronchophony. On the left side the inspiratory murmur was harsh, the expiratory murmur prolonged, but no increased vocal resonance could be detected, and no dulness on percussion. I ascertained that his illness had been progressing slowly for at least several months, that he had latterly become much emaciated, that there was considerable perspiration at night, that his appetite had been very capricious, but was now good, and that there had been no diarrhœa. The pulse was quick, the tongue furred, and he complained of slight thirst. I learned from his friends, however, that his appetite was wretched, and that it was very seldom that he could be brought to eat any animal food whatever. This young man, therefore, had a considerable amount of tubercular exudation in the apex of the right lung, which was softening, and a much slighter amount of it in the apex of the left lung, which was still crude. I prescribed a tablespoonful of cod-liver oil three times a day, and good diet. I told him to clothe himself well, avoid sudden changes of temperature and exposure to cold, and during the winter months to confine himself to his room, the temperature of which was to be regulated between fifty and sixty degrees.

I saw him occasionally during the winter of 1842–3, during which period it became necessary to suspend the use of the oil every now and then, on account of the nausea it occasioned. His health and strength, however, greatly improved, and the moist râles entirely disappeared, although he continued to expectorate a small quantity of viscous purulent matter. It was with the utmost difficulty he could be confined to his apartment, and it at length became so irksome, that he went out without my knowledge. At first, he used

considerable caution, and no ill effect arose; but, in May 1843, I was summoned to him in great haste. He had spent the previous evening with some companions, had drank more than usual, and walked home past midnight, the weather being rather chilly. I found the cheeks flushed, strong febrile symptoms, laborious breathing; and, on auscultation, loud crepitating, passing into mucous râles were heard over the upper third of right side, with the same dulness on percussion as formerly. I prescribed quietude, with tartar-emetic and opium in large doses, frequently repeated. In a few days the fever had left him, but the moist râles in the right lung continued; the expectoration was again copious, the sweating at night had returned, and there was an unconquerable repugnance to every kind of food. Various means were tried to diminish the irritability of the stomach—effervescing powders, hydrocyanic acid, creosote, various anodynes, stimulants, alkalies, and bitters—but without avail. In June, he was reduced to a condition much worse than when I at first saw him, and was once more greatly emaciated, and so weak that he could not stand five minutes, without enduring great fatigue. I now ventured to prescribe the oil again, in teaspoonful doses, combined with a drop of the oil of cloves, three times a day. It was retained on the stomach, and was taken regularly for two weeks, at the end of which period he had greatly improved. After a time, the dose was increased to a tablespoonful twice, and then three times, a day. In August, all moist râles had again disappeared, and were replaced by a distant blowing murmur, with loud bronchophony. The apex of the left lung fortunately had undergone no change since I first examined it. He was now able to walk, his strength having been much restored; and I informed him of the critical position in which he was, and impressed upon him the necessity of great caution. He seemed thoroughly roused to a sense of his danger, and left Edinburgh to see his friends in the country.

In November 1843, he returned to continue his studies in the University. With the exception of being somewhat stronger, and in better spirits, he was in much the same condition as when I last saw him. The problem now was, how to get him over the ensuing winter. I was in hopes that if, during the next six months, no fresh exudations occurred, and the cavity or cavities in the right lung remained dry, that they might ultimately cicatrize. I therefore advised him not to attend classes at all, and make up his mind

to remain in his own lodgings, which were to be chosen especially for the purpose, and kept at an equable temperature. Accordingly, when the weather became cold—which, however, was not until January—he remained at home, and although the confinement was exceedingly irksome, he bore it with great resolution. It was about this period I first noticed strong friction or creaking murmurs at the apex of the right lung, which indicated that the pleuræ in that situation were greatly affected.

Matters remained in this condition until February 1844; I every day expecting that he would break from his confinement, or commit some imprudence which would induce flesh exudation in the lung. At this time I was sent for late at night, and found him greatly alarmed. In the course of an hour he had spat up about a pint of florid blood, and when I saw him he was coughing violently, and expectorating frothy mucus, deeply tinged of a red colour. I advised him to restrain the cough and efforts at expectoration. I sat with him some time, his excitement gradually diminished, and the cough and hæmoptysis ceased. He told me that for some days he had experienced considerable tightness and a sense of constriction in the upper and right part of his chest. On asking him whether this continued, I ascertained that it had completely disappeared. On auscultation, I heard loud friction râles, like the creaking of leather, over the apex of right lung. The inspiration was accompanied by a hoarse blowing murmur. The expiration prolonged; and there was the same loud bronchophony. Sounds over the left lung the same as formerly. It was evident to me, from this examination, that the cavity was contracting; that in doing so, some bloodvessels had been ruptured, and that much was now to be feared from repeated attacks of hæmoptysis. For a period of four months, indeed, he now had occasional returns of spitting of blood, varying in quantity, but rarely exceeding three ounces in amount, and sometimes only slightly tinging the sputa. He was treated at these times by means of quietude, opiates, and acetate of lead, none of which, however, appeared to me to possess any counteracting effect, as the hæmoptysis was evidently the result of changes in the lung, in connection with the contraction of the tubercular ulcers. He always felt more or less constriction in the chest before any considerable hemorrhage, which was invariably relieved by it. Occasionally, also, he experienced considerable dyspnœa, and an intense longing for fresh air. On one of these occasions in April, he rushed

out of his lodgings, and walked rapidly on the Calton Hill, when he found the dyspnœa left him. He insisted on repeating this on similar occasions, and he assured me it always produced the desired effect. As the season advanced, he prolonged his walks. A very common one with him was to the summit of Arthur's Seat, and in June all hæmoptysis and dyspnœa left him. He recommenced his studies also in the University at the commencement of the summer session in May.

At the end of July, I again carefully examined his chest. Although dulness under the right clavicle still continued, I was satisfied it was not so intense as formerly. On auscultation, there were loud friction noises, which completely masked the respiratory murmurs. The vocal resonance continued. On the left side there was still slight roughness of the inspiration, and prolongation of the expiration, but nothing more. His general health, though far from good, was much improved. He was still pale and thin. There was occasionally cough and tough expectoration. The appetite, he said, was good, and the bowels regular. I again cautioned him to avoid all exposure to cold and damp—to live well—to take exercise—and apply occasional counter-irritation to his chest, and he left Edinburgh for the autumnal recess.

In November 1844 he returned to Edinburgh. He was greatly improved in appearance, and described himself as being much stronger. During the holidays he had used horse exercise frequently, and been much in the open air. There was still occasional cough and tough expectoration, not tinged with blood. The physical signs were much the same as when I last saw him, although the intensity of the friction-murmurs had somewhat diminished. He positively refused to confine himself the next winter as he had done the last, being convinced that he could not breathe the confined air of a chamber without injury; and it was with some difficulty that I obtained a promise from him not to go out during wet, or unusually severe cold weather. Every other precaution to avoid exposure to cold, and all exciting causes of exudation, was to be carefully observed. He attended his classes regularly six weeks, when, owing to the weather, he lost several lectures. This caused him great annoyance —the more so, as he intended to present himself for examination in the spring.

About the middle of January, 1845, he sent for me. I found him with the face flushed, skin hot, rapid pulse, coughing violently, and expectorating a muco-purulent matter, tinged of a rusty color.

On listening over the apex of the right lung, there were heard crepitating and mucous râles, mingled with friction-murmurs similar to those which formerly existed. The rest of the lung was free. The apex of left lung was not affected. It was clear that a new attack of pulmonary congestion and exudation had taken place. He confessed that he had been very unwilling to send for me; that he had felt himself getting worse for the last week, and was conscious that the attack had been occasioned by his persistence in attending classes, and sitting so many hours probably in damp clothes and wet boots. The same treatment as was adopted on a former occasion was again put in force—quietude, with tartar-emetic and opium. In a week, the febrile symptoms had much abated, but the pulse continued quick; the appetite was destroyed, and his strength was again much reduced. All attempts to eat occasioned nausea and disgust —he could take no animal food. The tongue was loaded, and there were almost continued acid eructations. I ordered tartar-emetic ointment to the chest; and, instead of the tartar-emetic and opium internally, prescribed 8 grains of carbonate of magnesia, with ℈j. of sal volatile, to be taken three times a day in a bitter infusion. Three days afterwards, I was much alarmed at the occurrence of diarrhœa for the first time, which continued two days, and evidently diminished his strength. Fortunately it ceased on suspending the mixture, and giving aromatic and astringent powders, with a quarter of a grain of powdered opium. In the beginning of February my patient was once again reduced to nearly the same condition that he had presented three years previously. I was encouraged, however, on listening to his chest, by hearing only the friction and dry cavernous râles at the apex of the right lung. The crepitation had disappeared, and occasional mucous râle was heard about the middle of the right back. I made every effort now to re-establish the appetite, and introduce nourishment. Solid animal food and cod-liver oil were immediately vomited. All that he could retain in the stomach was a little rice pudding and milk. It was evident to me, that, unless the stomach could be quieted and rendered capable of digestion, he must sink. For two days I tried small doses of liquor potassæ and vegetable bitters, with effervescing draughts. I then gave a teaspoonful of cod-liver oil, but it caused insupportable nausea, and was vomited several times, although mixed with several essential oils in succession. The oil was therefore suspended, and ten drops of naphtha, with ℥j. of tincture of

cardamoms in ℥j. of infusion of Colomba, given three times a day. This medicine evidently checked the tendency to nausea and vomiting, and after continuing it three days, the cod-liver oil was again tried, and was now retained in teaspoonful doses. During the next fortnight it was found necessary to suspend the oil on two separate occasions, and to have recourse to the naphtha mixture. At the end of that time, however, he took it in dessert-spoonful doses, and from this period he once more began to recover.

It is unnecessary to record all the successive steps his improvement presented. In April, he could again sit up, and at this time was taking four tablespoonfuls of the oil daily. At the end of that month he went out, and commenced taking gentle exercise whenever the weather permitted; and in May, he was in much the same condition as at the commencement of the winter session. On examining his chest, I now noticed marked flattening under the right clavicle. All moist râles had disappeared. Friction râles could only be heard at the end of a deep inspiration—there was loud bronchophony, and considerable dulness on percussion.

During the summer session he attended his classes with tolerable regularity, and prepared himself for his examination. On this subject he was very anxious; indeed, much more so, it appeared to me, than he was with respect to his health. Seeing now his anxiety on this subject, I also became desirous that his mind should be relieved. He accordingly left Edinburgh about the end of July for London, where shortly after he passed the examinations at the College of Surgeons and at Apothecaries' Hall. On the approach of winter he wrote to me, saying that he was much better, and that he intended passing the winter with some relations in the West of England. He seemed to be impressed with the importance of avoiding every cause which could again excite a fresh pulmonary attack, and promised implicit obedience to my oft-repeated instructions. I heard from him from time to time, and he passed through the winter without accident.

It was in London during August 1846, that I once more examined my patient's chest. There was still marked dulness under the right clavicle, but it was by no means so deep or so extensive as formerly. There was a considerable hoarse murmur during inspiration, but the blowing character had disappeared. The expiration was prolonged and accompanied by a sibilant murmur. The vocal resonance was greatly increased. He was still pale and thin, but capable of taking

considerable exercise. Every now and then he felt constriction in the right chest, which was removed by exercise in the open air. There was also occasional cough, but no expectoration. He gave me three cretaceous concretions, about the size of large pins' heads, which he had passed up the previous spring. He lived on the plainest animal food, and drank nothing but milk and water. His appetite had of late considerably improved, and he was now free from all dyspeptic symptoms. He had continued to take three tablespoonfuls of the oil daily up to a late period. I recommended his taking two tablespoonfuls of the following mixture three times a day: ℞. Ferri. Citratis ℈ij; Syr. Aurantii, Tr. Card. c. āā ℥j; Inf. Colombæ ℥iv. M.

He now established himself as a general practitioner in one of the midland counties of England, where he has been practising ever since. In the autumn of 1849, I again saw him. His appearance then and now is robust. He takes considerable exercise daily. There is no cough or expectoration. There is considerable flattening of the chest below the right clavicle; but he inspires freely, and without difficulty. On percussion the sound is still dull, but much less so, and more limited in extent, than formerly. On auscultation, there is almost complete absence of respiratory murmurs at the apex of lung, but a little lower down there is prolonged expiration, which is gradually lost in the healthy breath sounds. There is great increase of vocal resonance, probably owing in part to the density of the adhesions, and in part to the condensation and puckering of the lung. The left lung is healthy. He took the chalybeate and bitter mixture for some time with marked advantage. He found the appetite improve and his strength increase. At present, he takes no medicine, eats heartily, and drinks only milk and water. His age is now thirty-one.

In this case (of which, notwithstanding its length, I have only given a sketch, rather than a minute report), I presume there took place in the lung the same morbid changes as were described in Case I. (p. 38.) In that case, cicatrization of the tubercular cavity occurred spontaneously—in the other, the disease was subjected to a long treatment; and it may be fairly asked, whether art was in any way connected with the happy result? A reply to this question will be facilitated by paying attention to the facts of the following case:—

CASE XVI.—*Scrofula; Necrosis of the Femur, and Pulmonary Tuberculosis, with a large Cavity in the Apex of Right Lung, and Condensation in the Apex of Left Lung, in July*, 1849; *all the Phthisical Symptoms complicated with Cardiac Disease, complete Recovery, Arrestment of the Disease, and Cicatrization of the Cavern in December*, 1851; *Health has since remained good*, 1853.

Patrick Barclay was admitted, July 25, 1849, at the age of fifteen, into the Clinical Ward of the Royal Infirmary, under my care. He was greatly emaciated, and complained of cough and difficulty of respiration, both which symptoms were easily excited, and occasionally severe and prolonged. His previous history indicated that he had been of scrofulous habit from infancy—that he had been the victim of poverty, and obtained a very insufficient diet. He had for some time been a member of the industrial school, where he was learning the trade of a shoemaker. Twelve months previously, he had injured his right thigh by a fall, since which time he had been unable to walk much, and scrofulous disease of the femur, with a fistulous opening, was induced, and was still present. He had continued to attend the school, however, until a week before admission, when the cough, expectoration, and dyspnœa, became so urgent that he was confined to bed.

On examining the chest the day after his admission, percussion determined the existence of comparative dulness over the whole of the right side, most marked under the clavicle. On the left side there was slight dulness under the clavicle. On auscultation, distinct bronchophony, with loud friction and mucous rattles, approaching cavernous, were heard over the upper third of the right lung anteriorly, and superiorly becoming more faint inferiorly. On the left side, friction noises were heard above and immediately below the clavicle. Posteriorly on the right side, the bronchophony was not so loud, but the moist rattles were the same as in front. In addition to the severe cough and dyspnœa, there was copious expectoration of a viscid frothy sputum, tinged with blood. The pulse was 114, strong and sharp. The heart's apex beat below the sixth rib; impulse increased, but percussion did not indicate lateral enlargement. On auscultation, a chirping musical murmur was heard over the apex of the heart, at the end of the first sound becoming more faint towards the base. Over the left edge of the manubrium

of the sternum, a bellows murmur took the place of the second sound, easily detected when the breath was held, but during respiration masked by loud friction sounds. The tongue was slightly furred; appetite good; some thirst; bowels regular; urine natural, specific gravity 1020, not coagulable. The chest, face, and arms were covered with a pruriginous eruption. Profuse sweating at night. On the inner part of the right thigh, about four inches above the knee, there were several cicatrices, and three sinuses which led to necrosed portions of the femur, pouring out a profuse discharge. His general weakness was so great that he could not stand. He was ordered full diet, with half a pint of sweet milk morning and evening; a dessertspoonful of cod-liver oil three times a day; an anodyne and antipasmodic mixture to relieve the cough and dyspnœa; tartar-emetic ointment to be rubbed over the upper part of right chest.

During the following fortnight, the moist rattle under the right clavicle became a coarse gurgling, but the chirping sound at the apex of the heart, although it disappeared and returned at intervals, became gradually more faint. The cough was occasionally so severe and suffocative as to induce vomiting, but appeared to be allayed on substituting a naphtha for the mixture formerly ordered. He then began slowly to improve but he was ordered to omit the oil, as it occasioned nausea, and a seton was introduced below the right clavicle. In the beginning of August, all moist rattles below the right clavicle were replaced by hoarse dry murmurs. The suffocative cough and vomiting had ceased, and he was ordered a tablespoonful of the following mixture three times a day: R. Ferri Citratis ʒss; Tr. Aurantii; Syrupi. āā ℥ss; Infus. Columbæ ℥v. On the 7th of September, his general appearance was much improved, and the sounds in the pulmonary cavity under the right clavicle continued dry. The seton produced so much local irritation that it was withdrawn. To take a tablespoonful of cod-liver oil three times a day, and omit the mixture. October 28th, the report was: "Musical murmur of the heart has entirely disappeared. He is becoming quite fat, and so strong that he is able to go about the ward all day. Complains only of slight cough at night, and palpitation on exertion. The right infra-clavicular region is becoming flat, pulmonary sounds the same. To omit the cod-liver oil. November 18—The cough has returned, with slight mucous expectoration, owing, as it is supposed, to some imprudent exposure to the weather on his part. On

auscultation, mucous and sibilant râles are heard all over the chest. He was ordered to take the oil again. From this time he rapidly improved. The cavity became perfectly dry, and respiration over it was accompanied by blowing murmurs. The cough and expectoration greatly diminished, and his general appearance became healthy, and he grew very stout. On January 13, it is noted that, on percussion, a distinct crack-pot sound is heard in the right infra-clavicular region, and faintly also on the left side. On auscultation, the heart's sounds are loud all over the chest, the second sound being accompanied with a distinct bellows murmur. Musical murmur has never returned. There is bronchophony and prolonged expiration in the right infra-clavicular region, but no moist sounds. Sleeps well, and is very little troubled with cough. Does not sweat; is very fat; appetite good. This boy, as far as all general symptoms are concerned, may be regarded as having been in good health for the last two months."

He was dismissed from the Infirmary, February 27, and visited me on the following day, when I ascertained, on careful examination, his condition to be as follows, and made the following note: "On percussion, the chest is tolerably resonant on both sides; but there is slight dulness under the right clavicle. On auscultation, the inspiration is loud, and of a blowing character, in right infra-clavicular region; but the murmur is much softer than formerly. Expiration is still prolonged, and there is considerable vocal resonance, but not amounting to bronchophony—no moist râles. In the corresponding situation on the left side, the inspiration is somewhat harsh, and respiration slightly prolonged; vocal resonance normal; loud bellows murmur, with the second sound of the heart, heard over nearly the whole chest. His general health is good; he expresses himself as being quite well. He appears stout and strong; but his countenance is somewhat sallow and cachectic. He has no expectoration or sweating, and the cough is trifling, and only present in the morning. He is about to return to the Industrial School, and resume the learning of his trade as a shoemaker."

He was readmitted into the Infirmary August 26, 1850.—After leaving the house, he had been frequently exposed to cold, but had been at the Industrial School—and latterly the cough and expectoration, which he said had quite left him, returned, and gradually became more severe. The sweating returned with the cough. A week before admission, he, with the other boys of the school,

went to Portobello to bathe, and, notwithstanding his remonstrances, the master insisted on his going into the water, saying it would do him good. He however became much worse. On admission, the physical signs were, coarse moist râle under the right clavicle, imperfect pectoriloquy, and creaking friction noises; under left clavicle, harsh inspiration, and prolonged expiration, but the dulness in this position is very slight, when compared with that of the opposite side. He again, by means of cod-liver oil, good diet, and counter-irritation, became strong and stout; the cough, expectoration, and other symptoms ceased, and he was discharged March 7, 1851. The report on that day, is "marked dulness and increased vocal resonance under right clavicle; the inspiration is harsh but dry."

He was once more admitted, July 5, 1851, and it appeared that, on leaving the ward in March, two detached pieces of his right thigh bone were extracted by Mr. Syme, and he remained in the surgical hospital for five weeks. Subsequently, he had been constantly employed in light garden work, and, notwithstanding poverty of food, he had continued in tolerably good health till a week previous. The report says: "On percussion, there is slight dulness only under the right clavicle, and posteriorly the resonance is good and equal on both sides. Under the right clavicle, the inspiration is heard to be harsh and blowing—no moist râle. There is also loud double friction murmur over the upper fourth of right lung, especially at the apex, and slight friction may be detected here and there over the whole of the right side. Under the left clavicle, inspiration somewhat exaggerated in tone, but the breath sounds everywhere normal. He looks pale and thin. There is severe cough, with mucous expectoration, but the appetite is good, and there is, on the whole, a marked improvement in his general appearance. Impulse of the heart and loud blowing murmur at the base still present. Wound in the thigh nearly healed."

He continued to do well after his admission into the house. The cough rapidly diminished, and at length was only present in the morning on waking. His bodily functions were in every respect perfectly well performed. The wound in the thigh cicatrized, and were it not for the cardiac disease, this lad might have been considered in robust health. The following is the result of a careful examination of the chest, made December 23, 1851: "On percussion, slight dulness under the right clavicle. On auscultation, in-

spiratory murmur somewhat harsh under both clavicles, but most so on right side. The vocal resonance also is slightly exaggerated over the apex on right side. In every other respect, the lungs appear to be healthy. There is great impulse of the heart still, and over the apex there is heard, with the second sound, a blowing murmur, which is very loud at the base."

I am not acquainted with any recorded case which, throughout its progress, has been examined with more care, in which phthisis in its last stage was more unequivocally manifested, and which was more decidedly the subject of a thorough cure, than the one above noticed. The lad was under my observation thirty months, and during twenty of these months he had been in the Clinical Ward, repeatedly examined by three winter and two summer classes, as well as by my professorial colleagues. Of the facts, and accuracy of the record in the ward-book, there can be no doubt; and it is equally certain that we watched the arrest of tubercular condensation at the apex of the left lung, and the cicatrization of a tubercular excavation in the apex of the right lung. Moreover, a careful perusal of the case will show that this result was not brought about by the mere spontaneous efforts of nature. On the contrary, great difficulties had to be surmounted, numerous symptoms removed, and most important complications guarded against. Indeed, the effects of treatment could never be more unequivocally manifested in any case than they have been in this. On admission, he presented the wasting characters of the disease in its last stage. The emaciation was extreme; the cough and sweating most distressing; and the physical signs demonstrated a cavity as large as the fist in the right lung. Under the use of the oil his strength rallied. After a time it was given up, on account of his becoming so fat. Gurgling râles, and other signs of softened exudation, however, once more became apparent, and again disappeared when the use of the oil was resumed. He continued to take it from time to time until the cavity had completely healed.

During no part of the time this boy was under treatment did he experience any difficulty in taking the oil. On the contrary, it occasioned no uneasiness in the stomach, and was readily digested, and this although ordinary food was at one period frequently vomited, owing apparently to the violence of the cough. Its influence on his general health was most remarkable, as well as upon the local

disease in the lungs. From a state of extreme emaciation, he became so stout that it was feared the oil would occasion obesity. It was also observed, that during its suspension the pulmonary symptoms returned, and that these, on again resuming the use of the remedy, once more disappeared. His appetite was always good—a circumstance that, from what has been previously stated, may easily be understood to have greatly facilitated the treatment, and contrasts strongly with the difficulties experienced in Case XV.

The following cases are illustrative of the advantage of the treatment previously recommended, but their histories, for the sake of brevity, are more condensed:—

CASE XVII.—*Hereditary Pulmonary Tuberculosis; Condensation with Softening of the Upper Lobe of Right Lung, and Slight Affection of Left Lung in* 1843; *All the Phthisical Symptoms, with Hæmoptysis, continued to* 1847; *then marked good Effect of Cod-Liver Oil; Complete and Permanent Recovery in* 1850; *Health continues good,* 1853.

Mr. B., whose father had died consumptive, first asked my advice in the spring of 1843, being at that time seventeen years of age. He was tall and thin, of sallow complexion, and had long been troubled with severe cough and expectoration, want of appetite, weakness, sweating, and indeed all the symptoms of advanced phthisis. On examining his chest, I found marked dulness on percussion, with loud mucous and crepitant rattles, with bronchophony over the upper third of the lung on the right side. The left side, with the exception of slight harshness during inspiration at the apex, was healthy. I recommended attention to the diet, which was to be nutritive, moderate exercise, counter-irritation, and cod-liver oil. I did not attend this gentleman regularly, although I had frequent opportunities of seeing him, as he shortly afterwards commenced the study of medicine in this University. I ascertained, however, that he never attempted at that time to take the oil, as he had an unconquerable loathing for all fatty substances; but that by means of exercise, nourishing food, and counter-irritation, his health was somewhat improved. He continued alternately better and worse for the next four years, pursuing his medical studies, the appetite

being always defective, and occasionally sweating profusely. This latter symptom caused him great distress during his attendance on the botanical class in the year 1846. In the summer of 1847, being much worse, he sent for me, and I found him greatly prostrated, with copious expectoration, tinged with blood, most abundant in the morning. The dulness on the right side was still present, and there was loud mucous rattle, mingled with creaking friction noises. The left side was tolerably healthy. I again strongly recommended cod-liver oil, and shortly afterwards he commenced taking it at first in small doses, which he rapidly increased to several table-spoonfuls in the day. From this time his health improved rapidly. In November, 1847, he called upon me, and I ascertained that all moist rattles had disappeared, and were replaced by dry blowing sounds under the right clavicle. The loud bronchophony continued. He could now, however, take long walks, and was enabled to sing for a considerable time without fatigue, as he had a good bass voice. One day about this time he spat up a calcareous concretion from the lung, the size of a small pea. In 1848, he commenced teaching medicine as a private tutor, an occupation he pursued for the next four years, occasionally undergoing great fatigue, and often being engaged from morning to night. His health, however, continued to improve; and he always found the oil act as a stimulus to him, creating an appetite, and greatly invigorating his bodily powers. In 1852, he might be said to have been thoroughly well for two years. He now obtained a commission as assistant-surgeon in the army, and after a short residence in London and Chatham, where he was considered as in perfect health by all his companions, he joined his regiment in Cephalonia in the autumn of that year. A letter received by his friends (September 9, 1853), informs them that his health is excellent, and that his old complaint seems to have completely left him.

This case is highly illustrative of the value of cod-liver oil. When, in 1843, I first recommended the patient to take this remedy, it did not possess so much of the confidence of the profession as it subsequently acquired. Indeed, about that time it was openly ridiculed by many of those who are now its warmest partisans. It so happened that Mr B., himself a medical student, and closely connected with medical men, was induced to put no faith in its good effects, and refused to try it for upwards of three years. Its repu-

tation having in the mean time extended, it was in 1847 that he was, for the first time, induced to take the oil, and, as stated in the case, with the most beneficial results. It is worthy of remark that whilst during the four years previous to his taking it, the disease steadily though slowly progressed; on the contrary, during the three years which followed, he gradually became restored to perfect health. It is, I presume, impossible to cite any single case more illustrative of the advantages of this substance. His own convictions as to its value were as strong as possible, and the remark he made as to the stimulating and invigorating powers of a single dose, especially of the brown oil, I have frequently heard dwelt upon by many other patients.

CASE XVIII.—*Tubercular Deposition, and Ulceration in the Summit of Right Lung, with the usual Symptoms of Phthisis in* 1843; *Arrestment of the Disease in* 1844; *Complete Recovery, but with slight Emphysema; Health good at present*, 1853.

Mr. B., æt. 35, a superintendent of chemical works, consulted me in 1843, labouring under cough, difficulty of breathing, slight purulent expectoration, and increasing weakness and emaciation. On examining his chest, I found on percussion, marked dulness under the right clavicle, and on auscultation a sub-mucous râle, with the inspiratory murmur, prolonged expiration with sibilant râle, friction sounds, and bronchophony. The left lung was healthy. He was ordered to take a tablespoonful of cod-liver oil three times a day, and apply counter-irritation under the right clavicle. He continued his employment, took the oil regularly, and soon observed a marked improvement in his health. He took the oil uninterruptedly for nine months. Afterwards there was occasional diarrhœa, and every now and then a return of the cough and shooting pains in the chest. He had, however, been enabled to continue his employment, and felt satisfied that the oil had been of the utmost service to him. In 1850, he informed me that he sometimes experienced a sense of constriction at the upper part of right lung, and felt breathlessness on ascending a stair or making any unusual exertion. The slightest amount of free chlorine in chloroform brought on a paroxysm of cough. On percussion, there was only slight dulness under the right clavicle, but marked increase of vocal resonance. He was

robust, and, with the exception of the occasional asthma alluded to, in perfect health. I examined his chest, September 6, 1853, and found slight comparative dulness under the right clavicle, diminution of inspiratory, with prolongation of expiratory murmur. The breathlessness on taking exertion continues, and is also excited by the fumes generated during the preparation of morphia. In other respects his health was good.

CASE XIX.—*Advanced Pulmonary Tuberculosis; Cavity in the Apex of Right Lung, with the usual Symptoms of Phthisis in* 1844; *Recovery, Arrestment of the Disease, and Slight Emphysema, in* 1846.

Robert Kerr, æt. 22, entered the Royal Infirmary, August, 1844, in a state of extreme emaciation. Such was his weakness that he could not stand without support. The disease was of at least two and a half years' standing. He has been more or less addicted to drink. The appetite had been uniformly bad, and there was often great thirst and occasional hæmoptysis and diarrhœa. There was profuse sweating at night, hollow suffocative cough, copious purulent expectoration, and great dyspnœa. On percussion, there was complete dulness under the right clavicle, and loud gurgling râle could be heard in the same situation, with perfect pectoriloquy. The left lung was comparatively free, presenting slight tubular inspiration, prolonged expiration, and no increase of vocal resonance. He came under my care in November, the treatment having previously been directed to the relief of the cough, dyspnœa, diarrhœa, and other occasional symptoms. He was still excessively weak, with profuse sweatings at night, and copious purulent expectoration. The physical signs remained the same. He was now ordered a tablespoonful of cod-liver oil three times a day, which he took regularly for three months. Two weeks afterwards he was much better, and could stand without assistance. Tartar-emetic ointment was then ordered to be rubbed under the left clavicle, and counter-irritation was kept up for three weeks. Gradually, the pectoriloquy merged into bronchophony, the gurgling râle disappeared, and was replaced by dry, hoarse, and blowing sounds. The expectoration diminished, the night-sweats ceased, the patient became evidently more robust, and, during the whole of the third month that he re-

mained under my care, he considered himself quite well. It so happened at this time that numerous cases required admission, and I found one morning (January 15, 1845), that he had been dismissed by the visiting Committee of Management, as no longer being a fit object for the charity.

I lost sight of this man for eighteen months; but one day in June, 1846, I met him on the South Bridge, looking remarkably well. He told me that he had continued taking the oil for several months after leaving the Infirmary, and had obtained employment as a labourer on the North British Railway, where he was then employed. I took him into a common stair and examined his chest. On percussion there was still marked dulness on the left side, under the clavicle. On auscultation, there was very feeble respiratory murmurs, with occasional friction sounds at the apex; but a little lower down the breath-sound was loud and the expiration prolonged. He stated that on going up a hill or a flight of stairs great breathlessness was excited, but that in every other respect he was in good health.

CASE XX.—*Tubercular Deposition and Ulceration in the Summit of Right Lung, with the usual Symptoms of Phthisis in* 1844; *Recovery and Arrestment of the Disease in* 1845.

Louisa ——, æt. 22, a milliner, applied at the Royal Dispensary with the usual symptoms of phthisis in its advanced stage, in the summer of 1844. At the apex of the left lung, there was dulness on percussion, loud mucous râle, and bronchophony. The right lung was tolerably free of disease. For the last six months she had obtained very little work, and her food was deficient both in quantity and quality. Indeed, she lived almost entirely upon dry bread and a little tea. A tablespoonful of cod-liver oil was ordered to be taken three times a day. She attended at the Dispensary two or three weeks, and, as the oil caused no nausea or sickness, four tablespoonfuls were ordered to be taken daily. I lost sight of this girl for twelve months; but she again applied at the Dispensary, in the summer of 1845, labouring under a slight bronchitic cough which she had contracted a few days previously. Her appearance was so improved that I did not recognize her; but she told me that she had taken the oil continuously for nine months, on account of the

great benefit it had produced. Gradually, all her symptoms had disappeared; she became stout and strong; and now considered herself in perfect health. On percussion, all dulness had disappeared; and on auscultation, with the exception of prolonged expiration and occasional sibilant râle, nothing unusual could be heard. I was so struck with the perfect disappearance of the disease, that I called in my colleague, Dr Spittal, who was receiving patients in another room, to confirm the absence of the physical signs characteristic of tubercular softening, which he did.

There could be no doubt as to the existence of softened tubercle in the apex of the left lung in 1844, nor of its disappearance in 1845. At both periods the girl was repeatedly and carefully examined, not only by myself, but by from six to twelve gentlemen, who constituted my poly-clinical class; and on both occasions she was the subject of lecture.

In the last six cases related, I consider that there was a permanent arrestment of phthisis pulmonalis in its advanced stage. In Cases XV., XVI., and XIX. there were distinct cavities; in Cases XVII., XVIII., and XX. the tubercle had softened, and probably occasioned small anfractuous cavities—but this cannot be determined. In Cases XV., XVIII., and XIX. the healing was followed by permanent dulness, more or less consolidation of the apex of the lung, and dense adhesions between the pleuræ covering the diseased part. In Cases XVI. and XX. the lesion probably produced a fibrous cicatrix, without adhesion or great condensation; and hence the inconsiderable dulness and vocal resonance afterwards. In Cases XVIII. and XIX. the recovery was accompanied by an emphysematous condition of the lung—a frequent accompaniment of cicatrization in part of the pulmonary tissue. That the arrestment may be ascribed to art, and was not spontaneous in these cases, will, I think, be evident from studying the facts they presented. In all of them, improvement was contemporaneous with the period when cod-liver oil was digested, and rendered assimilable to the wants of the economy, and in this respect they confirm the views I have put forth with regard to the mode in which the remedy operates.

It must not be supposed, however, that cod-liver oil is the only means of producing this result, although, for the reasons previously

given, I believe it possesses greater power as an analeptic than all others. As formerly stated, anything that will rouse the nutritive functions, whether it be improved diet, change of occupation, exercise, or even tonic remedies, that improve the appetite, may, in particular cases, be shown to produce a similar effect. As an illustration of this, I may cite two, out of a considerable number of instances which have been furnished me by my medical brethren, both treated before cod-liver oil came into use. The first case I myself examined when in Birmingham, during the autumn of 1849, owing to the kindness of Dr. Evans, whose history of it, written in 1850, I give entire.

CASE XXI.—*Pulmonary Tuberculosis, with Tubercular Consolidation and Softening at the Apex of Right Lung; All the Symptoms of Phthisis, with Hæmoptysis,* 1835; *Arrestment of the Disease in* 1837; *No Return of Pulmonary Disease up to* 1853.

"Mr. W., æt. 24, a draper, of dark complexion, black hair, and stout frame, had always enjoyed good health until the beginning of March, 1836, when he was seized with pain in the right side, attended with a troublesome cough, and expectoration of yellow mucus, occasionally streaked with blood. These symptoms were succeeded by night fever and morning perspirations, and continued until I was requested to meet his surgeon in consultation, on the 25th of June, in consequence of an alarming attack of hæmoptysis.

"June 25, 1836.—He was considerably reduced in flesh and strength. He had this morning expectorated about a pint of florid blood. Pulse 100, feeble; tongue loaded; bowels confined. I found, on percussion, decided dulness under the right clavicle; on auscultation, rather loud mucous râle during inspiration, and expiration prolonged. Percussion clear, and respiratory murmur natural, over the posterior and inferior parts of the right side. The hæmoptysis having subsided, on the 1st of July he was enabled to visit his native air in Derbyshire, where he continued until the middle of October.

"October 16.—On his return home he was much emaciated. He had still a troublesome cough, greenish-yellow mucous expectoration, which, during his absence, had been occasionally streaked with blood; evening fever and morning perspiration. Dulness on per-

cussion of the right clavicle, and beneath it, and on auscultation a loud mucous râle in the same region.

"I considered the case to be a well-marked example of phthsis; and as all his symptoms had become progressively worse since he left home in July, I represented to his friends the danger of his case, and advised him to relinquish his business.

"During the succeeding winter Mr. W. remained in Birmingham, and was confined to the house in rooms of uniform temperature. Mild tonics, consisting of the different preparations of iron, and decoct. sarsæ., etc., were given, and a nutritive plan of diet observed; and, with exception of a few interruptions to his progress, he gradually improved. In February, 1837, he had increased in weight and strength, and in the middle of June he had so far recovered that he was enabled to resume his business.

"During the last thirteen years Mr. W. has been liable to a cough in the winter, but during the summer he has usually been free from cough.

"At present Mr. W. is perfectly well. He is stout and rather corpulent; and weighs upwards of thirteen stone. On examining his chest to-day (August 10, 1850), on percussion the right clavicle is slightly duller than the left. On auscultation, the respiration is rather coarse, expiration prolonged, without any moist râle beneath the right clavicle.

"There exists no tendency to phthisis in Mr. W.'s family—his father is still alive—his mother died of acute disease—he has several brothers and sisters living."

In a note I received from Dr. Evans, dated June 18, 1853, in reply to interrogatories directed to ascertain the nature of his diet during the winter of 1836, as well as his then condition, he says: "Mr. W.'s recovery followed a mild and nutritive plan of diet, consisting of milk and light animal food, but fat, etc. did not constitute an essential part of his diet.

"I have been consulted by him on several occasions since your visit to Birmingham, in consequence of hepatic and gastric symptoms, caused by excess in eating and drinking, and to the latter habit he has been addicted for several years. He is at present thinner than he was when you saw him; but he has had no return of the pulmonary symptoms. The loss of flesh is, I believe, to be attributed to his habit of taking stimulants."

Here, then, is a case of advanced phthisis, arrested in the spring

of 1837, and continuing well up to the present time, a period of sixteen years. Although fat, it is said, did not constitute an essential part of his diet, it must be evident that, during the winter and spring of 1836–7, the nutritive functions were improved by the hygienic and medical treatment employed. The emaciation visible in October of the former year, disappeared in the February following, when he increased in weight and strength, and under this improved constitutional state the pulmonary disease was arrested and has never since returned.

The following case, that of a medical man, written by himself, was sent to me by Dr. Corrigan, who, in a note dated September 17, 1850, says of it: "Of Dr. F.'s case I can have no hesitation in making a positive assertion. I never had clearer evidence of the existence of a cavity, than in my examination of his chest, when I saw him in 1840. He is now, as you will see, in rude health, in charge of a dispensary district, as its medical officer, in one of the mildest parts of Ireland."

CASE XXII.—*Pulmonary Tuberculosis, with a Cavity in the Apex of Left Lung; All the Symptoms of Phthisis, with Hæmoptysis, in* 1840; *Permanent Arrestment and Recovery in Fourteen Months; Health reported good by himself in* 1850.

"July 2, 1850.

"MY DEAR DOCTOR: I received your note, and as I am indebted to you for my life (under God), the least I can do is to remind you of the means you used to preserve it. In the end of May, 1840, I got ill and was treated for fever, though I think myself it was inflammation of the lung. I had great pain on the top of the left one, and behind, under the shoulder. I wanted them to bleed, leech, or blister me, but they would not. I got well, however, and went twenty-five miles inland for a fortnight. On my return, the cough which had attended the latter part of my illness and convalescence increased, and one morning I spat up a quantity of blood. I was then blistered and leeched; got first acid sulph., then prussic. I had night-sweats and lost flesh. In fact, I was a regular shadow. Had three returns of bloody expectoration at intervals of about ten days, being in the intervals purulent. In this way, I continued till about the middle of September, when, having been informed that three of my four medical attendants had not given me a very long day, to wit, a month, I started for Dublin by easy stages. On my

arrival, Mrs F. called on you to know what time I would find you at home; but you most kindly insisted on coming to me, which you did next day, examined, and ordered me 20 gr. tart. of iron, three times a day, with four leeches to my chest. Having inquired into my habits, and finding that I took *three* or *four* glasses of punch every night previous to my illness, you ordered me a glass of porter and broiled meat about three every day. I improved, had no bad symptoms; but after a few days you put a seton in my chest, under the left clavicle. You also ordered me to wear flannel instead of cotton. Dr. Stokes saw me after, both at his own and your house. I continued the tart. of iron for about six months; the seton wore out in about nine. I had another put in, which I wore for about five months, putting on, now and then, a very small blister or two leeches. I gave them all up about fourteen months after I put myself under your care, and have never since, thank God, had one moment's sickness, nor have I taken a grain of medicine of any kind, except while taking the tart. of iron, for ten years. I have lots to do, must ride or drive nine miles every day, and after all this work I am *twelve stone four* this day. If I have forgotten anything you will let me know, and always believe me to remain, my dear Dr.,

"Most faithfully and sincerely yours, "C. F.

"Dr. Corrigan."

In this, as in the last case, iron was given as a tonic; but I have written to little purpose, if it be not evident to the reader that the generous diet, the porter and broiled meat, in short, the improved treatment, assisted perhaps by the change of scene, confidence, hope, and all those circumstances which tend to renovate the nutritive functions in a debilitated constitution, were the real cause of the improvement. Here, also, the recovery was permanent.

I could easily cite a greater number of similar cases, but as they only exhibit the same fact, and indicate the advantage of the analeptic treatment in procuring permanent arrestment of pulmonary tuberculosis, even in its most advanced stage, nothing could be gained by doing so.

Our ideas with regard to the good effects of treatment, however, would be very limited, if we confined our observation merely to such cases as could be shown to have undergone a permanent cure. Such is the difficulty of following the progress of these cases, that they must always be limited in number. I am disposed, however, to believe, that the more extended our knowledge of the pathology

and diagnosis of phthisis becomes, and the more generally a treatment, founded on the principle I am contending for, is adopted, the more they will increase in number. But the advantage of an analeptic treatment may be observed in most cases of phthisis, although a permanent cure is not attained. Life may certainly be prolonged, and the distressing symptoms greatly ameliorated. No doubt it will always be difficult to ascertain how much of the benefit is to be attributed to art, and how much to nature; but when we ascribe an analeptic power to an oleaginous substance, and find, on its administration, that the nourishment of the individual is improved, that his strength augments, and a check is given to the disease, our faith in the remedy increases the more frequently these circumstances are witnessed.

I could give a great number of cases observed in private, dispensary, and hospital practice, in which the apparent good effects of the treatment were extraordinary, but in which either the termination of the case is unknown, or where the disease ultimately proved fatal. The following are instances of this:—

CASE XXIII.—Agnes M'Laren, married, æt. 45, admitted into the clinical ward, No. 12, of the Infirmary, November 22, 1844, has suffered from ill health and occasional cough for the last four years at least. This is the fifth time she has been in the house, from which she has always been discharged as relieved, after a treatment varying from two to four months in extent, and consisting, in addition to cough mixtures, anodynes, antispasmodics, astringents, etc., of good diet. At home, lives principally on a little tea and dry bread, with potatoes or porridge for dinner. About once a week, she has broth or a little meat. On admission, a large cavity was detected in the apex of the left lung, and there were signs of crude tubercle in the apex of right lung. There was great emaciation, considerable sweating, purulent expectoration, and occasional diarrhœa and hæmoptysis. She remained in the house four months and a half, having been treated with cod-liver oil, counter-irritation to the chest, and good diet. She was dismissed April 10 at her own request; on which day the report is as follows: "Dulness under left clavicle; dry blowing murmurs in this situation, both with inspiration and expiration, which have been present without change for at least two months. Cough and expectoration trifling. General health good. She says she has not been so strong for the last five years."

In the course of a few months this woman applied at the Royal Dispensary, with the cavity full of pus, and a return of the emaciation and weakness. She was treated with cod-liver oil, but was unable to procure good diet. She again entered the Infirmary, and during the next three years she was alternately getting better in the house, and worse at home. I saw her for the last time at the Dispensary in 1848, when the cavity was evidently much contracted. The conclusion of the case is unknown.

Case XXIV.—Jane Maitland, æt. 30. This woman had a considerable cavity in the apex of the left lung, with loud gurgling, and perfect pectoriloquy. Between the years 1842 and 1847, she had been in the Infirmary, under different physicians, at least seven times, and probably oftener. Her history is almost the same as the last, with the exception that she was never so much emaciated, and only felt great weakness; always getting worse on the bad diet she had at home, and as regularly getting better during her residence in the Infirmary. The termination of her case is also unknown.

It has always appeared to me that cases of this kind not only exhibit the best proofs of the advantage of treatment, but of the causes which induce and keep up the disease—the benefit invariably corresponding with the residence in the Infirmary, and the disorder becoming worse when, on going out, the patients were exposed to hardships and bad living.

I have confined my illustrations of the treatment of phthisis to well-marked cases, in which it was far advanced, and I think that the facts recorded hold out to us great encouragement in the future management of this formidable disease. In the early stages this is not so difficult, and it is comparatively much more successful; not, indeed, that even then it is always easy to overcome the dyspepsia and other causes which tend to produce and keep up the disorder. When the stomach is deranged, it often requires a variety of remedies to counteract its irritability and acidity, before nutritive substances can be taken. In other instances, however, especially when it exists in the half-starved poor, food is taken readily, and then amendment is generally soon observed. The following case is a good illustration of that form of phthisis so frequently met with in practice, in which the appetite is defective:—

CASE XXV.—*Advanced Pulmonary Tuberculosis; Great difficulty in introducing Nourishment, but when at length Cod-liver Oil was assimilated, marked Improvement; Death from want of perseverance in remedial measures.*

Jane Hamilton, a dressmaker, æt. 18, admitted into the Royal Infirmary, September 12, 1849. She stated that last April her general health began to fail; the appetite was bad; cough with expectoration came on; cold sweats appeared on the face, hands, and feet; the catamenia, which had never been very regular, were suppressed; and she became so weak that she could not stand. Since then there has been a temporary improvement; but for some time back she has again become worse.

On admission, she was pale and emaciated, and so weak that she was unable to sit up above a few minutes at a time. There was copious perspiration during sleep, a severe cough, with abundant yellowish viscid sputa—no pain in the chest, which was well formed externally. The tongue was covered with a brown fur; appetite capricious and bad; bowels open every second day. The treatment consisted of tonics, expectorants, and counter-irritation to the chest, which produced considerable amendment. I took charge of the case in the middle of *October*, and found, on careful percussion, dulness below the right clavicle, with loud mucous râle over the upper third of right chest. There were also sonorous and sibilant râles over the greater part of both lungs, anteriorly and posteriorly. By means of expectorants and counter-irritants, the bronchitic symptoms and signs were subdued by the 1*st of November;* but the dulness and moist râles under the right clavicle still continued. *A tablespoonful of cod-liver oil was then ordered to be taken three times a day.* The remedy was suspended on the 8th, on account of a febrile attack she then experienced, which was ushered in with headache and rigors, and accompanied with accelerated but soft pulse, heat of skin, loss of appetite, frequent nausea and vomiting, and considerable spinal irritation. It was not until November 30 that these symptoms were so far removed, and the tone of the stomach augmented—by means first of antimonials, and subsequently of naphtha, alkalies, vegetable bitters, and stimulants—that the oil was again ordered. It produced considerable nausea, however, so that, after persevering in its use for ten days, it was again suspended. It was once more had recourse to on the 14th of December, and was readily retained on the stomach. A few days

subsequently the dose was increased to four tablespoonfuls daily. *December* 30.—The report to-day is: "A very evident improvement in the general health. Her strength is so far increased that she sits up a considerable portion of the day. The perspirations have nearly disappeared. The expectoration is still thick and purulent, but not so copious. She is evidently much stouter, and the skin is of a more healthy colour. The catamenia have also reappeared. There is still dulness under the right clavicle on percussion. The coarse moist râle has disappeared, and a fine crepitating murmur only is heard with the inspiration towards the acromial end of the clavicle. There is prolonged inspiration, and increased vocal resonance." From this time she continued to improve. On the 1st of January, the oil was reduced to three tablespoonfuls daily. A small blister was occasionally applied to the upper part of right chest anteriorly, and an expectorant mixture given to facilitate the expectoration, which, though diminished in quantity, retained its viscid and purulent character. On the 30*th of January* the inspiratory murmur had acquired a certain degree of harshness, but here and there very fine crepitation could still be detected. Notwithstanding my earnest advice to the contrary, she insisted on leaving the Infirmary, and did so February 24.

She called at my house on the 7th of March, when I examined the chest carefully. There was still dulness, but not so marked as formerly, under the right clavicle; no crepitation on auscultation, but harshness of the inspiratory murmur, prolonged expiration, some friction noises, and increased vocal resonance. She was stout, of healthy appearance, and expressed herself as being quite well; but the expectoration of purulent matter still continued to a slight degree, with occasional cough. Shortly afterwards, she went to Dundee to carry on her occupation as a milliner, where the confinement, late hours, and irregular food, soon caused a return of her more urgent symptoms. She again entered the Infirmary, and once more, after a few months, she was dismissed relieved. On the last occasion, she was admitted August 19, 1852, the disease having progressed to its last stage during the interval. She died September 8.

In some particulars, this case may very instructively be contrasted with several others in which the loss of appetite, and difficulty of nourishing the system, were not so well marked. Suppose, for instance, we compare it with that of the boy Barclay (Case XVI.), although the local disease had not proceeded so far. The physical

signs in the girl exhibited at most bronchitis, with softening of the tubercular exudation at the apex of the right lung, whereas in the boy they demonstrated that a large cavity existed in one lung, whilst the other was also affected. There was the same general prostration, however, and the same emaciation, excessive weakness, profuse perspiration, purulent expectoration, and distressing cough. But there was this difference in the antecedent circumstances of the two cases—namely, that the boy had a good appetite, but had been subjected to an insufficient diet, whilst the girl had no appetite, but possessed the means of gratifying it. In the first case, nutrition was affected from food being in deficient quantity, the digestive organs being tolerably healthy; in the second, it was brought about on account of the dyspepsia and disordered state of the stomach rendering it impossible that a sufficient quantity could be consumed. The result in both was the same—namely, impoverishment of the blood, and tubercular exudation into the pulmonary organs.

The practical management of these two cases was considerably modified by the circumstances to which I have just alluded. In the boy, there was no difficulty in overcoming the imperfect nutrition. We have seen that he took the cod-liver oil, and digested it and his food with the greatest facility. In the girl, all thoughts of food caused disgust, and the cod-liver oil produced nausea, and for some time could not be tolerated. For a considerable period, therefore, my exertions in the treatment of this case may be considered as preparatory to the diminution of the phthisical symptoms, and directed to the removal of those complications which prevented any successful attack on the more important disease.

Thus, my first efforts were directed to removing the bronchitis, which was accomplished by means of expectorants and counter-irritants. Cod-liver oil was then ordered, but it occasioned nausea, and was suspended on account of a febrile attack she now experienced. On her recovery from this, the nausea, vomiting, and dyspeptic symptoms were treated by means of naphtha, alkalies, vegetable bitters, and carminatives, with apparent success; but on recurring to the oil, they again returned; so that, after persevering for ten days, it became again necessary to give up its employment. In a few days, however, it was once more tried, and on this occasion with success. It was taken readily, a marked amendment followed; the dose was increased to four tablespoonfuls daily, and it was astonishing to see how rapidly she improved. Her strength increased, the emaciation and cachectic look disappeared, the skin assumed a

healthy colour, and she became positively stout and fat, so that she was scarcely recognizable. The cough almost ceased, the expectoration greatly diminished, the perspiration did not appear at night, the catamenia returned, she sat up the entire day, and at length considered herself so well, that, on being allowed to leave the hospital for a day, she did not return. She called on me a few days afterwards, when I found that, although the constitutional symptoms had almost entirely disappeared, and her general health might be called good, traces of the local disease were still apparent, as stated in the report. This case, therefore, exhibits the obstacles which the physician has not unfrequently to overcome before he can carry out that line of treatment by means of which the abnormal nutrition is to be obviated, and the tubercular exudation checked; but it also inculcates the importance of perseverance, and exhibits the good effects which may result from persisting in a treatment dictated by correct pathological principles. This girl, when her general health became better, insisted on going out of the Infirmary, when, once more exposed to her unhealthy occupation and bad diet, her symptoms returned; the disease, which had been arrested, again made progress, and she died. But there is every reason to suppose that, if she could have been retained in the house as the boy Barclay was (Case XVI.), that then, as in him, the disease might have terminated in a perfect recovery.

The foregoing cases serve to illustrate the occasional success, as well as the difficulties and causes of failure, which attend the treatment of pulmonary tuberculosis. These latter, from being known, will serve to point out where the efforts of medical men should be directed, and how art may be brought to operate with the greatest effect. Nothing seems to have been better demonstrated from the past history of medicine, than that empirical rules and practice (understanding by empirical mere experience) have had little influence in checking the mortality of phthisis. It is to be hoped that principles founded on a correct pathology, and a practice directed to improving the nutritive functions, rather than the palliation of leading symptoms, may be attended with better success. For my own part, I feel convinced that the doctrines advanced in the foregoing pages are founded on truth, and that their recognition will commence the fulfilment of a prediction made by Dr. Stokes, of Dublin, in the following words: "There can be no doubt that, as medicine advances, the cure of consumption will be much more fre-

quent; its nature will be better understood, its first stages more commonly recognized, and the disease prevented from proceeding to incurable disorganization."[1]

It ought not to be supposed, however, that this most fatal and dreaded disorder, when far advanced, is capable, under the best system of treatment, of being permanently arrested in the majority of cases. Every morbid anatomist who knows the destruction of the tissues involved, and every pathologist acquainted with the progress and protracting character of the disease, must share this opinion. It should be remembered that it is only within the last eight or nine years that the spontaneous arrestment of pulmonary tuberculosis has been generally admitted by the profession, and that this has been established rather by the evidence of morbid anatomy than by the flattering accounts of individual practitioners. In all the cases previously given, upwards of twelve months have been required to produce the good result described, and many practitioners, who still believe the disease to be invariably fatal, argue that it may return in periods varying from fifteen to thirty years. As the experience of cod-liver oil and of an analeptic treatment does not extend, in this country, further back than twelve years, this objection cannot as yet be met, although isolated facts incontrovertibly demonstrate (such as that described p. 38) that the pulmonary ulceration has been completely healed. I shall continue to watch the cases already recorded, as well as many others which have for a shorter period been under my observation, with a view to a further contribution to the pathology and treatment of this disease.

The chief danger now to be apprehended, is that many members of the profession, from a state of hopelessness with regard to pulmonary tuberculosis, will run into the opposite extreme, and that we shall be inundated with successful cures of consumption. I have already met with instances where the positive assertions of the medical practitioner have not been warranted either by his diagnostic powers, or by the rapidly good effects of his practice. On the whole, however, I believe that the errors of diagnosis and of a sanguine disposition in this respect, will be more advantageous to the public at large, than those which have so long prevailed in connection with the supposed necessary fatality of the disease, and that a general adoption of the nutritive plan of treatment will be followed by better results than those which characterized the old palliative system.

[1] Stokes on Diseases of the Lungs, p. 438. 1837.

CHAPTER IV.

OBSERVATIONS ON THE USE OF LOCAL APPLICATIONS TO THE PHARYNGEAL AND LARYNGEAL DISEASES WHICH ARE FREQUENTLY MISTAKEN FOR, OR ASSOCIATED WITH, PULMONARY TUBERCULOSIS.

To enter upon the pathology and treatment of the numerous diseases which may be complicated with pulmonary tuberculosis, would be to write a work on most of the disorders to which the various textures and viscera of the body are subject. The treatment of the symptoms they occasion has been already alluded to. In this place, I propose to confine my remarks to the laryngeal and pharyngeal affections which are so commonly associated with phthisis, and to which many of those symptoms generally attributed to the pulmonary lesion are not unfrequently owing. My attention was first directed to this subject by the following case:—

Case I.—On the 11th December, 1849, Captain B. entered my room, to consult me regarding an occasional expectoration of blood, which caused him, but more especially his lady, much anxiety. He was a tall, vigorous-looking man, between thirty and forty years of age, who had no cough or any complaint whatever, but from time to time had hawked up a small clot of blood about the size of a pea. On a few other occasions, he had observed some mucous expectoration tinged or streaked with blood. His chest was finely developed, and its most careful examination failed to elicit anything abnormal.

His appetite and digestive functions were excellent; and, as commandant of a depot in the neighbourhood of Edinburgh, he had never experienced uneasiness from his professional duties. After repeated examination, I had no hesitation in stating that the lungs and large vessels were perfectly healthy, and that I hoped the expectoration of blood would cease spontaneously.

The origin of the blood in this case appeared to me at that time to be very mysterious. It was not florid. There was no reason to suppose it to be of pulmonary origin. There was nothing in his voice to indicate laryngeal disease. I did not examine the pharynx, not being then aware of the importance which ought to be attached to it. I was consequently left in great doubt as to the

origin of the blood, and of the best means of removing anxiety from my patient. My uncertainty, however, was partly dispelled by the following case:—

CASE II.—I was requested by an assurance office, in July, 1850, to examine the chest of Mr M., a merchant, aged about 30, who said he laboured under no kind of complaint, with the exception of occasional sore throat, and expectoration of mucus tinged with blood. He was tolerably stout, took long walks without uneasiness, and suffered from no difficulty of respiration or from cough. Repeated examination of his chest failed to elicit any physical sign indicative of pulmonary disease. I therefore certified that his lungs were healthy. In October, 1851, this gentleman called upon me again for advice, under the following circumstances. The soreness of the throat had latterly increased, and considerable cough was induced, after which he spit up mouthfuls of purulent matter, frequently tinged of a red colour. He brought me some of this sputum to examine, which consisted of mixed blood and pus, of a dirty brick-red colour. Examination of his chest again convinced me that the lungs were unaffected; but in the interval I had paid attention to the writings and practice of Dr. Horace Green, of New York; and I now examined his throat, when the cause of his symptoms was at once apparent. The fauces and upper part of the pharynx were studded over with nodular swellings, varying in size from a pin's head to that of a pea. Many of them were bright red and fungoid in character, probably the origin of the extravasated blood, whilst considerable patches of purulent matter adhered to several parts of the mucous membrane. I applied a sponge, saturated with a strong solution of the nitrate of silver, to the affected parts. In three days he returned, having been much relieved, when the application was repeated. I have not seen him since.

These two cases convinced me that certain symptoms, which have hitherto been considered as indicative of phthisis, might have their origin entirely in the fauces, pharynx, and upper part of the larynx. The cough so occasioned, with the purulent expectoration, often tinged with blood, frequently so resembles that occasioned by phthisis, as not only to induce alarm in the minds of the patients, but frequently to mislead the medical practitioner. I have now met with many such cases, which have been mistaken for phthisis, and which have been treated for that disease without any effect, until local remedies were applied, when they, for the most part, disappeared, or became much better.

The following case illustrates still further the occasional similarity of laryngeal disease to phthisis pulmonalis, and the erroneous treatment to which error in diagnosis may lead.

Case III.—Margaret D——, a staymaker, æt. 25, admitted to the Royal Infirmary, September 9, 1851, labouring under occasional vomiting, frequent cough with hæmoptysis, and copious purulent expectoration. There was considerable sweating at night, and her general health, owing to want of sleep and the harassing cough, was much broken down. At the commencement of the winter session in November, I found her taking an acid mixture to relieve the sweating, a cough mixture to diminish the cough, together with cod-liver oil. The chest had also been blistered. Careful percussion and auscultation convinced me that the thoracic physical signs were perfectly normal. I then examined the fauces, which were covered with purulent mucus, but presenting here and there red and prominent follicles. The cough was also ascertained to be convulsive, the voice hoarse and broken, and, on placing the stethoscope over the larynx, a loud ringing sound accompanied the inspiration. From these facts I had no difficulty in diagnosing laryngitis; and on ascertaining that the woman was a prostitute, and addicted to drink, there could be little doubt that it was of syphilitic origin. The fauces were freely touched with a solution of nitrate of silver (ʒss to ℥j of water). This was repeated on the following day, and on the next the upper part of the glottis was touched, causing severe convulsive cough. I subsequently passed the sponge, saturated with the solution, into the larynx every second or third day during the month of November, which at first caused very severe and prolonged convulsive cough, that gradually became somewhat diminished. On the whole, however, no great amendment was produced, although the expectoration and cough during the intervals were lessened. The local applications were then suspended, but it soon appeared that they had been beneficial in checking the symptoms, from their severity again increasing, especially the amount of expectoration streaked with blood, and the want of sleep at night, owing to the severity of the cough. In the second week of December, therefore, the topical applications were resumed, together with occasional blisters to the larynx, and once more a certain amount of benefit was obtained. But as this treatment, combined with the internal administration of iodide of potassium and bitter infusions, for a period of four weeks, seemed to produce no further improvement, she was dismissed on January 7, 1852.

In this case all the symptoms of phthisis pulmonalis were present, including emaciation, profuse sweating, cough, expectoration of pus mingled with blood, bad appetite, hectic; and in consequence, cod-liver oil, cough mixtures, acid drops, wine, and good diet were administered, and all without effect. Indeed, her appetite was so bad, that the diet was not taken, and nutrition suffered. When a careful examination of the chest enabled me to form a correct diagnosis, the treatment was changed. The cough and acid mixtures were abandoned, the stomach gradually regained its tone, her appearance slowly improved, and although, from necrosis of the ossified cartilages, the local disease was not removed, it was considerably benefited by topical applications.

CASE IV.—Miss G., æt. 26, had been treated by a homœopathic practitioner, for three years, who informed her that she was labouring under consumption, and at last advised her to go to Australia. Her friends, unwilling that this sentence of banishment should be carried out without further advice, brought her to me on the 19th of October, 1852. I failed to discover the slightest disease of the lungs, either by percussion or auscultation. On the contrary, repeated examination convinced me that the inspiratory and expiratory murmurs both possessed their natural softness and duration. There was, however, frequent cough with copious purulent expectoration. She had had constant sore throat since her childhood, and was labouring, in addition, under headaches, loss of appetite, constipation, leucorrhœa, excessive menstruation, hemorrhoids, occasioning frequent hemorrhage, so that she presented the anemic appearance, with all the symptoms, of confirmed chlorosis. When I informed her that her lungs were not diseased, and that her cough entirely depended on some affection of the throat, she would not believe me. She had so long been convinced that her case was one of consumption, and that nothing but a change of climate could be of any advantage to her, that I think it was with some reluctance she heard a different opinion advanced. To oblige her relations, however, she allowed me to apply the solution of nitrate of silver first to the fauces, and subsequently down the œsophagus. She then became convinced that there was a spot at the upper part of the throat which, when touched, gave rise to burning pain, induced severe spasms for a few moments, and subsequently left her free from cough and uneasiness. The applications were consequently continued every other day, and were conjoined with the internal administration of iron and vegetable bitters. Under this treatment she improved much in health. I soon

perceived, on passing the sponge, that there was a constriction at the upper part of the œsophagus, the nature of which caused me considerable anxiety. The case, however, soon resolved itself into one of hysteria and spinal irritation, with all kinds of nervous symptoms; simulating in turn paralysis, spasms, uterine, abdominal, pulmonary, cardiac, and other painful functional disorders. She is now greatly relieved from these, and the pharyngeal disease has been completely removed.

Even when the lungs are decidedly tubercular, much of the cough and irritation may be owing to laryngeal complication, although, in the majority of cases, they are attributed to the pulmonary disease. I am satisfied that the constant cough and succussion of the chest so occasioned, increases, if it does not actually sometimes induce, pulmonary disease, especially the most common of all phthisical complications—bronchitis. I was very much struck with the amount of cough in the following case, which was removed by paying attention to the laryngeal complication.

Case V.—Dr. C————n, a medical man, about 25 years of age, had long suffered from delicate health, and latterly the fatigue of his practice, which necessitated long journeys on horseback, frequently in the middle of the night, had induced constant coughing and thoracic pain. He had found such remedies as cod-liver oil, expectorants, demulcents, anodynes, useless. On examining his chest, there was slight dulness on percussion under one clavicle, somewhat harsh inspiration, and prolonged expiration in the same situation, with a little increase of vocal resonance. The disease in this case was evidently incipient, and yet I noticed the violent suffocative cough, followed by expectoration of purulent mucus, and was struck with the evident disparity between the incipient pulmonary lesion and the advanced cough and expectoration. This was explained by inspection of the fauces, which were red, rugous, and covered with patches of pus. Further, it was clear from the symptoms that the glottis was also affected. The local application, every alternate day, of a sponge saturated in a solution of nitrate of silver, was soon followed by the best results, and in a few weeks the cough entirely ceased, and with good diet he regained his general health, although the pulmonary signs remained unchanged.

The removal of the cough and expectoration in this case, although incipient phthisis was undoubtedly present, proves that the former were in no way caused by the latter, which continued to remain, notwithstanding the disappearance of his distressing symptoms.

Expectorant and anodyne remedies, in such cases, are evidently useless and even injurious. Useless, because it cannot be supposed that squills, ipecacuanha, etc., by being introduced into the stomach, can act upon the follicular disease of the pharynx and larynx; and injurious, because these remedies, combined as they usually are, with opium, occasion nausea, derange the appetite, destroy the capacity of taking food, and thus cause that diminution of vigour in the patient, so favourable to the development of the pulmonary tubercular exudation. In the following instance, a better result was obtained.

Case VI.—Dr. B., æt. 34, a medical practitioner in the island of Surinam, applied to me, during a visit he made to this country, in June, 1850. He had frequent cough and sore throat, with copious expectoration, increased by exposure to cold. There were also the usual symptoms of incipient phthisis. On examining his chest physically, I discovered comparative dulness under the right clavicle, slight crepitation with the inspiration, prolonged expiration, with marked increase of the vocal resonance; the left lung was healthy; the mucous membrane of the fauces was of a dark red colour, scattered over with prominent follicles. I applied the sponge first to the fauces, and afterwards introduced it into the larynx every second day, with evident benefit. He also took cod-liver oil, with an alkaline and vegetable bitter mixture. In the autumn, he returned to Surinam, and soon afterwards informed me by letter that his health was greatly improved. He again visited Edinburgh in August, 1851. The throat had latterly again become troublesome, from exposure to the inclemency of the weather; but on examining the chest, although there was still slight dulness and increased vocal resonance under the right clavicle, all crepitation had disappeared. He spent the following winter at Sligo, and in the summer of 1852 commenced practice in a large village in Perthshire. Last month he again visited me, and asked if he could venture to propose the insurance of his life. On percussing the chest, no dulness could now be discovered, a mere shade of increased vocal resonance remained, and the breath sounds were perfectly natural. Under these circumstances I considered his phthisis to be arrested, and had no hesitation in sanctioning his application to an Edinburgh life insurance company, which at once admitted him without any extra premium. I am of opinion that the arrestment of the phthisis in this case was mainly due to the good effects of the applications applied to the pharynx and larynx, and that the diminution of irri-

tation there, and the removal of the cough, enabled the exuded tubercle to become absorbed with more readiness than it would otherwise have done.

I might give a considerable number of cases in which laryngeal symptoms have been more or less mistaken for, or complicated with, phthisis, and which have been greatly benefited by a local treatment. At the same time, I need not say that there are a large number of cases in which no such complication exists, and that they must be judged of only by a careful auscultatory examination of the lungs and larynx, and by inspection of the pharynx. I have also had abundant opportunities of satisfying myself that many so-called cases of chronic bronchitis in persons of advanced life, are entirely owing to throat disease—a point, however, which has been so ably illustrated by Dr. Horace Green, that I need not dwell upon it here.

The propriety of local applications in cases of tubercular ulceration of the glottis or larynx has in this country been much doubted, although highly recommended by Dr. Horace Green. The following case, in which the larynx was greatly involved, has served to persuade me of its occasional benefit.

Case VII.—Mr. P., an advocate, spent the winter of 1851–2, at Torquay, and consulted me in March following. He was thirty-nine years of age, and told me, in a hoarse whisper, that for three or four winters previously he had suffered from cough, with discharge of matter from the nose. During the summer, he was quite well. While resident in Devonshire, he gradually lost his voice, and his medical attendant there had passed a sponge, saturated with a solution of nitrate of silver, every day—a treatment, however, that had failed to arrest the aphonia, which, when I saw him, was complete. On examining his chest, I ascertained that there was impaired resonance under both clavicles, with harsh and blowing murmur on inspiration, which left little doubt that the pulmonary organs had been long affected, but were now in a quiescent state. His countenance was expressive of much suffering; there was considerable emaciation, great weakness, profuse sweating; and he complained of almost constant spasmodic cough, which shook the entire frame. There was pain and dryness of the larynx and throat, frequent expectoration of purulent mucus, often streaked with blood. Difficult deglutition, especially of fluids, which never failed to excite cough and prolonged spasms. On placing the stethoscope over the larynx, inspiration was accompanied with a hoarse sound; and on inspecting the fauces and pharynx, the mucous surface was seen to

be rough, sprinkled over with red prominent follicles, and streaked with adherent purulent mucus.

As this gentleman assured me that the sponge had been daily passed into the larynx by his medical attendant at Torquay, I did not hesitate to introduce it at my first visit. There followed, however, the most violent general spasms, the greatest difficulty in inspiration, rendering suffocation imminent, and then prolonged cough shaking the body, accompanied with purulent expectoration tinged with blood. The violence of the spasm somewhat abated in from two to three minutes, but he was unable to address me for ten minutes more. He then said that he had never experienced similar sensations previously, and was satisfied that the sponge had never been introduced into the larynx at Torquay, as he had been informed that it had by his medical attendant there. On visiting him the next day, I learned that the local application had been productive of the best effects, that the cough and spasms had entirely ceased, deglutition had been performed with more ease, and that he had passed a better night than he had enjoyed for many months. His appetite, I understood, was not good, and he had for a long time laboured under dyspeptic symptoms. I recommended him to remain quiet, not to speak, and to take a nutritious solid diet. In the course of the night the cough and spasms returned, and next day I again passed the sponge, which once more excited spasms and suffocation, but not to so great an extent as on the former occasion. I continued to pass the sponge every other day, and its good effects were well marked. In a fortnight it excited little irritation, and was invariably succeeded by a sense of ease, diminution of cough, which generally continued to the following night. He was now also enabled to swallow his food with more comfort and more abundantly, and in consequence his general strength was slowly improving.

During the months of April and May, the local application was continued every second or third day. Towards the end of that month he was enabled to take short walks, and instead of my going to him at Morningside, he came into Edinburgh and visited me. I had great difficulty, however, in preventing him from endeavouring to speak, and he was continually exciting the vocal cords. Indeed, there could be little doubt that the voice, though not distinct, was much better, and occasionally, on making an effort, he was pleased to hear himself utter articulate sounds. He now changed his residence, and, it is presumed, from having slept in a damp bedroom, or from some other cause, a fresh attack of laryngitis was produced,

attended with return of the cough, pain in the throat, and spasms, with fever and great restlessness at night. The pain was sometimes most severe on the right, at others on the left side, but was diminished by counter-irritants, and afterwards by the local application.

In the middle of June, I found it impossible to pass the sponge fairly into the larynx, and it was singular to observe that the patient became worse, felt more pain, and especially complained of its extending back to the ear. It was apparent to me, however, that the ulcerated surface was cicatrizing, although I felt some difficulty in understanding how the glottis was impenetrable. It then occurred to me that probably fungous granulations were obstructing the orifice. One day towards the end of June, he told me that on making a deep inspiration he felt something vibrating at the orifice of the larynx, and it then appeared to me probable that a small polypus had formed there. A few days afterwards, in attempting to pass the sponge, it was ascertained that this was really the case, as he immediately spat up a fleshy mass, the size of a pea, with a small neck at one side. The next day the sponge entered as usual, without any difficulty, and continued to do so till the middle of July, when it again met with an obstruction. His general health, however, had greatly improved; the appetite was tolerably good; the pulmonary signs throughout had remained stationary. In the early part of August he went to the country on a visit, and his health became much improved. During September he visited a hydropathic establishment, and submitted to a course of treatment, consisting of a wet sheet every morning, a sitz bath twice a day, a wet belt round his abdomen worn from morning until dinner-time, and a saturated towel round his throat every evening, with walking three times a day in spite of all weathers. This heroic treatment caused the sweating and weakness, which had previously disappeared, again to return. He felt shivering on one occasion, after the sitz bath, and acute pain in his chest, violent cough and epistaxis, which fortunately subsided next day.

On his return early in October, I found him paler and thinner than when I last saw him, the voice, throat, and larynx were in the same condition; but he expressed himself as having been relieved of his occasional headache and dyspepsia. Towards the latter end of October, however, he complained of severe pain, deep in the nostrils, extending in the direction of the frontal sinus, and backwards to the ear on the left side. This continued to increase, and the discharge from the nose became more abundant, and formed inspissated moulds

in the nares during the night, which were with difficulty discharged on the following morning. During November, two pieces of laminated bone were discharged at different times, one from the left nostril, the other by the mouth, it having fallen backwards into the throat. At this period he was seen by Mr. Syme, who was of opinion that the vomer was the bone diseased, and that no surgical interference was warrantable.

During the winter of 1852–3, the laryngeal disease continued slowly to improve, the sponge having been passed into the larynx about once a week. His general health also underwent marked improvement, from eating fat pork chops for breakfast. In May following, a third flat piece of bone, about the size of a pea, came from the nose, and a fourth in June. Since then, the discharge from the nostrils has greatly diminished. For the last two months, no applications have been made to the larynx, and he has been travelling through the country. At present (September, 1853), his whole appearance is greatly improved. The discharge from the nose is trifling, the mucous membrane of which is apparently healing. The voice has returned, although still hoarse, and liable to crack on speaking for any length of time. The pulmonary disease seems to be permanently arrested.

Such is the present condition of this case, which I regard as one of arrested pulmonary *and* laryngeal phthisis, complicated with ulceration and necrosis of the nasal passages, a complication of disorders which not long ago might well have been considered hopeless. The local treatment of the larynx has, to use his own expression, "made him a new man"—and it is in this respect that the case is instructive. The removal of the small laryngeal polypus also adds to the interest of this case. No doubt the severity of the hydropathic treatment exposed him to unnecessary risk; for had a fresh inflammation seized either upon his larynx or lungs, it would have been most injurious if not fatal, and it must be obvious he very narrowly escaped this. On the other hand, his general health was no way improved by it, if we except the better appetite, dependent probably on the increased amount of exercise he was induced to take. During last winter, I recommended his eating pork chops, instead of taking cod-liver oil, and as he relished them, and the appetite remained good, he was conscious of considerable improvement in the nutritive function.

The local treatment practised in these cases was first recommended by Dr. Horace Green of New York. The instruments to

be employed are, first, a tongue depressor, with a bent handle, by means of which the tongue can be firmly pressed down, so as to expose the whole of the fauces, and the upper edge of the epiglottis. In doing this, some patients experience no inconvenience, whilst in others there is such excessive irritability, that spasmodic cough or even vomiting is occasioned, which prevents the possibility of seeing the epiglottis. Secondly, a whalebone probang, about ten inches long, having at its extremity a round piece of the finest sponge, about the size of a gun or pistol bullet. The probang, towards the extremity, must be bent in a curve, which, according to Dr. Green, ought to form the arc of one quarter of a circle whose diameter is four inches. Sometimes, however, the curve must be altered to suit particular cases. It is important that the sponge be fine, and capable of imbibing a considerable quantity of fluid; that it be *sewn* firmly to the extremity of the whalebone, and that this last should not be cut in the form of a bulb, but tapered as much as is consistent with firmness.

The solutions of the nitrate of silver which will be found most useful are of three strengths. One is formed of ℈i, the second of ℈ij, and the third of ʒj, of the crystallized salt to an ounce of distilled water. On some occasions a solution of the sulphate of copper has been found beneficial, and it is very possible that, as our experience of this kind of treatment extends, the application of other substances in solution may be found capable of meeting particular indications. Dr. Hastings, of London, speaks highly of the bicyanurate of mercury employed in this way, and Dr. Scott Alison recommends the occasional use of olive oil.

The method of introducing the sponge which I have found most successful is as follows: The patient being seated in a chair and exposed to a good light, the medical practitioner should stand on his right side, and depress the tongue with the depressor held in the left hand. Holding the probang in the right hand, the sponge having been saturated in the solution, it should be passed carefully over the upper surface of the instrument, *exactly in the median plane*, until it is above or immediately behind the epiglottis. The patient should be now told to inspire, and as he does so, the tongue should be dragged slightly forwards with the depressor, and the probang thrust downwards and forwards by a movement which causes the right arm to be elevated, and the hand to be brought almost in contact with the patient's face. This operation requires more dexterity than may at first be supposed. The rima glottidis

is narrow, and unless the sponge come fairly down upon it, it readily slips into the œsophagus. Its passage into the proper channel may be determined by the sensation of overcoming a constriction, which is experienced when the sponge is momentarily embraced by the rima, as well as by the momentary spasm it occasions in the patient, or the harsh expiration which follows—symptoms which are more marked according to the sensibility of the parts. Some individuals are so irritable that the pressure of the spatula on the tongue causes vomiting, or œsophageal spasm. In such persons, I have succeeded, after teaching them how to breathe and hold the mouth in passing the sponge without the use of any other instrument.

If the probang be properly prepared, and the operation well performed, the actions which take place are as follows: 1st. The sponge, saturated with the solution, is rapidly thrust through the rima into the larynx, and frequently into the trachea; for if the distance of the probang be measured from that portion of it which comes in contact with the lips, the extent it has been thrust downwards can be pretty accurately determined. I am persuaded that on many occasions I have passed it pretty deep into the trachea, not only from the length of the probang which has disappeared, but also from the sensations of the patient, although this may be thought by some a fallacious method of determining the point. In this first part of the operation, the rima glottidis is, as it were, taken by surprise, and the sponge enters, if the right direction be given to it, without difficulty. But, 2d, the rima glottidis immediately contracts by reflex action, so that, on withdrawing the instrument, you feel the constriction. This also squeezes out the solution, which is diffused over the laryngeal and tracheal mucous membrane. Now, if the sponge be a fine one, it will be found capable of holding about ʒss of fluid, the effect of which upon the secretions and mucous surface almost always produces temporary relief to the symptoms, and strengthens the tone of the voice—results at once apparent after the momentary spasm has abated. 3d. The action of the nitrate of silver solution is not that of a stimulant, but rather that of a calmative or sedative. It acts chemically on the mucus, pus, or other albuminous fluids it comes in contact with, throws down a copious white precipitate, in the form of a molecular membrane, which defends for a time the tender mucous surface or irritable ulcer, and leaves the passage free for the acts of respiration. Hence the feeling of relief almost always occasioned; that diminution of irritability in the parts which is so favourable to cure, and why it is

that strong solutions of the salt are much more efficacious than weak ones. It may be easily conceived that such good effects must be more or less advantageous in almost all the diseases that effect parts so sensitive, from whatever cause they may arise; and that this treatment is not adapted to one or more diseases of the larynx, but, like all important remedies, meets a general indication which the judicious practitioner will know how to avail himself of.

The mucous membrane of the larynx consists of ciliated epithelium externally, a basement layer below this, and areolar tissue internally, richly supplied with bloodvessels. Scattered over its surface are numerous follicles, which secrete mucus. It is liable to the same structural alterations as all other similar membranes, which may be divided into: 1. Exudation into the areolar tissue, between the basement membrane and epithelium, or upon the external surface; 2. Abrasions or desquamations of the epithelial layer; 3. Ulcerations extending more or less deep into the areolar tissue; and 4. Obstructions, swelling, and subsequent ulceration of the mucous follicles, a lesion particularly described by Dr. Horace Green, and denominated by him "follicular disease of the air-passages." These different lesions may be more or less complicated with each other, and will vary in intensity according to the rapidity of their progress, and the extent to which the mucous membrane is implicated. Sometimes the exudation is thrown out quickly, and infiltrates the textures, as in œdema glottidis, or in malignant angina. At other times it is poured out on the surface, as in croup. More frequently it is partial, occasioning subsequent abrasion or ulceration, and is allowed to become chronic. Perhaps the most common form it assumes, is when it is chronic from the commencement, sometimes dependent on atmospheric changes, at others following repeated attacks of "cold;" in a third class dependent on too much straining of voice, as occurs in public speakers, clergymen, singers, etc., and occasionally is connected with some general constitutional disorder, as syphilis, tuberculosis, or some form of cancer. All these forms of laryngeal disease may be further associated with similar lesions of the fauces, tonsils, uvula, and pharynx.

The symptoms will of course vary according to these different circumstances. The acute forms are accompanied with general fever, considerable local pain, more or less obstruction to deglutition and respiration, and loss or alteration in the character of the voice. As a general rule, it may be said that lesions of the fauces, tonsils, and neighbouring parts, are indicated by greater or less difficulty or

uneasiness in swallowing, whilst the laryngeal disorder is evinced by changes in the character or power of sustaining the voice. Then, as a common result of the local irritation, spasmodic action is evinced, and we have cough, at first dry, but afterwards attended with mucous or purulent expectoration, and not unfrequently with discharge of blood. This last symptom has been far too generally considered as evidence of a pulmonary lesion, an occasional error that was well pointed out by Dr. Neligan,[1] of Dublin, and has been ably treated of by Dr. J. Hastings,[2] of London. Elongation of the uvula may produce many of these effects. In the more acute and extensive cases of exudative laryngitis, the spasms are more violent and prolonged, and the greatest caution is necessary in watching persons so affected, lest, from sudden and continued closure of the glottis, fatal asphyxia be induced.

These considerations, and the cases previously given, with others that might have been adduced, have satisfied me that lesions of the pharynx and larynx ought to occupy the serious attention of the practitioner in all cases of pulmonary diseases, and that the following practical conclusions may be drawn from them:—

1. That not unfrequently diseases, entirely seated in the larynx or pharynx, are mistaken for pulmonary tuberculosis.

2. That even when pulmonary tuberculosis exists, many of the urgent symptoms are not so much owing to disease in the lung as to the pharyngeal and laryngeal complications.

3. That a local treatment may not only remove or alleviate these complications, but that, in conjunction with general remedies, it tends in a marked manner to induce arrestment of the pulmonary disease.

[1] Dublin Quarterly Journal, May, 1850, p. 357.

[2] On Diseases of the Larynx and Trachea, 1850, p. 88, *et seq.*

THE END.



