Practical gynaecology : with fifteen years experience of shortening the round ligaments / by William Alexander.

With the Author's Compliments.

PRACTICAL GYNÆCOLOGY

WITH

FIFTEEN YEARS' EXPERIENCE

OF THE OPERATION OF

SHORTENING THE ROUND LIGAMENTS.

BY

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PRACTICAL GYNÆCOLOGY.

Chapter I.—Uterine Displacements.

Fifteen years have gone since my name became associated with uterine displacements, on account of the discovery and practical application of the method of controlling a displaced uterus by shortening the round ligaments.

During all these years I have performed the operation in a great many cases, the record of which will appear on subsequent pages. I have watched the reception of the operation as it spread from place to place, I have marked its contra-indications and failures, its difficulties and dangers, I have studied the pathology of displacements on the living and the dead, and noted and considered the different opinions of the pathology of displacement enunciated by my contemporaries and predecessors; and I think the time has now come not only to issue a second edition of my small book on the treatment of backward displacements of the uterus, and of prolapsus uteri, by shortening the round ligaments, but also to enlarge and extend that book by entering more fully into the pathology of displacements generally, their symptoms, and the general methods of treating them.

How is the uterus maintained in its normal position? and, What is the sequence of events that produce displacements? are two questions, the answers to which are not only not yet settled, but are still most varied and contradictory. For example, at the discussion on ventro-fixation at the meeting of the Gynæcological Society on 9th April, Dr Bantock was diametrically opposed to several Fellows of that Society as to the causes of prolapse of the uterus. By a vulsellum forceps we can pull the uterus down, so that the os presents at the vulva without

any great strain being necessary on the part of the operator, or much pain being experienced by the patient; and yet, that same uterus will maintain its normal position for a lifetime, although apparently lying loose at the upper end of a canal that during parturition expands to such an extent as easily to allow a full-term child to pass. Writers on uterine displacement have too often sought and advocated a single cause for displacement: the broad ligaments, the round ligaments, the utero-sacral ligaments, the perineum, and the closed vagina have, in turn, been looked upon as chief factor in retaining the uterus in position. An operation that is therefore rational and scientific according to one writer, is the reverse according to another.

Hence Mr Knowsley Thornton, with *his* pathology, looks upon the shortening of the round ligaments as a scientific conception. Mr Bantock *knew* that it would fail, because he considered it unscientific, as it was opposed to *his* ideas of the etiology of uterine displacement. Prominent gynæcologists even differ as to when the uterus can be said to be displaced. Some observers record in their cliniques an enormous predominance of anteversions over retroversions in the patients that come under their notice. Other gynæcologists, equally skilled, meet with very few forward displacements; and there is no doubt that this difference does not rest with the *patients*, but with the *observers*. A greater degree of uniformity exists at the present time than in any previous period, and we do not now dispute about cases where the displacement is so small as to be of doubtful existence; the practitioners are very few who torment *these* patients with pessaries; and most men now consider such a slight displacement as of no importance, and look elsewhere for the "fons et origo mali."

What is a displacement? As Schultze and others have shown, the uterus has, with certain restrictions, no fixed position or shape. It can be moved about and bent without inconvenience to the patient, or even without her knowledge, and these movements may be in all directions. Its usual position is in the centre of the pelvis, and its usual shape is that of some degree of anteflexion, and round this duplex centre the uterus

revolves, according to the position of the patient, the actions of the body as they are taking place, and the condition of the pelvic and abdominal viscera. When the disturbing causes are removed, the uterus returns to its anteflexed condition and central position, and the position of the uterus, and the degree of anteflexion assumed, vary according to each individual patient, in the same way that noses and ears vary in contour, and in deflections.

Under the requirements of life, the uterus may be sometimes pressed down to the vulva, so that the cervix is just within the vaginal orifice. It may be so anteverted that it is practically parallel to the vagina, or so anteflexed that the fundus lies just above the cervix. The healthy uterus may also be pressed down in the opposite direction, so that the fundus may be turned back into Douglas's pouch, and simulate, for the moment, an acute retroflexion. But if the forces that produce such displacements are temporary and sudden, when the strain is removed the uterus will recover itself, in the same way that a ship rights itself after a sudden squall, and the displacement is no more pathological than the list of a ship as she scuds before a slant of wind is permanent.

A pathological displacement occurs when the power of recovery that the uterus possesses is lost; and when, instead of sailing freely about in the pelvis amidst the surrounding floating organs, it either lies on its side like a waterlogged vessel, as in versions and flexions, or it sinks to the bottom, as in prolapse.

In the healthy state, the uterus floats in the pelvis in a light and perfectly easy fashion, its size and weight being such as to allow it to be readily borne by its ligaments, the position being influenced by the ever varying shape and size of the bladder and rectum. It is balanced in position by everything, but not held firmly by anything, until you have removed it some distance from its natural position. Its so-called ligaments are *restraints*, only to be felt in the extremity of dislocation; and so feeble and ineffectual are these ligaments, that were a persistent force to continue to drive or pull the uterus in any

direction for a sufficiently long time, these ligaments would yield, and allow any amount of displacement to take place.

The balancing of the uterus in the pelvis is, therefore, the chief safeguard of the normal position of the womb, and we will now consider how the equipoise of such an unstable organ is maintained. It is first of all balanced by two folds of peritoneum that, after inclosing the uterus, are continued to the sides of the pelvis as the broad ligaments. These broad ligaments contain within their folds arteries, veins, and lymphatics, and the upper margin incloses also the Fallopian tubes and the round ligaments. On reaching the pelvic wall, the peritoneum is continued without alteration over the side of the pelvis and the iliac fossa. The peritoneum is a *vitally* elastic membrane,—if we may coin such an expression,—by which is meant, that it is a membrane which yields slowly to the force of circumstances, and as slowly resumes its normal extent when the force is removed *by its vital or plastic, as well as its elastic virtues.* When a woman walks erect, the uterus is suspended almost horizontally from both sides of the pelvis by this broad elastic band of peritoneum that enfolds its heaviest part, the fundus, and is adherent to all its posterior surface, so that the uterus is somewhat in the position of a lady swinging in a hammock made of the softest and most yielding tissue possible, and just strong enough for her support. But this soft, yielding, broad ligament would, acting alone and constantly, relax slowly but certainly, and fail to support the womb, were there no other agents at work to assist the feeble strength of the broad ligament. It is therefore supplemented by a water-bed,—the bladder,—and to this the front, or rather lower surface, of the womb is closely attached, how closely, those who, like the writer, often perform supravaginal hysterectomy for cancer, can only fully realise. The slope of the broad ligaments, and the close attachment of the lower part of the corpus and cervix uteri to the bladder, show the apparent intent to keep the uterus and the bladder together. The fundus uteri is the part most likely to fall away from this arrangement, and the round ligaments are added as additional structures that have more direct control over the

fundus than the peritoneal ligaments; and running, as they do, through the folds of the broad ligaments, they act as stays to these ligaments, as well as to the uterus, and would, in the erect position of the body, draw them both downwards and forwards. The round ligaments especially, and some parts of the broad ligaments, possess plain muscular tissue; and the degree of shortening these ligaments undergo during life, and consequently their full action, cannot be accurately ascertained in the cadaver. At an autopsy, all the ligaments seem to be too long to be of much use; and in some of my previous writings on this subject, I expressed a doubt of the efficacy of the influence of the round ligaments in restraining a prolapse, or retroflexion, in women not operated upon. In making autopsies, I have often come upon a retroverted uterus lying on the floor of the pelvis, uncontrolled by round or broad ligaments, and have forgotten that all this was probably a post-mortem condition, like the dropping of the jaw, or the wide, staring eyes, and that the uterus occupied a quite different position during life, when the ligaments of the pelvis possessed their tonicity, and the surrounding organs their elasticity, living, moving vascularity and resilience. From the examination of patients, and observations at laparotomies, I now believe that both the round and the broad ligaments are more active in their influence upon the uterus than I had supposed: that by these, and by its attachment to the bladder, the normal condition of slight anteversion, or slight anteflexion, is maintained; and that the uterus floats in a film-like membrane, supported below by the bladder as a water-cushion, behind by the rectum as an air-cushion, above and in front by rolls of small intestines, which are chained loosely to the spine by their mesentery, and press the fundus uteri downwards and forwards, packing it amidst organs that give it the same kind of support that a man in the sea has from the surrounding water, but a more effectual one.

So much for the anterior extremity, or the fundus uteri. The posterior extremity, or cervix, is low down in the pelvis, and projects into the vaginal canal, but in such a way that it has no tendency to enter the canal. There is no entrance, because the

uterus lies at less than a right angle to the vagina, and that the vaginal canal is a potential canal, not a patent one.

The part of the floor of the pelvis through which the vagina and rectum reach the surface of the body, and with which we are now, alone, concerned, is composed of strong muscles, and still stronger ligaments, that run from side to side of the pelvis, and support and constrict the vaginal and rectal openings.

The urethra is firmly fixed by an aponeurotic tissue under the arch of the pubis, and the posterior wall of the rectum is as firmly bound to the sacrum. The vaginal fissure lies between, with its walls closely adherent to both urethra and rectum, so that prolapse of the vagina is almost unknown as an initial lesion. When the floor of the pelvis has given way, and the gap between bladder and rectum is enlarged, then cystoceles and rectoceles dispute with the uterus the possession of the vaginal outlet. But the vaginal walls still adhere to their ancient allies, the bladder and rectum.

The upper end of the vagina and the lower end of the uterus, although more fixed than the fundus uteri, is, like it, set in space in the midst of mobile organs. It lies over the rectum, and moves forwards or backwards according to the state of distension of that viscus. The rectum curves forward around it, so that, as has been said, the utero-vaginal tract has a water-bed in its concavity, and a long air-pillow around its convexity.

We now come to the inferior ligaments, or the folds of Douglas, which run from the lower, or posterior margins of the broad ligaments, to the lateral aspects of the pelvis. They form an arch, with the free edge posteriorly, and their lateral bands arch over the rectum. These peritoneal bands are supplemented by muscular and fibrous tissue, and are continuous parts of the same membrane, and have the same structures as the broad ligaments.

More deeply than the peritoneal ligaments are the vesical bands of the pelvic fascia, an incomplete sheet of strong aponeurotic tissue that interlace with and entangle the pelvic viscera, and being less elastic and more unyielding than peritoneum, helps in a very important way in maintaining the *status quo* when the

first line of defence has been driven in, and the peritoneal restraints have been overstretched. These posterior and deep ligaments moor the uterus and the vagina to their position, in relation to the sacrum and pelvis above and behind, as the round and the broad ligaments fix the position of the fundus, in relation to the pubis in front and below. It is on the maintenance of these relations that the stability of the position of the uterus depends. Should the fundus become displaced backwards, or the cervix forwards, the uterus at the same time maintaining its shape and consistence, then, its wedgelike shape tends to open up the vagina, and the organ is hammered home into a prolapse, by the whole intra-abdominal force. Whilst the uterus maintains its normal position, intra-abdominal pressure, as it increases, closes the pelvic outlets by pressing the uterus and vagina across them, and in defæcation, where there is, probably, the greatest intra-pelvic pressure in that region that ever occurs, the uterus is pushed aside, forwards and upwards, by the loaded rectum. Even in patients with a damaged pelvis, when the relative positions are restored by a Hodge's pessary, it is rarely the case that the pessary is expelled in defæcation, owing to this action of the rectum upon the position of the uterus.

The uterus is therefore so free, as well as so secure, in the pelvis, that in a great majority of women it produces no trouble, and maintains its position up to the most advanced age.

Although not intended for the purpose, and often specially guarded against strain by their sinuous course, and abundance of 'slack,' we cannot overlook the support the ligaments and fasciæ of the pelvis receive from the vessels and nerves that course along their borders, or through their interstices. The nerves, especially with their strong neurilemma, would help mechanically to prevent a severe temporary strain doing so much damage as it otherwise would, whilst the pain experienced by the nerves stretching, serves as an effectual call upon the instinctive and intelligent forces of the economy, to come to the aid of the suffering part.

We will not dwell upon the part that instinct and intelligence play under such circumstances, nor describe how the strain

ceases, and how by rest, enforced through pain, the stretched ligaments become shortened again, and their utility is unimpaired, or only slightly deteriorated. These are points which each reader can follow up mentally for himself, but they show the complex nature of the provision for the support of the uterus, and will have to be referred to again, when considering the etiology, and pathology of displacements.

The causes of displacement will be as complicated, and as delicate in their mechanism, as are the agencies by which the normal position of the uterus is maintained.

Action of the Round Ligaments.—We have shown, in brief, how a combination of causes exists, by which the uterus is maintained in position, and the action of the round ligament is but that of one agent, that only acts occasionally in some people, and in others not at all, or very rarely. It is a *check* ligament, that controls the slope of the broad ligaments and uterus; and if this slope remains natural, then the round ligaments remain quite passive, and are never brought into action. In other persons the check action may have to be frequently exercised, but the action is always short in its duration.

The idea that the round ligaments must actually support the uterus physiologically, if the operation of shortening them for prolapse is to be a success, is an idea that many medical men, and gynæcologists, repeat again and again. Neither physiologically, nor after operation, do the round ligaments support the uterus, in any such rude way. If they did, prolapse would be universal, and the ordinary apparel of females would have to include a bag to hold the prolapsed uterus, and protect it from injury. Physiologically, and after operation, the round ligaments act as a check to restrain the uterus and broad ligaments within that area, where the other agents that actually support and balance it may have free play, and be able to do their work effectually.

The picture of the uterus hanging by two slender round ligaments, is one that is not of my painting, but it is one that appears before the mental vision of a great number of medical men, and influences their attitude to the operation very much.

Attention is here called to this *delusion* in regard to the pathology of displacements, and their treatment by this method, for it has been thrown in my face so often, that I am sick of trying to correct it.

I will now try to describe the etiology and pathology of displacement together, in the way that I understand them myself. To describe the various views of the pathology of displacement, held by gynæcologists, would be an interesting and useful task, but it is one foreign to the scope of this work, and will not be touched upon here. To the reader will be left the work of comparison, and criticism.

The Pathology of Displacements.—Up to the time of puberty, the uterus may be looked upon as only *a thickening* of the broad ligaments, swaying backwards and forwards with that membrane, and in obedience chiefly to the promptings of the bladder, but also to those of the rectum, and intestines. It is uniform in size, its influence upon the organism is as little felt psychologically as physically, and uterine displacements, curvatures, and prolapses are of no importance, and are only accidentally discovered during the course of an examination of the bladder or rectum, or at a post-mortem.

Before puberty, the organ has not awakened into active life, and allows itself to be pushed about and disturbed, without rebelling against the treatment, or producing any inconvenience to its owner. When, however, puberty is reached, and menstruation begins, the uterus and its appendages assert themselves, and become *the* organs of the pelvis. The organ then becomes periodically congested and enlarged. Its vessels, nerves, and lymphatics are all actively engaged; tissue changes are taking place, and the menstrual flow ensues, being characterised by symptoms peculiar to each woman, according to the nature and duration of its onset, course, and departure. Pregnancy and parturition become both possible and probable, and to the dangers of auto-infection of retained menses is superadded septic infection from without. The organ becomes larger and more weighty, and its influence, responsibilities, and dangers increase *pari passu*.

The free life of a girl, her regular hours, healthy appetite, simple diet, and rational dress, have, at the same time, to give place to restraints on her freedom, to a self-consciousness of her sex and of her personal appearance; and these often exercise a very baneful effect on health, appetite, temperament, and routine of life.

Fashion, that tyrannical, and often most foolish and dangerous goddess, allows very few women to dispute her sway. The free movements of the body are no longer permitted; exercise has, until the last few years, been only obtainable in an overcrowded and overheated ballroom after midnight, with the temperature outside freezing, whilst the clothing and temperature inside the room are both suitable for the Pacific Isles. Fashion has for years been determined, if possible, to ignore a woman's legs. Those ladies who can afford it keep them out of sight as much as possible, stand or walk as little as may be, whilst the very thought of running or jumping excites horror. The probable condition, or infirmities of matrons and elderly ladies justifies the courteous offer of a seat upon all occasions to them, but fashion has decreed that fashionable women should always sit or lounge, and that standing or walking is vulgar, and only for those who are driven by hard necessity to such irksome and plebeian attitudes, and actions.

Nature has, however, made of one pattern, anatomically, and physiologically, all nations of the earth, and is no respecter of persons in regard to her treatment of offenders against her laws.

The human body is covered with muscles, and by their use the whole economy is regulated, including digestion, respiration, circulation, and those metabolic changes that lie at the root of the development, growth, and maintenance of the economy. These muscles are all bound together, so that the movements of one important set, produces contractions and relaxations throughout the entire system, in order to maintain equilibrium, adjust the strain, or give support to the primary movements.

By exercise, the muscles grow larger, harder, and more powerful, and the whole system is kept in a vigorous and healthy state. By prolonged rest they atrophy, becoming

gradually softer, and less and less powerful, and the whole system becomes relaxed, and feeble.

The great army of medical men, that the world's universities turn out annually, are chiefly engaged in counteracting the effects of the idle and luxurious, who endeavour to extract all the pleasures of a healthy life without performing the necessary duties. These individuals want to have the pleasure of eating, sleeping, and rest, without the hunger, weariness, and exertion that give the former their zest.

Piquant foods and artificial condiments tempt the appetite, and the blood and tissues become overloaded with material for which there is no demand, the chylopoietic viscera are clogged and unhealthy, and the poor, pampered victim does not 'feel well,' and sends for the doctor. He finds all the physiological systems of the organism out of order; but, in a woman, with whom alone we are now concerned, the nervous and reproductive systems are especially affected, and both being more highly organised than in men, their disturbance produces more serious symptoms.

The muscles of a woman's limbs may be atrophied, without producing any distress, as they may not require to use them; but an accompaniment of weak limbs, and undeveloped body, is often atrophied uterus, a relaxed pelvic floor, weak and unused ligaments. These, by menstruation or pregnancy, are suddenly called into the severest action—action that tries the strong and well developed: is it any wonder that it tries the weak and undeveloped to a serious, or often fatal extent, or that displacements and other troubles occur?

Besides, for the abdominal and pelvic organs, motion is the very 'breath of life.' It promotes their strength, their free, gliding, and painless actions, maintains the diurnal evacuations, and dissipates congestions of blood or lymph that tend to produce adhesions. The law of the pelvic organs is movement: the law of fashion is ease and excitement: and women who have to endure great physiological strain for about thirty years, live as if, not only, no preparations should be made for that strain, but, as if it were to be met in the most unprepared manner possible.

We will suppose one of these 'badly brought-up girls' to have arrived at the age of puberty, and will follow her through the first few years of her menstrual life.

Delicate and fair to look upon, fit only to live on 'angels' food,' and apparently living on it, for she does not seem to live on much else, except she occasionally at midnight has a ravenous appetite, and her choice of eatables and drinkables is not always physiological or scientific; prone to sickness, fainting, hysteria, constipation, dysuria, lithæmia, hydræmia, anæmia, she reaches the period for developing into a woman.

The physical part of the onset of menstruation is often a failure. The small, irregularly-developed uterus does not respond to the menstrual excitement, by producing a proper flow. The uterus does not enlarge, or expands only to a small extent, and irregularly. The fundus generally expands, and in consequence assumes a rounded shape, becomes much heavier, whilst the cervix and body remain unaltered, or are very little changed. This heavy weight becoming a burden on the weak and relaxed round and broad ligaments, falls backwards, or forwards, generally forwards, and forms one of the most common and most irremediable class of displacements that are to be met with. I can almost diagnose these patients as soon as they appear on the scene. Delicate, highly-strung, neurotic girls, anæmic, dyspeptic, with pains in the left ovarian region, scanty, painful menstruation, sometimes irregular and sometimes absent, they are the source of great anxiety to their parents, and medical attendants. It is most difficult to treat them successfully, as they either scout the idea of anything being the matter, and consequently fail to carry out any line of treatment so perseveringly as to render a chance of success possible, or else they believe themselves so ill that they can neither take suitable food nor medicine.

Exclusive of these neurotics, in whom hysteria is the most prominent symptom, there exists a large number of sensible, well-balanced women, in whom the same condition is found, and the same local symptoms are produced.

The fundus is rounded, and often tender to touch; it is dis-

tinctly anteflexed with reference to the cervix, but the cervix is retroverted.

Some of these cases are put down as retroversions by amateur gynæcologists. By digital examination, the cervix and os are found to be turned forwards; and unless Douglas's pouch, and the space between the cervix and bladder, are explored, and the forward position of the fundus made out, a mistake in diagnosis is likely to be made.

In course of time, the tissue of the concavity of the uterus becomes shortened, and that of the convexity lengthened, and the deformity becomes permanent.

The enlarged, rounded fundus, and the small cervix, flexed acutely on itself, easily suggest the flexure as the cause of the distress, through retention in the uterus of menstrual and mucous gland products. Hence the vain attempts at cure by stem, and other pessaries, and such-like treatment, based upon this erroneous pathology. It is not the *flexed canal* that produces the dysmenorrhea, but it is the *inability*, in consequence of the *flexion, of the uterus to respond to the menstrual molimen, and expand to receive the flow of blood, or the imperfect and irregular way in which the uterus can so respond to the menstrual molimen*, that produces the symptoms. When the uterus cannot respond at all, it remains infantile. Sometimes the uterus is so flexed, and displaced, that the fundus and cervix are bound up by adhesions in such an unnatural condition, or shape, that it cannot respond, without great physiological effort, and pain. In other cases, the amount of congestion that sometimes pervades these anteflexed organs at the menstrual periods has surprised me. In one lady who was under treatment for a small erosion of the cervix, and who had 'gone' two weeks beyond her period, the temporary enlargement of the uterus was so great, as to make me suspect the commencement of pregnancy. Ten days after, she was again examined, menstruation having taken place in the interval, and the diminution was as surprising as had been the enlargement.

The physical troubles of the onset of menstruation in an undeveloped, or deformed, womb may be, and have been, explained

in other ways, but there is no doubt in my mind, that the tender and painful fundus, so often felt, is due directly to the partial, or excessive congestion described, and may be often relieved by treatment based on this pathology.

Then we have the anterior displacements that are congenital. The womb is of full size, expands well at the period, but lies well forward; and it is impossible practically to alter its position permanently by instruments. *It is so balanced in the pelvis.* The round, the broad, or utero-sacral ligaments are so developed as to give it this slope, and these can only be altered by agencies directed to alteration of the relations of these ligaments. This displacement is often accompanied with sterility, but the women are otherwise healthy, and well nourished, and their lives not uncomfortable, as soon as they cease to grieve about their sterile condition. In such cases there is not much anteflexion. The condition is rather anteversion, as this rarely produces much physical trouble; or if it does give trouble, this is due to an accompanying metritis.

To sum up, the causes of anteflexion are first of all a relaxed, and atonic state of the pelvic viscera, imperfect and unequal development of the uterus, of its ligaments and of its appendages, congestions, inflammations, and effusions, either in the uterus itself, or in its environment.

When any of these conditions is present, a jump, a jerk, a twist, a strain displaces, or bends, the affected womb, and the conditions above described render permanent the displacement, or bend, and a pathological version, or flexion, occurs. Had none of these lesions, or defects, been present at the time of the accident, the displacement would have occurred all the same, but a recoil to the normal would have taken place immediately.

Short posterior fixation of the cervix, or cicatricial contraction in the posterior ligaments, of one, or both broad ligaments, account most beautifully, diagrammatically, for the production of anteversion, and anteflexion, but I have looked in vain for any general or uniform evidence in my practice of either cicatricial contraction, or short posterior fixation of the cervix. In the majority of cases these ligaments are normal,

and the womb can be pulled down till the os appears at the vaginal outlet, without any restraint from shortened posterior ligaments, or any pain from inflamed peritoneum. Post-mortem examinations are rare, during the treatment of displacements, but I have examined many cases where displacements were found post-mortem, and certainly I failed to find any evidence of short posterior fixation.

Forward displacements, *per se*, are neither so important in their symptoms or sequelæ, nor, where troublesome, so amenable to treatment, as the next class of displacements that we shall describe, viz., backward displacements. I would divide these into two varieties, retroversion and retroflexion, as they differ not only in treatment, but to some extent in pathology.

In retroversion, the uterus is usually large and firm, either by development, or inflammatory hypertrophy. It is more or less prolapsed; and if the patient suffers from severe prolapse, the uterus is generally retroverted, and rarely retroflexed.

In retroflexion the uterus is also *somewhat* prolapsed, but the prolapse is not such a marked feature as in retroversion. The retroflexed fundus is more globular than natural, is tender to the touch; its form and feeling simulating a prolapsed ovary until the sound is passed, and its exact relation to the rest of the womb ascertained.

Many gynæcologists affirm that the chief cause of retroflexion, as well as retroversion, is relaxation of the folds of Douglas. Relaxation of the folds of Douglas is met with in the majority of cases of backward displacements, but is an effect, not a cause; and that this is so seems to be proved by the following considerations. In the first place, a backward displacement of the uterus, occurring from whatever cause, changes the effect of intra-abdominal pressure in such a way, that the uterus is forced backwards, and downwards, in the direction of the vaginal canal, and the chief resistance to this pressure being now the folds of Douglas, these must yield and become relaxed. In the second place, if this theory were correct, a Hodge's, or other suitable pessary, worn for a sufficient length of time, should allow of contraction of the folds of Douglas, and consequent

cure. This cure, however, takes place in only about 4 per cent. of the cases treated by pessaries, showing that the alleged cause is not the real one.

In the third place, when the round ligaments are shortened, and a Hodge worn sufficiently long to produce shortening of the folds of Douglas, the cure is permanent.

I do not deny, that unnatural length of the fold of Douglas is sometimes a cause of retroflexion, because I have met with those cases in virgins, where there seemed to be no posterior attachment of the cervix uteri, and where, when the round ligaments were shortened, the cervix and os still appeared at the vulva, and where an extension of the perineum forwards was necessary to make the patient comfortable; but such cases are rare.

The cause of retroflexion is higher up than the cervix, and its ligaments, and depends on a heavy fundus, arising from maldevelopment, irregular enlargement, abortions, post-parturition congestions, subinvolutions or tumours growing from the fundus. A strain or a twist, acting in conjunction with any of these causes, easily completes the threatening displacement.

Then we have inflammations with effusions, that by leaving adhesions, drag upwards and backwards the broad ligaments and uterine appendages, and with them the uterus itself.

I cannot see how over-distension of the rectum, or bladder, would directly produce pathological retroflexion. The bladder is attached to the cervix very closely, and the concavity of the anterior surface of the normal uterus is applied to the convexity of the bladder; and so attached, the womb rides safely, as far as its shape is concerned. By the stretching of the broad ligaments, and the vesico-uterine folds and ligaments through distension of the bladder, the stability of the uterus is impaired when the bladder is afterwards emptied, and a condition of instability arises where such a slight disturbance may produce a backward displacement, or produce a mobile uterus, that is easily displaced in any way. I have met with such cases, where the position of the patient would so influence the position of the uterus that an apparently pronounced antever-

sion would become as pronounced as retroversion, with the fundus lying on the rectum, and the cervix pressing against the bladder. Such a mobile uterus is generally very small, and did not appear to give much trouble in any of the cases where I found it; but, it is no doubt much exposed to pathological displacements, should inflammatory changes set in in its substance, or in its neighbourhood.

Constipation is a frequent source of displacement, not so much mechanically, as by the pelvic congestions that it predisposes to, and the inflammation to which it gives rise. It is the trouble of young women, and its discomforts are mostly pelvic. A book might be written on the subject; but its relation to displacements is indirect, and its treatment is always attended to as a matter of course during the special treatment of displacements.

The manner in which inflammatory effusion produces displacements of the heart is pretty well understood, as well as the consequent retraction that takes place from inflammatory adhesions. The transference of such ideas, and explanations *en bloc* to uterine displacement, has been the cause of much mischief. An effusion in one broad ligament may push the uterus to the opposite side, but it does not follow that its absorption will produce cicatricial contraction similar to that of a burn, as, should any such contraction occur, the broad ligaments can stretch to any extent to neutralise it. I have met with uteri displaced and immovable, on the onset of a hæmatocele, or in that of a peri- or para-metritis; and I have found the same uterus afterwards freely movable, and even normal in position, when the effused blood or inflammatory adhesion had been absorbed. The recovery of mobility in a so-called adherent uterus, takes place far more frequently than most gynæcologists have any idea of. In considering the suitability of cases for the operation of shortening the round ligaments, I rarely meet with adhesions such as would contra-indicate the operation. If they appear to contra-indicate an operation at the time of examination, I wait a few months longer, using the douche, glycerine pads, etc., and it is rare to find adhesions, that can successfully resist

the action of time. Adhesions by inflammatory bands tend to lengthen, and become thinner and thinner, and the inflammatory connection of all peritoneum-covered surfaces becomes gradually less and less intimate, all owing to their mobility, and actual motion of most of the abdominal organs. I have drained a peritoneum filled with pus, where all the pelvic and abdominal organs were covered with a layer of lymph that formed a membrane, which fastened the coils of intestines, etc. intimately together. Most operators have seen such cases. I have twice seen post-mortems, on such cases, one three months, and another about twelve months after I had seen the abdominal cavity ante-mortem, and where death from general tuberculosis carried off the patients, and in each the membrane seen at the operation had disappeared, and long attenuated bands of soft lymph had replaced it, so as to allow the intestine to move; and I believe, if a sufficient time had elapsed, these bands would become fewer and fewer, and the restraint caused by them would become less and less. The same thing holds good in the pelvis. Of one thing I am certain, that practically adhesions never interfere with my operation for displacement; and that where firm, unyielding adhesions occur, there is tubal or ovarian disease, that requires other treatment. In fact, when I find inveterate adhesions, I diagnose such disease, and can generally justify my diagnosis, by corroborative signs and symptoms.

Whilst, therefore, simple perimetritis and parametritis rarely produce any but temporary displacements, advanced tube and ovarian disease produce permanent displacements that can only be relieved by treatment directed to the diseased part, and the usual treatment for such disease either cures the displacement, or at any rate cures the symptoms.

The prominence given to this class of cases during the past few years, when gynæcological fame and fortune depended so largely on being able to report a long list of successful laparotomies, and where simple inflammatory diseases of the uterine appendages were not allowed to run a natural course to recovery, but where the inflamed organs were extirpated, before it was evident or probable that danger threatened, this promi-

nence, I say, caused all lesser curative measures to be ignored. Now, however, that the laparotomy fever has subsided, it is possible to gain a hearing for a view which I have maintained for some time, and which I am glad to hear enunciated, independently, by other gynæcologists, and that is, that inflammatory appendage disease is also set up by uterine displacements, and that the cure of the displacement, in due time, often effects a cure of the inflamed appendages. The appendage disease originates through interference with the utero-ovarian circulation, whereby menstrual and inter-menstrual congestions, inflammations, and adhesions are produced. This is not a hypothetical theory evolved from my inner consciousness, but a phenomenon observed again and again. A pessary has been left out, and the patient goes on well until she overreaches herself, and brings on again the old displacement in an acute form, accompanied with pain, bearing down, tenderness, enlarged fundus, piles perhaps, and enlarged tender ovaries.

A Hodge's pessary introduced after replacement relieves all the symptoms so rapidly, that there can be no doubt of the connection of cause and effect. It will be found that the results of the operation of shortening the round ligament point in the same direction, and that if sufficient time be allowed, appendage disease often gradually disappears after that operation.

It has been said, on the other hand, that if we removed the ovaries and tubes, a displaced uterus is of no account, and rarely or never gives any trouble. Quite so, because we have taken away the life of the organ, which is, now, an insensate thing, that atrophies and becomes like the infantile uterus, which can be neglected or abused with impunity.

It has been affirmed, that a great many, or that most women from whom the appendages have been removed, menstruate as before. This is not my experience: they rarely menstruate, and the apparent menstruation in the few cases is a poor counterfeit of the real process. I exclude from my consideration here, the metrorrhagias due to some forms of fibroid, which continue after removal of the appendages. My argument is, that the uterus, after the removal of the appendages, ceases its menstrual work,

and at the same time ceases to be exposed to menstrual disturbances, and that a flexion, or a version, then is of no importance: it may mechanically interfere, which, in the atrophic state of the womb, it rarely does.

I dare say it is a common experience, at any rate it has many times been mine, to know that a woman had a normal uterus, and to examine her after an attack of cellulitis, and where, from whatever cause produced, the pelvic organs were fixed by inflammatory effusion. In such cases the uterus is always fixed in a state of retroflexion. An extra-uterine hæmatocele generally produces the same displacement, and in many cases, but not all, have I found a return of the uterus towards, if not to, the normal when resolution has occurred. The rapidity with which resolution, and reposition of the uterus occurs is sometimes surprising. For instance, whilst writing this paper, a case of probably gonorrhœal metritis, and cystitis, in a young married woman, was admitted into the Royal Southern Hospital, on 9th November 1896. The uterus was retroflexed, and fixed immovably in the pelvis. After treatment I examined her on 7th December 1896, when the uterus was normal in position, and movable. No mechanical reposition was attempted. In such cases the effusion of blood, or inflammatory material, acts mechanically; but, how it acts I am not quite certain.

A very common cause of backward displacement is a miscarriage, or a supposed miscarriage. I have seen a large number of such cases, where I knew the uterus was in good position before the miscarriage, and found it afterwards displaced. The topheavy uterus, and a strain, are the predisposing and acting causes in such cases. Involution after pregnancy acts in the same way, especially, when the involution is slow and irregular, and when the mothers take to work prematurely, are overwrought or worried.

Interstitial tumours, in the early stages of their growth, by lengthening the walls of the uterus wherein they grow, would produce a flexion in the opposite side, but this only holds good in the early stages of a tumour. When the tumour becomes large, if it tends to be intra-uterine, it makes the uterus

topheavy, and easily displaced backwards, and, finally, a cause of retroversion, rarely of retroflexion, except it is a small tumour in the fundus. Pedunculated fibroids drag the uterus backward, when they grow from the fundus or posterior wall, and may push it backwards, when they grow from the anterior wall. Any forward displacements caused by benign tumours are rarely of much importance. In the early stages urinary irritation may result, but as the tumour becomes larger, it rises up into the abdomen, and ceases to interfere with the urinary tract, until it becomes of such a size as to press on everything. The displacements by tumours that are of importance, as far as the *displacement* is concerned, are therefore backward displacements. Then symptoms occur early, and are severe in such cases, and these symptoms sometimes depend on the displacement alone; and when this is rectified, the patient may live comfortably till old age, as far as the tumour is concerned. In other cases, the displacement is unimportant when compared with the tumour, and its treatment.

In these cases, a tumour behind presses the uterus upwards and forwards, and, *vice versa*, an ovarian may press it downwards into the pelvis, a distended bladder may carry it backwards, and lateral displacement may occur towards all the points of the compass, but these we will not deal with here. Such displacements are only symptoms or incidents in the course of other diseases. We are only now concerned with displacements that in themselves constitute the *disease*, and these are practically the backward and forward displacements, and prolapse.

Prolapsus uteri is produced by a yielding of the lower supports of the uterus, and a relaxation of the upper supports or by the latter condition alone, when the uterus becomes in the same line as the vagina, and, as by a wedge, the vagina is gradually dilated, and the os uteri appears at the vulva; or the muscles, ligaments, and fascia of the perineum, and pelvic floor become so relaxed through the stretching and tearing of parturition, that the lower supports give way, and the vaginal axis is so altered as to be more or less in line with the uterine canal, and ultra-abdominal pressure forces the uterus, with

bladder and rectum, towards the breech. In such case the upper attachments of the uterus are dragged upon in a way that nature did not intend them to be dragged upon, and by their yielding the condition is aggravated, until the patient becomes sedentary through necessity, and the process of prolapse is thus stopped, or artificial supports are employed.

An elongated cervix may simulate a prolapse as well as cause one. An anteflexion can hardly accompany an elongated cervix. Its presence tends to a retroversion, and the intra-abdominal pressure must push it further, and further downwards towards the vulva. The consideration of an elongated cervix comes under prolapse, but its treatment is quite different, as will be seen further on.

Cystoceles and rectoceles are complications of prolapse, and may either precede the prolapsus uteri, or follow it. They depend on the relaxed perineum, and the wide, open, straight vagina. I never treat them independently, but I treat the uterine displacement; and the cystoceles and rectoceles are cured at the same time, or, at least, do not give any trouble.

Chapter II.—Signs, Symptoms, Diagnosis, and Complications of Uterine Displacements.

The signs, symptoms, and diagnosis of uterine displacements have already been referred to in the previous chapter, where the pathology of these diseases has been discussed. We will now describe them more systematically, and in three divisions, according as they refer to anterior displacements, posterior displacements, and prolapse. The signs and symptoms of each division may be either direct or mechanical, or indirect and reflex.

Physical Signs of Uterine Displacements.—The physical signs of displacement need not detain us long, but it is a fact, probably well known to all gynæcologists, that mistakes are often made in this matter, and that displacements are diagnosed where they do not exist, and that forward displacements are mistaken for backward, and *vice versa*, by men from whom a better diagnosis might have been expected. These mistakes arise from various causes. The *tactus eruditus* is only acquired by long practice, and consequently cannot be acquired by those whose opportunities of exercising it are rare. When the *tactus eruditus* is acquired in a small degree, its benefits are lost through want of gentleness in making an examination, and the displacement is temporarily corrected by the force of the examining 'finger' before the finger-tip begins to feel how things really are. The passage of a sound or speculum, or the bimanual method of examination, will also obliterate a distinct and mobile displacement even more than a clumsy finger, although the use of these so-called instruments of precision is often thought to render a mistake impossible.

These instruments have a legitimate place in verifying the diagnosis of displacements, but they have to be used with even more care than the finger, to prevent mistakes.

In examining a patient who has never worn a pessary, or any kind of mechanical support, she should be asked to lie on her left side, and all precautions should be taken to prevent timidity, or anything akin to it, interfering with the examination. If she is wearing a pessary this should be removed, and further examination postponed for at least twenty-four hours. The examiner's nails should be short and smooth, and the finger well warmed and oiled;—a great deal of the comfort and success of an examination depends on the first impact of the finger with the body of the patient. A sharp finger-nail or rude touch upon a tender spot will make a patient 'shrink up,' and renders the further stages of the examination both painful and unsatisfactory. It is safest to bring the finger into contact with the body in the neighbourhood of the rectum, and then glide it forwards to the perineum and into the vagina over the posterior commissure. The finger should proceed slowly, with the utmost gentleness, and without any hesitation, scrutinising every structure over which it passes with the greatest care. Strange patients perceive its progress most carefully, and any signs of 'fumbling' are looked upon as signs of inexperience. The vaginal outlet being found, the condition of the hymen demands close attention; and if the orifice is small, the finger must pass in very slowly. Should the patient wince, a pause should be made to allow the necessary dilatation to take place very gradually. If the examiner is alive to the delicate and painful nature of the examination, he will know by the small involuntary movements of the patient how fast he can proceed without undue pain. The finger being past this critical part, the os uteri should be approached with caution, so as to feel the uterus with its position and relations undisturbed. The position of the cervix and os should be first noted, then the size and shape of both, and their condition. The anterior curve of the corpus uteri should next be noted. If no corpus uteri can be felt anteriorly, there is a backward displacement. If the corpus uteri can *only* be felt

through the vaginal wall, and that not very distinctly, the position is probably normal; and if the anterior surface of the uterus be felt to lean forwards very distinctly, there is anteversion; if the fundus can be distinctly felt in front, then there is anteflexion. In anteflexion, the cervix and os uteri are often found more forwards than normal, while in anteversion they are turned more backwards than normal. The finger is now insinuated behind the cervix, and the contents of Douglas's pouch explored. If nothing can be felt there anteriorly but the cervix and a small piece of the posterior wall of the uterus, there is no backward displacement. If the posterior wall of the uterus impinges on the finger as far as that organ will reach, there is retroversion; if the fundus can be felt posteriorly, there is retroflexion. In extreme cases of retroflexion, the fundus is lower down than the cervix, and can be felt quite as readily; in prolapsus uteri, the perineum is relaxed or torn; and both can be detected as the finger advances forward from the rectum in the beginning of the digital examination. The vaginal walls are flaccid or in folds, and the os uteri is met with below the normal length of the vagina. The uterus is retroverted, and can easily be pushed up beyond the point where the finger impinges on it, without putting any tension on the lower part of the vaginal walls.

In the virgin, the general state of the pelvic organs may sometimes be ascertained by digital examination per rectum. Before examining in this way, the rectum must be empty. In all pelvic examinations it is better to have the rectum empty, but here it is a necessity. If done properly, this examination is not painful, but any rough or awkward movements of the finger produce much pain and discomfort. The well warmed and oiled forefinger of the right or left hand, according to the pleasure of each examiner, should press gently, but persistently, on the anus till the sphincter gradually softens, yields, and the finger sinks in. The direction should be forwards until the sphincter is passed, then the direction is upwards and backwards. The cervix is felt, and care must be taken not to mistake it for the fundus, which may be felt further backwards, and sometimes blocking up the rectum. Where a vaginal examination cannot be carried out in

the usual way, I do not like to depend alone on rectal examination. In such cases it is better to have the patient under an anæsthetic, and make a vaginal examination rather than a rectal one. Having made a digital examination *per vaginam* in the way I have described, and gained a fair idea of the state of the pelvic organs, the next thing in special cases is to verify the diagnosis by a bimanual examination. Either with or without an anæsthetic, the patient should be turned on her back, with the lower part of the abdomen so clothed that the hand can readily be placed on the abdomen. Sitting on the left side of the patient the examiner should place his warm, dry, right palm flat over the abdomen, and feel there for any abnormal indications. The second and third fingers of the left hand are now gently inserted into the vagina, and by this method the uterus can be actually handled, and palpated between the two hands, its mobility ascertained, the ovaries and tubes located, their condition and relations to the uterus detected, and any other pelvic tumours or abnormalities discovered. This examination can be best done under an anæsthetic in all cases, but in many cases it can be done quite as well without an anæsthetic. In some the abdominal muscles are so rigid, and the abdomen so full, that an anæsthetic is absolutely necessary. In all young virgins it is best to have an anæsthetic given, as it saves not only the pain, but the distress of mind, which is often worse than the pain.

In the great majority of cases all necessary information can be obtained by the finger, and I rarely use the sound for examination purposes merely. Its passage is a source of danger through sepsis; it often produces acute pain in passing the internal os, and the reduction of the displacement by it is a source of danger by traumatism. Always, before the sound is used, it should be boiled, and well oiled, and cooled; its passage should be made without the slightest violence; only in this way is its use safe.

The passage of a speculum is still more useless as far as information about a displacement is concerned, although it is not a source of danger. I mention these instruments because I have met with many patients who have suffered from them without a true diagnosis being made with their aid, and to impress upon my

readers the utility to the profession, and the comfort to the patients, of depending almost entirely upon the fingers, and educating them to detect changes in the pelvis that cannot be so well detected in any other way.

Symptoms of Uterine Displacements.—The symptoms produced by uterine displacement vary very much in different individuals. In some there are practically no symptoms, in others the patients are bedridden and helpless, and between these two extremes there are many gradations in severity. Whilst we cannot, therefore, detect the presence of displacement by symptoms alone, we can much less detect the kind of displacement by such symptoms.

Pains in the back, in the ovarian region, or down the legs; bearing-down feelings; discomfort in the pelvis when standing, sitting, or lying down; menstrual and uterine derangements; urinary or bowel troubles, are the local symptoms usually met with. The reflex symptoms are most varied, and may affect the kidneys, the stomach, the liver, the intestinal tract, the heart, rarely the lungs, and very frequently the nervous system. All these symptoms, both direct and reflex, are not produced by the displacement *per se*. They depend on the local congestion produced by the interference of the displacement with the uterine circulation and functions. There is no reason why a uterus should not carry on its functions just as well upsidedown as in the natural position; but if, in becoming 'topsy-turvy,' it interferes with its own circulation, or that of the neighbouring organs, then symptoms arise, and in proportion to this interference. It is not fair to one woman to tell her that her displacement cannot be the cause of her symptoms, because another woman has a similar displacement without any such symptoms. The local conditions may be quite different although we cannot detect the difference, just as a small painful ulcer of the leg both disables and distresses one patient, whilst in another a large 'frowsy' ulcer scarcely interferes with comfort or progression.

Besides these real and undetectable differences in local conditions, that seem to our blunt discrimination quite similar, the general condition of patients varies in their susceptibility to reflex stimulation. In some, the reflex symptoms are very difficult to ex-

cite; the local symptoms are isolated from the rest of the economy, and we have no difficulty in getting to the seat of the lesion. In others, the whole body is quivering from the effects of an exactly similar lesion, and what the patient describes as her symptoms have apparently nothing to do with the lesions that produce the reflex excitement. For example, periodical headaches have been cured by correcting a displacement, and the symptoms of supposed vertebral caries have disappeared through the same treatment. So have supposed attacks of intestinal colic, stone in the kidney, heart disease, and paralysis.

Whilst uterine displacements produce symptoms that simulate disease in distant parts, other influences produce symptoms referred to a displaced uterus, that do not properly belong to it, but really to the mind and the brain. For instance, a sterile woman, desirous of children, but with a perceptible displacement, especially a forward displacement, suffers for years with supposed pelvic symptoms, and goes from doctor to doctor in order to get cured. Some compensating and engrossing interest in life is the only cure. Unhappy wives, worried and anxious, have a train of pelvic symptoms that quite disappear when their lives become more filled with pleasant interest, although under both conditions their displacement has remained unchanged.

This phenomenon is not confined to pelvic troubles, but affects every organ, either because a weak organ in the economy is more easily affected by adverse circumstances than a quite healthy one, or that reflex, morbid influences have a customary path in which they travel, and that these differ in different individuals. One patient is 'worried,' and has splitting headaches; another passes urine loaded with lithates, and accompanied with pain over the kidneys, under similar circumstances; another menstruates prematurely, or too profusely; another has pain over the ovaries; another has gastric distension and anorexia, with vomiting; another suffers from rheumatic or neuralgic pains, in regions peculiar to each case. All these examples are taken from cases observed by the writer, and the list could be much extended. In appreciating the symptoms described by patients with uterine displacements, we have not only to consider, therefore, whether

the reflex symptoms are produced by the local disease, but also whether the local symptoms are strictly local, or merely signs of general nervous irritation grafted into a somewhat weakened organ, which in a more healthy state of the economy would not create any troublesome effects.

The prominence given in the social economy to the female reproductive functions exaggerates the tendency of uterine disease to produce reflex symptoms at far distant points, and, at the same time, exaggerates the tendency to refer symptoms of general nervous disease, or of mental worry, to the uterus; and it is necessary to avoid this Scylla and Charybdis, for it is as disastrous to a patient's health to treat actively an unoffending displacement to which symptoms not its own are referred, as to neglect a displacement, which is the cause of reflex symptoms that will only disappear with the removal of the cause, *i.e.*, the cure of the displacement. If we bear these facts in mind, we can generally elicit information that will safely guide us in our often no light task of sifting the evidence for and against the displaced uterus being the cause or the scapegoat of the symptoms, and according as we succeed in this task will be the rapidity and certainty of our success in treatment.

Whilst the symptoms of displacement are very varied and indefinite, owing to the different amounts of mechanical disturbance present in each case, so that we cannot diagnose a displacement by listening to the symptoms alone without making a digital examination, and whilst we can much less tell by symptoms alone a backward from a forward displacement, there are some broad differences in the symptoms that enable us to guess with a fair amount of exactness not only whether there is a displacement, but what kind it is.

For instance, 'bearing down,' if a distinct symptom, is probably due to displacement, and if very marked it may indicate a prolapse; if less marked, a backward displacement; and 'bearing down' is not often a marked symptom in forward displacements.

The reflex symptoms are very marked in anterior displacements, much less marked in backward, and not often prominent in prolapse.

The bladder is often irritable in anterior displacements, and this symptom is much less marked in the other two varieties. Retention of urine is rare in ordinary backward displacements, except in the early stages of pregnancy, when it is so to a fearful or even to a fatal extent. A sad example may not be out of place.

A patient, many years ago, was admitted to the Liverpool Workhouse Hospital, in a moribund condition, with dropsy and peritonitis, and died before anything could be done. The autopsy showed that the bladder filled the abdomen; its walls were as thin as tissue paper, and a retroverted pregnant uterus had produced the obstruction. Another case came into the same hospital late one night, diagnosed as an ovarian tumour, the outline of which reached beyond the umbilicus. The true condition was appreciated, and the urine was to be removed by catheter. Next morning it was reported that no urine was in the bladder, and the tumour was larger. It was then found that an occluded catheter had been used to draw off the fluid. A patent catheter quickly relieved the symptoms, and took away the tumour, whilst reduction of the dislocated uterus made the relief permanent. In backward displacements the pain complained of is mostly located in the back, in forward displacements in the region of the ovaries, especially of the left ovary. In prolapse, one patient complains of a dragging pain, and of soreness about the vulva.

We might discriminate still further between the symptoms exhibited by the different kinds of displacements, but as we only depend on the symptoms so far as to show that there is *prima facie* evidence of pelvic disease, and that digital examination is always employed as the only certain method of diagnosis of displacements, we will leave the subject for the more important and practical one of diagnosing displacements from the numerous diseases that simulate them. We would not like it to be understood that we should neglect symptoms, but the very reverse. They are valuable guides as to the judiciousness of asking for an examination. In this country, we are glad to say, an examination is not yet readily assented to without some evidence of necessity for it; but if there is evidence of necessity it is gener-

ally allowed. To propose any examination without showing the patient a sufficient reason for it, is perilous to the relation between doctor and patient; whilst to treat the patient empirically, dosing her with medicines, and treating her headaches and other reflex troubles as primary diseases, is much more hazardous, and brings much discredit on the doctor. After years, perhaps, of working in the dark by means of ill-directed and unavailing efforts, an exact diagnosis is made by another man, and better treatment dissipates the symptoms; then the patient looks back over her years of discomfort, and thinks, or what is worse, sometimes speaks, about the gentleman who only added to her sufferings by making a 'chemist's shop,' as one patient said, of her stomach. Some few patients will not submit to examination under any circumstances, but most will when the reasons are placed before them, and they have time to think it over and see the advisability of it. If they do not, then the onus rests with themselves; and they cannot afterwards accuse the medical attendant *of carelessness*, neglect, or incapacity.

Diagnosis of Displacements.—The diagnosis of an anteversion or anteflexion is generally easy, as this condition is not liable to be mistaken for anything else. A small fibroid on the anterior wall of the uterus may simulate an anteflexion, and we have seen two cases, but in neither was there any great difficulty in diagnosis. The outline of the fibroid could be easily felt in each, and the passage of the sound verified the information of the finger. The ovary can hardly get in the way here. A sacculated stone in the bladder might simulate an anteflexion for a moment, but the bladder symptoms, and sounding the bladder, would easily settle the question. Irritability of the bladder is often met with in these forward displacements, and sometimes hysterical retention of urine, but the urine is generally normal, limpid, and variable in amount. We must remember that there is no normal angle beyond which, if a uterus 'dips' forwards, it can be said to be displaced. The diagnosis of forward displacement depends on the uterus being abnormally fixed in a forward position, and producing symptoms that can be referred to this abnormal fixation. Hence every gynæcologist has a standard of his own, and one

man diagnoses cases as forward displacements, and treats them as such, that another observer would consider normal, and leave alone.

Backward displacements are more easily diagnosed as abnormal than forward displacements, and yet the diagnosis is more liable to error. The retroflexed fundus is sometimes so tender and mobile as to seem like an ovary; and a large, tender, prolapsed ovary may be mistaken for the fundus. The finger can generally detect the difference. The posterior wall of the retroflexed uterus can be traced continuously backward to the fundus without any hiatus in the continuity of the surface, whereas a hiatus can be detected between the normal posterior uterine wall and an ovary lying behind it. The fundus is in the middle line, whereas an ovary lies to one or other side. The ovary can be pushed away from the uterus latterly, the fundus can be pushed upwards but not away from the uterus. If the sound be passed into the uterus it can be felt in the fundus behind, whereas an ovary simulates the fundus, the sound will pass in the natural direction, and out of reach of the finger. Bimanual examination will enable us to examine the position of the fundus and of the ovaries, and set at rest the location and size of each.

Small fibroids in the fundus are most difficult of detection, and cases have often to be treated for displacement until the tumours grow to such an extent as to disclose themselves. The following three cases illustrate this statement :—A young lady had a displacement that baffled pessaries, and the round ligaments were shortened, and all went well for six months. Then what appeared to be the fundus was felt, but that it was either an ovary or a pedunculated fibroid was pretty certain to some of the medical attendants. Others diagnosed a recurrence of the retroflexion. The patient had repeated attacks of cellulitis, and almost constant anorexia, and at last we advised laparotomy. Three small pedunculated fibroids were growing from the fundus, the ovaries were cystic and enlarged. All were removed, and the patient is now in very fair health. At the time of the laparotomy the uterus was found in good position, and had withstood the dragging effect of the fibroids.

The second case was a lady with retroflexion, in whom the uterus, a large margin, was reduced under chloroform, and a Hodge's pessary inserted. She kept fairly well till she over-exerted herself, when the fundus was turned back over the end of the pessary, and the symptoms recurred. The round ligaments were now shortened, and at this time the fundus was still large and heavy, but there was no sign of a tumour. While writing, I hear that a fibroid has developed, and is to be removed. I have not seen the patient for some time, but when I last saw her the uterus was in good position.

The third case was one sent to me from London, as a suitable case for shortening of the round ligaments, the other methods of treatment applied by some of the foremost of the London gynæcologists having failed. Digital examination confirmed the diagnosis, but examination under chloroform bimanually, just before the operation, showed me that a tumour existed in the fundus. Laparotomy was performed, and the fibroid enucleated, the method of operating including ventrofixation. The patient is now, twelve months after, very well in health, and the uterus in position.

In all these three cases the diagnosis was impossible at one period of the retroflexion, when the fibroid was very small; when it grew larger, its detection was very easy; and the same mistakes will frequently occur unless the condition is borne in mind, the cases watched, and the uterus well palpated bimanually.

Masses of hardened fæces in the rectum will hardly simulate a retroverted uterus. The mass is doughy, and can easily be felt to pit on pressure, is sometimes painful, and has been mistaken for a prolapsed ovary more frequently than for a retroverted uterus. If any doubt exists on the matter, the lower bowel should be well cleared out and a re-examination made.

The diagnosis of prolapsus uteri in the graver stages of the disease, where the uterus is outside the vagina, presents no difficulties that need concern us here, where the readers are supposed to be familiar with the differential diagnosis of polypus, tumours of cervix, inversion of uterus, cystocele, rectocele, and prolapsus uteri. It is in the early stages of the disease where difficulty is

experienced in ascertaining whether the uterus does descend. Examined in the lateral or dorsal position, the uterus generally falls well back into the pelvis, and the lax vaginal walls are the only indications of the trouble, and sometimes these indications are slight and difficult to recognise. In such cases the patient should walk about before examination, and she may be examined half sitting and half lying on the left gluteal region, on the side of the bed, with knees drawn up, or even, in some cases, standing. Where such methods of examination are objected to, a Hodge or ring pessary placed in position will assist the diagnosis by the amount of relief given, and in many cases a Hodge or a ring gives so much relief that a tendency to prolapse is diagnosed without distinct physical evidence of the condition being detected.

Complications of Uterine Displacement.—Congestion of the uterus and its surroundings is the chief complication, and is rarely absent, except in old cases, where the circulation has gradually accommodated itself to the altered conditions. In many the congestion is periodical, due to menstruation, and may be worst at the beginning or end of an attack. Sometimes it is general, the uterus and appendages being swollen and tender, and the displacement much exaggerated; at other times, and most frequently, the congestion is local, affecting the corpus and fundus uteri. The rectum often shares in the general congestion, and hæmorrhoids may be complained of as the primary lesion, whereas that disease is purely secondary.

Inflammations with abnormal temperatures may complicate displacements, especially backward displacements; and there may be metritis, endometritis, endocervicitis, parametritis, perimetritis, salpingitis and ovaritis, cystitis, proctitis and membranous colitis. Some of these diseases may also figure as the cause of displacement, but whether that is so or not will depend on the history; and even when the displacement is secondary, it will be found that cure of the displacement is often the only way of destroying the vicious circle of events, that so interdepend on each other as to obscure the relations of cause and effect.

Mucous discharge from the bowels, constipation and its complications, pronounced hysteria and neurasthenia, epilepsy and

mania, may occur as complications. The last two are rare, and the connection of cause and effect is always doubtful. The others are common, and their cure, by the cure of the displacements, often takes place.

Sterility is a frequent complication of displacement, especially of anterior displacements; whilst abortions and miscarriage often complicate backward displacements and prolapse. There are many other phenomena that occasionally complicate uterine displacements, but their connection with displacement is generally admitted; and if admitted, opinions are divided as to whether they are to be looked upon as causes or effects. Their enumeration would only obscure the chapter which is to describe the signs, symptoms, and complications of uterine displacements, as they have come under the notice of the writer.

Chapter III.—The Treatment of Uterine Displacements.

The treatment of uterine displacements is *preventive* and *curative*, and the latter may be divided into (a) *general treatment*, (b) *rectification by mechanical contrivances*, and (c) *operative treatment*. Under these heads we will describe, 1*st*, anterior displacements; 2*nd*, posterior displacements; and 3*rd*, prolapse.

The preventive treatment of anterior displacements does not generally belong to the gynæcologist, but to the mother, to the teacher, to society, and to the correction of inheritance where the disease is inherited. More frequently, however, anterior displacement is a developmental defect, and arises from over pressure at school or college, where the womanly element is dwarfed at the expense of the intellectual. Hence the education of the growing girl must not be pushed beyond a healthy extent, but be intermingled with feminine pursuits and recreations, tending to develop the entire system as well as the brain.

If a woman intend to lead a celibate life, then she may sacrifice her sex to her intellect, and become learned without any apparent injury to her health. Should marriage take place, however, the small anteflexed and undeveloped womb will be a source of discomfort, and she will regret the sacrifice when too late. Girls do well at the universities because they pursue their studies so closely, not having athletic distractions like boys; but these are not the girls most likely to make healthy wives and mothers. They do not always blossom into full womanhood, and too often pass their lives as clever, hysterical invalids. While the development of the rest of the body

must not be sacrificed to the brain, the non-development of the entire economy is a much worse fault, and a much more common one. An intellectual woman we can admire, and the sacrifice of the physique to the intellect is a laudable work from many points of view. But when physique and development are sacrificed to fashion, and nothing results from the sacrifice but a miserable bundle of aches and pains, and nerves and childish wants, medical men cannot speak loudly enough, both as to the condition and the remedy. Young girls who cannot take their food, who cannot walk, who cannot do anything but read light literature, should *do* nothing else but learn to eat and walk, and should not be allowed to do anything else until they can do this. Girl school-life should be more free and hearty and active, with less regard to punctilio at table, primness of demeanour and speech, and more to natural unconscious modesty, alike of conduct, speech, and manner. When a girl's health begins to fail, when she becomes anæmic, chlorotic, loses appetite, and complains of shortness of breath, sickness, etc., she should be sent away to the country, where she should run wild, take long rambles, climb mountains, feel cold and hunger and thirst, be ravenous for food, and not too difficult to please as to the kind of food. A girl who cannot take her food and romp about is not fit to go to parties, balls, concerts, and similar forms of dissipation, where her mind is on the strain, and not always with the strain pleasant and health-giving; her body lightly clad, exposed for long periods to tiresome postures, and from which she arrives home exhausted, excited, or disappointed, to partake of a late supper, and consequently to go to bed at a late hour. A strong man would not undertake what many delicate girls have to endure in this way. If more common-sense were applied to the duration and time of day of these dissipations, it would be better for everybody, except for the medical profession and the gynæcologists.

It is impossible here to do more than utter this warning against fashionable follies and against fashionable life as a cause of anteflexion, but individual medical men can do a great deal in individual cases in making their warnings have a practical effect.

We will now proceed to consider other preventive measures more likely to be carried out.

The schoolgirl and the adolescent woman at present are taking more and more to healthy exercise; the bicycle and lawn-tennis, golf, with some other similar outdoor health-bestowing pastimes, are becoming fashionable, and with their use in moderation and regularity nearly all medical men quite agree. But frequently a girl or woman, hitherto of idle habits and undeveloped muscles, takes to one of these vigorous pursuits, and is carried away with delight and pleasure. The result is a breakdown, and during the breakdown the signs of uterine displacements occur. The preventive treatment obviously is a gradual training in any new pursuit; and just in this, as in several other more important things in our life, there is less trouble taken than in smaller matters. Latin, French, Italian, and German are taught by skilled teachers, and each is practically useless in the future to 90 per cent. of the pupils, but physical exercises are learned by chance, or assisted by a casual and often inexperienced friend. A slip in pronunciation is far more guarded against than a slip of an important internal organ, though the grave importance of the latter slip cannot be compared with the slight importance of the former. We take far more care of the physical training of our horses and dogs than of our girls; and it is only when the mischief is done that we employ skilled advice and spend money lavishly when the difficulty of doing real good is very great or it may be impossible. An ounce of prevention is here, as elsewhere, worth more than a pound of cure.

We would recommend skilled advice, both technical and professional, as to the physical exercises all pupils indulge in, and as to the physical training best suited for each child, according to its age and sex. At present a weak, undeveloped girl is too often initiated by a strong, vigorous schoolfellow, and the spirit of emulation tends to lead the former beyond her strength, to her perhaps lifelong invalidism.

We do not think any good can accrue, but great harm may result from warning girls that they must not run, jump, ride on horseback, cycle, golf, play lawn-tennis, swim, etc., because of

the 'internal injuries' that may follow. Displacements do probably occur in girls from every one of these exercises, but they only occur through the overstrain of the lax, undeveloped fibres of novitiates, and do not tend to occur, but the very reverse, in experts in the games or exercises. It is not a healthy frame of mind for any individual, especially a highly-strung girl, to have to think, before she does anything, how it may affect her interior, or to stop after any exertion and feel, or as it were to listen, whether any harm has been done.

At the periods, however, and for a day or two before and after, no girl should be allowed to engage in any severe exertion. The uterine organs are then congested and heavy, more liable to be displaced and to remain displaced; and, in my experience, the troubles of backward displacement very often date from a strain or accident at a menstrual period.

Just as exercises, *i.e.*, intermittent strains and relaxation, strengthen and increase the volume of muscle, so constant strain without relaxation weakens and stretches muscular tissue. Hence, continuous standing, especially if leaning forward, or continuous sedentary occupation, are both bad. It is the weariness that does the mischief. The muscles become limp, and the attitude assumed favours displacement. When a woman stands erect and firm, or sits in an active, alert attitude, in neither case is she in much danger of causing the class of troubles we are now writing about.

The displacements we have to treat in practice are all chronic ones,—that is, displacements that have lasted over a considerable period of time.

The jump, the fall, the strain, the twist, the miscarriage, the parturition, or whatever else the predisposing cause may assumedly have been, occurred always "many months" ago: no one ever sees the cases at the time, and then and there examines the pelvic organs.

To young girls we cannot at present do this for many obvious reasons, and rest, blisters, and large quantities of medicines are prescribed till the pain disappears, or the trouble is said to warrant or necessitate an examination.

Wherever there is reason to suspect traumatic displacement, this expectant course of treatment should no longer be continued. *Under an anæsthetic*, the true state of affairs should be accurately ascertained, and can be accurately ascertained without shocking the patient, and the womb replaced. I have no doubt that a very small and unirritating pessary applied at such an early stage would result in a permanent cure without any other treatment. If the uterine organs are found not to be displaced after such an examination, then we can eliminate them from the data upon which our diagnosis is founded, and the mental relief afforded to the patient by knowing that she is right internally will always materially hasten her recovery, and counterbalance the inconveniences of the examination.

Again, when pregnancy temporarily corrects a displacement, a pessary inserted three weeks after parturition or after miscarriage, before the womb has had time to recur to its previously displaced condition, may so influence involution that in time the natural and not the displaced condition may remain. In several such cases I have obtained a cure by preventing a recurrence of displacement; and it is a plan I would impress on obstetricians whose opportunities of work on this line are much greater than mine.

Abdominal surgeons are becoming more and more familiar with the effect of obstructions of the bowels or obstinate constipation in producing effusion of sero-lymph into the abdominal cavity, and in producing various congestions in the large abdominal and pelvic plexuses of veins. They see both changes when they open the abdomen in their various surgical operations, and the effect of aperients as relieving both conditions are now well known. These effusions and congestions should be prevented, as we know they lead to immobility of the abdominal organs, and in many cases a judicious use of aperients will have to be resorted to, in addition to exercise and a regulated diet. The aperients should be simple and varied, and should be administered in such doses as will bring about a natural motion. Strong purgatives inconvenience the patient, are necessarily followed by constipation, as too much of the contents of the intestinal canal are discharged, and the excess must of necessity be discharged

prematurely, and this premature egesta means diminished nourishment of the body. Cascara, rhubarb, aloes, and liquorice, and mild vegetable aperients generally, are better than salines, and may be so given as to be productive of nothing but good.

But with all our preventive treatment, and all our warnings as to the causes of uterine displacement, only a small number of cases will be prevented. Many displacements take place insidiously, and are unsuspected until they have become established. Slight and even severe pains in the pelvis, produced by violence, will always be concealed, in the hope that time will bring them right, until failure of health is apparent, or the patient musters courage to inform her friends or her doctor of her secret trouble. We then find a confirmed displacement of old standing, and surrounded by symptoms and complications that require treatment.

In such a case a prescription containing an aperient, such as cascara, with nux vomica, hydrastis canadensis, a quiet life, or perhaps rest at home, or on the sofa, will relieve the urgent symptoms, and make the patient fairly comfortable. The displaced organ ceases to feel displaced, congestions take place less and less at the menstrual periods, and the patient goes about practically cured, though perhaps sterile. The displacement remains the same, but she is no longer cognisant of it.

How the patients behave under these circumstances depends largely on their own natural disposition, and to a less degree on the kind of medical attendant they have. With one set of circumstances a displacement dominates the patient's life. She does everything in subordination to her disease, she will not sit with her feet down, she dare not stand for fear of falling to pieces; and her precautions and notions are absurd, childish, and purely imaginative. She requires constant attention, and her usefulness as regards her husband and family and society are largely at an end. Such a patient has somehow obtained an exaggerated idea of the serious import of her complaint, and her symptoms are due to her conception of it rather than to the disease itself. Another patient looks upon the displacement as an infirmity that will give her trouble if she walk or stand too

much, if she allow the bowels to become constipated, or if she fail to take reasonable care at the menstrual periods. With a few precautions she gets along very well, and only sees her medical attendant occasionally; uses a douche at certain intervals, or a little aperient medicine. A third class of women with displaced wombs take very little care, except they have an attack of what they call inflammation. Then they have to lie up in bed, are attended by their doctors until they get better, when they go about as well as they can till another attack lays them low. They take no precautions, do not realise the cause of the attacks, or are not enlightened on the subject until the attacks of so-called inflammation becoming very frequent, they seek other advice.

Of these three classes, the first is often an example of *nimia diligentia medicorum*, engrafted on a nervous temperament; the third, the opposite extreme, of *minima diligentia medicorum*, engrafted on a lymphatic or altruistic temperament; and in the second class we find a sensible patient, and a sensible and scientific adviser, where both realise the nature of the infirmity and the methods of being as comfortable as possible under its existence.

A large number of patients are successfully treated for displacements in no other way, and get along fairly well. Hence when a patient presents herself to us with a displacement that has only been discovered, or that has not been treated, it is well to remember that neither instrumental nor operative treatment may be necessary, and that simple attention to hygienic and dietetic rules, with simple medicines, may suffice. The true nature of the complaint should be carefully explained to the patient, so that she may be neither nervous nor careless about herself. We can then ascertain how far the infirmity can be made tolerable by simple means, and whether there be any need to proceed to further measures.

Pessaries.—These simple measures apply to all mild kinds of displacement; but when other measures are necessary, we will have to treat the different displacements separately, as anterior displacements, posterior displacements, and prolapse.

For anterior displacements, I have long ceased to use any kind of supports. In past years I have used all kinds of pessaries. I believe they are all much more productive of evil than of good, are either intolerable or useless. I treat such cases either by the simple medicinal treatment, or by the operative treatment to be presently described.

Backward displacements, both retroversion and the milder forms of retroflexion, can be successfully treated by an easy-fitting but well-fitting Hodge's pessary, provided there be no tenderness, no prolapsed or painful ovaries, and that the uterus can be easily reduced. When the parts are congested owing to the displacement, reduction and insertion of a pessary, with rest and douching of warm water for a few days, relieve all the symptoms. When, however, there is inflammatory thickening, a pessary does harm, and its insertion should be postponed until the inflammatory symptoms have been subdued. With cleanliness, such a pessary may be worn for a long time without any inconvenience. When any irritation arises during its use, it should be removed, a few days' rest enjoined, with daily antiseptic douchings, and at the end of that time a new instrument inserted. Sometimes a patient who has tolerated such an instrument for many years becomes so sensitive and irritable that she cannot bear it any longer; a soft air or fluid ring may then be borne, or it is often better to allow a prolonged rest without any mechanical support. A patient may remain very comfortable without a mechanical support who previously could not do without one, although the exact cause of the change is not manifest, the uterus still remaining as before.

The pessaries that I prefer are those made of celluloid, capable of so much softening by hot water that they can be easily manipulated to fit each particular patient. The Hodge and the fluid rings are the only pessaries I ever employ, both for backward and downward displacements; and when these fail, I recommend operative treatment.

Before entering upon the different kinds of operative treatment, I would call attention to the necessity of treating subinvolution, endocervicitis, erosions and other diseased conditions of the

cervix, endometritis, and split cervix. These conditions sometimes entail small operations such as curetting, Emmet's operation, intra-uterine douchings, swabbing out with iodised phenol or similar substances. Many of these can be performed simultaneously with the operation for displacement; and when possible, it is better to perform them all at one sitting, rather than trouble the patient with several separate operations. Of course, intra-uterine and vaginal medications, treatment of diseased cervix by antiseptics, etc., should be performed previously to operation; and curetting is more safely performed alone, as of all the operations for displacement, except perhaps ventro- and vagino-fixation, it is probably the most serious.

Operations for Anteversion and Anteflexion that resist the simple medicinal and local treatment previously described.

The only operation that I perform for forward displacement is dilatation by Hegar's dilators made in silver. I use a scale of sizes numbered from 13 to 36, and arranged, I believe, by Dr Burton. The extent of dilatation depends on the size of the womb, and means dilating as far as I think the cervix will stretch without tearing. The dilators are passed slowly, with a slight interval between each, while the feeling of stretching is experienced, and until the uterus and its canal become quite straight. The operation is performed in the following way:—The dilators, retractors, and vulsellum forceps are boiled before use and arranged on a tray, where they are immersed in carbolic lotion until used. The vagina is well douched with perchloride or carbolic lotion; the patient lies in the lithotomy position, and is usually under an anæsthetic. The cervix uteri is pulled down by a vulsellum, and the labia are held asunder by means of retractors held by nurses or assistants. The operator holds the vulsellum in the left hand, the right hand receives the oiled dilators in order from the nurse and passes them into the uterus, the direction of the canal having been ascertained by the uterine sound. When the canal is sufficiently dilated, the uterine cavity is washed out, by means of Bozeman's or other intra-uterine douche,

with an antiseptic, and the interior may be explored by the curette or 'touched up' with iodised phenol. In using the latter, great care must be taken to protect the skin from being stained by the caustic, as it produces severe pain for some time when applied to the external surface. Its application to the cervix or to the uterine canal is almost entirely free from pain. After this operation the patient must be kept in bed for a week, looked after for a fortnight, and douched out daily during the first week, and occasionally during the second week.

If any febrile symptoms appear, it is well to wash out the uterus; but if the operation be performed with due attention to antiseptics, and the patient take due rest and care afterwards, no febrile symptoms should be experienced. I do not like to perform the operation, small though it seems, without a nurse to look after private patients. In hospitals the operation is quite safe, but at home the patient feels so well that if alone they do all sorts of things, and a very troublesome cellulitis may arise.

The benefits of this operation in forward displacements are sometimes all that can be desired. It relieves irritable bladder, cures sterility, lessens dysmenorrhœa, and sometimes, by its moral as well as its physical effect, frees the patient from more strictly neurotic phenomena. In other cases the operation has no effect whatever on the symptoms; and I always warn either my patient, or at anyrate her relations, that while the operation is simple and safe, it is not a certain cure for all the symptoms associated with anteflexion, and that sterility may depend on a great many causes, of which anteflexion is only one. Still, the success of the operation is so great in effecting relief or cure, that I have no hesitation in recommending it, with the provisos before mentioned.

In a few instances, many years ago, I divided the posterior lip and dilated with a glass stem, but I have given this up, because it certainly possesses no advantages over dilatation, and has the serious disadvantage of weakening the lower zone of the uterus. In some cases I have ascribed abortion to this weakening, the os beginning to dilate at a certain time, and the uterus emptying itself, in spite of all precautions. In fact,

I have stitched several up that had been incised some years before without any advantage, and after the stitching up the patients generally expressed relief.

Dilating by sponge tents I have entirely given up for many years; forceps dilatation has shared the same fate; and the single or double bladed hysterotomes are shown to the students as museum curiosities, having been tried in the past and found wanting.

Ventro-fixation may be useful in some obstinate cases, and so might some other more severe and serious operations, but I have never found it necessary to perform any of these for this infirmity. The question, Is your life so miserable that you would seriously risk it to be relieved of your symptoms? has never been so affirmatively answered as to cause me to advise any of these major operations for simple forward displacements.

When I come to treat backward displacements by operation, I feel more at home; and here again I only perform one operation, and that is shortening the round ligaments. As in the forward displacements, an operation here is only thought of after all other means have failed, or when there are special reasons for resorting to an operation, such as sterility; rebellion, either physical or mental, to the use of pessaries; mental worry, through the knowledge that there is something wrong, and the hopelessness of ever being independent of treatment except by operation. Working-people require the operation more than the well-to-do, as they cannot afford the time and rest necessary to keep themselves comfortable. The simplicity and safety of the operation cause some to have an operation instead of other treatment, where its performance is not an absolute necessity.

History of the Operation.—During the years 1879, 1880, and 1881, my attention was attracted by the large number of cases of displacements of the uterus under my care in the gynæcological wards of the Liverpool Workhouse Hospital. Prolapsus uteri was most common, but there were also many cases of retroflexion and of retroversion, and a few cases of anteflexion and anteversion. All these patients had been under treatment for years. Pessaries were useless in the most

of them, owing either to the exaggerated form of the displacement, or to the irritation of the mind or body produced by their presence. When relief seemed to be obtained by the use of a pessary, the relief was almost certain to be of short duration, and it would mostly happen that the patient returned to hospital in a few days with the pessary in her pocket or nowhere to be found. The uterine complaint was a grand excuse to secure exemption from work and admission to hospital.

I felt that the *desideratum* in such cases was an operation that would fix the womb in position, so that it could not be voluntarily disarranged by the patient, and that at the same time would allow all the natural functions of the body to be carried on without the necessity for *any* exercise of self-denial on the part of the patient.

Before I thought of this new method I performed the only operation hitherto described for prolapse of the uterus, in which the vaginal canal is contracted and the perineum fortified by means of plastic procedures, the modifications of which are as numerous as the operators themselves.

Although these operations do good in a certain number of cases, their success depends on the absence of all dilating causes. The external dilating causes *can* be abstained from but generally *are not*, whilst the internal causes are always at work. Hence in the very worst cases, where operation is most necessary, the result is the least satisfactory. I have performed several operations by these methods, and only in one case was I quite successful, after the lapse of three months. In that case I had to modify the operative methods of preceding operators in a radical and useful way; but as, since that time, I have devised a better method, applicable to all cases, I will not refer to the case further.

I also thought of stitching the uterus to different parts of the pelvis, but experimental operations on the dead subject showed me that serious objections to all such proceedings existed.

About 1879 I thought of the round ligaments as a means of replacing the uterus, but my impression of their possible utility was so small that I never took the trouble to examine

them until June or July 1881. Up to that time I believed them to be faint bands that merely served as landmarks in developmental physiology; attenuated ghosts of tissue, out of which certain structures were developed in the male.

In June or July 1881 I obtained the body of an old woman for post-mortem examination, and in her I was astonished to find how thick and strong the ligaments were.

For some months after that I examined all the round ligaments I possibly could, and on 14th December 1881 I successfully operated on a case of prolapsus uteri by pulling up and shortening these ligaments.

Four cases were published in the *Medical Times and Gazette* in April 1882, and since then many reports of operations have been published, both in the Old and in the New World, by myself as well as by other operators, and the opinions upon the operations of nearly all the leading gynæcologists everywhere have been expressed in the medical press. These opinions and results will occupy the next chapter. We will here only refer to some points in the history of the operations that were necessarily omitted in the previous edition of this book.

At the time of my original operation, and for many months afterwards, nothing was known of any record of a similar operation having been conceived or practised before.

In June 1882 (*Glasgow Medical Journal*) Dr James A. Adams of Glasgow describes very fully how, from an anatomical point of view, he was led to the same operation. His investigations on the dead body must have been going on at the same time as mine, but he was two months later before he was able to operate, and then he could not complete the operation on account of adhesions. Soon afterwards reports of previous investigations came from the Continent, and at the present time the following summary of the researches upon the subject places the facts fairly and briefly before the reader.

In 1840 Professor Alquie of Montpelier presented a thesis, "Sur une nouvelle méthode pour traité les divers displacements de la matrice," to the Academy of Medicine. This thesis did not meet with any encouragement, and remained in the

archives of the Academy until it was unearthed and published by Dr Camille Moreau, a copy of whose pamphlet on the subject reached me recently through the kindness of Dr Nicholson. A perusal of it shows that M. Alquie had elaborated the operation to a very complete extent. He never performed it on the living, and the only record of his thesis in contemporary literature was one by Tillaux in his treatise on topographical anatomy, where, according to Dr Manrique, the following passage occurs:—

"M. Alquie, thinking that the round ligaments were the cause of the resistance that often is experienced in pulling down the uterus, conceived the singular idea of shortening them to prevent prolapsus uteri.

"On the other hand, Aran, attributing to these same ligaments the part, not of supporting the uterus, but of drawing the fundus forward, thought of applying the operation of Alquie to the cure of retroflexion. I do not know whether experience may ever confirm these purely theoretical ideas."

The operation was here very near its birth at the full period, but the fully formed fœtus dropped, stillborn, for what precise reason we cannot tell (whether from want of a suitable case, lack of surgical enthusiasm, or of both, no one knows), and not an echo of the occurrence was heard in the medical literature of the English language in 1881.

Twenty-four years later, in June 1864, M. Deneffe of Gand tried to shorten the round ligaments on a case of Professor Bourggraeve's. He not only failed to shorten the ligaments, but the local inflammatory disturbances at the seat of operation were so great as to imperil the life of the patient. Fortunately, no record of this attempt to perform the operation found its way into English literature until after my cases were published, else the operation might still have existed only in my mind. Deneffe's attempt would have certainly deterred me from proceeding further. Whilst, therefore, such an operation was thought of, planned, and attempted before 1881 by continental surgeons, nothing came of these ideas and attempts. In that year the idea required to be originated afresh for the third time, and for the first time it was carried to a successful issue.

Method of Performing the Operation of Shortening the Round Ligaments for Backward Displacement.

Any medical man who has sufficient leisure to read the various papers published by the writer on this operation, will find that its details are continually changing. It would serve no useful purpose to notice these changes here. We shall therefore only describe minutely, and as clearly as possible, the operation as we perform it at the present time.

The patient is prepared for operation in the ordinary way, the pubes shaved and rendered clean by antiseptic washings and dressings, and the vaginal canal well douched out. When the patient is under the anæsthetic, the pessaries are inserted—a small easy-fitting Hodge in retroversion, and a stem and Hodge in retroflexion. In the first class of cases the Hodge is inserted to push upwards and backwards the attachment of the uterus to floor of the pelvis. The retro-uterine ligaments are relaxed, and relaxation means gradual shortening of these ligaments. This gradual shortening of the posterior and upper attachments of the uterus combined with the shortening of the round ligaments in front and below, renders the position of the uterus very stable after operation. If the round ligaments only are shortened, and the cervix and lower parts of the fundus are allowed to swing downwards during the healing of the wounds, and to approximate to the vaginal outlet, very little consideration will be necessary to show that the ligaments are dragged upon during the healing process by the weight of the uterus, that imperfect union of the ligament may take place, and that at any-rate the recovered tone of the sacro-uterine bands will not result. Many failures are no doubt due to this cause; and I do not think the operation has been properly performed unless a pessary has been used.

In all aggravated cases of retroflexion a stem pessary is necessary in addition to a Hodge, not only during the process of healing of the wounds, but for three weeks after operation.

In the normal uterus the round ligaments are attached close

to the origin of the Fallopian tube, and on a level with the limits of the fundus uteri. Consequently, when the ligaments pull upon the uterus the whole fundus is raised vertically. In cases of prolonged retroflexion the relative positions of the different parts of the uterus are altered through the abnormal development of the fundus that occasionally takes place. The diagrams here shown illustrate what I mean.

In fig. 1 the retroflexed and retroverted position of the uterus is shown, and the attachment of the round ligaments at *a*, a considerable distance from the fundus. In operating on the first case

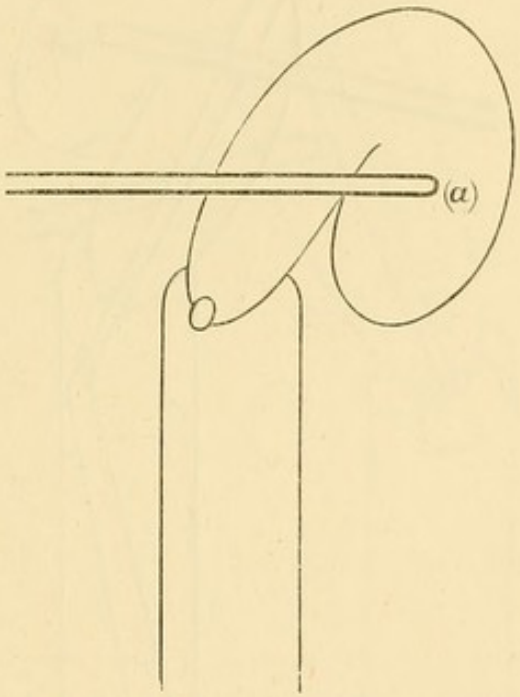

FIG. 1.—Diagram showing a chronic retroflexion of the uterus and the position of the round ligaments.

of this kind, the sound was inserted and handed to an assistant and the ligaments pulled upon. Soon after, on examining the uterus with the finger, I found the condition of affairs as indicated in fig. 2. The sound had slipped, and the fundus had recoiled like a watch-spring. This recoil the round ligaments, from their abnormal position, were unable to prevent. A galvanic stem pessary straightened the uterus completely, as in fig. 3, and the round ligaments were then able to maintain the uterus in position. After operation the fundus gradually shrinks and becomes normal.

In the first case time was lost, because the condition was not appreciated for two days, and then the round ligaments were dragged upon in replacing the uterus and in applying the pessary. The adhesion of the ligaments was disturbed, so that the operation was partially a failure. In all my retroflexion cases the 'galvanic' pessary and the Hodge are introduced at the time of the operation, and before making the incisions.

I use the so-called galvanic stems on account of their shape

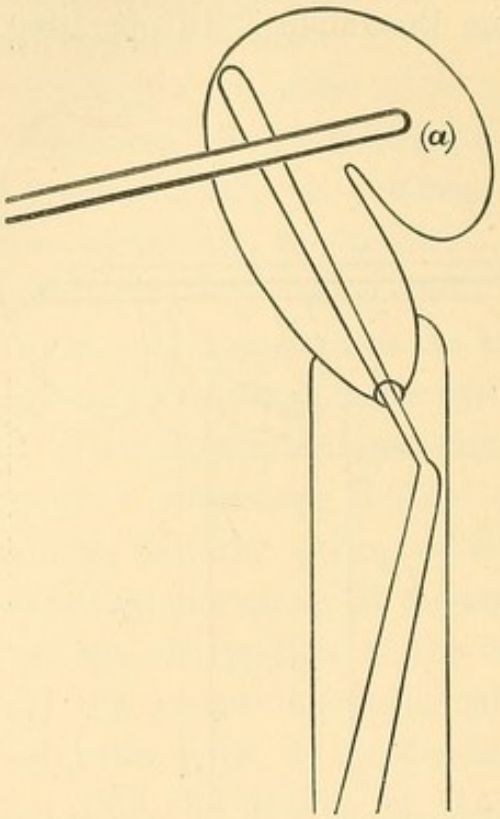

FIG. 2.—Diagram showing the effect of pulling on the ligaments alone without previously straightening the uterus completely by the sound.

and size. The galvanic action is not a contra-indication, and the type being in existence already and well known, I have simply used what was to my hand, and to be obtained from any instrument-maker. Any other stem pessary of the same shape and size, but made of any other suitable material, will do just as well. Many objections have been taken by gynæcologists to the presence of the stem pessary. I have not found any serious objection after many years of their use in this operation. When they are removed, they are generally encrusted with salts, and

the os and uterine canal are well dilated, but no evidence of metritis, parametritis, or perimetritis has been observed. It must be remembered that the patients remain at rest in bed during the entire period of its use, and under the charge of a nurse: under less strict conditions of rest and care, a stem pessary is no doubt a dangerous instrument.

In both cases, after insertion of the 'Hodge,' or of the 'Hodge' and stem, the uterus should lie nearly in its natural position. If not, there is probably some adhesion that may

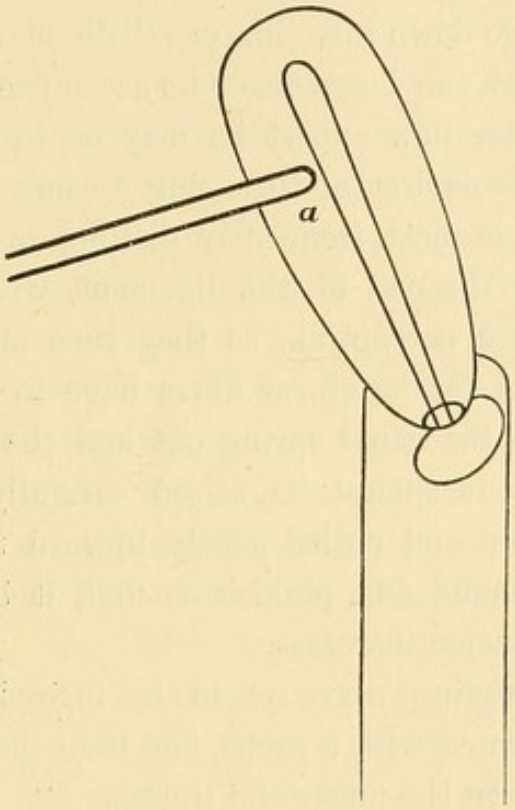

FIG. 3.—Diagram showing uterus straightened by a stem pessary.

contra-indicate the operation at present, and it should not be proceeded with.

The position of the uterus being satisfactory, the surgeon standing on the opposite side of the patient to that on which he is operating, places his finger on the pubic spine and makes an incision an inch long, more or less, according to the probable depth of the wound, in the line of Poupart's ligament, and terminating at his finger. The wound is to be deepened by successive incisions (the edges of the wound being separated as we proceed

by small retractors), until the tendon of the external oblique muscle is reached. This glistening tendon is unmistakable in appearance, and should be the goal of the first stage of the operation. I have known operators stop at the deep layer of the superficial fascia, in doubt whether it was not the external oblique fascia. My rule is that when in doubt, proceed: when the true goal is reached there is never any doubt.

The skin and fascia can now be moved easily about, so that the opening of the wound can be displaced hither and thither, and the external inguinal canal looked for. It is a mistake for an operator to go down into this canal direct, as he may go too deep and wound the ligament or its accompanying vessels. It is best, no matter how expert he may be, to find the external oblique aponeurosis first, and the ring second. The ring varies in size, but it is most frequently distinct to sight as well as to feeling, and the end of the ligament, with its nerve and vessels, are quite perceptible, as they turn obliquely over the lower pillar. A few arciform fibres have to be incised, when the contents of the canal spring out and the ligament can be readily seized. It should be seized carefully with *dissecting* forceps, lifted up and pulled gently upward to show its form and colour. Round and pinkish at first, it becomes white in colour as the tension increases.

The accompanying nerve is to be incised, and all other structures separated with a probe, and then the ligament should be caught between the finger and thumb.

The retractors being still kept in position, the point of emergence of the ligament is well under observation, and the operator both sees and feels what progress he is making, and how the end of the ligament is bearing the strain.

No instrument that I know of can equal the human hand for delicacy of grasp and appreciation of strain, and few structures in the human body are so easily crushed as the beginnings of the round ligaments. When the ligament has been pulled out three or four inches it stops running, and the finger feels that there is a firm resistance. Holding the ligament in my left hand, I pass a single *silkworm gut* suture through the skin of one side

of the wound, through the pillar of the ring of the same side, then through the centre of the ligament at its point of emergence, and the pillar of the ring and skin on the opposite side of the wound to that where the needle entered. This suture is tied firmly, the retractors being for the first time taken away to allow it to be done. Any small vessels that have been clamped during the course of the operation are now tied, the frayed end of the ligament is cut off, the stump ligatured if necessary. The stump just peeps out of the inner end of the wound, which is closed sometimes, if the wound be large, by a catgut suture.

The operator and his assistants now change places, and the opposite side of the body is operated on in the same way.

A little iodoform is dusted over the wounds, some green protective applied, double cyanide gauze superimposed, and all covered over with plenty of salicylic wool. By a flannelette bandage round the body, and as a double spica, the dressing is firmly bandaged in position, and the patient is left for a week with the dressings untouched, unless a rise of temperature should require the wounds to be looked after. At the end of the second week the silkworm gut sutures are removed. At the end of three weeks the stem pessary is removed, and the patient allowed to leave her bed. The Hodge is left in for six weeks longer, and sometimes longer still, but this often depends on the mental attitude of the patient, as she is afraid to have it removed lest the womb should fall back. The longer the pessary is retained without any inconvenience, the better is the result likely to be. It is best not to remove it for nine weeks after the operation, but it may be retained for as long after that as circumstances require. It will be seen that I have given up the buried sutures, both silkworm gut and catgut, that I formerly used. The first often left a sinus that would not heal till the offending suture was removed, and the second has been suspected of occasionally melting away too soon.

By the present method we have the advantage of silkworm gut without its disadvantages.

Operation for Prolapsus Uteri.—The operation of shortening

the round ligaments is directly, as Aran suggested, beneficial in correcting backward displacements. Indirectly it is, however, the first part of the operative treatment for prolapse. Before dressing the round ligament wounds, the patient is placed in the lithotomy position and the perinæum is repaired if it be torn or narrow, and if the patient be still of the child-bearing age. Should the patient not be liable to child-bearing, either through age or condition, then I advance the perinæum, just leaving room for the passage of a little finger below the pubic arch. No Hodge or stem pessary is used when the perinæum is fortified or extended, and all the operations necessary are done simultaneously.

I have not required any other operations for such cases as come under my observation; ventro-fixation, vagino-fixation, and other plastic operations on the vagina and uterus, have not yet been done by me; and valuable though they may be, not having come under the practical experience of the writer, they are consequently outside the scope of this work, which is only a survey of my own experience.

Chapter IV.—The Operation of Shortening the Round Ligaments. Practical Hints, Ultimate Results, and Medical Opinions as to the value of the Operation.

1*st*, *In all cases suitable for operation, the uterus must be capable of reduction, before operation, to such a position that its long axis is parallel to the upper surfaces of the bodies of the pubic bones.* Anything short of this amount of reduction renders success problematical, although not impossible; for in some unpromising cases of my own, where the uterus, at the end of the operation, was somewhat retroverted, through adhesions probably, the position improved during the healing of the wound, and a good result ensued. In a few others where the same condition was met with at the end of the operation, the uterus fell still further back, the ligaments yielding to the weight of the uterus and to the pressure of the abdominal viscera, and a Hodge was necessary permanently afterwards to maintain what improvement had been gained.

2*nd*, The best cases are those where the displacement is uncomplicated with any other lesion. If there be a prolapsed painful ovary, evidence or suspicion of chronic inflammatory or ovarian or tube disease, the operation may be done on the strong probability that each complication may be relieved by the operation, either directly through the influence of the improved position of the uterus upon its circulation, and upon that of the adjacent organs, or indirectly through the influence of rest upon all the pelvic viscera during convalescence from the operation. In such cases, however, it should be understood that a

minor operation is only done in the hope and belief that thereby a more serious operation may become unnecessary. We can place the uterus permanently in position by shortening the round ligaments, but whether all the symptoms will disappear in consequence is for the future to determine. This should always be clearly understood by the patient and her friends.

3rd, All acute or sub-acute inflammatory pelvic disturbances should be subdued before operation. Rest and time, with hygienic and dietetic treatment (the rest being complete at the periods), are, according to my experience, the most valuable agents. Warm antiseptic douches, glycerine pledgets, blisters, mercurial oleates in very mild forms applied to the groin, are all of use in hastening resolution; and it is astonishing how the uterus will occasionally recover its position as the inflammatory thickening disappears,—so much so, that in some cases it becomes unnecessary to perform the proposed operation. When we eliminate such cases from those where adhesions prevent the shortening of the round ligament, the remainder, where chronic adhesions entirely and permanently contra-indicate the operation, are, in my experience, extremely small in number, although they seem to loom large in the experience of other gynæcologists. In such cases the adhesions may be forcibly broken down by manipulation under chloroform, a stem and Hodge introduced; and when the inflammatory disturbance so produced has disappeared, the operation can be safely performed. In most of these cases, however, an exploratory incision, vaginal or through the abdominal wall, will show the necessity for a quite different operation. In 95 per cent. of retroflexed uteri coming under my observation, the round ligament operation is capable of being performed; and I do not regard the cobweb adhesions that some gynæcologists talk about,—even strong adhesions will gradually yield if the uterus be so placed at the time of operation as to have all the abdominal forces in favour of the ligaments, and against the adhesions.

4th, The operation is only performed where sufficient cause exists to justify anæsthesia, the sacrifice of a month of time

spent in rest in bed or on the sofa, and the endurance of a minor cutting operation. Dr Kellog writes me that he has performed the operation in America with cocaine, the patient reading the newspaper and chatting to him while operating, but it would not be advisable to try that anæsthetic in this country. It only shows how comparatively trivial the operation is. The prolonged rest is not of much moment in suitable cases, as these patients generally lose far more time than a month or six weeks every year, through the infirmities produced by periodical congestions.

5th, A sterile woman, eager to have children, although she may have no symptoms of displacement, may have the operation performed. A woman to whom pessaries are a nuisance, requiring frequent attention, may have the operation done to free her from their use; on the other hand, where a pessary relieves the patient completely and for long periods of time, it would be inadvisable to operate, unless the mental worry due to exaggerated thoughts of her condition, calls for relief.

6th, Worn-out, elderly patients, of lax fibre and low vitality, either excessively thin or loaded with adipose tissue, are not good subjects for this or any other operation. In stout patients, with much subcutaneous fat on the abdomen, but otherwise in fair condition, it is well to leave the deep, oily wound quite open, and to pack it with gauze, so as to prevent any septic infection arising or spreading in the loose fatty tissue. By means of this precaution, I have been able to operate safely in cases otherwise risky, and whose condition was very miserable without operation.

7th, Where there is a weakened perinæum, a tendency to cystocele and rectocele, or distinctly relaxed retrosacral ligaments, the perinæum must be fortified at the same time that the round ligaments are shortened, or a Hodge's or other pessary, as an inferior support, will require to be permanently worn.

8th, Child-bearing women may have their round ligament shortened if necessary for backward displacement, as conception,

pregnancy, and parturition proceed normally afterwards; indeed, more so than in a patient with a prolapsed and retroverted uterus. The question of also operating on the perinæum in cases of prolapse in child-bearing women requires consideration. In some cases I have used a Hodge till after the child-bearing period had passed, and then have operated on the perinæum. In others I have operated on the perinæum at the same time as the round ligaments, and afterwards performed, or recommended the performance, of primary suture of the perinæum after the rupture produced by parturition.

9*th*, A patent canal of Nuck has, in my experience, rendered the 'drawing out' of the round ligament on that side impossible, and the same remark applies to patients with an inguinal hernia. In two or three cases that I have operated on, the ligament on the opposite side was strong and available, and the cases did well, a Hodge pessary being retained until the patients passed from under my observation. Neither of these conditions contra-indicate the operation. The patent canal is not detected till the operation is in progress, and the hernia should be cured by operation. I only mention them as conditions that will probably prevent the complete performance of the operation.

10*th*, The operation should not be done, of course, till natural involution of the uterus has occurred after confinement or miscarriage, as a pessary, with other appropriate treatment, may cure such cases; but chronic sub-involution, with retroflexion, are just the cases where the operation is most useful.

11*th*, In cases of complete prolapse, the shortening of the round ligaments, in addition to the perinæal operations, renders the procedure a permanent success, where, with either operation singly, the success would be merely temporary. These operations are generally performed simultaneously, and the perinæal operation is by far the most serious.

12*th*, In young single women, with troublesome displacements, the operation seems to me to be a necessity, to save them from the baneful effects of constant handling at the

hands of gynæcologists. It will be seen that most of my cases have been those treated by gynæcologists for years, often with a history of repeated attacks of inflammation, congestion, and disablement, even sometimes bedfast for months together; and some of these men could not understand why their patients became discontented, and asked for more permanent relief.

Practical Hints to Operators as to After-Treatment.

1. The Hodge, or the Hodge and stem, according to the nature of the case, are always introduced just before the operation is commenced, the patient being under the anæsthetic. The Hodge should be fairly large, so as to push the cervix well back, and relax the posterior uterine ligaments. When the hands of the operator are washed after replacement of the uterus in this manner, it is not necessary to soil his hands or the hands of his assistants till the operation is complete; then by a final digital examination he can assure himself that all is right.

2. When the external abdominal ring is exposed, it should not be interfered with until the ligament is seen and caught. Any dissecting or teasing out of the tissues tends to destroy the radiating fibres of the end of the ligament, and no doubt accounts for the failures to find it, and why it is so often declared 'absent.' Cutting through the intercolumnar fascia spread across the opening of the external ring allows the ligament to spring forth into prominence. When picked up with forceps and pulled upon gently, the ligament takes a shape and colour easily distinguishable from other structures. The nerve should now be cut with the point of a scalpel, and the ligament freed from bands of fascia until it stands out naked and clear as the undoubted round ligament, and nothing else. By gentle traction it gradually yields, and soon runs freely.

3. *How far should the round ligament be pulled out?—Always as far as it will come.* I never strip off the peritoneum, and risk opening the abdomen; but when the liga-

ment is quite taut, I allow it to slip back a little to give it play, and then pass the silkworm gut sutures, as directed in the previous chapter. It may be said that opening the abdomen is not a serious matter. It is a less serious matter when the abdominal cavity is not opened; and the least serious method of shortening the round ligament is the method to be employed. It may be said that if we pull each ligament as far as we can, we may pull the uterus too much to one side or the other, or we may lift it up too high. As a general rule, the position is satisfactory, but sometimes it is a little to one side or other, or too high up. Nature, however, corrects our rough work here in the same way that she has to do it after all operations. We have only to pull the fundus well forward, and nature will regulate the balance accurately in a little time herself. If we do not pull the fundus sufficiently well forward, then nature will destroy our imperfect attempt at cure. Within a certain radius the check action of the round ligament is all-powerful, because this action is then assisted by all the other and frequently opposing intra-abdominal forces that affect the uterus. Beyond their legitimate limits the round ligaments are useless, as they have no allies. I generally leave the inner end of the small wound unsutured, so that serum may drain away more readily. The end of the ligament left in the wound, and beyond the silkworn gut suture, sometimes, but rarely, sloughs; and an open wound prevents any retention of sloughing products. Generally, the wounds now heal by first intention, but safety and certainty are preferred to brilliancy.

During the first few days the wounds smart, and tension on the ligament in some cases seems to be productive of pain. In such cases one-eighth of a grain of morphia, repeated occasionally, gives sufficient relief to make the patient comfortable. The diet should consist of slops for a day or two, and then be simple and sufficient for a patient in bed.

The decubitus should be dorsal, with the knees flexed over a pillow. Catheterism should be practised most carefully, and

only when necessary, with the utmost gentleness and aseptic precautions, as the abuse of the catheter has sometimes given more trouble than the operation, and has prolonged convalescence considerably in a few cases.

The bowels are not moved till near the end of the first week, and then I generally give small doses of calomel (gr. $\frac{1}{6}$), repeated every hour till one grain is administered. A soap-and-water enema is then given, and the result is generally satisfactory. The chief object is to avoid straining, and of course the patient must not sit up or get out of bed during the act. Should the enema fail, then the powders and enema are repeated, or liquorice, cascara, or other aperient prescribed.

The removal of the stem at the end of the third week is a matter of very little difficulty. It is encrusted with salts, and requires a little force to remove it. I generally dislodge it gently with the tip of my forefinger hooked behind the large oval knob at the end, and so pull it out. The Hodge is not disturbed, nor need the position of the patient be changed, although there is now no objection to turning her over on the left side during the removal of the stem.

An artificial 'period' generally comes on a few days after the operation, and remains a short time, terminating occasionally in a disagreeable vaginal discharge. In such cases a perchloride of mercury douche, 1·5000, or other antiseptic douche, is both useful and comfortable to the patient. After the stem is removed, it may be also used with advantage for some time.

For a few months after operation the patient must be watched, especially after the Hodge has been removed, until all congestion, periodical or otherwise, has disappeared, and the uterus has settled into the normal position. In several of my cases the uteri have shown a tendency to retrovert again, owing to the fundus being still heavy, from the long-standing congestion. Such cases, if left to nature, would soon relapse into the original condition, and be recorded as failures. Indeed, at first I reinserted a pessary, and looked upon them as failures, until

time showed me that they were not. Sometimes I place a simple ring instead of a Hodge, and find it keeps up the necessary support until the pelvic organs have become natural, without in any way distressing the patient. Patients often complain of various discomforts after operation, and both patients and medical men are inclined to think the operation a failure, owing to these troubles. I always see if the uterus is in position first, and if so, tell the women to "wait patiently; that most patients have the same discomforts; that the womb is now in a different position to what it has been in for so many years, and that it has to become accustomed to its new position, and that when it does so, they will be the same as other people,—not exempt from all the ailments liable to affect humanity, but free from those produced by the displacement." The condition of the patient uniformly and gradually improves, and my older cases are the most satisfactory.

Frequent examinations or local treatment after operation are bad. Except to ascertain that everything is right, the parts should be left alone; and this advice is especially necessary in neurotic cases.

The occurrence of hernia is a rare event, and has not been noted in any of the reported sixty-nine cases. My method of performing the operation has been practically the same as my cure for hernia. Besides, the patient does not move from the dorsal decubitus for three weeks, and is advised to rest as long after as possible, so that every precaution is taken against its occurrence. Two cases of cysts growing on the end of the round ligament are reported. Both were at one time mistaken for hernia, and both were opened. One is quite well, the other has a painful knob on the end of the right ligament. I think one or two, or at most three of my cases required trusses for a tendency to hernia.

Neuralgic pain at the scar has been troublesome in three or four cases. In most it disappears in time; but in one case that I performed in London, Dr Heywood Smith had to remove the appendages for that and other uncured discomforts. He

found the uterus in good position in that case. Incision of the small nerve prevents this painful complication.

The ligament has broken off internally with me six times, but in none did any trouble result. The other ligament was generally strong, and the result good. In no case has the ligament taken an abnormal course, and except in hernia or patent canal of Nuck it has never failed to run, so that peritoneal inflammation affecting its currency is a rare complication.

The Ultimate Results of the Operation of Shortening the Round Ligaments for Retroflexion and Prolapse.

Sufficient time has now elapsed in my practice to enable me to speak with some decision as to the ultimate results of the operation of shortening the round ligaments. The other results need not detain us. Any mortality that has resulted in my practice ($\frac{1}{2}$ p.c.) has never been the direct result of the operation, but has been due to erysipelas. The operation is probably not more fatal than vaccination, removal of hæmorrhoids, amputation of fingers, and similar operations.

It has been extremely difficult to ascertain the ultimate results in many of my cases, from the time of operation up to the present. The hospital cases cannot generally be traced after a few months; and even when found, it is a difficult and delicate business to procure an examination, to ascertain the actual condition.

Whenever accident has favoured me, I have obtained a record of the condition of my old hospital cases, but the best records can, I find, be obtained from private practice. As the medical attendant can usually give some information, or even procure the opportunity of a digital examination, the patients being so intelligent and sufficiently obliging as to submit to it, I have followed up the subsequent history of sixty-nine patients, and will now give a short summary of each, giving the condition and age of patient, the lesion, the symptoms, the kind of operation, and the duration of the mechanical effect of shortening the

round ligaments, as ascertained by examination, and the amelioration or otherwise of symptoms during the same period. The total number of cases where the round ligaments were shortened by me now amount to nearly four hundred.

1. Mrs C., æt. 30, multipara ; neurotic ; complete retroflexion. Round ligament shortened. Stem and Hodge used. Ten years after, uterus in good position, neurotic symptoms still present, but occipital, not pelvic as they were before.

2. Mrs L., æt. 25; sterility and pelvic pains ; dysmenorrhœa ; retroversion. Round ligaments shortened. Hodge ; no stem. In good position fifteen years after. No children.

3. Miss C., æt. 24 ; retroflexion ; dysmenorrhœa; dragging of left leg from pain ; tender ovaries. Stem and Hodge. In 1898, fifteen years after, in good health ; enjoys riding on horseback. Had ovarian troubles for many years after operation, which gradually disappeared.

4. Mrs S., widow, 26; primipara; retroflexion; dragging pain in back ; hysterical and useless. Stem and Hodge. Fourteen years after, uterus in good position ; patient attending to home duties ; has not required attention for last ten years.

5. Mrs Y., æt. 30 ; acute retroflexion ; dysmenorrhœa ; pain in pelvis, dragging ; could not wear a pessary. Stem and Hodge. Fourteen years after, uterus in good position ; some cystocele and rectocele, for which she wears a pessary ; no symptoms.

6. Mrs R., æt. 30 ; multipara ; retroversion, and some prolapse, pain, weight, and discomfort. Hodge ; no stem used. Quite well for thirteen years, when cystocele became troublesome, and required perinæorraphy ; uterus well forward.

7. Mrs B., 34 ; multipara ; retroflexion, with pain, dysmenorrhœa, dragging ; unable to wear pessaries. Stem and Hodge. Uterus in good position four years after. Heard she was well twelve years after.

8. Miss H., æt. 23 ; retroflexion ; constant pain and dragging ; unable to wear pessary. Stem and Hodge. Twelve years after, uterus in good position ; cyst on outer end of right round ligament requiring operation in 1897.

9. Mrs W., æt. 24; retroflexion; great pelvic pains, menorrhagia, and mental symptoms, threatening insanity. Hodge used without stem; fundus recoiled, and success only partial, the retroflexed uterus being drawn forwards. Symptoms relieved for about two years, when mental symptoms became worse, and she was removed from the neighbourhood. Has not been heard of since, now twelve years ago.

10. Mrs M., æt. 24; retroflexion; sterility; much pelvic pain and discomfort. Stem and Hodge. Twelve years after, complete relief. No children.

11. Mrs W., æt. 35; multipara; retroflexion, and tendency to prolapse. Very neurotic, bilious, with pelvic pains. Stem and Hodge. Two children since. Twelve years after, uterus in position; still bilious and nervous, with a troublesome right ovary.

12. Miss O., æt. 24; retroflexion; large, rigid ovary, pelvic pain; bedridden for several (8?) years. Stem and Hodge. Twelve years after, married; three children; uterus in position; ovary occasionally troublesome.

13. Miss B., æt. 22; retroflexion; cannot bear pessaries; pelvic pains, and much dysmenorrhœa. Stem and Hodge. Married since; several children; quite well, but actual state of uterus unknown.

14. Mrs P., æt. 32; retroflexion; pains in pelvis, sickness, and distress from pessaries. Stem and Hodge. One child. Uterus in good position, and patient quite well eight years after operation; not heard of for four years.

15. Miss R., æt. 22; retroflexion; dysmenorrhœa, and pelvic discomfort. Stem and Hodge. Two years after, uterus in good position. Married, and had one child. Not heard of for ten years; address unknown.

16. Miss D., æt. 22; retroflexion; hysteria, sickness, and prostration. Stem and Hodge. Ten years after, uterus in good position; sickness and hysteria unchanged. Married and went abroad; not heard of since.

17. Mrs O., æt. 35; retroflexion, with large tender ovaries.

Some adhesions, pelvic pains, sickness, and invalidism. Stem and Hodge. Much improved for five years, then right ovary became enlarged and very tender, and was removed. Uterus was then found in good position, in spite of adhesion of fundus to rectum. She died suddenly of pelvic hæmatocele three months after abdominal section.

18. Miss Ca., æt. 26; retroflexion, and acute pain in sacrum, of a spasmodic character, and very severe. Stem and Hodge. Twelve years after, uterus in position, but pain continues; appendages removed for pain without success.

19. Mrs S., æt. 28; primipara; retroflexion; pelvic pains and much distress. Stem and Hodge. Pregnancy, parturition. Examined two years after, uterus in good position; not heard of since.

20. Mrs G., æt. 43; married seventeen years; sterile; retroflexion and pelvic discomfort, with menorrhagia. Stem and Hodge. Girl born two years after operation. Uterus still in good position ten years after operation.

21. Mrs C., æt. 36; multipara; prolapsus uteri, dragging, etc. Could not wear pessaries. Round ligament and perinæum. Well six years after, when she went abroad on account of chest disease.

22. Mrs M., æt. 30; primipara; retroflexion and prolapse, pains in back, dragging. Stem and Hodge. Pregnancy twelve months after; miscarriage at fifth month, through strain and want of care. Chronic subinvolution; retroflexion partially recurred, and pessary required to be worn for a long time. Now, eleven years after, rides a bicycle, and seems quite well. Position of uterus not known.

23. Mrs S., æt. 35; prolapse and retroflexion; dragging, leucorrhœa, and pelvic discomfort. Round ligament and perinæum. Well two years after; not heard of since, as she has left the locality.

24. Mrs H., æt. 28; primipara; deformed pelvis, retroflexion; local discomfort and hysteria. Stem and Hodge. Uterus in good position five years after, and local symptoms

better; hysteria much improved, with the exception of one prolonged attack in fourth year; not heard of her for five years.

25. Miss Lo., æt. 25; retroflexion, and enlarged prolapsed left ovary; local and general neurotic symptoms; patient bedridden. Stem and Hodge. Ten years after, patient going about well, without local or general symptoms, and uterus in good position. Ovary small, and quiescent. This patient was advised to have her appendages removed, and it was only after some consideration that the minor operation was accepted instead, with most happy results to patient.

26. Mrs Co., æt. 28; multipara; retroflexion; great pelvic distress, with collapse, anorexia, etc., of a spasmodic nature. Pessaries failed to relieve. Stem and Hodge. Two children since, and uterus in position ten years after. No children for six years before operation.

27. Miss Ca., æt. 24; sister of No. 18; retroflexion menorrhagia, great pelvic discomfort. Stem and Hodge. Uterus in good position three years after. Seen at the time of writing ten years after, looking well, and without any symptoms. Local examination not possible.

28. Miss Di., æt. 28; retroflexion; sickness, pelvic pain, and discomfort; repeated attacks of ovaritis. Stem and Hodge. Relieved for a year, and then all symptoms returned; four years after, appendages and three small pedunculated fibroids removed from fundus. Uterus in good position, and round ligaments seen to be efficient at time of operation. At present, nine years after first operation, she is free from pelvic pain and sickness, but not robust.

29. Mrs Ha., æt. 35; retroflexion; sterile; pelvic discomfort, unrelieved by pessaries. Stem and Hodge. Well three years after.

30. Mrs Re., æt. 28; primipara; acute retroflexion, dragging pains, and pelvic distress; anorexia, dyspepsia, and subinvolution. Stem and Hodge. Tendency for fundus to fall back, and Hodge worn comfortably for four years. Five years after operation, uterus in good position. Patient well at present, nine years after operation, and uterus normal.

31. Mrs Me., æt. 42; retroflexion and slight prolapse; very nervous and hysterical, with alleged great pelvic troubles; pessaries made her worse. Uterus in good position nine years after, and symptoms much improved; no local troubles.

32. Mrs Ma., æt. 28; sterile, neurotic; retroflexion, with sacral pain. Stem and Hodge. Uterus in position three years after, but unhappy family life; neurotic symptoms unchanged. Not heard of for four years.

33. Mrs H., æt. 30; multipara; retroflexion and prolapse; pelvic discomfort, dragging. Stem and Hodge, and afterwards perinæum. Two children since; perinæum stitched after each parturition. Six years after, uterus in good position, but patient insists on wearing a small ring to *relieve cardiac symptoms.*

34. Mrs Le., æt. 31; retroflexion; very nervous, sterile, pelvic pain, anorexia, vaginismus. Stem and Hodge. Seven years after, no pelvic symptoms; uterus in good position. Dyspeptic, with bad teeth, which she is to have attended to.

35. Mrs M'Cu., æt. 29; sterile; pelvic pains. Lived in the country, beyond the reach of skilled gynæcological attention. Stem and Hodge. Three years after, uterus in good position; some pelvic discomfort. Not heard of since.

36. Mrs Mi., æt. 38; sterile; retroflexion and slight prolapse; pelvic pains and discomfort. Stem and Hodge. Three years after, quite well; no discomfort, and uterus in position.

37. Mrs Au., æt. 34; very stout woman; retroversion and complete prolapse; great distress, mental and physical. Perinæum alone operated on, and yielded completely in less than a year. Round ligament and perinæum. Four years after, she was quite well physically, but her mental state was still unsettled, through the loss of her husband and financial worries. A good example of the advantage of shortening of the round ligament and advancement of the perinæum over advancement of the perinæum alone, in a case where pessaries were entirely inefficient. She had previously been under the care of two well-known gynæcologists consecutively, and came to Liverpool as a hopeless case.

38. Miss By., æt. 35; retroversion and slight prolapse, drag-

ging pains, and general pelvic discomfort. Stem and Hodge. Watched the case for five years after operation; uterus in good position, and pelvic symptoms disappeared. At time of writing, she consulted me for discharge and erosion of cervix.

39. Mrs Ho., æt. 35; retroflexion; discomfort; dislike of pessaries. Stem and Hodge. Quite well of all symptoms three years after. No report of condition of uterus.

40. Mrs K., æt. 34; sterile; large, heavy uterus; dragging pain, and great distress. Stem and Hodge. Improved for a time, then fundus fell back, and pessary necessary. Heard three years after that a fibroid is developing in fundus.

41. Mrs M., æt. 40; multipara; retroflexion and prolapse; painful discharge, attack of eczema of vulva. Round ligament shortened, and perineum advanced. Four years after, well, and in a responsible situation. Condition of uterus not ascertained for two years.

42. Mrs R., æt. 26; sterile; retroflexion; enlarged and prolapsed left ovary, anorexia, anæmia, and great pelvic discomfort. Question of removal of ovary, but shortening of round ligaments preferred as a preliminary. Five years after, uterus in good position; ovary smaller, patient much better, and able to get about.

43. Mrs As., æt. 37; sterile; retroflexion; pelvic troubles and dysmenorrhœa. Stem and Hodge. Three years after, in good position; pelvic symptoms lessened, but not quite disappeared.

44. Miss T., æt. 39; retroflexion; pelvic pain, dragging, etc. Stem and Hodge. Three years after, pelvic symptoms quite disappeared; uterus not examined lately, for obvious reasons, but was in good position about six months after operation.

45. Mrs C., æt. 24; multipara; retroflexion and prolapse. Stem and Hodge, and afterwards the perineum advanced. In good position two years after.

46. Mrs Ru., æt. 26; primipara; retroflexion. Came to have ovaries removed for pain, discomfort, and supposed great danger at confinement. Stem and Hodge. Has had a baby since, and is practically quite well three years after; uterus in good position four weeks after confinement; not heard of since.

47. Mrs At., æt. 36; multipara; retroflexion and prolapse pelvic pains and backache; metrorrhagia. Stem and Hodge. Uterus in good position. Eleven years after, some cystocele and rectocele, but not requiring any treatment. Patient vigorous and well.

48. Miss R. H., æt. 26; retroflexion and prolapsed movable kidney, caused by a strain in lifting furniture; dragging pains in pelvis, and unable to work. Stem and Hodge. Fundus recoiled and uterus relapsed. She obtained a kidney-belt; and last time seen, about two years after, she looked well. Position of uterus unaffected by operation.

49. Mrs S., æt. 45; complete prolapse. Round ligament shortened, stem and Hodge being used, and afterwards perinæum advanced. Patient very troublesome; wounds suppurated, through interference on her part with dressings, and it was doubtful if round ligaments held. Died four to five years after of apoplexy, and her doctor said that her condition was, he thought, more tolerable after operation.

50. Mrs R., æt. 54; multipara; complete prolapse, with excoriation of uterus and vaginal wall; very stout old lady; round ligament shortened and perinæum advanced. Two years after, only partial success, as all the tissues of the perinæum very relaxed and bulging outwards. An external pad slung from her shoulders kept her fairly comfortable.

51. Mrs St., æt. 50; multipara; prolapse. Round ligament and perinæum. Good result, as seen two years after; not seen for ten years.

52. Mrs O., æt. 27; multipara; pain in pelvis; several miscarriages; retroflexion and prolapse. Round ligament shortened and perinæum repaired. Two years after, quite well in every way, and in three years a baby; confinement natural; not heard of since.

53. Mrs D., æt. 38; multipara; retroflexion; pains in back, dragging and discomfort. Stem and Hodge. Has had two babies since; uterus in position seven years after. Lately some cystocele and rectocele, and the question of operating on the perineum has been considered, but not acted upon.

54. Miss L., æt. 23; acute retroflexion; right ovary prolapsed; pains, dragging; very well a year after. Heard that she was married and had a family, but no report of state of uterus since a year after operation.

55. Mrs J., æt. 26; sterile; retroflexion; dragging pains, menorrhagia. Stem and Hodge. Well nine years after; no children, but one miscarriage at fifth month, eight years after. Three years after operation, small cyst removed from end of right stump of round ligament.

56. Miss C., æt. 36; retroversion; dragging pains and pelvic distress, so that she was unable for her work as district visitor. Hodge only. Uterus in good position six years after. Went abroad as a missionary.

57. Miss B., æt. 32; retroflexion; dragging pain. Stem and Hodge. Six months after, all symptoms relieved and womb in good position. Heard four years after that she was married and had children, but no report of exact condition of pelvis.

58. Mrs T., æt. 32; retroflexion; dragging pains and epileptic fits. Stem and Hodge. Five years after, uterus in good position. Epilepsy much better, fits now very occasional.

59. Mrs Br., æt. 34; multipara; retroflexion and prolapse; pelvic pains passing down back and thigh; much congestion and great distress; dysuria. Stem and Hodge. Eight years after, uterus in good position, and patient comfortable.

60. Miss R., æt. 19; complete retroflexion; bearing down pain in left side; dysmenorrhœa, leucorrhœa. Stem and Hodge. Three years after, in good position, and no distress.

61. Mrs Du., æt. 23; sterile; complete retroflexion; bearing-down pain, anorexia, dysmenorrhœa. Stem and Hodge. Two years after, in good position and complete relief.

62. Mrs M. J. N., æt. 25; sterile; retroversion; backache and menorrhagia. Hodge alone. Eighteen months after, quite well, and uterus in good position; still sterile.

63. Mrs Er., æt. 26; retroflexion; sterile; pelvic discomforts.

Stem and Hodge. In eighteen months uterus in good position; still sterile; a slight tendency to hernia; truss.

64. Mrs E. C., æt. 21; primipara three years ago; retroflexion and some prolapse; menorrhagia, dysuria, and leucorrhœa. Stem and Hodge. Pregnant eleven months after when seen; heard that labour satisfactory; not seen or heard of since.

65. Mrs D., 25; multipara (3), last two years ago; retroflexion and split cervix, and prolapse, dysuria, menorrhagia. Round ligament and Emmet. Hodge. Two years after, uterus in good position, and patient has had her fourth child.

66. Mrs S. H., æt. 29; multipara (3); prolapsus uteri, ruptured. Round ligament and perinæum. No stem or Hodge used. Left ligament snapped off short when pulled out; right ligament good. Showed herself six years after; uterus in good position, pregnant. Not heard of since.

67. Mrs C., æt. 33; multipara (8); retroflexion and prolapse; dragging pains across the lumbar region and lower part of the abdomen. Emmet's operation and round ligaments shortened simultaneously. Has had one child since operation; and six years after was well, and uterus in good position.

68. Mrs V., 25; married two years, no family; bearing-down pains, metrorrhagia, and pessaries failed. Operation, Nov. 30, 1893. Stem and Hodge. Left for home, Dec. 27, 1893. On May 31, 1897, in response to an inquiry about her condition, her husband writes:—"Dear Sir,—I am glad to tell you that my wife is in good health, and has been ever since she came from the hospital. She has had two children. I thank you very much for the cure you have made of her."

69. Miss Janet B., æt. 38; retroflexion; bearing-down pains, sometimes very acute, violent headaches, great excitement. Something slipped six years ago, and above symptoms continued since. Menorrhagia at times, and frequent micturition. June 1, 1893, operation; stem and Hodge. Was kept in hospital afterwards as an officer, and is now a matron of a hospital, and reported to me as quite well, June 1898. Uterus was in good position two years after operation.

Medical Opinions of the Value of the Operation at the Present Time.

The opinions of an originator of an operation in regard to the *value of the operation* are liable to a liberal discount, and no doubt the readers of this work would like to know what other people say about the shortening of the round ligaments. In preparing to supply this information, I have been surprised at the mass of literature that has already accumulated on the subject in all civilised countries, and written in all modern languages. I possess monographs on the subject by Drs Manrique, J. Barrett et Nazaris, Camille Moreau (French), Rasenzeff (Russian), Varnaly (Bucharest), and numerous reprints by American, Australian, as well as English writers. The medical journals of all countries abound with cases and comments. The intention I had formed of condensing this scattered mass of literature into a coherent compendium of opinions and results, to be inserted here, had to be abandoned on account of considerations of time and space. Perhaps I may yet accomplish this task, which will be to me a labour of love. At present I must confine myself to as true a representation as possible of the present attitude of the profession towards the operation, as illustrated by recent reports and discussions.

It is difficult to do this fully, as strong interest in the operation has subsided and the operation has fallen into line, being performed in suitable cases without remark. Many of my medical acquaintances and friends operate in this way, and I thought of writing for their opinions. But this would be to ask for a testimonial, and hence I decided to depend on published statements.

At the discussion at the British Gynæcological Society, 12th March 1896, Prof. Mayo Robson has only operated six times. In one the uterus was in good position six months later, and patient well two years after. Another case of extreme procidentia, in which the round ligaments, the vagina, and perineum were operated on, was well three months after.

Another patient was well three months after, but the subsequent history was unknown. A case of procidentia was a complete failure; and in the sixth case the operation failed after a time, probably owing to adhesions.

Mr J. W. Taylor, Birmingham, has operated on about a dozen cases. In uncomplicated cases the results were fairly good, and two patients afterwards became pregnant, and went on to full term. But the operation had two drawbacks: firstly, the abdominal wall had to be incised on each side at its weakest part; and secondly, when there were adhesions, it was not possible to draw out the round ligaments. Dr Edge had performed Kocher's modification of Alexander's operation, and he gave it up for ventrofixation.

Dr Bantock never performed the operation, as he conceived the principle to be wrong.

Dr Elder (Nottingham) performed several operations for uncomplicated displacements, but he gave it up for three reasons: 1*st*, on account of the uncertainty of always finding the round ligament; 2*nd*, because the results did not seem to him quite satisfactory; and 3*rd*, because it was not devoid of risk.

Dr Wm. Duncan performed the operation seven or eight years ago for prolapse or retroversion. He found the operation quite simple, and did not agree with Dr Elder as to the uncertainty of finding the round ligament; but he failed to see how a ligament containing so little muscular tissue could keep up a uterus which was hypertrophied and prolapsed, and all the eleven cases reverted within four months to their original condition. He did not use a stem pessary, because he regarded this instrument as dangerous.

Lewers (*Diseases of Women*, p. 140—a text-book for students) says the operation has been recommended (1) for prolapse, and (2) for retroversion. (Just the reverse of my recommendations; the operation of shortening the round ligaments only acting directly on backward displacements, and indirectly on prolapses.) All versions and flexions, he says, can be cured

by the watch-spring pessary, and then only prolapse is left for operation by shortening the round ligaments. But he then shows that in prolapse the uterus is too long to be tucked up in the pelvis. He says he has never performed the operation. I would say he has never *read* about it, or he would not have made such misleading statements. One of my students, who had watched many round ligament operations, pointed out to me this caricature of a description of the principle and practice of the operation.

Dr Galabin, in his text-book, describes the objects and method of operation correctly, and says that it has not met with general acceptance. It may be presumed that the round ligaments are liable to stretch again, as other ligaments stretch which have much more power than the round ligaments to hold the uterus in position.

Dr Adams (*Glasgow Medical Journal*, 1896, p. 437) writes:—"I have of late years tested the operation thoroughly, and the confidence I feel in its success compels me to ask my obstetric and surgical colleagues to give it a fair trial."

If we now turn to American literature, we find a marked contrast to the attitude of the profession here to the operation.

Clinical Gynæcology, by American Authors (Keating & Coe), p. 505.—"I have thus far, during the past ten years, performed it (the round ligament operation) sixty-five times with such success, both as to the immediate and permanent results, as to render me more and more enthusiastic in its favour. I have not only succeeded in lifting up and keeping the uterus in its normal position for years after the operation, but I have seen probably as many as a dozen of the cases conceive, go to term, be normally delivered, and the uterus retain the position in which I placed it."

Dr Balfour Marshall (*ibid.*):—"I had thought the utero-sacral folds the most important ligaments in prolapse, and recommend rather a colpoperineorraphy, but think operation more justifiable for replacing movable retroflexions."

Dr W. L. Reid :—In three out of eight cases, the operation is successful as regards restoring of the uterus. One case left the hospital with a double hernia, and a cellulitic deposit, bronchitis, etc. In patients not able to rest and wear a pessary, the operation may fail, as the scar tissue is not firm (*ibid.*).

Dr Robt. Abbe (*Annals of Surgery*, 1896, p. 69) uses the ligament itself to stitch up the canal. "The wide and growing interest displayed in all countries in the Alexander operation attest its value. Many scores of patients have borne children to full time without the slightest mishap. Experience also shows that, after pregnancy, the ligaments are found to be as they were after operation, and no retroverse occurs. Every surgeon finds a sense of satisfaction in doing well an operation of such merit, yet of so little risk."

Dr Paul F. Mundé (*Boston Med. and Surg. Jour.*, 1888, p. 56) :—" In 19 to 23 cases presented, the operation was successful. Where the perinæum is destroyed or greatly relaxed and where the uterus is more or less completely prolapsed, it is wise to supplement the Alexander operation by narrowing the vagina and restoring the perinæum. Indications for combined operations exist in many instances, but six of the twenty-one cases reported were those in which only Alexander's operation was performed."

In concluding, Dr Mundé said that in properly selected cases, Alexander's operation usually does what is expected of it; and that if proper antisepsis is employed, the danger of the operation is practically *nil*. He believes that Alexander's operation will not be supplanted by the at-present-fashionable, but much more dangerous laparotomy.

M'Gannon (*Amer. Gyn. and Obstet. Jour.*, 1896, p. 202) reports 91 cases of shortening the round ligaments, with 4 pregnancies and 3 normal deliveries.

Dr G. M. Edebohls (*Annals of Gynæcology and Pædiatrics*, Oct. 1896, p. 926) reports 116 cases, with 4 failures, 12 pregnancies, 2 abortions, 6 normal labour, and 4 not yet delivered.

Dr A. Lapthorn Smith reports 53 Alexander operations, and almost exactly describes the operation as he performs it. Four of his cases had children, with no return of retroversion; three were failures; all the others remained in good position. A few were no better for operation, because the ovaries remain, which would have been removed if ventrofixation had been done (*Trans. Gyn. Soc. New York*, p. 215).

Dr Mundé afterwards reports 120 cases. Twenty pregnancies, and one woman had five children after operation. All his cases that he had seen were successful. Performs the operation with closure of vagina, etc., in cases of prolapse.

Dr Beverly M'Monagel of San Francisco, p. 242, says, "for simple uncomplicated retroversion, Alexander's operation will pull the uterus forward, but it is a bygone in my hands. I utilise the round ligaments, after having opened the abdomen, by denuding and stitching them together."

Mathew D. Maine, M.D. Buffalo (*Am. Gyn. Trans.*, 1897, p. 217).—For cases with adhesions he opens the abdomen, clears and loops the round ligament. This operation does not compete with Alexander's operation, which he has adopted, and now thoroughly approves, and which fulfils the indications in most uncomplicated cases.

Dr Newman of Chicago operates by cutting over the internal abdominal ring, or by opening the canal. Satisfactory results first performed by him in 1889. Says that Dr Franks of Chicago first discovered this method; that he has yet to know of a single physician who has operated any number of times, using the improved method, who has not met with good results, and with whom the operation has not grown in favour (*Amer. Jour. Obstet.*, 1891, p. 257).

Dr A. H. Abbot, Minneapolis, reports 19 cases: 13 remained well anatomically, 10 clear of symptoms, 4 improved, 5 no change, 6 failed anatomically, and in 3 of these symptoms relieved (*ibid.*, p. 363). Would not operate if patients ever had peritonitis.

Dr F. H. Morton reports 7 perfectly successful, 3 not (*ibid.*, p. 363).

C. J. Bond, F.R.C.S., Leicester (*Lancet*, Feb. 12, 1898).—Opens the abdomen and takes the round ligament out of its bed in the broad ligament, and pulls it through the abdominal walls at the laparotomy incision where it is stitched.

Dr J. Riddle Goffe, New York (*Trans. Am. Gyn. Soc.*, vol. 22, p. 235).—Shortens the round ligaments through the anterior vaginal fornix for backward displacements, and gives the following references.

Wertheim (*Centralblatt f. Gyn.*, Mar. 7, 1896).—Opens the abdomen in the anterior fornix, and attaches the ligaments at a point one or two centimetres from the horns of the uterus to the vaginal wall, or he sometimes simply doubles the round ligaments on themselves.

Guenther, after setting the organs free from their adhesions, working through the anterior vaginal incision, suspended the uterus by its round ligaments, by passing a silk suture through the abdominal wall from within out, and tying it to the skin (*ibid.*, Mar. 28, 1896).

Kiefer, of Martin's clinic, doubles the round ligaments on themselves, working through the anterior vaginal incision (*ibid.*, Apl. 11, 1896).

Dr Byford, Chicago, not only shortens the round ligaments through the vaginal incision, but attaches the fundus uteri to the bladder peritoneum as high up as possible (*Med. News*, Oct. 31, 1896).

At the Swiss International Congress of Gynæcology and Obstetrics, it was generally agreed that Alexander's operation was needed in a few cases of mobile displacement, and that after breaking down adhesions, the operation may still be performed (*Lancet*, Oct. 17, 1896).

Dr Cleveland, New York (*Am. Gyn. Soc.*, p. 20, 1895), considers shortening of the round ligament as one of the most beneficial operations ever devised. Gives report of 83 cases in the Women's Hospital.

Dr Frances H. Davenport, speaking at same society, referred to the want of relief of symptoms, the pains, etc., and would limit the operation. "I am free to say, however, that as yet I have had no experience with any other operation which has been more satisfactory."

Dr Hy. C. Coe of New York advocates the operation.

Dr Wm. H. Horner is in favour of the original operation.

Dr Van de Warker is against the operation.

Dr Emmett says, by the operation the uterus is depressed in the pelvis as the fundus is drawn forward; and thinks it is the degree of prolapse, not of version, that causes the trouble. Hence, the operation should aggravate the disease.

Dr J. M. Baldy, Philadelphia, is afraid of adhesions, even cobweb adhesions.

Dr F. N. Johnson, Boston.—Two cases of pregnancy and labour at term, following the Alexander-Adams operation. Labour natural, and uterus in good position afterwards.

In Germany, Werlt, Kocher, Kustner, Calman are reported to be warm advocates of the operation; and the many monographs written in French show the interest taken in the operation by that nation.

I have thus placed before my readers the method of operating that I approve of, the ultimate results of the operation in my hands in as many cases as I could find, more than two years after operation, and the recent opinions of my medical brethren for and against the operation. I do not summarise—I leave that to each student of the operation.

Chapter V.—Ovarian Tumours.

In the beginning of my surgical career the treatment of ovarian tumours was still in a tentative state. Sir Spencer Wells had published his first book on the subject several years before I entered college, and his second book was published in 1872, the same year in which I entered on professional work in Liverpool as a house-surgeon. During 1862 Sir Spencer performed 20 ovariotomies, with a mortality of 4. During 1872 he performed 68 operations, with a mortality of 12. The ordinary mortality at the present time, according to Martin of Berlin, is 3 to 5 p.c. During 1898 I find I performed 687 operations of all kinds. Of these, 35 were ovarian tumours, of which 2 died. The first who died suffered from a papilloma of the ovary, with numerous outgrowths covering the visceral peritoneum, and the patient sank from exhaustion, without any temperature. The second had a sebaceous ovarian cyst, and died unexpectedly from sepsis, the case being perfectly simple and everything apparently clean. These statistics show the great improvement that has taken place in ovariotomy since the time of Sir Spencer Wells. Our juniors who have commenced their operating career within the past decade, and who now operate so safely, and with such pleasant results to themselves and to the patients, have no idea of the very gradual evolution in the technique of the operation, that enables them to promise to their patients such a small risk, and they are inclined to look upon the pioneers as 'duffers,' and talk about their 'murderous' mortality. Standing where we do now, and

in the clearer light which these veterans struggled to obtain and diffuse, we may feel surprise and pity that they were so blind. We should take care, however, that our successors do not consider us still more blind to most obvious improvements that will be made by them, and our fault will be the greater that we are "sinning against a clearer light," whilst our predecessors were struggling with heathen darkness. I make these prefatory remarks in the hope that the memory of such men as Clay, Sir Spencer Wells, M'Dowell, etc., be not often insulted by the glib utterances ef some *fin de siècle* operator, not a tithe part the equal of these precedent lords, but of whom he speaks in a tone at once of pity and of superiority.

What are the points to be attended to in a successful ovariotomy, according to the experience of an operator like myself, who has operated from the period of the clamp till now, and consequently witnessed the inception of all the improvements since then, and noticed also many vagaries that occasionally rose above the surgical horizon, to remain for a time as a bewildering fog, or to disappear rapidly as a thin mist or haze? I can but answer the question practically by first describing briefly, and I hope clearly, an ovariotomy such as I describe it in my lectures to the students and *nursing staff*.

First, the Operation-room.—The operation-room at the Royal Southern is so constructed that it can be made perfectly clean and filled with pure air of a temperature between 70°–80°. No drain-pipes or other possible sources of infection are near the room, or have any connection with it. In a private house, such an ideal is set before the nurses in preparing the temporary operation-room, and in many houses such operation-rooms can be made just as safe for one operation as the elaborate hospital structures. All the operations at the Royal Southern are performed in the common operation-room, as we now believe that the same precautions require to be taken for cases in general surgery as for abdominal surgery, and that such a room can be so cleansed, even after *dirty cases*, to make '*clean cases*' safe in a comparatively short time. Hence special operation-rooms

for abdominal cases are not required at the Southern, but are retained at the Workhouse, where the present general operation-rooms do not permit of such thorough cleansing.

The patient is cleansed, purged, and prepared in the usual way, no improvement of any note having taken place except in the thorough cleansing of the surface of the abdomen by soap and water, used with a nail-brush, and then in washing with ether, and lastly in soaking the cleansed skin for twenty-four hours before the moment of operation in an antiseptic fomentation. This washing is no longer a farce, or a fetish as some have called it, but a real bit of work, quite distinct from the sprinkling a few drops of lotion over half-cleansed skin that has satisfied many, many surgeons in the past, and I believe still satisfies some so-called antiseptic surgeons of the present day.

The clothing of the patient and the furniture of the operation-table must be above suspicion, and is easily made so with us by clean night-clothing and blankets put fresh on the patient and on the table on the morning of operation. Our table has no mattress or other permanent furniture. When the patient is placed on the operation-table the abdomen only is exposed, and the blankets and personal clothing are covered with mackintosh and carbolised towels all around the wound.

The sponges are cleansed and sterilised, and soaked in sterilised water. I need not enter into a description of how sponges are cleansed, as the method has long been known; but the point of greatest importance, next to their sterility, is their asepticity. I am quite satisfied that I have lost some patients through antiseptics. In the early days of the hand and foot spray many patients perished from shock induced by cooling, and the steam sprays were not much better, although we soon learned to turn the sprays on the operator and his staff, instead of on the open abdomen. But up to quite lately most of us had sponges handed to us *wrung out of an antiseptic.* This antiseptic was no doubt a source of irritation to the peritoneum; and the nurse sometimes probably made matters worse by

making the lotions too strong, or having them imperfectly prepared in the hurry raised by an urgent call for sponges. Now the nurse who attends to the sponges has nothing but boiled water within her reach, and consequently no such mistakes as those above described can occur. This is a great comfort to an operator. But he *must be quite sure* the sponges are quite pure to begin with.

"*The instruments are boiled immediately before the operation*" is a sentence replete with satisfaction to the surgeon; and as he sees them lying before him, either in clean boiled water or in a weak carbolic lotion, how he regrets the past, when such a simple method as boiling would have relieved his anxiety about hinges and joints harbouring germs, in spite of polishing and steeping in strong antiseptics!

The ligatures and sutures do not trouble us much, except those made of catgut; and it is to be hoped that some perfectly safe methods of preparing it will soon be discovered, as simple and easy as they are at present complicated and tedious. I use the ordinary catgut as sold, the oil being dissolved by ether, and the catgut purified in rectified spirit.

We will now glance at the *operator* himself, the *assistants*, and the *nurses* who take part in the operation. There they stand around the table, with their hands and arms bare up to and above the elbow, with clean, white jackets, white coats, or mackintosh aprons, with nails short and white up to the edge, and the exposed skin thoroughly disinfected. Soap and water, ethereal soap, turpentine, and perchloride, represent the courses of ablution that have been applied with a nail brush and dabs in no namby-pamby way, but so as to polish up the epithelium and make hands and arms to tingle. When there is reason to suspect our hands or arms to be dirtier than usual, then we stain them first a deep mahogany colour in concentrated permanganate of potash, and wash this off in another concentrated solution of pure oxalic acid. Ethereal soap and perchloride of mercury complete this prolonged and sometimes painful course of washing. This extra course is taken in the conviction, not yet

upset, that no germs can then enter the patient's body through our hands.

Having cleansed their hands, the operator, his assistant, and the 'instrument and sponge nurses' stand specialised for their *own* work. The work of placing the patient on the table, holding her when obstreperous, and doing other menial work is left to 'dirty' nurses, or supernumerary assistants and students. The specialised staff dare not touch anything not aseptic or antiseptic; and woe betide those forgetting themselves, and assisting at what they should not do. Their ablutions have to be performed over again. A polite and obliging bystander, who offers to thrust his hand into the pie, is made to feel for the moment that he has attempted to murder someone, such an outcry is made by the operator and his assistants.

The instruments, sponges, ligatures, and sutures are now usually picked out of the dishes containing them by the operator only, on the supposition that the less they are handled, the less likely they are to become infected. The dressings are picked out of the tins in which they are sterilised by sterilised forceps.

The *abdominal wound* is made down to the muscle, and the cutaneous vessels are clamped. Next, the muscular layer is incised, either between or, more lately and probably more satisfactorily, through one rectus muscle. Then the subperitoneal and peritoneal layers are cut through, and the abdomen opened. With an obtrusive tumour the intestines do not trouble us; but with small pelvic tumours and a rigid abdominal wall, the comfort of the Trendelenberg position is only fully known to those who, like myself, have struggled along till lately with the flat position, and the ever present and irrepressible coils of intestines. The Trendelenberg position does not require any apparatus except elevating the buttocks and the foot of the table, which may be easily done in a variety of ways. The operation-tables are becoming more and more simple, and the old fearful and cumbrous machines are

altogether unnecessary. In either position the intestines are not exposed, being easily kept under cover by a few well-placed sponges.

The *tumour* being brought well into view, is tapped; and this I always perform by an aspirator, having a large exhaust-bottle that will hold about four gallons of fluid. The needles used vary in size, according to size of each tumour and the fluidity of its contents; and in this manner the frequent and unavoidable spilling of contents by the large canula of Spencer Wells type is avoided. As the tumour is removed, the abdominal walls close in around it; and when it is delivered, the pedicle is tied without any cooling of intestinal surfaces. *Adhesions* that are soft and sticky are stripped off with the finger, but all firm and hæmorrhagic adhesions are tied before being cut; any time spent in doing this work well is by no means lost. The sponges, that have been counted and checked before operation, are now counted and checked again, and one is laid inside the wound whilst the stitches are being applied. Deep silkworm gut sutures, an inch apart, are put through all the layers of the abdomen, on both sides of the wound, and left untied. The peritoneum is stitched up with fine catgut sutures half an inch apart, the sponge being removed during the tying of these sutures. Then the cut aponeurotic structures, such as the sheath of the rectus, are brought into line with each other by a few catgut buried sutures; and lastly, the silkworm gut sutures are firmly tied, bringing close together all the structures of the abdomen that have been separated.

Some double cyanide gauze, made damp with carbolic acid lotion (1–40), is laid along the wound, and over this a pad of salicylic wood-wool or cotton-wool, and all held in position by a binder.

For twenty-four hours the patient has her mouth moistened frequently by cold water, a teaspoonful is given every hour as a drink, and normal saline solutions are injected into the rectum to relieve thirst if necessary. An $\frac{1}{8}$th of a grain of

morphine is administered soon after operation if the patient complain much of pain, and is renewed, if necessary, morning and evening. Such a small quantity smooths down the sharp edge of suffering, and allows the patient to sleep without producing subsequently any bad effects.

Such patients now convalesce in the ordinary ward quite comfortably and safely, and the extra expense and separate accommodation that was formerly considered necessary is saved.

The silkworm stitches are not removed for a fortnight, and the patient is not allowed out of bed till the end of three weeks, when she is provided with a comfortable, well-fitting abdominal belt. She is warned to live quietly for some time longer, as premature exercise sometimes results in a low form of chronic peritonitis and of chronic distension of the bowels, that often takes a long time to subside.

The question of drainage is undergoing the same evolution in abdominal surgery that it has already undergone in general surgery. The advice "always drain" became "when in doubt, drain," and is now "when in doubt, don't drain." In properly tied pedicles there is practically *no* danger of hæmorrhage, and I only drain if there is a likelihood of too much general oozing, or of a septic pelvis that may spread septic material through the abdomen. In such cases it is best to use a wide drainage-tube, enclosing a gauze drain, and covered outside by plenty of antiseptic wool. The patient is then nursed in a clean, special ward, and the drainage-tube is removed as soon as possible (in twenty-four to forty-eight hours) and a small gauze drain left in the upper part of its track for another twenty-four hours. There is no doubt that in clean cases a drainage-tube or any drain is a source of additional risk to the patient, and that the presence of a drainage-tube sometimes, nay, often, fails to give any indication of the quantity of blood or pus present in the abdominal cavity. It certainly relieves the patients, who are always most comfortable after an operation where it is used; but its action is somewhat similar to an opiate, in that it rather

screens than reveals dangerous symptoms, and so produces a fancied security. Everyone must have drawn off clear, sweet serum for twenty-four hours from a patient, then small quantities of purulent fluid for another twenty-four hours, with scarcely any rise of temperature, but with a failing pulse; and afterwards a post-mortem has shown large collections of pus that the tube entirely failed to tap, or even show the presence of. In a small percentage of cases, drainage is essential, and is a most useful procedure, but it has to be used with great precautions against sepsis, and our anxiety about such cases is only finally relieved when the tube is safely removed. In the great majority of cases it is unnecessary and dangerous.

Irrigation of the seat of operation in the pelvis or of the whole abdominal cavity with boiled water is, in like manner, necessary in a small proportion of cases. It removes blood and debris and fluid that may be suspected to have septic qualities, and a quantity of the water may be left behind with impunity, or even perhaps with advantage. But it is better not to have to disturb the abdominal cavity so much if it can be avoided, and by means of sponges and position of the patient, the danger of soiling can be anticipated, and septic structures be removed without spilling their contents. Clean ascitic fluid, or clear ovarian fluid, does not require to be removed with scrupulous care, as probably neither are much more irritable than boiled water. It is, however, better to draw both off, and to leave the peritoneum fairly dry.

A laxative enema is administered after forty-eight hours to clear out the lower bowels and remove flatus that generally troubles the patient. If this does not move the bowels, $\frac{1}{8}$th gr. calomel is given every hour for eight hours on the fourth or fifth day, and an enema next morning, when a comfortable stool is the result without any straining. 'Slops' are given till the bowels are moved, and afterwards a mixed light diet. The catheter is only used when necessary, some patients voiding the urine naturally all through.

The contrast between the past and the present is, in my

experience, most striking on some points, which it may be interesting to call to mind. I remember a venerable surgeon, with hair as white as snow, apparel and linen spotless, and whole bearing that of a perfect gentleman, entering a theatre to perform an operation. He takes off his coat, hangs it on a peg, takes off his cuffs and rolls up his sleeves. He then takes down an old coat, green with age, torn in numerous places, and stained with the dried products of years of operating, and puts it on over the rest of his unimpeachable dress. I am not sure that he washed his hands, but I can see him now as if it were yesterday, standing talking to the students while the patient was being chloroformed, and *waxing the silk sutures with a ball of wax after the fashion of a cobbler.* It is not so long since this habit of using an old coat as an operation-coat has quite disappeared, and the improvement in this respect has been tremendous. The personal habits of surgeons have changed very much for the better, as no one would now go about for an hour with blood-besprinkled linen, quite visible to the onlooker. I remember men of repute, habitually blood-besprinkled or snuff-bespattered, whom we would now shudder to see enter our hospitals, much less our operation-rooms.

And will it be believed that once in a good hospital I witnessed an operation, and at its close the operator said, "Gentlemen, if you will wait a few minutes I can make a post-mortem on a case that died yesterday, and whom you may remember I operated on a week ago. We cannot tell why she died, as *all conditions of success were present.*" A trap-door was raised in the floor of the operation-room, a pulley let down, and a body was hauled up and laid on a deal table brought from a corner of the operation-room. The surgeon who had been the operator now became the pathologist, and discussed every cause of death except what we now know to be the true one!!

These trap-doors have disappeared, but the post-mortem room was for long somewhere *below* the hospital, and by

means of the plumber communicated with every ward, operation-room included. Post-mortem rooms are now outside.

And surgeons have gradually ceased to make post-mortems, to be pathologists, or to be professors of anatomy, and all these branches have so increased that each specialist finds ten times more employment than he did in those days, and fifty per cent. more satisfaction than the pluralists experienced.

Ovariotomists were few and celebrated, and justly so, considering their opportunities, and their comparatively large mortality was looked upon as wonderful. Now surgeon and ovariotomist are almost convertible terms, and any mortality has to be explained away before the operator feels himself clear of blame in the opinion of his fellows, and all this is owing to the sweeping away of the abuses I have just described.

Illustration of the Pathology, Macroscopic and Microscopic, of Ovarian Disease.

I do not propose here to enter upon a learned disquisition of the pathology of ovarian disease. I propose rather to illustrate some points on the pathology by lantern slides, macroscopic and microscopic specimens of cases that have occurred in my practice, chiefly during the past two years. Ovarian cysts are difficult things to keep unless much room and spirit be available, and they are probably not worth keeping. The photograph fixes the appearance of the cyst sufficiently to refresh the memory, and the lantern enables us to reproduce the tumours in a fairly lucid manner, and both are easily kept in the study.

My photographs represent 13 cases of multilocular adeno-cystoma, 3 monocystic adeno-cystoma, 1 parovarian cyst, 5 cystic ovaries, 9 cases of pyosalpinx, 2 of hydrosalpinx, 5 cases of malignant ovarian disease, 5 dermoid cysts, 4 papillomata, and 3 hydatid cysts,—50 cases in all. This small

number does not, of course, represent the usual numerical proportions of the different kinds of tumours, as they are to be found naturally in a policlinic such as the Workhouses and Royal Southern Hospitals afford. Indeed, larger statistics do not agree as to the order of frequency of particular kinds of tumours, but prove that these tumours often come in 'runs,' one variety predominating at one time and another at another. The multilocular cystoma is, however, by far the most numerous in all statistics. The hydatid cysts were not ovarian, but only simulated by their position and signs an ovarian tumour.

Parovarian cysts are mostly simple and clear cysts, and are frequently sunk in the layers of the broad ligament, and require enucleation, but occasionally they are found as in the following slide, pedunculated, beautifully transparent, and with the ovary and tube alongside, and distinct from the tumour. This specimen was removed several years ago, when 'clean sweep' was made of ovaries and tubes, on even slighter provocation than this case, but it will probably never be obtained again except at post-mortems. Now we only open or remove the cysts, and leave the ovary and tube. This could have been readily done in this case. The opposite ovary and tube were, however, normal, so that the functions of the patient were preserved.

Many of the so-called parovarian cysts are not strictly so, and should be termed broad ligament cysts, as they do not arise in the parovarium, but in the broad ligament. They can only be diagnosed as strictly parovarian by dissection, and by the demonstration of the connection of the tumour with the parovarium, or by its want of connection with that structure. The above case would in all probability prove to be a broad ligament cyst, as the ovary and tube arise above it. To the practical surgeon, however, this anatomical point is not of any great importance. A cyst that can be enucleated or treated without removing a healthy or only slightly damaged ovary and tube, should be so removed or treated, and this can usually be ascertained without very minute examination.

In contrast to the parovarian cyst, we show two simple ovarian cysts, with nearly as clear walls and fluid as the parovarian, but without any trace of ovary. The patient was 38 years of age, had not menstruated for some time, and the outer parts of the Fallopian tube contained pus. A clean sweep was made of both tubes and ovaries; but had the woman been younger and her *tubes* healthy, the cysts might have been emptied and a piece of the thin wall removed. Enough ovarian tissue would probably thus have been left to continue ovarian functions. The thinnest part of the walls of such cysts contains very little else but peritoneum outside and cubical epithelium inside. No mucin is secreted, as it is said the alteration in the epithelium deemed necessary to produce pseudomucin does not take place. Removing this thin wall does not produce any hæmorrhage, and the cyst cannot re-form as in the treatment for ranula. I show another example of the same disease. In the recent specimen the pedicle, when spread out, showed the tubes of the parovarium very distinctly, but the camera has failed to show them in the slide. I show, as a contrast, a pair of healthy ovaries and tubes, removed about twenty years ago for hæmorrhage due to fibroids. The lobular character of healthy ovaries are well shown, no cysts can be seen, and the tubes and parovarium are perfectly healthy. Such healthy ovaries are rare accompaniments of fibroids.

Of ordinary multilocular adeno-cystomata, I have had, of course, a great number. Here is a fair example, 9 lbs. in weight, occurring in a single girl æt. 21, who endured much suspicion for some months before its true nature was discovered.

Here is also an excellent example of a multilocular ovarian cyst. The mode of formation of the numerous compartments of such a tumour is too well known to everyone to be described here.

This represents a large multilocular cyst about 20 lbs. in weight, removed from a patient æt. 48. A large irreducible umbilical hernia occupied the front of the abdomen,

from an inch above the umbilicus to the pubis, so that the tumour had to be removed by an opening made between the ensiform cartilage and the umbilicus. Fortunately, the tumour had a very long pedicle, else the operation would have been one of extreme difficulty. As much of the hernia as could be reduced was released from its attachments to the extremely compartmented sac, and was returned. The patient, a very stout woman, made a good recovery. The usual diagnostic signs of ovarian tumour were absent in this case, as the clear percussion note existed all over the front of the abdomen. It was only laterally that the signs of dulness and resistance of the tumour were obtained. The cyst had ruptured slightly at several points, and there was a good deal of ascitic fluid. She went out much relieved, with the hernia considerably reduced, and with a good hernial belt.

The diagnosis and treatment of such tumours is now so well understood that not much interest attaches to them except some complication occurs, such as rupture or twisted pedicle. It is not quite settled yet how such cysts arise, whether from degenerated ovaria or Graafian follicles that have taken on a new pathological life, in place of the normal atrophic and degenerative processes. We will refer again to these points in describing cystic ovaries, but only in seeking to elicit from my hearers some fresh light on the subject, as I have not made any minute investigation myself.

Ruptured cysts are of different kinds. First, where the semi-solid semi-cystic tumour, by growing too large, becomes so imperfectly nourished that its tissues degenerate, become softened, and crack by the ordinary movements of the patient, or much more by her extraordinary movements. One case of an enormous ovarian seemed comfortable till she left home to come to hospital for operation. She arrived at the hospital pulseless and dying, after a two hours' railway journey. A post-mortem showed a 25 lb. tumour, cracked at various points, and with the abdomen filled with blood, mucus, and debris.

Another case, Mrs T., æt. 46, was seen by me in June, a

plump, healthy woman, with what was diagnosed as an ordinary multilocular ovarian cyst, the removal of which was advised as a safe operation. No persuasions that her medical attendant or her friends knew how to use could induce her to undergo operation. On 8th September she came into hospital a shadow of her former self, and the ruptured cyst now shown was removed. The abdomen was filled with a fluid made up of peritoneal effusion and pseudomucin, and the intestines were the subject of chronic inflammation. The tumour was so soft and brittle that it tore at several places during removal, and the abdomen required to be carefully washed out. The patient, however, made a good recovery. Such ruptured cysts produce so much irritation, and interfere so much with nutrition, that the question of malignancy is raised by the cachectic appearance of the patient. I have known some patients who were refused operation on this ground, where an exploration was the means of correcting the diagnosis and saving a patient's life. Quite recently a patient died in the belief that her tumour was malignant, and a post-mortem showed that her life could have been saved.

Rupture of a cyst occurs also by localised pressure of endocysts on the external covering of the tumour, and this is probably the most common cause of rupture. In such cases the rupture is gradual, and a circular aperture is found with smooth edges and with endocysts partially filling up the opening.

Mrs E., æt. 48, is a good example of this condition, and the slide (fig. 1) shows the aperture very distinctly. Instead of sudden collapse, vomiting, and death; vomiting, emaciation, and ascites may come on gradually, and continue until they are arrested by the successful removal of the tumour, or until the patient dies. In this case the cyst was benign, although it weighed 21 lbs. 1 oz. with all its contents. Dark brown peritoneal fluid filled the rest of the abdomen.

In another good example the rupture was much larger, (fig. 2), but the sides of the aperture are very distinct, and the deep cysts of the tumour appear with walls more or less thickened.

One of these cysts has very thin walls, and would probably very soon have burst. No doubt, in such cases periodical rupture of these wall-cysts occurs, with exudation of pseudomucin, and mild attacks of peritonitis and of ascites, which both subside, leaving adhesions behind. In some cases the symptoms of rupture are slight and evanescent, and so frequent that at last the original external covering of the ovarian tumour has dis-

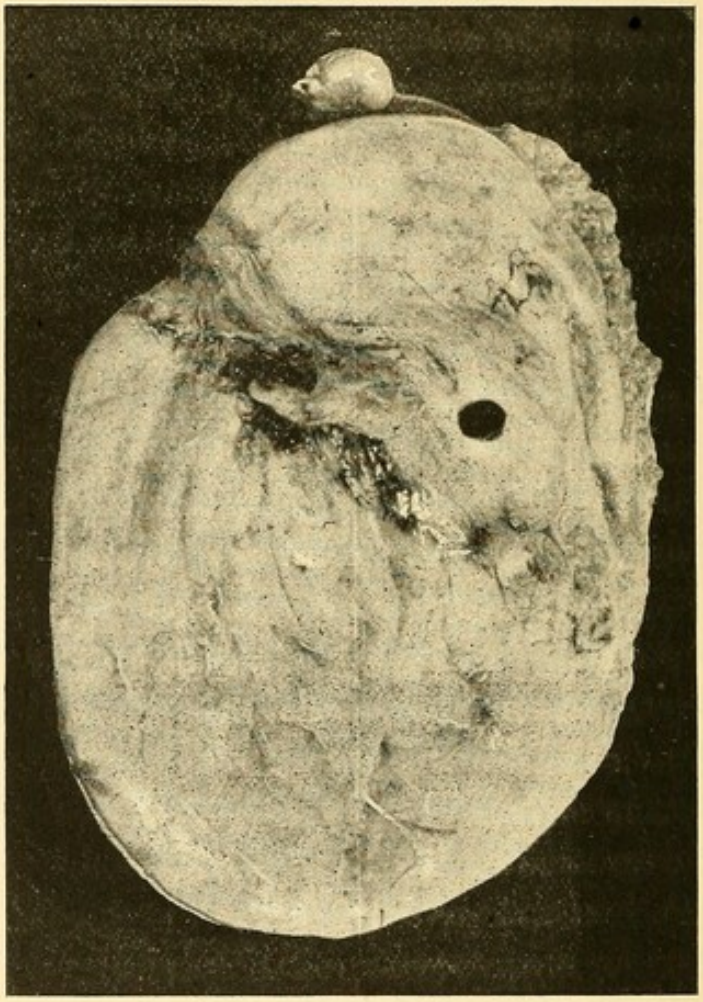

FIG. 1.

appeared completely over a large part of the surface of the tumour, and the endocysts are seen, altered in colour and opacity when the abdomen is opened. The fluid that was beneath the covering has been absorbed. The tattered and torn fragments of the original capsule can usually be made out in such cases, mended in patches by a spurious capsule of inflammatory origin. Single cysts also rupture occasionally

and disappear. As such cysts often contain clear fluid, not much, if any, disturbance is set up, and either the tumours refill or the patients are cured.

In one specimen the contents of the almost unilocular tumour measured 11 pints, and its wall weighed 1 lb. The wall was everywhere so soft that it was a miracle how it could hold

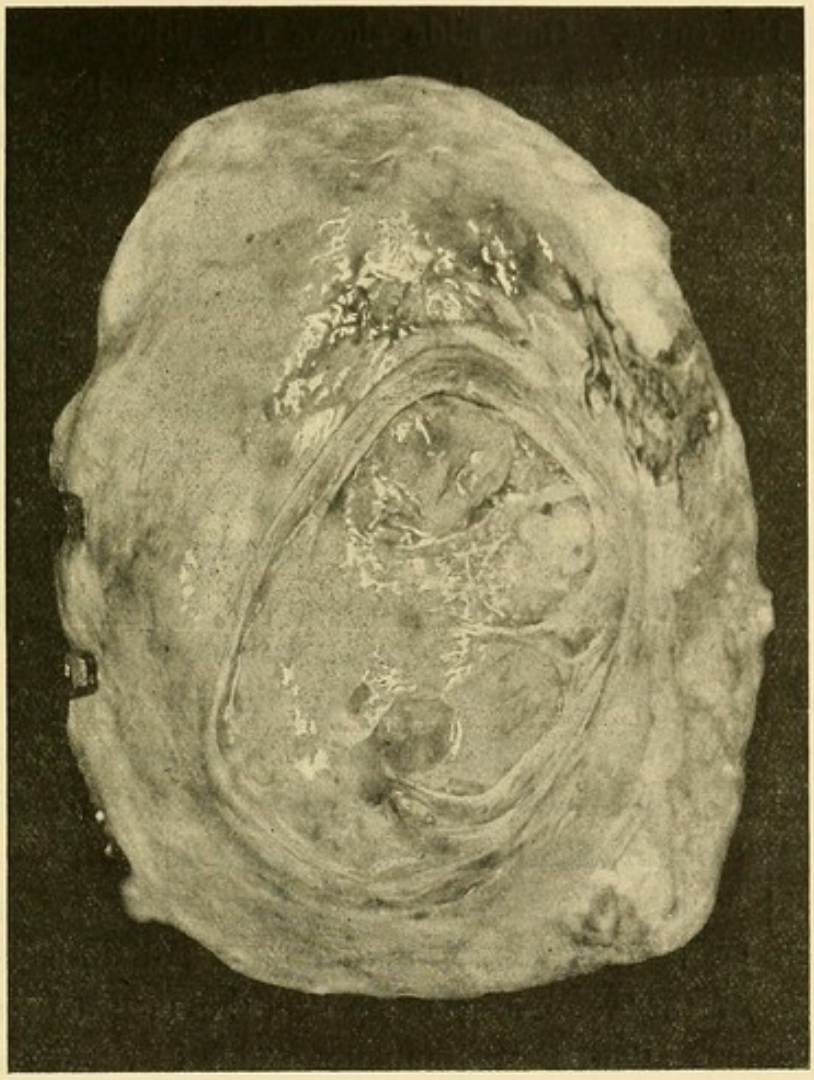

FIG. 2.

together. At the operation it burst as it was being drawn out of the abdomen, and the trochar opening made a rent. It looked like soft grey paper. Twisted pedicle was the cause of the congestion, and gangrene, in this case as well as in other multilocular cysts that I am unable to show you, as they could not be photographed.

In pyosalpinx, the Fallopian tubes are curled upon themselves, the walls are thickened and yellowish white in appearance, the distal end of the tube closed, the proximal end white and thick, with the lumen obliterated. The disease is mostly double, affecting both tubes and sometimes the ovaries. The latter, in the cases under consideration, contained suppurating foci, or a large abscess that is occasionally connected with the pus in the tubes. One slide shows the thickened tube on one side, surrounding an atrophied ovary; and in the other, the ovary has been converted into an abscess, continuous with the dilated end of the suppurating tube. The next case shows distended tubes with pus and cystic ovaries, the pyogenic microbes having failed to enter the tunica albuginea. In the next case, the pus-laden tubes are seen with thick-walled ovaries, through inflammation by contiguity of the tunica albuginea, the interior of the ovary having escaped infection.

In cases of pyosalpinx, the inflammatory infection sometimes affects the tube quite up to the uterine wall; and in ligaturing such a pedicle, the risk is great of the formation of an abscess at the seat of ligature. In one case such a condition was found; and it was over twelve months before the ligature came away, through a small sinus leading down to the womb. To obviate this, I have adopted the method of burying the stump extra-peritoneally in the lower part of the abdominal wound. If the stump is aseptic, it reposes there undisturbed; if it is septic and produces disturbance, the lower part of the womb can be opened, the ligature removed, and the stump allowed to granulate. This is a much simpler operation than removing the uterus in such cases.

The next photographs shown are of the ovaries and tubes removed from a woman who had been bedridden for many years, and who had been the known subject of syphilis and gonorrhœa, contracted from her husband. The walls of the tubes and ovaries are very much thickened, and each contained a core of pus. Was the preternatural thickening due to syphilis, and the core due to the gonococcus? The relief to

all the symptoms has now continued complete for over two years.

Cystic condition of the ovaries, as distinct from ovarian tumours, may be of various kinds. Sometimes the ovary is converted into a thick-walled cyst, not much larger than the ovary, and sometimes less in size; sometimes the ovary is studded with cysts; sometimes a Graafian follicle has so enlarged as to occupy the greater part of the ovary; and sometimes the cysts are more or less sanguineous cyst, with thickened walls.

I show you on the screen two excellent examples where the thick-walled cysts are seen, and where the owner had been completely disabled by dysmenorrhœa and menorrhagia for a year before she was completely relieved by that operation that gave me these specimens.

How far these cystic ovaries are the forerunners of ovarian tumours it is difficult to say. I have not met with any containing mucin, although I have met with them of considerable size. In the next case, the cystic ovary was $2\frac{1}{2}$ inches long and 2 broad. In this case the opposite ovary contained a small abscess in its interior, $\frac{1}{2}$ an inch diameter. The walls of the cyst were very thick; and the question arises whether it may not have been originally an abscess of the ovary, and whether the pus may have disappeared, and given place to clear fluid?

A still nearer approach to a diminutive ovarian cyst is found in the next two slides. The latter shows the tumours as removed, with the blind-inflamed Fallopian tubes, and the cystic ovaries. In another, one ovary was filled by a Graafian follicle, enlarged and filled with blood-stained fluid; the other was a multilocular cyst. The woman was a servant, æt. 24, unable to work for several years, until she was completely cured by the removal of this apparently innocuous growth.

I have not operated for many years on a hydrosalpinx, nor, in fact, have I met with one for a long time in a patient, but the example I now throw on the screen is a good instance of

a tubo-ovarian cyst, found accidentally in a medical case. On the right side, an ovarian cyst is seen with the dilated tube running over the summit, and disappearing on its outer margin. The left tube has a dilated extremity, and the small ovary lies in the embrace of the tubo-uterine angle. The left side is an example of a pure hydrosalpinx. On opening the right ovarian cyst, the inner opening of the tube into the ovarian cyst is plainly seen. Is the pathology of this an ovarian cyst with an adherent tube and absorption of the intervening walls, or was it a hydrosalpinx that became fused with an ovarian cyst? Many cases of discharge of fluid per vaginam can be explained by such cases, and so may the periodical lessening, or even the disappearance of ovarian tumours. No history pointing to pelvic troubles was obtained in the case now shown.

With papillomatous and nodular growths of the ovary, malignancy is always foreshadowed. Although it is well known that papillomata may be either innocent or malignant, the determination of the question is rather clinical than pathological. Over the simplest of papillomata, the pathologists shake their heads; and in regard to the others, they always give a grave opinion; so that the microscope helps in diagnosing distinctly malignant growths, but is not of much use in the simpler cases. The diagnosis is complicated by the fact that simple papillomata may spread over the peritoneum, and prove fatal by setting up chronic peritonitis and ascites; and if they cover the peritoneum at the time of operation, they may either recede and disappear, or may continue growing and kill their host.

One example of solid growth, covering the cyst wall, had a hard, thick base, and numerous tumours over the abdomen. The patient was much exhausted at the time of operation, and sank in four days, without any temperature. Secondary growths were found in the greater omentum and liver, and microscopically the tumour was no doubt malignant.

The next case shows the brighter side of matters. The nodular growths are beautifully delicate and regular, without any hardened base or any growth on the peritoneum, although the papillomata had worked their way through the outer covering of the cyst in which they were enclosed. In one slide you can see the cyst laid open, and the full crop of papillomata are seen. In the next, the protrusion of the papillomata through the cyst wall are well shown. The symptoms were three years' pain and dysuria.

These slides represent an elongated, partially-filled ovarian cyst, filled with rather thickish mucin, and no doubt non-malignant in its nature. In one of the larger cysts a papillomatous mass grew from its wall, and a section is shown under the microscope.

A suppurating ovarian tumour is a rare event, but this slide shows such a case. The tumour is here shown opened up, with masses of cheesy matter covering part of the inner wall. The patient had pain in her side for six months. Nine weeks ago she was a patient in a neighbouring hospital, suffering from pneumonia and constipation. She went home, and until her admission suffered from vomiting and constipation. There was localised pelvic peritonitis and a very soft tumour. It was removed in its entirety, the pelvis washed out and drained. Next day, when she was being dressed, it was found that the drainage-tube had broken in two, the lower half being down in the pelvis. This is the second time that such an accident has happened; and although not a pathological observation, I may say that in both cases I removed the broken piece readily by taking out a stitch, so as to allow the tip of my forefinger to enter the upper end of the broken tube until I felt that the tube followed my finger on its withdrawal. Any danger from the jagged tube was thus obviated, and the patient very little disturbed. The ligature suppurated in this case, and the convalescence was prolonged owing to purulent expectoration from her lungs, probably a part of a general infection of the system. The pedicle in this case

should have been treated extra-peritoneally, as described in the cases of pyosalpinx.

Dermoid cysts are comparatively common, and are troublesome tumours, both to their host and sometimes to the surgeon. During life they often produce adhesions and inflammations, and after operation the pelvis is more prone to become septic than after any other class of ovarian tumour.

A characteristic example is found in this slide, where the large cyst is shown with two pieces of adherent omentum attached to it, and removed with it. The tumour was also attached to the rectum, and required very careful separation. The next slide shows the hairs and sebaceous matter. This patient went on well for some days, and then signs of peritonitis unexpectedly set in, and in spite of washing out and drainage, the patient died. We found a pyosalpinx of the opposite Fallopian tube that had ruptured, and from the end of which pus was escaping, and to this was no doubt due the peritoneal infection.

I am always now more afraid of even simple-looking unadherent dermoids, on account of the greater tendency to sepsis in such cases, than I am of cases of pyosalpinx, that, however unpromising they may appear, almost invariably recover.

The next two slides represent a multilocular cyst, with two central cavities filled with mortar-like material, and with their walls stiff and rigid, and in part calcareous. The outlying cysts had also stiffened walls, but the contents were more mucoid, and semi-solid fibro-mucous tissue intervened between the cysts, and the situation may be explained by the ovary becoming cystic round a central dermoid tumour. The patient was a woman æt. 49, who was well till three years ago, when she was seized with abdominal pain and cough. Dropsy set in. The latent dermoid had probably then begun to assert its individuality, or the ovarian cysts then began to grow.

The most extraordinary dermoid cyst that I know of occurred in my practice several years ago, and was then shown at the

North of England Gynæcological Society. The diagnosis was an ovarian cyst of low tension that had been growing for several months, and the inconvenience of which was entirely mechanical.

On opening the abdomen a dense-walled tumour presented itself, and the large aspirator that I use failed to draw off but a comparatively small quantity—about a quart—of dark brown fluid. The cyst was opened, and its walls being held up to prevent overflow, the appearance presented to my eyes was exactly that of a bag filled with boiled peas, and so exact was the representation that I looked about to see that I had not opened the stomach by mistake. Hairs were found amongst the pellets. The latter were fatty, and had evidently formed by the contents of a cyst not quite full of soft fatty material, of a suitable consistence, rolling about as the body swayed during its daily movements.

At the Exhibition going on at that time I saw the same process carried out commercially in the making of sweets, the pan in which these were being cooked having an oblique swaying movement such as took place here.

Such an ovarian tumour is, so far as I know, unique. The photograph shows the 'peas' and hair *in situ* after the fluid had drained away (fig. 3).

Distinctly malignant ovarian tumours can generally be recognised clinically by their rapid growth and the amount of cachexia of both general and local disturbances early in the case. Ruptured cysts also, as has been already observed, produce cachexia, and general and local disturbances, but these are later in their occurrence.

Externally, the tumours appear more irregular than a simple cystoma, and the capsule is infiltrated; when cut into, the tumours are solid, and the growth is quite different from the fibro-mucin formation of a cystoma. Sometimes these malignant growths are firm, at other times quite soft and almost putty-like.

This slide shows the exterior of a double malignant growth

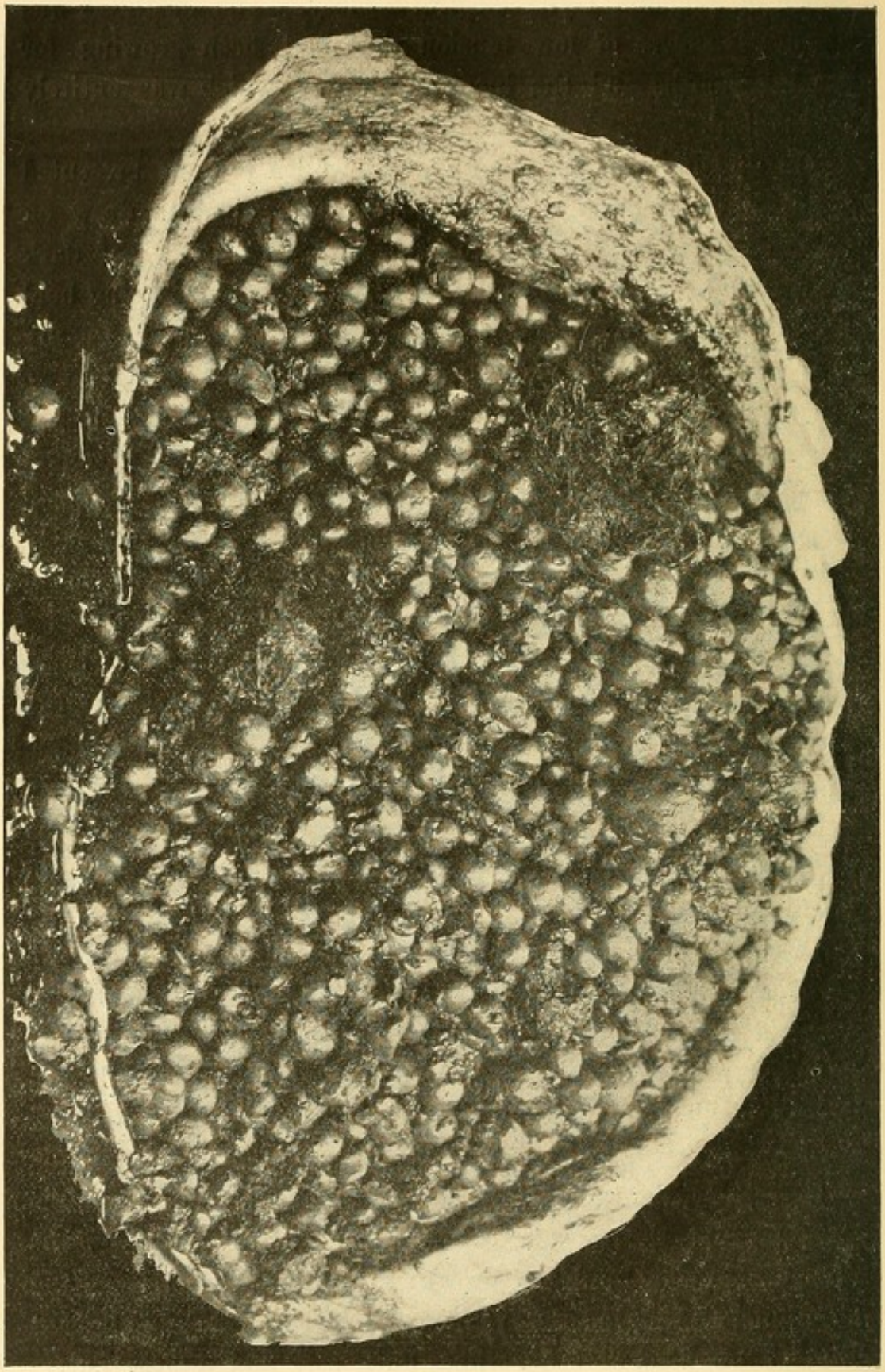

FIG. 3.

of the ovary, with extension to the general peritoneum, and the conversion of the omentum into a large cake. An enormous quantity of ascitic fluid, somewhat blood-stained, filled the abdomen. Relief was obtained, but three days after we found the patient cyanosed and the left chest filled with fluid. Aspiration of four pints of blood-stained fluid relieved her at once, and the patient completely recovered, to die some months after of dropsy and pleuritic effusion, and with an enormous mass of disease filling up the abdomen.

I now show small papillomatous tumours growing from malignant ovaries, associated with dropsy and thickened omentum, and growths all over peritoneum. This patient did well for three months, when the disease and dropsy returned, and the patient died in great distress.

In contrast to such a small malignant tumour, we have here an enormous growth filling the abdomen, a distinct sarcoma of solid structure. The disease returned in the pedicle in about a month after, and adhered to the right pelvic wall, causing intense torture by involving the pelvic plexus of nerves.

A fused ovarian tumour gave rise to a good deal of interest in the early days of ovariotomy. I show on next page a good specimen (fig. 4), where a multilocular ovarian cyst has become fused with the opposite ovary. (*a*) is the ovary, (*b*) shows the tube of that side, both (*a*) and (*b*) being firmly adherent to the cyst-wall; (*c*) is close to the pedicle of the tumour. The woman was beyond the menopause, so that there was no sufficient reason why the comparatively healthy ovary and tube should be released, but in a young person this could and would have been done. Both tubes and ovaries were removed. The tumour was fixed in the pelvis, and resisted all efforts to move it until one pedicle was tied, when it could be easily rolled out to the opposite side.

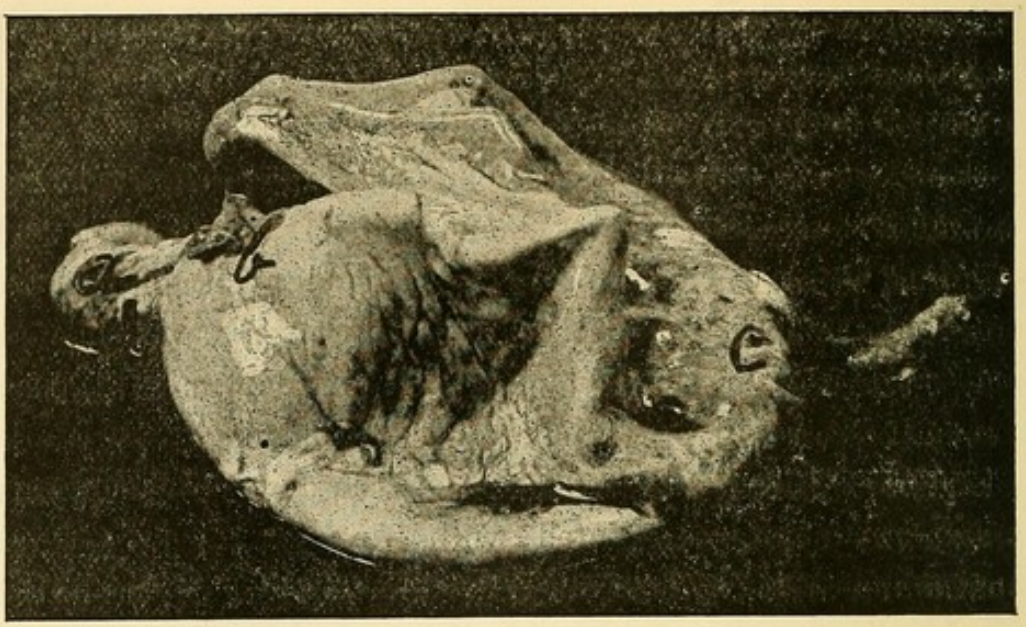

FIG. 4.

HYDATID CYSTS SIMULATING OVARIAN TUMOURS.

I remember three cases of hydatid cysts that required to be diagnosed from ovarian tumours. The first was found post-mortem, and the tumour sprang from the right iliac fossa, and overhung the right half of the pelvis. It had produced no symptoms during life, and was not discovered until the post-mortem. In the second case the cyst was attached to the left side of the abdominal wall, and dipped downwards and backwards into the pelvis; and it was only on operation that its nature was discovered, although the diagnosis was guessed at before opening the abdomen, through the peculiar thrill on palpation.

The third case was sent into hospital, and diagnosed 'double ovarian tumours.'

The right cyst had suppurated, and when cut down upon the diagnosis was changed to abscess of the ovary. When the pus escaped, thick sloughy mother cysts appeared, and corrected the diagnosis: the left supposed ovarian tumour was a distinct living, clear, hydatid cyst. Neither had any connection with the ovaries.

Chapter VI.—Enucleation of Uterine Fibroids.

Medical men are much divided in their opinions as to the treatment of uterine fibroids. Some hold that severe operative treatment is very rarely required, and that medicinal treatment and the occasional performance of minor operations, such as dilation of the uterine canal, curetting, and electrolysis, will tide most cases of fibromyoma over the menopause. When this period is reached, the tumours may be expected to shrink in size and to become innocuous. Others hold that fibroids are not the comparatively harmless growths that they are sometimes represented to be, but that they kill their hosts more frequently than many medical men admit, and that to prevent their harmful and often fatal effects a severe mutilating operation is not only justifiable, but one to be recommended.

As regards this unsettled question, my experience is that once a fibroid asserts itself, by *symptoms* or *signs*, the life of the patient is always more or less spoiled. She may live to the average age, but even then the life is very often that of an invalid, often that of a great invalid. As to her prospects of existence, no medical man would recommend her at first class rates to an insurance company, and probably she could not obtain an insurance policy from any office—a sure proof that the disease shortens life either directly or indirectly. I have in my mind a patient, the subject of a uterine fibroid, whom I have watched for seven to eight years, and who is now undergoing the 'change.' I must say that she has been a great

sufferer, as well as a great drain on her husband's resources. Her life has been threatened very seriously on several occasions from attacks of peritonitis, and once she nearly required operation for obstruction of the bowels. She has had a nurse or a companion all the time, and the social amenities of the household have been in abeyance for the same period. Her nerves are now all unstrung, and any departure from the most quiet life brings on not only intestinal or renal disturbances, but at the same time an attack of 'nerves' most painful to behold. This represents one of the more grave cases, but many others have lesser symptoms, such as a sense of weight, dragging pains in the back, irritable bladder, attacks of metrorrhagia, uterine displacements, sterility, that render their lives very uncomfortable if not rather miserable.

In these, if married, we have the risks of abortion with its complications and sequelæ, and the greater risks accompanying parturition or those attending the artificial terminations of labour. Most of these cases would be much healthier and happier without their fibroids, if these could be removed without great risk and without much sacrifice of healthy organs.

But when such patients seek complete relief, the treatment hitherto advised seems to me to more than justify the attitude of those who are reluctant to try such means of cure, except for cases where life is threatened or the condition of the patient very wretched indeed. Except in a few cases, where the tumour can be enucleated through the natural uterine and vaginal passages, and some more or less pedunculated subperitoneal fibroids that may be ligatured and snipped off or enucleated, the operative treatment of most single and of all multiple uterine fibroids is extremely sweeping in its extent. The mildest plan is by removal of the ovaries and tubes, but this is not so certain as partial removal of the uterus and fibroids, with or without removal of the appendages, and this is not so neat as removal of the uterus and tumour through the vagina; and this is not so easy or so applicable to all cases as pan-hysterectomy, by which all the internal reproductive

organs are removed at one fell swoop. The medical journals contain many references to the more severe operation, even for small fibroids, and in young people, and with good results as far as the mortality is concerned. But lessened risk of death from an operation does not necessarily justify an operation. To amputate a limb for a strumous joint would be a safe and neat method of getting rid of a troublesome disease, but the sufferer has afterwards to do without a very useful part of his body. Hence true conservative surgery has so modified the treatment of joint disease that amputation of limbs, from being the staple occupation of surgeons, has become comparatively rare, and now such limbs are scarcely ever sacrificed, except for malignant disease.

The operative evolution from partial hysterectomy to vaginal and pan-hysterectomy in the treatment of uterine fibroids was no doubt legitimate from an *operative* point of view, as these latter operations are cleaner and safer, and the difference in the amount of mutilation in each is small and unimportant. But if it should become safe to remove the tumours alone without removal of the uterus, ovaries, or appendages, then in all cases it is better surgery to only remove the offending parts, and in young women with small tumours the conservative operation would be obligatory. The prosecution of this idea has led up to the results to be described in the remainder of this chapter.

In the year 1894 I read before the North of England Gynæcological Society a case where I removed a large uterine fibroid from the fundus uteri and left behind nearly all the uterus as well as *all* the uterine appendages. A circular incision was made round the tumour down to the capsule, and the tumour was enucleated below the incision. Hæmorrhage was restrained by a stout double silk ligature passed through the transfixed fundus uteri, just below the tumour, and tied tightly at each side. A large mass of lint steeped in perchloride of iron was laid in the cavity whence the fibroid had been enucleated, and the lint was firmly held

in its place by tying over it the ends of the ligatures that had transfixed the uterus. Fear of hæmorrhage suggested the iron and the pressure. The peritoneum was stitched to the uterus so as to surround it just below the ligature and the wound closed. There was no sloughing and no hæmorrhage, and the uterus gradually dropped into the abdominal cavity perfect except for the piece of the wall of the fundus taken away with the tumour. I performed another operation in a similar way, and with a like result. In neither case was the uterine cavity opened, and the uterus dropped

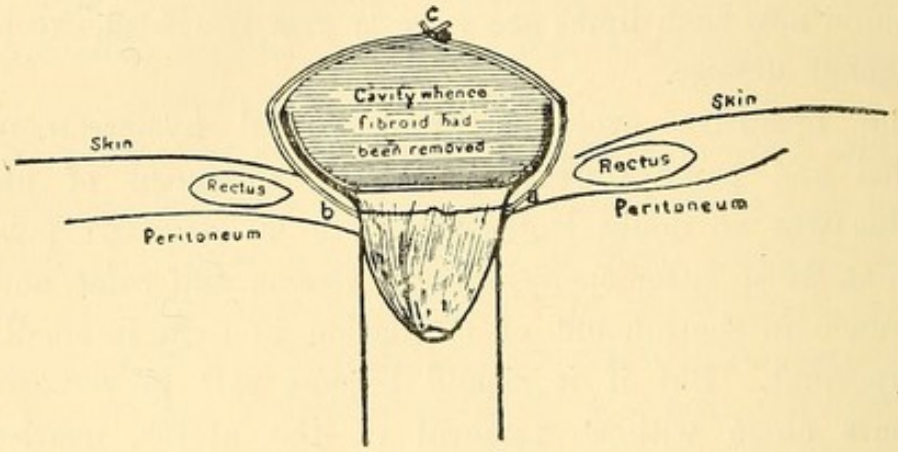

FIG. 1.

gradually into the pelvis as the stump does after the clamp has been used.

It was obvious that the operation, though a true conservative one, would only be suitable for fibroids on the summit of the fundus, and above the limit of the Fallopian tubes, and that the removal of a piece of the uterine wall was a disadvantage that prevented the operation from being classed in a satisfactory category.

In June, 1896, I made a longitudinal incision over a troublesome fibroid in the fundus, enucleated it completely, packing the cavity with lint dipped in perchloride of iron, and stitched the peritoneum to the margin of the opening. The whole uterus was here left in the abdominal cavity, and the patient went out of hospital with all her organs prac-

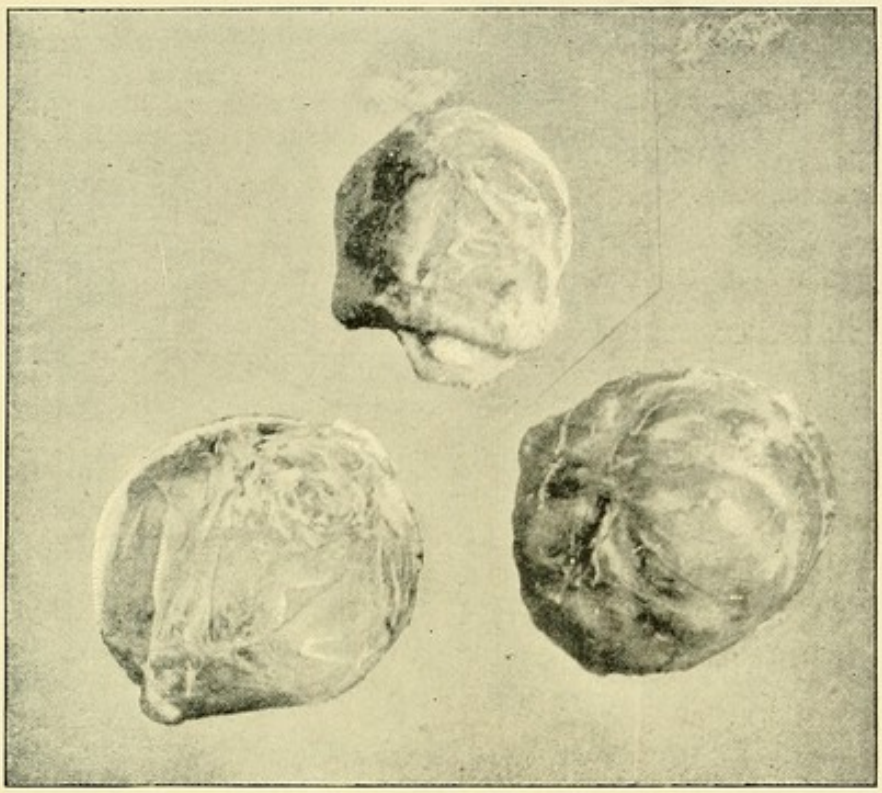

FIG. 2.

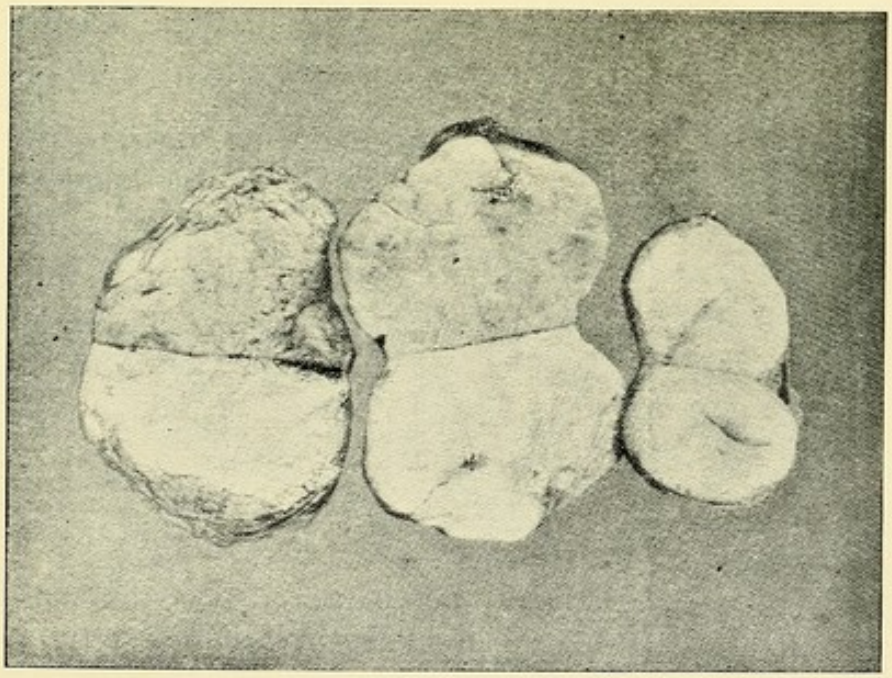

FIG. 3.

To face page 110.]

tically perfect. A year after I heard that she was in good health, doing her work, and that her uterus was normal.

Encouraged by the success of these three cases I next operated on Mrs H., aged 45, on September 12, 1896, and removed from her three fibroids, averaging half a pound each in weight. The symptoms complained of were severe abdominal pain, weight, inability to get about, and menorrhagia.

As the method of operation adopted in this case is nearly the same as that adopted in the subsequent cases, I will here describe what I consider the best method of operating.

The abdomen was opened in the ordinary way in the middle line by an incision of sufficient length to allow the tumour to come through the opening thus made. An assistant with two fingers in the vagina now pushed the uterine tumour into the wound from below, when three large fibroids were exposed to view, one in the anterior wall, one in the posterior wall, and one in the fundus. Warm, dry, aseptic sponges were placed round the uterus, completely shutting off the rest of the abdominal cavity from the field of operation. A vertical incision was made into the wall of the uterus, covering the anterior tumour until the white surface of the fibroid could be seen. By means of the finger and blunt dissector the tumour was readily enucleated, and any bleeding points were caught by compression forceps, and tied at the time or afterwards with catgut ligatures. The finger now palpated the bottom of the wound for the locality of the tumour in the fundus, and the incision deepened till its surface came into view. It was also easily removed. In the same way the posterior tumour was also removed through the same opening. A sponge was now stuffed into the deep cavity and left there until a strip of iodoform gauze, many yards long, was produced. The sponge was removed, and the already lessened cavity was packed with the gauze, the end of the

single strip emerging from the lower end of the opening into the uterus. The wound in the uterine wall was now closed with numerous superficial and deep catgut sutures, except where the piece of gauze emerged below. A single silkworm gut suture was passed through the uterus at the upper end of the incision in its wall, and each end of it, through the whole thickness of the abdominal wall at the upper end of the laparotomy wound, tied externally so as to fix the fundus uteri temporarily to the abdominal wall.

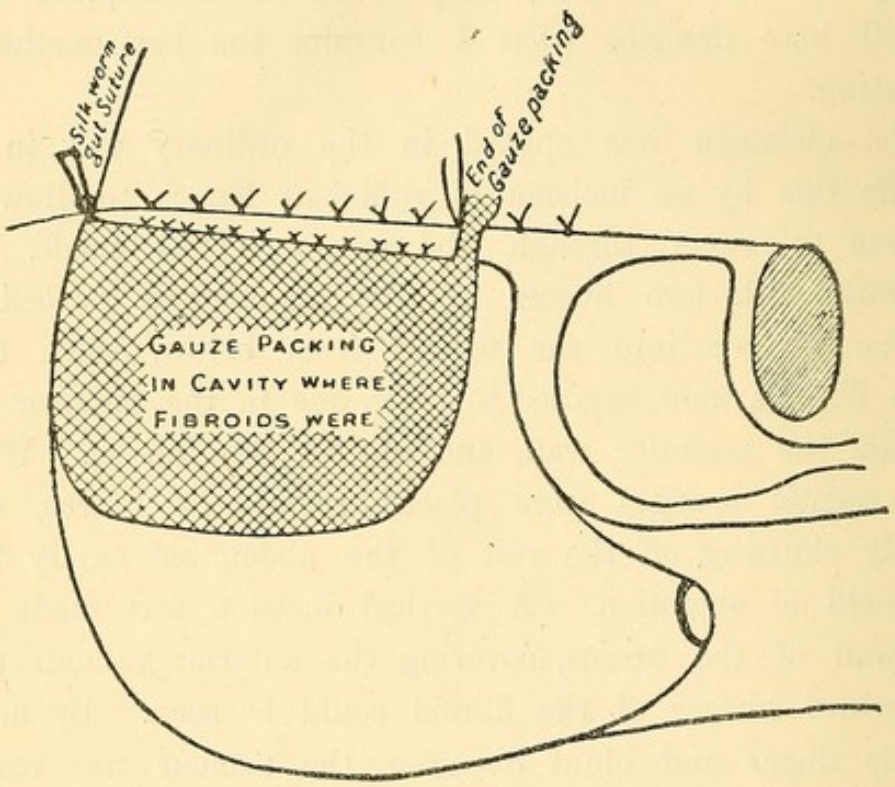

FIG. 4.

Before it was tied all the sponges were removed from the abdominal cavity, which was found unstained.

The laparotomy wound was now closed by buried sutures in the peritoneal layer and deep silkworm gut sutures through all the layers, except at the lower end where the strip of gauze which passed out of the cavity in the uterus emerged on the abdominal wall. This strip drains at the same time the cavity in the uterus as well as the abdominal cavity, which it traverses between the uterine and abdominal walls. The

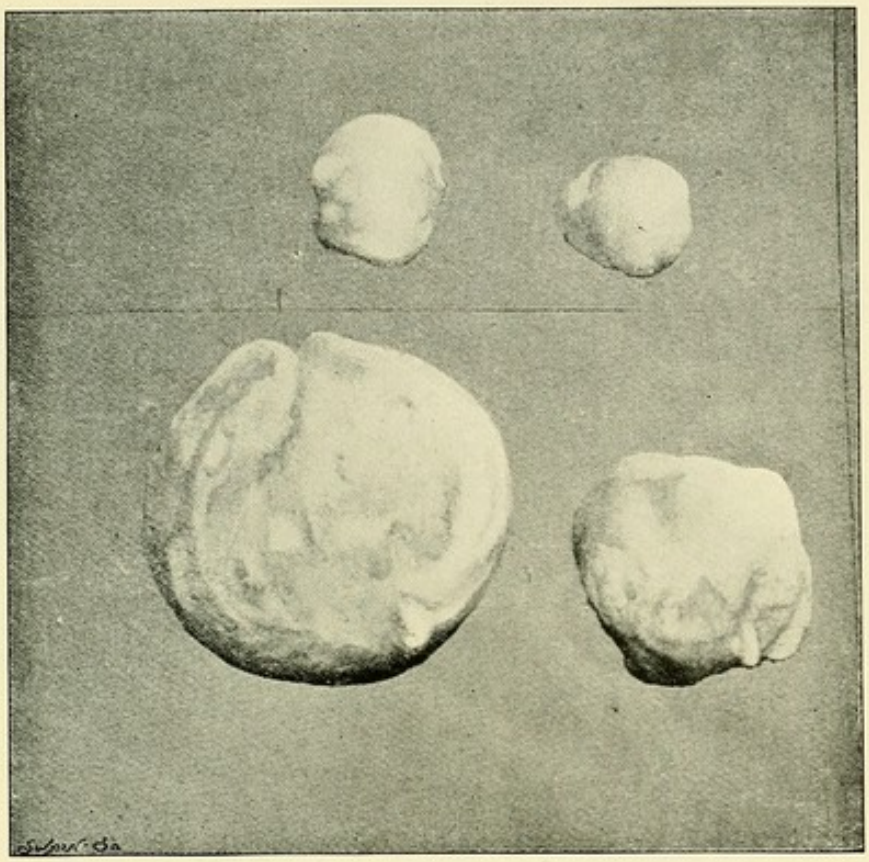

FIG. 5.

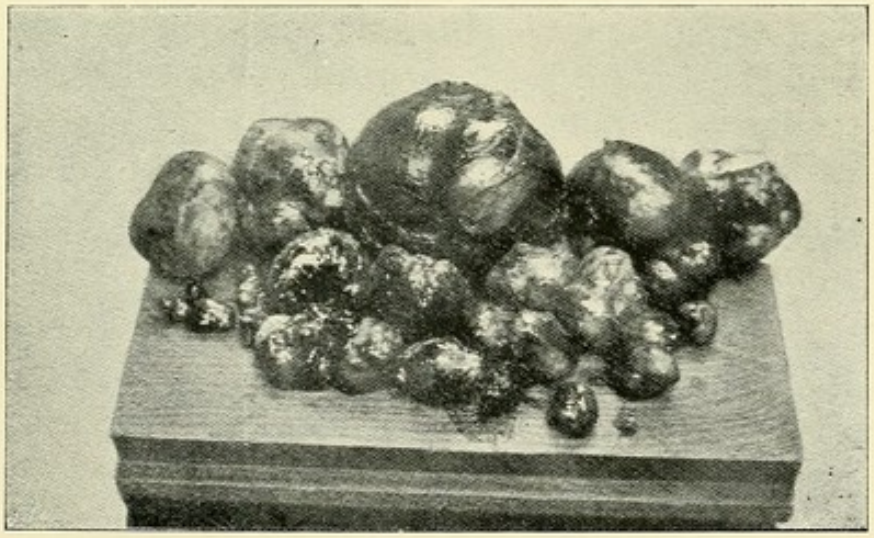

FIG. 6.

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abdominal wound was dressed in the ordinary way with double cyanide gauze and salicylic wool, the wool being changed when necessary during the first forty-eight hours. At the end of that time about a foot of the strip of gauze was gently and slowly pulled out, and the same amount daily until it was all removed. The wound healed up without any complication except some recrudescence of an old-standing emphysematous and bronchitic pulmonary complaint which arose after the first week. There was no shock and no collapse.

I examined the patient a few days before Christmas, 1897. The uterus was normal in size and in position, and the patient was robust. A small sinus remained in the abdominal wall, due to the use of some silk sutures which were used to close the uterine wall in this case. Since then I use catgut and have no sinuses. The silkworm gut suture was removed at the end of fourteen days and the uterus allowed to drop into the pelvis.

Case V.—Mrs E., aged 45, married; seven children, two miscarriages, last child seven years ago. Parturition always normal, menstruation irregular, dysmenorrhœa.

Several months ago she commenced to feel unwell and to 'flood.' Dragging pains were felt in her back and left side, worse on lying down at night, with frequent micturition and defæcation. She became sleepless and worried, and applied for admission to hospital on June 29, 1896. A mass of fibroids filled up the pelvis; the uterus was retroverted. The patient was so anæmic and reduced that the tumour was pushed up into the abdomen and a thick ring pessary inserted to keep the mass out of the pelvis. Tonic treatment was prescribed, and the patient sent home.

She was re-admitted on September 26, much worse, very anæmic, and exhausted, and with the uterine tumour much increased in size. The operation was performed on October 12, and four fibroids were removed through one incision in the same way as in Case IV.

In this case the uterine cavity was opened, and an india-

rubber drainage-tube was passed right through from the abdominal wall to the vagina in addition to the packing previously described. Antiseptic lotions were syringed through the tube after the iodoform gauze was removed. By this means the large cavity left in the uterus by the removal of the fibroids was kept free from infection, likely to be caused by its contiguity to the infected mucous membrane of the uterus, until the operation cavity had shrunk up and disappeared.

The temperature only reached 100° once, on the third day after operation, and was all the rest of the time quite normal or subnormal. There was no shock such as might have been expected in so feeble a patient. She went home six weeks after operation, and has not been seen by me since.

On January 14, 1898, I caused inquiries to be made, and find that she improved considerably after operation, all her pelvic symptoms disappearing. She then began again to lose flesh, jaundice set in, and signs of cancer of the liver appeared, from which she died in the summer of 1897.

Case VI. was a lady, aged 49, who was rapidly becoming insane through the worry of a mass of fibroids that filled her pelvis. She was restless, talkative, and occasionally 'queer,' of spare frame and sallow complexion. She had frequent attacks of febrile symptoms, tongue dirty, skin unhealthy, irritable bladder, and, speaking generally, her state was most unsatisfactory. Her mind was fixed on her fibroids, and in the endeavour to give relief twenty-five fibroids were removed on September 23, 1896. Twenty intra-mural growths were enucleated, and five were ligatured and snipped off, being pedunculated and subperitoneal. The wound healed without any febrile disturbance, and her mental condition seemed to improve for three weeks, when she became incoherent, sleepless, and refused her food. On October 26, rather more than a month after operation, her temperature rose to 102·2°, and remained there for two days, dropping to normal. Her mental condition remained the same. On November 6 the temperature again rose, and on the 8th reached 105·2°, accompanied

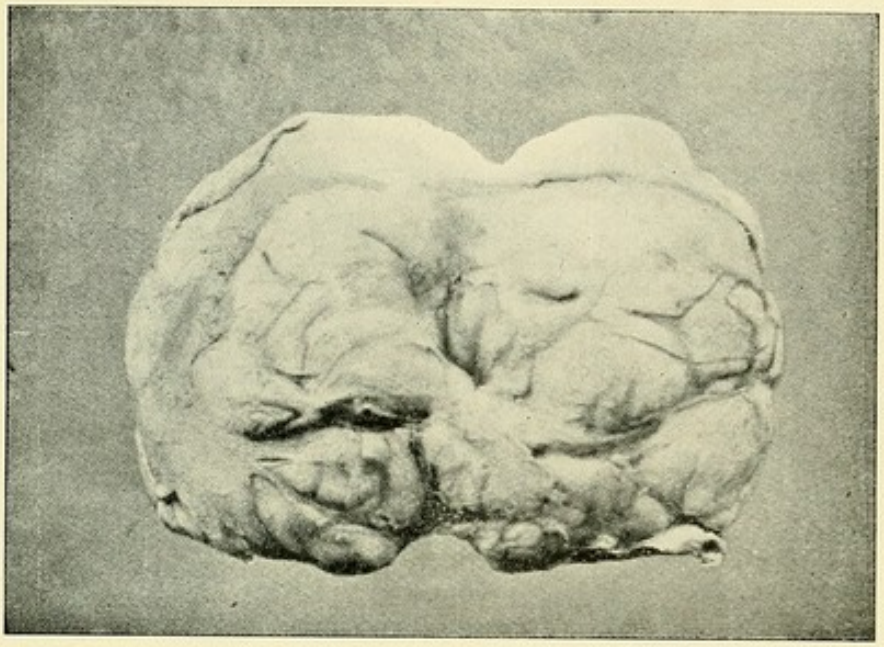

FIG. 7.

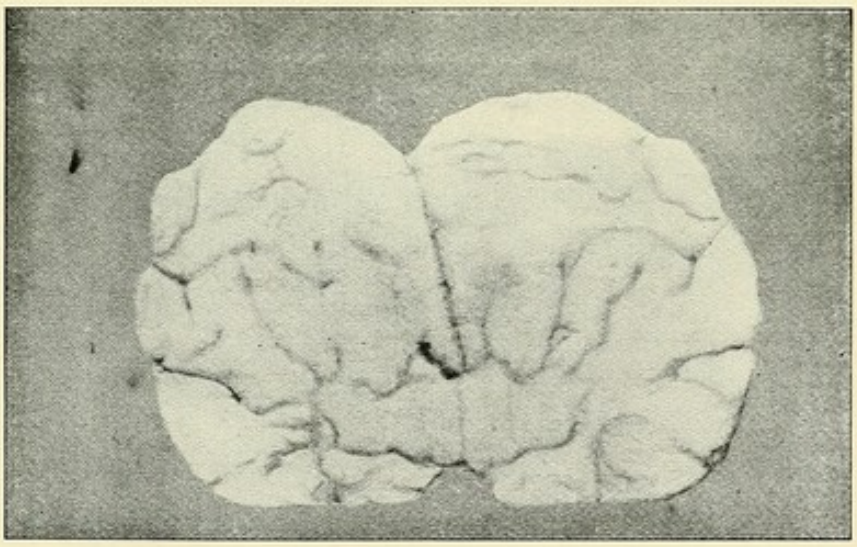

FIG. 8.

To face page 114.]

with wild delirium. On the 9th she became comatose, and died November 10, three weeks after the operation had been quite recovered from.

A *post-mortem* showed very distinct thickening of the membranes of the brain, with deposits of lymph both old and recent. There was intense congestion of the meninges and œdema of the arachnoid. The uterus was normal in size, adherent to the abdominal wall and to the neighbouring organs by loose bands of lymph. No signs of inflammation or suppuration.

Case VII.—Mrs A., aged 51, admitted to hospital October 5, 1896, when the previous case was considered out of danger. Twelve years ago she had laparotomy performed in London, and had not since been unwell till two years ago, when metrorrhagia began. She was very much blanched from loss of blood, and her condition was very unfavourable. The absence of shock in the previous case encouraged me to operate, and twenty-three fibroids were removed, so similar in size and kind to those removed in Case IV. that they were not photographed. There was no shock, and no disturbance, and no temperature for two days; then persistent vomiting and abdominal distension set in, and she died from obstruction of the bowels on the fifth day. Colotomy failed to give relief. About 6 inches of small intestine were found gangrenous, without any apparent reason. There was no peritonitis or uterine complication.

Case VIII.—Miss H., aged 36, admitted to the private ward of the Royal Southern Hospital on March 1, 1897, suffering from severe dysmenorrhœa, pain across the lower part of the abdomen, great irritability of bladder, and frequent micturition both by day and night. The dysmenorrhœa has existed for several years, but the bladder troubles have only been in existence for rather more than a year. A year ago she placed herself under medical treatment, with temporary benefit, but since last November she has been a complete and very uncomfortable invalid.

A uterine fibroid, two pounds in weight, was enucleated from the body of the uterus on March 4, without any difficulty. The uterine cavity was not opened, and no drainage was used. There was practically no trouble afterwards, except a little phlebitis of the left leg in the third week. I examined the patient on January 10, 1898. Her uterus was normal in size, in good position, and she was quite cured of all her pelvic troubles.

Case IX.—Mrs W., aged 31, admitted to hospital April 5, 1897, suffering from uterine fibroids, producing pressure symptoms, of which the most prominent was frequent micturition. She was practically unable to carry on her work as a nurse through the infirmity, and as there also was a probability of marriage pending, her mental anxiety on both accounts was very considerable.

I told her about these operations, and advised the performance of a similar operation upon her. Some one advised the operation being done in London, where she would be near her friends. I then explained to her the different methods of dealing with her case, and warned her against the mutilating operations, and that I thought she should have the fibroids alone removed. After consulting several medical men in London she returned to Liverpool, because she said no one offered to perform the operation I have described, and some said that such an operation was not possible. Four fibroids were removed on April 8, 1897. The temperature and pulse remained perfectly normal for fourteen days, then a misunderstanding arose between the friends of the nurse and her attendants, the wound suppurated and some phlebitis supervened. There was never any danger, but the convalescence was delayed, and she was not able to leave the hospital until June 23. The uterus was then small and in good position. I had a letter from this patient on January 21, 1898, saying she had gained a stone in weight since before operation. Her menstrual periods are natural, but rather frequent, and quite free from pain. There is no return of the kidney trouble. She says: "I am so

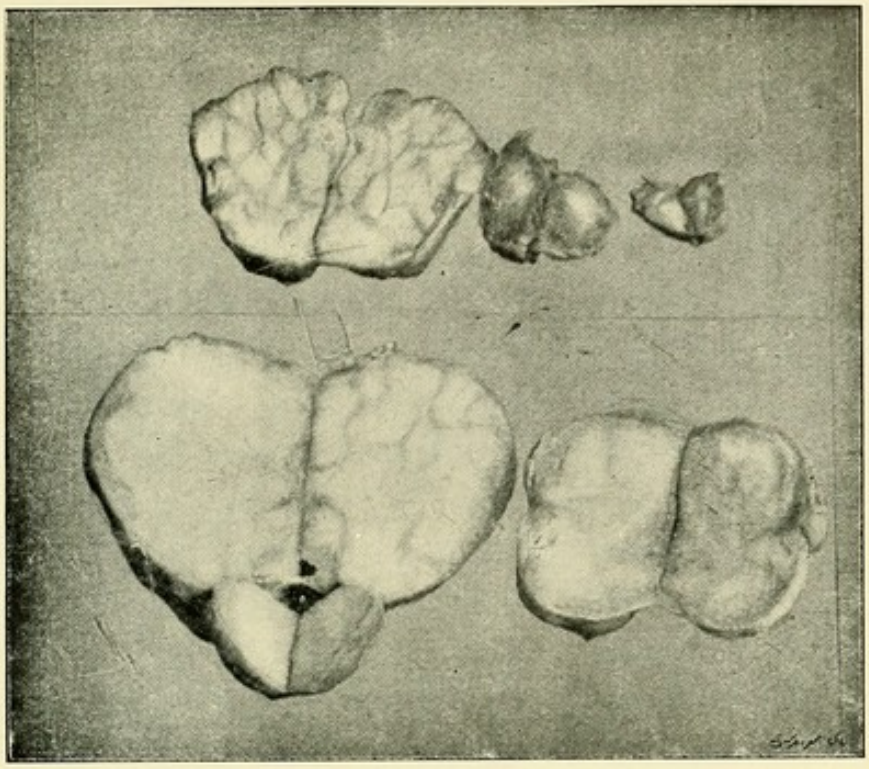

FIG. 9.

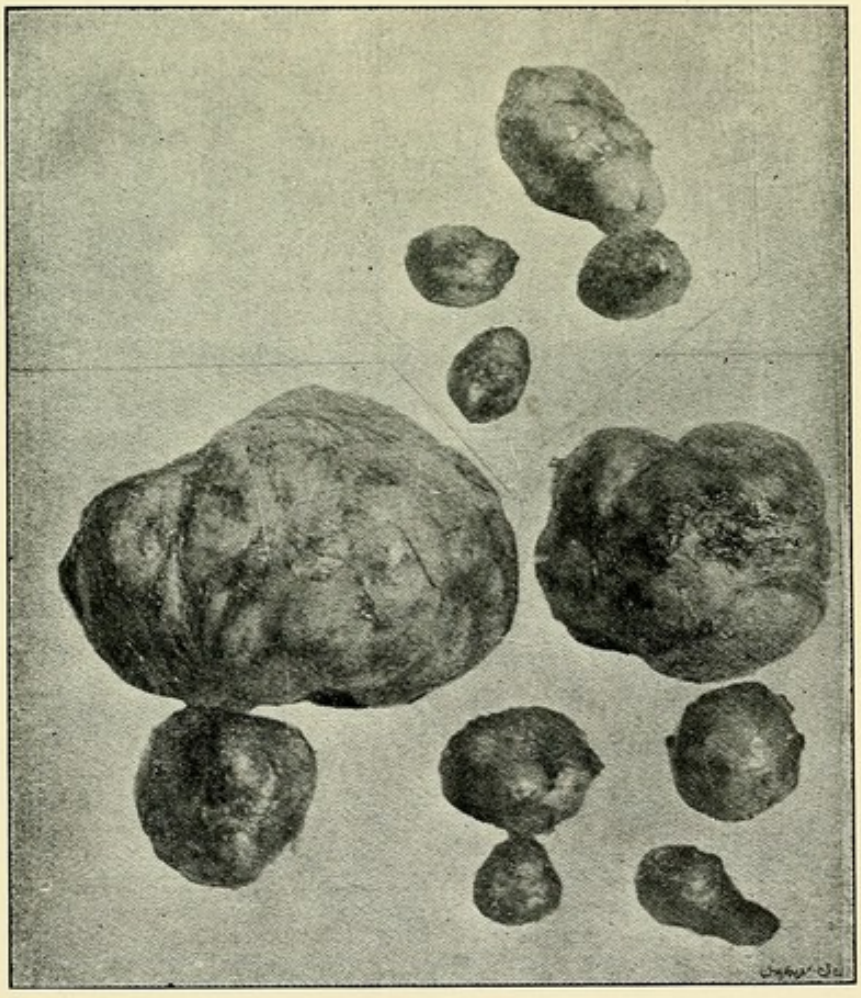

FIG. 10.

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grateful to you, doctor, for all you have done for me. You don't know what a pleasure it is to go to bed and to be able to rest without being disturbed. The operation, from the bladder point of view, was a great success."

CASE X.—A cook, aged 30, admitted to the Workhouse Hospital, October 3, 1897, complaining of pain, weight, bladder irritation, and menorrhagia for four years, and during all that time she has been unable to work. She was very anæmic on admission. Four years ago a tumour was removed by the vagina, at a neighbouring hospital, without any relief. On October 13, twelve intra-mural fibroids were removed in the usual way. The uterine cavity was opened, and a pedunculated intra-uterine fibroid polypus was removed, and three others were removed from outside the mucous membrane. The convalescence was practically uninterrupted, although the cavity suppurated. This was due to my depending upon gauze drainage, and not passing a drainage-tube through. She is now (February 10) walking about, feeling well, except that she is anæmic. She is free from all bladder symptoms.

CASE XI.—Mrs B., aged 35, consulted me in July last for metrorrhagia. She had a large uterus, with a distinct tumour in the fundus, diagnosed as a fibroid. Medicinal treatment and rest were prescribed, and up to the end of October the hæmorrhage was kept in check. In October serious flooding set in, and as the patient lived in the country, some distance from assistance, an operation was recommended. On opening the abdomen, a diffused swelling occupied the fundus. The uterus was opened, and the swelling was found to be not a circumscribed fibroid, but a mass projecting into the cavity of the uterus. The thickening was shaved off from the inside till the uterine wall was equal all around. Then the mucous membrane of the uterus was curetted transperitoneally, as there were some villous growths upon it, and the cavity was then washed out. A strip of gauze led from the uterine cavity into the vagina, and the uterine wall was stitched up completely, no gauze being used to pack the wound. The abdom-

inal wound was closed, except below, where a small strip of gauze was inserted down to the peritoneum. The convalescence was quite uninterrupted, and the patient has menstruated twice since in a perfectly normal way. The piece removed weighed an ounce. It had the microscopical structure of a myoma, but seemed to me a nodular thickening of the uterine fundus.

Remarks.—We have thus recorded eleven cases of uterine fibroids, some of them of a very grave character, treated by this method of enucleation, with one death from the operation. This death was not so much due to the special operation *per se* as to an accidental complication that may follow any abdominal section. In performing these operations it must be remembered that I had to feel my way, unassisted by any clear directions either from text-books or from medical journals; for though enucleation is named by gynæcologists, it evidently has been reserved for single tumours, and only very infrequently has it been performed for them.

With the experience now gained, I think the mortality, after these operations, will in the future compare very favourably with any operation for abdominal tumours. A low mortality being secured, the non-mutilation of the patient should give this operation a tremendous advantage over the other deprivative operations; for even women near the menopause do not like to be deprived of their organs, and married ladies, no matter how dark their prospects of pregnancy may be, do not like to absolutely lose hope of ever having a child. Young women with troublesome symptoms, sterile women with fibroids, but without troublesome symptoms, can all be relieved without interference with the ordinary functions of the uterus. Mere number of tumours is no contra-indication to the operation, nor is size of tumour, provided it has not absorbed the uterus or appendages and left nothing worth preserving.

Hæmorrhage was the great danger dreaded in the performance of these operations, but I found it was not so great as anticipated, and that it could be controlled by pressure forceps

and sponges in much the same way as in operations elsewhere. The treatment of after oozing was a matter of great concern. It was necessary to prevent any trickling of blood into the abdominal cavity, and at the same time to leave the uterus inside the abdomen in a natural position, and in a natural state when the wounds had all healed up. These conditions have been fully attained by the method of treatment adopted.

The removal of all the tumours does not present any difficulties. The uterine walls can be ransacked quite easily. Whether these tumours will grow again is a matter for future experience to decide. What experience we have is against such growths, as the effects of traumatism has always been so far to make uterine fibroids shrink. The time necessary for a fresh crop to grow would, however, generally bring such cases to a period of life when such growths would tend to cease in course of nature, and should a second operation become necessary, there is no reason why it should not be performed.

How far the uterus and appendages will be able to resume their functions of pregnancy and parturition has not been practically settled by the occurrence of these states on patients operated on. There are no *a priori* reasons, however, why such occurrences should not proceed naturally, as nature tends to go back to the normal condition when disturbing causes have been removed.

The operation is a plain, straightforward one, much easier than pan-hysterectomy, and very much easier than that Chinese puzzle of removing a comparatively large fibroid-laden uterus through a comparatively narrow vagina. In some cases, no doubt, deprivation of the uterine organs is not of great moment, and in other cases enucleation may be out of the question, so that I do not recommend it as a panacea for fibroids. But in all cases enucleation can be considered as the most desirable of all the operations for uterine fibroids, if it can be safely and conveniently performed, and I can recommend the method of treating uterine fibroids to greater consideration at the hands of the profession than it has so far obtained. If this paper

will have rendered safer the operative *technique* of enucleation, and extended the operation further than the very limited field enucleation has hitherto held, then an additional resource will be placed in the hands of gynæcologists whereby troublesome small fibroids can be removed earlier, because by the so much milder operation, and even in more advanced cases, the disease may be removed without destroying the functions of the sexual organs, although the retention of that function may not seem to the operator of much importance.

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