Essays on hysterectomy / by J. Bland-Sutton.

Uterus opened by a vertical incision in its posterior wall. The endometrium is occupied by an unencapsuled mass of caseous tuberculous tissue. The uterus was removed by the abdominal route, under the impression that it contained a degenerated submucous fibroid, from a spinster aged 46 years. Recovery was uneventful. (*See* p. 74.)

Adlard & Son, Imp.

ESSAYS ON HYSTERECTOMY

BY

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London

ADLARD AND SON

BARTHOLOMEW CLOSE

1905

Printed by Adlard and Son,
London and Dorking.

PREFACE.

THE officers responsible for the Surgical Section of the British Medical Association, which met at Oxford, July, 1904, invited me to open a discussion on the "Indications for Hysterectomy." The fact that the operative treatment of an organ usually neglected by the general surgeon should be accorded a prominent position in the Surgical Section is an epoch-making event, and a very significant "sign of the times." It was impossible in the time allowed for opening the "discussion" to give details in support of my opinions, so I take the opportunity of reprinting the opening address and collecting some scattered essays which embody the evidence relating to debatable points.

In this edition the term "subtotal hysterectomy" replaces the cumbersome phrase "supravaginal hysterectomy," and the odd name "panhysterectomy" is discarded for the more appropriate title "total hysterectomy."

Two essays are added, namely, one concerning uterine fibroids in relation to conception, pregnancy, and puerpery, and a Report on one hundred consecutive cases of abdominal hysterectomy for a variety of uterine diseases attended with recovery in hospital practice, which will serve to show that hysterectomy ranks among the brilliant health-preserving operations of modern surgery.

J. BLAND-SUTTON.

47, Brook Street, W.
May, 1905.

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ESSAYS ON HYSTERECTOMY.

A DISCUSSION ON THE INDICATIONS FOR HYSTERECTOMY, AND THE METHODS FOR PERFORMING IT.

(*The Annual Meeting of the British Medical Association, Oxford*, 1904.)

Great as have been the advances of surgery in the treatment of diseases of the abdominal viscera, none can compare with the success which has rewarded the efforts of surgeons during the last ten years in the operative treatment of diseases of the uterus. One of the first consequences of what may be called surgical aggression among the viscera is the marked increase in the extent, as well as in the accuracy, of our knowledge of the pathology of the abdominal and pelvic organs. This has happened in the case of the uterus, and I shall endeavour to show that the surgery of this organ has been advanced and placed upon a secure foundation, by the very fact that the efforts of surgeons made a proper clinical and pathological investigation of its diseases possible.

Cancer of the Uterus.

In considering the indications for hysterectomy, cancer of the uterus necessarily holds the foremost place, for it

was with the hope of combating this foul disease which led surgeons in the first instance to attempt the complete extirpation of this organ. The early efforts in this direction were made by the abdominal route, and were in most instances miserable failures, but the primary success which followed operative endeavours conducted through the vagina completely revolutionised the methods of dealing with this disease surgically, and the complete extirpation of the cancerous uterus soon replaced the unsatisfactory niggling operations such as scraping, cauterising, and partial amputation of the cervix.

It soon became clear that the complete removal of a cancerous uterus, though it was attended by a low mortality in skilled hands, was followed by very unsatisfactory remote results, and this led to a more thorough inquiry into the nature, course, and modes by which cancer of the uterus destroyed its victims. From careful studies conducted in the wards and laboratories, the indications for performing hysterectomy in cases of uterine cancer can be fairly well formulated.

Cancer of the cervix uteri.—Without laying down any hard and fast rules it may be stated that in suitable cases, the uterus is best removed in this disease by the vaginal route as it enables the surgeon to excise the tissues about the cervix uteri widely, and at the same time enables him to avoid the bladder, the ureters, and rectum.

In order to secure a good result it is of the highest importance to make a very careful selection of the cases. The disease should be limited to the cervical tissues; and the broad ligaments should be free from any suspicion of infiltration. These are matters which cannot be satisfactorily determined by the finger alone, but by examination under an anæsthetic; it is surprising how often a case seems favourable for operation when digitally explored, and yet woefully disappoints the surgeon when the parts are exposed with the help of a speculum in a good light.

My hospital experience shows that out of one hundred consecutive patients with cancer of the neck of the uterus, about five are favourable subjects for the purposes of operation. No doubt many think that I am too exclusive in selecting cases for operation, but I am satisfied that if hysterectomy is not to be discredited as a mode of treatment in this disease it is necessary to select the cases with very great care.

Cancer of the neck of the uterus and pregnancy.—It may be stated without fear of contradiction that the most appalling complication of pregnancy is cancer of the neck of the uterus; unfortunately it is not uncommon, but it is not often that the cancer obstructs labour, and this is explained on two grounds:

(1) Cancer of the cervix predisposes to abortion.

(2) When it has advanced to such a stage as to fill the vagina with an obstructive mass it has had such an effect on the health of the mother that it endangers the life of the fœtus and leads to miscarriage.

A study of the literature relating to this complication indicates, that when a pregnant woman with early cancer of the cervix comes under observation in the early months, her best hope lies in vaginal hysterectomy. In the later months (4—7) very good consequences have followed amputation of the cervix, and this operation has been performed without disturbing the pregnancy. In the latest stages the best consequences have followed the induction of labour and the immediate performance of vaginal hysterectomy, for, surprising as it may seem, the uterus, though enlarged by the pregnancy, can be safely extracted through the vagina. These methods of course only apply to cases where the cancer is in such a condition as to afford reasonable hope of a prolongation of life.

Cancer of the body of the uterus.—Pathological inquiry has let a flood of light into the dark corners of the uterus. The fog of names which formerly obscured

the changes, malignant and otherwise, of the endometrium has been dispelled. "Cancer of the body of the uterus," as it is called in the loose phraseology of the wards, has been carefully studied, and is known to be less frequent than cancer of the cervix, that it is more liable to arise in elderly spinsters and sterile married women than in those that are fertile. It is clear that there are two varieties, and that the disease spreads and destroys its victims in a manner different to cancer of the cervix. It may attack a uterus beset with fibroids, or arise in a senile atrophic organ. On the whole it is less virulent than the cervical form and is best dealt with by complete removal of the uterus, Fallopian tubes, and ovaries by the abdominal route.

The remote results of hysterectomy for cancer of the body of the uterus are very good when performed before the disease has perforated the uterine wall. The best results are met with in the rarer instances in which the disease arises in a senile uterus. The chief points which guide the surgeon in determining the particular route by which he will remove a cancerous uterus are in the main based upon the known proclivities of the disease. Cancer of the cervix by spreading circumferentially tends to implicate the bladder, rectum, vesical ends of the ureters and vaginal mucous membrane, and is most completely open to free operative removal from the vagina, and as it is almost entirely confined to women who have been pregnant the vagina is usually large enough to permit the necessary manipulation. Cancer in the corporeal endometrium tends to spread into the uterine sections of the Fallopian tubes, making it imperative that these structures should be freely removed, is a fact in favour of the abdominal route, and this proceeding is in many instances enforced on the surgeon by the narrowness of the vagina in spinsters and sterile married women even when the uterus is atrophic.

Cancer of the Fallopian Tube.

As an example of the manner in which the enterprises of modern surgery have reacted on the acquisition of reliable clinical knowledge, I may take this opportunity of drawing attention to cancer of the Fallopian tube. Our knowledge of this disease dates from 1888, and making full allowance for cases in which it is possible, and even probable, that some cases recorded as examples of primary tubal cancer were instances of cancer of the endometrium extending into the uterine ends of the tubes, there is now a large body of carefully prepared evidence to prove that cancer may arise primarily in the tubal mucous membrane. The subject is one which must be considered here, for the signs of the disease are those exhibited by cancer of the body of the uterus, namely, irregular hæmorrhages at, or more frequently subsequent to, the menopause. I am also of opinion that in cases where the uterus has been dilated for diagnostic purposes, where the signs strongly indicated cancer of the body of the uterus and no disease was found on examination, and the hæmorrhage continued, in some of those cases there may have been cancer in the Fallopian tube (p. 41).

Primary cancer of the tube is very malignant, and gives bad remote results to operative treatment even when the uterus has been removed with the tubes. Certainly it seems that it is better not to remove the uterus, but we await with patience the results of more experience.

Deciduoma malignum (chorion-epithelioma).—This dreadful disease, for which complete extirpation of the uterus is at present the only available remedy, may be described in the phraseology so familiar to zoologists as "a species new to science," it is "newer" than cancer of the Fallopian tube. Very few examples have been

observed in England, and most of our knowledge concerning its pathology and clinical characters we owe to German workers. The most complete account of this disease accessible to British surgeons is an admirable paper furnished by Dr. John H. Teacher to the 'Obstet. Soc. Trans.,' 1903, which contains a tabular statement of the results of operative treatment of the disease, the result of an analysis of 188 recorded cases. His opinion may be given in his own words: "It seems reasonable to conclude that operation offers a fair chance of recovery, and, further, that it may be done with some prospect of success in the face of the gravest signs of disease, and even of metastasis, having occurred." Thus what I have said in regard to primary cancer of the Fallopian tube is equally applicable to deciduoma malignum—we must wait with patience the results of more experience.

Fibroids and Sarcoma of the Uterus.

The history of attempts made by surgeons to relieve women of troublesome and dangerous fibroids has an interest surpassing that of ovariotomy; indeed, the successful removal of a uterus beset with fibroids ranks, in some circumstances, among the greatest enterprises of modern surgery.

The wide interest in, and the extraordinary success which in the last ten years has followed the radical treatment of uterine tumours depends on several causes:

(1) The establishment of the intra-peritoneal method of treating the stump, and the extension of the operation known as total hysterectomy.

(2) The gradual recognition of the view that fibroids of the uterus cease to be troublesome at the menopause only applies to a small proportion of cases (p. 36).

It is also clear that the term "fibroid" is of generic value only. Many tumours are truly myomata, others

with equal truth merit the name "fibromyomata." There is also the soft jelly-like uterine tumour, met with most commonly in the interval from the twenty-fifth to the thirty-fifth year, associated with profuse menorrhagia, profound (toxic) anæmia, which on section after removal resembles a mass of trembling jelly (myxoma); this tumour, so often described as a degenerate fibroid, is not so; in fact, it is a primary condition, and serves to bridge the interval between the true fibromyoma and sarcoma of the uterus. Many tumours described as uterine fibroids which had undergone malignant change, were in all probability sarcomata in their beginning.

There is a consensus of opinion among surgeons and gynæcologists that operative interference with fibroids may be recommended in the following circumstances:

(1) When the fibroids cause profuse and long-continuing menorrhagia.

(2) When the fibroid is septic and gangrenous.

(3) Impacted and irreducible fibroids causing pain and retention of urine.

(4) Fibroids which are growing rapidly and those which are degenerate and softened (cystic).

(5) Cervix fibroids too large to admit of removal by the vagina (p. 51).

(6) Fibroids complicating pregnancy, delivery and puerpery, in certain circumstances (p. 84).

Although these conditions indicate and justify the surgical treatment of uterine fibroids, there are certain points of difference among surgeons as to the best mode of carrying it out. It would have been interesting to have traced the evolution of the methods of performing hysterectomy, but I may state without any fear of contradiction that the present position of the operation is due to the introduction of the aseptic ligature and the intra-peritoneal method of treating the stump. A careful study of the subsequent course of the patients led observant operators to notice that in a given series

of cases those women did best in whom the cervix had been most freely removed, and this soon led some surgeons to adopt what is known now as total hysterectomy, or complete removal of the cervix, as well as the body of the uterus.

It is admitted by most writers that the ideal method of dealing with fibroids requiring removal by cœliotomy is to remove them either by ligature or by enucleation, and in certain circumstances by actually opening the uterine cavity, extracting the tumour, and then suturing the incision as after a Cæsarean section, an operation to which I applied the term *hysterotomy*. In actual practice this ideal operation of removing the tumours and leaving the uterus and ovaries intact can only be carried out in a small proportion of cases, probably in less than 10 per cent., and it is fair to state that enucleation and hysterotomy are often more troublesome and serious operations than hysterectomy, also the preservation of the uterus is not always an advantage to the patient (see p. 46).

When a woman is submitted to hysterectomy for fibroids we can assure her that the tumours will not recur, but after a myomectomy or enucleation in a woman in the reproductive period of life we cannot give her this assurance, for she may have in her uterus many "seedlings" or what I prefer to call "latent fibroids," and one or several of these may grow into formidable tumours.

My rule of practice in this matter may be summarised thus:

A young woman contemplating marriage, or a married woman anxious for offspring, may, if her tumour be single and admits of myomectomy or enucleation, have her uterus spared. Although I have carried out these measures on many occasions I only know of five patients who have subsequently borne children (see final essay).

It is, however, a matter of greater interest to me to

relate that in several instances of pregnancy complicated with tumours, and in which the signs were very urgent, that on performing cœliotomy I have succeeded in removing the fibroid without disturbing the pregnancy, and it has gone safely to term and the child has survived. Another legitimate class of case in which myomectomy is a very safe undertaking is in patients at, or after, the menopause, where a stalked fibroid gives trouble by twisting its pedicle, or by shrinking to such a size that it falls into the true pelvis and becomes impacted; or more rarely, the pedicle of such a tumour may entangle a loop of small intestine and obstruct it.

In regard to the removal of the uterus for fibroids I hold very definite opinions, preferring the method known as subtotal hysterectomy: it is a simpler operation than total hysterectomy, attended with less shock, and involves less risk to the ureters. In a carefully performed subtotal operation within a few weeks of the operation the cervical stump is movable, and the vaginal vault free and undamaged, and the condition of the parts is such that by digital examination or inspection it would be difficult to determine that the patient had lost her uterus.

The advocates of routine total hysterectomy admit that it is often a long operation, but state that the risk of danger to the ureters has been exaggerated, and urge that by leaving a cervical stump the patient runs a risk of acquiring malignant disease. It is impossible to ignore the fact that extirpation of the cervix, whether by the abdominal or the vaginal route, imperils the integrity of the ureters. Sampson states that in 156 hysterectomies for cancer of the cervix the ureter was injured in nineteen cases. The injuries were of various kinds, as "ligating, clamping, cauterising, cutting," etc. These operations were performed in the Johns Hopkins Hospital from August, 1899, to January 1st, 1904.

In all questions of this kind it may be taken for

granted that there is much to be said on both sides. There are cases where the simpler method is sufficient, safe, and satisfactory. Subtotal hysterectomy in a spinster, or a childless married woman with a large fibroid in a uterus with a long narrow neck and an undilated healthy cervical canal is as safe as any major operation in surgery, and if care is taken to bring the cervical flaps into strict contact they will unite by first intention, and the patient recover without a rise of temperature from the time of operation to complete recovery.

When hysterectomy is required in married women, and especially those who have had children, in whom the cervical canal is patulous, perhaps septic, and in many cases large and hard, or large and spongy, then it is to the patient's advantage to have the cervix completely removed, and especially if she be more than forty years of age.

I have performed total hysterectomy one hundred times in order that I could speak with confidence on its merits and demerits. There are conditions such as I have mentioned above in which it is judicious to remove the cervix with the uterus, and that surgeon acts best towards his patient who does not follow any routine method, but modifies the operation according to the necessity of the case.

The superiority and greater safety of total hysterectomy turns in the main upon some very important questions which have been raised in regard to the liability of the cervical stump to be attacked by cancer. A number of observations have been recorded in which, after removal of the body of the uterus, cancer or sarcoma has attacked the cervix. But a careful analysis of the reputed cases proves clearly that in some of the patients the cervix was already cancerous at the time of removal of the body of the uterus, and in some the reporters state the tumours suspected to be fibroids at the time of the primary operation were, in reality,

sarcomata. In a few instances cancer of the cervix appeared in the stump at such an interval after the hysterectomy as to entitle it to rank as a new invasion (p. 60).

The bearing of these things is significant, for it teaches us to carefully examine the cervix for evidence of early cancer in association with fibroids, and to remove it if the appearances are suspicious; it also behoves us to have soft fibroids carefully examined, for a tumour we unsuspectingly regard as a benign fibroid may be in reality a sarcoma. I am very sceptical of what is called the metamorphosis of a fibroid into a sarcoma. It is also good to remember that carcinoma is not a degeneration! Lastly, it is important when sufficient observations are forthcoming, to determine whether cancer of the cervix occurs more frequently in women who have undergone subtotal hysterectomy than in other circumstances.

The Treatment of the Ovaries in Hysterectomy for Fibroids.

In performing hysterectomy whether vaginal or abdominal for fibroids it is an important matter to decide how to deal with the ovaries. In a paper communicated to the Obstetrical Society, London, October, 1897, I stated that when operative interference was necessary in the treatment of fibroids during the menstrual period of life, I reversed the conditions of oöphorectomy, and instead of excising the ovaries and leaving the uterus, removed the uterus with its tumour, leaving one or both ovaries with the corresponding Fallopian tube. The immediate results of the innovation were admirable and spared the patient at least the inconvenience of an acute menopause. I fully recognised that it was a method well worth a wider experience than the fourteen examples referred to on that occasion. Three months later

Dr. Howard Kelly, of Baltimore, published a paper on the same subject in the 'British Medical Journal,' January 29th, 1898, advocating from his own experience the same conservative idea. Since that time experience has taught me that the expected benefits were over-estimated, but that the preservation of ovarian tissue is of marked service to the patient within certain limits. Towards the end of 1901 Dr. Crewdson Thomas, who was then Registrar to the Chelsea Hospital for Women, attempted to determine these limits. He conducted an inquiry into the after-history of one hundred consecutive cases of abdominal hysterectomy performed in that institution, and among the results of the analysis of his returns he came to the conclusion that subtotal hysterectomy does not interfere with the sexual passion, and that the retention of an ovary is of striking value "in warding off the severity of an artificial menopause"; this is more especially the case when the patient is below forty years: above that age the ovaries decrease in value every year ('Lancet,' 1902, vol. i, p. 294). As many of the patients who formed the subject of Crewdson Thomas's inquiries had been under my own care I not unnaturally took great interest in his work, and was so satisfied with the great care he expended on the investigation that his conclusions satisfied me. And since the publication of his excellent paper I have, as a working rule, usually removed both ovaries when performing hysterectomy for fibroids in patients aged forty years and upwards, and taken unusual pains to preserve at least one when healthy in women below that age.

Previous to Crewdson Thomas's inquiry my notes show that I left one or both ovaries in 50 per cent. of the cases in which hysterectomy was performed for fibroids; since 1901 the proportion has fallen below 20 per cent.

I have lost no opportunity of studying the fate of ovaries conserved in this way. On three occasions on which I have had an opportunity of studying the con-

dition of these glands two, three, and five years after removal of the uterus, they had shrunk to small nodules about the size of a cherry-stone. Thus the benefit which is derived from their retention appears to be temporary, and its chief value lies in the circumstance that these patients are spared the annoyance and inconvenience of an acute and stormy menopause. Since this address was delivered I have had another opportunity of studying the fate of a belated ovary. In April, 1899, I removed the uterus and left ovary from a single woman twenty-nine years of age on account of a growing fibroid. In February, 1905, she again came under my care, and was operated upon for appendicitis. The right ovary occupied its normal position at the brim of the pelvis and appeared normal and functional, for it contained a recent corpus luteum. Although I have left one or both ovaries in more than two hundred women in whom hysterectomy was performed for fibroids, in only one instance has it led to trouble. A lady aged fifty had a large cervical stump which suppurated after hysterectomy in March, 1898. This caused the right tube to become a pyosalpinx, and I removed it in November, 1900. At this date (1904) the patient is in admirable health.

There is another point in the age-value of the ovaries worth consideration. In a "discussion" at the meeting of the British Medical Association held at Portsmouth, 1899, I drew attention to the analogy in the pathological tendencies of the thyroid gland and the ovaries; and it interested me very greatly to read the following remarks of Sir Victor Horsley: "The thyroid gland, which is such an extremely important organ in early life for the growth and development of the body, becomes of less importance every year after the age of forty is passed, and most cases of carcinomata of the thyroid gland begin after the forty-fifth year." Certainly this is true of the ovaries.

ADENOMYOMA OF THE UTERUS (Adenomyoma uteri diffusum benignum).

The term "adenomyoma" is applied to a pathological formation in the uterus, the leading features of which are admirably summarised by Cullen in the following terms: "It is diffuse in character, situated in the middle layer of the uterine wall and is dependent on the uterine mucosa for its glandular elements." Although several observers, including Recklinghausen, have recorded isolated examples of this disease, Cullen seems to have been the first to draw attention to its clinical importance (1897).

In well-marked cases adenomyoma presents clinical features which cause it to resemble the common varieties of submucous fibroids. The ages of the patients vary from twenty to fifty years; the uterus is enlarged, there is profuse and in some instances uncontrollable menorrhagia and profound anæmia.

When the uterus is removed and divided longitudinally, the walls are seen to be greatly thickened, measuring in some specimens 5 cm. (2 inches) in thickness; this increase is due to the formation of new tissue between the outer wall of the uterus (the subserous stratum) and the superficial layer of the endometrium. There is no attempt at encapsulation, and the term "diffuse" is thoroughly justified. The new tissue consists mainly of bundles of plain muscle-fibre, which instead of being arranged in vortices, as is so common in the ordinary hard fibroid, are disposed in an irregular manner, and the spaces between the bundles are filled with the peculiar stroma of the uterine mucosa contain-

ing gland tubules lined with columnar epithelium of the same type as the normal tubular glands of the endometrium. The glandular elements appear to be uniformly distributed throughout the adventitious tissue, and can be detected up to the limits of the thin muscular stratum underlying the peritoneal coat of the uterus.

My experience of this disease is limited to four cases,

FIG. 1.—A uterus in sagittal section showing diffuse adenomyoma, from a spinster thirty-two years of age. The gland spaces were cystic and filled with gelatinous material.

and in each operative interference was undertaken for what may, without any exaggeration, be described as uncontrollable menorrhagia, and in each it was supposed to be due to a submucous fibroid.

In the first patient the enlargement of the uterus and profuse bleeding led me to believe that the patient had a degenerated submucous fibroid. I saw her originally in Brighton with Mr. George Morgan, December, 1902. She was forty-nine years of age, and the mother of

four children. For a long period she had suffered from menorrhagia, associated with a uterus which had a patulous os and a fundus which could be easily felt as a rounded body high in the hypogastrium. When I saw the patient she had been bleeding so profusely, and seemed so nearly dead, that any examination, however carefully conducted, would have been a very injudicious act.

With careful nursing the patient gradually recovered, and immediately before the advent of the succeeding menstrual period she was carefully conveyed to the Chelsea Hospital for Women, and I performed hysterectomy, still under the impression that we had to deal with a fibroid.

On bisecting the uterus the walls were found to be enormously thickened and a small submucous fibroid occupied the fundus. The specimen was investigated by Mr. F. E. Taylor and Dr. Cameron, who made it the basis of an excellent paper in the 'Obstetrical Journal of Great Britain,' March, 1904, p. 248. (See also Cameron and Leitch, 'Lancet,' 1904, vol. ii, p. 84.)

FIBROSIS OF THE UTERUS.

Under this term I described in 'The British Medical Journal,' 1899, vol. i, p. 839, a peculiar affection of the uterus of which the leading clinical feature is uncontrollable menorrhagia. The regular abundant loss of blood is not merely uncontrollable from the point of view of drugs and rest, but also is irresistible to curetting, and in some of the cases which have been under my care the uterus had been repeatedly curetted by competent men. The disease, which is chiefly met with in women between thirty-five and forty-five years of age, is associated with striking structural changes in the uterus. The organ is larger than usual and its walls thick and tough. On section the arteries stand out prominently, exposing their thickened walls. On microscopic examination the muscle tissue of the uterus is seen to be replaced by an abnormal growth of fibrous tissue. The walls of the uterine arteries are thick and the lumina of the vessels narrowed and occasionally obliterated. This change in the tissues of the uterus is, I believe, a remote result of septic endometritis. In unmarried women, and sometimes married (parous) women, the uncontrollable menorrhagia is sometimes simulated by diffuse adenomyoma of the uterus.

In cases of uncontrollable menorrhagia it is usual to perform bilateral oöphorectomy, but this is a mode of treatment which cannot be relied upon, because in so many cases it has little, and often no effect, upon the bleeding. This may be partly due to the difficulty of completely excising the ovaries. It is far safer to

remove the uterus and leave the ovaries, unless there be strong evidence of disease in these bodies.

In some patients I have carried out vaginal and in others abdominal hysterectomy. If the vagina is fairly capacious and the uterus but little enlarged, it is the

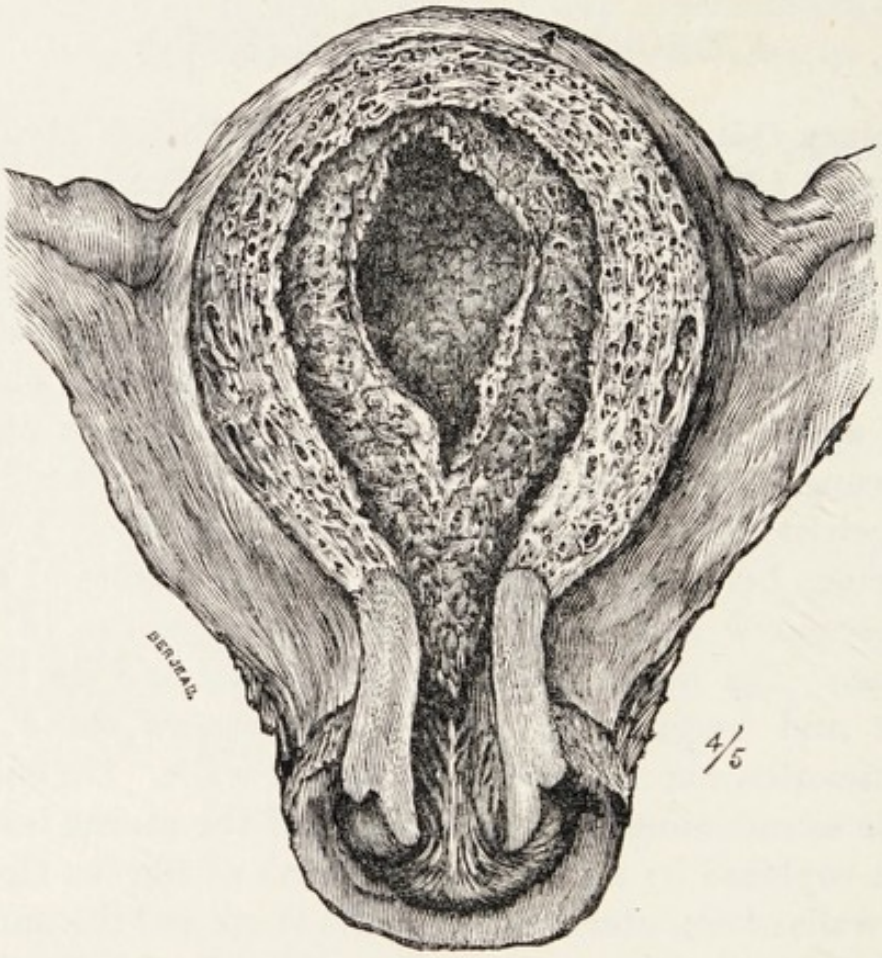

FIG. 2.—A uterus laid open along its anterior wall: it is lined with a thick decidua. From a case of tubal pregnancy. The drawing represents the "decidual" and the "menstrual area" of the uterus.

preferable route. The remote results of hysterectomy for severe bleeding due to uterine fibrosis are admirable.

In discussing the radical treatment of uncontrollable menorrhagia depending on fibrosis of the uterus, it is necessary to emphasise the importance of removing the whole of what may be termed the *menstrual area* of the uterus—by this I mean that portion of the endometrium which bleeds during menstruation. This area is the

same as that which is concerned in the formation of the decidua and is delimited in Fig. 2. The area corresponds to the endometrium of the fundus and body of the uterus, a very small surface of the cervical canal and that portion of the mucous surface which extends into the cornua of the uterus to receive the adit of each Fallopian tube. It is perhaps preferable, when practicable, to perform colpohysterectomy in this disease, in order to make ablation of the menstrual area as complete as possible. In a case of this kind under the care of a colleague, who removed the body of the uterus by the abdominal route, menorrhagia returned, and was so severe that he had subsequently to resect the cervical stump. It appeared that a small portion of the corporeal endometrium had escaped removal in the primary operation.

Since the publication of the original notice of this affection of the uterus I have performed hysterectomy for its relief on more than twenty occasions; in each instance the operation was successful, and the remote results to the patient have been as remarkable as anything I have witnessed after the removal of any other abdominal viscus. The subsequent condition can only be described as admirable.

Soon after the publication of my observation on uterine fibrosis, Dr. Purslow (Birmingham) recorded two cases of the same disease, 'British Medical Journal,' 1899, vol. i, p. 1394.

EXTIRPATION OF THE SEPTIC UTERUS.

The consideration of uterine fibrosis, which, in my view of its pathology, is the remote sequel of a septic endometritis, leads us to the consideration of the treatment of the septic uterus in the acute stage.

Acute septic infection (puerperal) of the uterus, which is, alas! too frequent even in this antiseptic epoch, is a condition which scarcely lends itself to surgery. Attempts have been made to remove the uterus even in this desperate condition, but with no encouraging measure of success. Michels recently published an account of a bold piece of surgery wherein he followed Trendelenberg's example and excised the thrombosed ovarian veins and saved the life of his patient ('Lancet,' 1903, vol. i, 1025). Reflection on these facts leads me to strongly urge upon those who have the opportunity to investigate bacteriologically the clot in the ovarian veins in these conditions, for we need to know the nature of the micro-organism which establishes the clotting, as it may serve to throw light on those tragic cases in which, after abdominal operations, the patient appears to be convalescing smoothly, dies suddenly and without the slightest warning. I am strongly of opinion that sepsis is at the bottom of these surgical tragedies.

Acute gonorrhœal endometritis.—The desirability or otherwise of removing the uterus in this condition is sometimes forced upon the surgeon when he is called upon to remove the Fallopian tubes and ovaries in acute or sub-acute salpingitis. Those who have had much experience of operating in this disease must have occasion-

ally felt perplexed in regard to the best way of treating the septic stumps of the tubes; and as both tubes and ovaries are removed it appears not unreasonable to regard the uterus as a useless organ, and one that is not infrequently a source of troublesome bleeding due to its septic endometrium. Several surgeons, myself among the number, have under these conditions removed the uterus. It is, however, a proceeding which I cannot recommend, save in very exceptional circumstances, as some of the patients had a long and tedious convalescence. The subject has been carefully considered by Hartmann and others in France and Germany.

My present practice in these cases of septic uterus is to allow the infection to subside and a long interval to follow the bilateral oöphorectomy; in many no very inconvenient consequences arise, but if the patient is much disturbed by the metrorrhagia and her health and industry are seriously affected, then vaginal or abdominal hysterectomy may be recommended, and in these circumstances it is a straightforward and comparatively safe proceeding.

Septic fibroids.—It is fortunate that in a large proportion of cases the uterus endeavours to extrude a septic fibroid, and it is equally true that a submucous fibroid becomes septic in consequence of being extruded by the uterus, but it is distressing to be asked to deal with a case in which a fibroid perhaps no larger than a Tangerine orange is hanging loosely from the uterus and the patient is in the last stages of septicæmia, yet this tumour could have been removed by a nurse. The uterus in such cases is infiltrated with pyogenic organisms, and the septic material creeps along the Fallopian tubes and infects the pelvic peritoneum. Septic endometritis established by a septic fibroid is a very dangerous condition for hysterectomy, but if the uterus can be removed by the vaginal route it is often followed by

good consequences, but nearly always entails a long convalescence. If the fibroid is so large as to need abdominal hysterectomy, then the risks of the operation and the length of convalescence are greatly increased.

HYSTERECTOMY IN CASES OF ECTOPIC PREGNANCY.

It is occasionally necessary in three of the great subdivisions of abnormal pregnancy embraced under this heading, namely, tubal, interstitial and cornual pregnancy, to remove the uterus in order to efficiently control the bleeding or for other reasons. In tubal pregnancy such a necessity rarely arises, but cases have been observed and recorded in which the hæmorrhage has torn up the tissues of the mesometrium, so that an experienced and conservative surgeon like Doran has found this step imperative, and I have had a similar experience.

In cases of interstitial or tubo-uterine pregnancy in which gestation has gone beyond the second month, the uterine tissues are so intimately incorporated with the gestation sac that the operator who is called upon to deal with hæmorrhage due to rupture of the sac will find it the only expedient open to him in the majority of cases.

In the condition known as "pregnancy in the rudimentary horn of a so-called unicorn uterus," or better "cornual pregnancy," the removal of the uterus may be regarded as the routine method of treatment, not only in those cases where operation is urgently indicated on the score of bleeding in cases where the fœtus is "quick," but also in the other variety in which the fœtus is dead and sequestrated, and in the rare instances in which the fœtus has undergone maceration, and only its skeleton remained (Remfrey). There is a condition

of cornual pregnancy in which the fully-developed cornu may be spared, namely, that in which the rudimentary but gravid cornu is connected with it by a distinct and usually solid "pedicle." Many such have been observed and very carefully described.

Hæmatometra.—The great difficulty of maintaining the patency of the opening made for the evacuation of the retained blood in this condition had induced several operators, myself among the number, to remove the uterus and distended tubes by cœliotomy. The results, immediate and remote, are excellent, and there is little doubt that hysterectomy will become the recognised means of dealing with this condition.

The Ethics of Hysterectomy.

In a discussion concerned with the removal of the uterus, it is impossible to blink what may be called the ethical, or better the sentimental side, of the question. So much mystery is shrouded in the phrase "reproduction of the species," and as much superstition and erroneous opinion clings about the uterus as poets have succeeded in securing for the heart: indeed a professional wag in discussing the uterus from the sentimental side describes the womb as a second heart. It is indeed somewhat curious to find those who do not for one moment hesitate to amputate a damaged leg, a crushed arm, enucleate an eyeball, or excise a larynx, express very conservative notions when it is proposed to remove the uterus for a disease which gravely imperils life.

Let us for a few moments serious consider the nature of the uterus. This musculo-glandular organ strictly should be classed like the ovaries among the temporary glands. Its normal period of activity is coincident with menstrual life, which in Great Britain lasts thirty years (15–45), and after the occurrence of the menopause a healthy uterus, like the ovaries, shrinks and usually

becomes an atrophic and insignificant organ. This change accomplished, a woman usually enjoys a healthy vigorous existence and retains to the full her mental powers. This is sufficient proof that whatever uses the ovaries and the glandular elements of the uterus fulfil in relation to the sexual functions from the point of view of internal secretion, their arrest is in no way detrimental to the well-being of the individual.

It is established as a result of thousands of hysterectomies performed throughout the civilised world, that except amenorrhœa and sterility when the operation is performed during the sexual period of life, the removal of the uterus is followed less frequently by unpleasant sequelæ than any other major operation in surgery.

HYSTERECTOMY.

HYSTERECTOMY is the name applied to the surgical operation for the removal of the uterus, and it can be effected by two methods. In one access is obtained to the uterus through an incision in the lower part of the belly wall—this is known as *abdominal* hysterectomy; in the other the uterus is extirpated through the vagina, and is on this account termed *vaginal* or *colpohysterectomy*.

It is somewhat remarkable that although the object of both operations is the same, namely removal of the uterus, in the abdominal method the surgeon takes every care to thoroughly close the peritoneum over the stump of the cervix, or the vaginal opening as the case may be, but in vaginal hysterectomy the edges of the gap in the peritoneum left by the removal of the uterus are as a rule allowed merely to fall into apposition.

It is also necessary to point out that the two methods differ in an important particular. The vaginal route allows the surgeon to deal thoroughly with diseased tissues in the immediate vicinity of the cervix, whereas the abdominal operation gives free access to, and affords the greatest scope for dealing with complications associated with the Fallopian tubes, ovaries, and the mesometria.

The results of both methods in the hands of surgeons accustomed to this class of work are among the most remarkable in surgery; to ensure success it is necessary to obtain a *rigid asepsis and perfect hæmostasis*, and any trespass in either is sure to be visited with penalties. Some surgeons believe that the peritoneum is capable

of dealing successfully with a fair dose of pyogenic material as compared with connective tissue, and seek to explain in this way some of the extraordinary successes recorded in recent years. This is unfortunate, and may help to explain in part the high mortality of abdominal hysterectomy in the general hospitals of London. It is essential to be extremely careful in the preparation of the patient for operation, as well as the materials and instruments used during the operation, and more especially of the surgeon's hands, for these are a notorious source of danger. My working rule is this :

Nothing should be allowed inside a patient's abdomen that has not been boiled specially for the operation, and as the surgeon's hands cannot be sterilized by heat he should wear rubber gloves which have been boiled.

As the patient cannot be treated in this way her preparation is a matter of some importance.

Preliminaries.—It is essential to have the assistance of two nurses specially trained in abdominal work; they understand the methods of douching the vagina and preparing the parts, are apt at passing the catheter, and carry out these details without fuss. It is a good plan to have a nurse in attendance forty-eight hours before operation so she may shave the hair from the pubes and labia, and after thoroughly washing the operation area with soap and warm water make the skin thoroughly clean with such antiseptic solutions as the surgeon is accustomed to use. A solution of perchloride of mercury (1 in 5000) is a very efficient antiseptic agent for this purpose. The abdomen is swathed in compresses wrung out of this solution for twelve hours preceding the operation. The bowels should be thoroughly emptied by enemata, and the patient abstains from food or drink at least six hours preceding operation. The bladder is emptied by a glass catheter immediately before the administration of the anæsthetic.

All instruments should be of metal throughout to permit them to be boiled for fifteen minutes. The ligature material should be silk of different thicknesses: silk wound on a reel can be boiled for one hour without impairing its strength.

Fishing or silk-worm gut is useful for suturing the middle layer of the abdominal wound; it should be boiled for one hour. Catgut is a very dangerous material; it cannot be boiled and should be discarded. For dabs, Gamgee tissue cut in squares varying in size and carefully hemmed is excellent. The material is cheap, capable of easy and efficient sterilisation by dry heat or boiling for an hour in water immediately before use, and should be burnt after each operation.

It is unnecessary to give minutely every detail in the preparation and sterilisation of instruments and material, for it may be assumed that no one would undertake such a serious operation as the removal of a uterus without some previous experience in operative surgery; most surgeons have had opportunities of witnessing the operation, or, what is infinitely better, assisting a skilful surgeon in the performance of hysterectomy.

In abdominal operations, such as oöphorectomy, ovariotomy and hysterectomy, it is the rule not to operate during menstruation; but experience has taught me that operations performed during this period are not followed by evil or untoward consequences, and for many years I have disregarded it.

Abdominal Hysterectomy.

For the satisfactory performance of this operation the Trendelenberg position is indispensable: when the patient is in this position the arms should lie parallel with the trunk. This avoids pressure palsy of the arms and prevents the fingers being nipped when the table is restored to the horizontal position.

Instruments: Scalpel; twelve hæmostatic forceps; dissecting forceps; scissors; needles, curved and straight; silk of various thicknesses; a volsella; a pair of long forceps with fenestrated blades; silk-worm gut. The instruments should be immersed in warm sterilised water, and six dabs of various sizes; these should be washed in water (at 100° Fahr.) during the operation.

The anæsthetic depends on choice. I select experienced anæsthetists and leave the matter to their discretion.

Steps of the operation.—The operation area is isolated with sterilised towels, and the pelvis well tilted and so arranged as to face a good light; the wall of the abdomen is freely incised in the middle line between the navel and the pubes. (This is conveniently referred to as the median subumbilical incision.) The actual length of the incision varies with the size of the uterus and the thickness of the abdominal wall. Its extent is of small moment and has no influence on the result of the operation. A free incision greatly facilitates manipulation, and in the case of very large tumours it may be necessary to carry it several inches above the navel.

The uterus is then exposed and, if possible, drawn out of the abdomen, and the intestines with the omentum carefully isolated with dabs. In a simple case the mesometria are seized with hæmostatic forceps and divided up to the uterus. If it is intended to preserve the ovaries the forceps are applied between the ovaries and the uterus, but if it be the intention to remove them then the forceps are applied to the mesometria near the brim of the pelvis beyond the outer pole of the ovary. At this stage also it is convenient and an advantage to divide the round ligament of the uterus after securing it with forceps. It is well to do this, not merely to secure its artery, but also to prevent it unduly retracting the peritoneum. When the meso-

metria are freely divided the uterine artery, with its companion veins, are seen at the sides of the uterus, and is, as a rule, easily secured with forceps. The surgeon then cuts a peritoneal flap from the anterior wall of the uterus and turns it downward, taking care not to injure the bladder. Then he fashions a similar flap from the posterior wall of the uterus. His subsequent proceedings will then depend on the manner in which he intends to treat the cervix.

If it be a simple case and is suitable for *subtotal hysterectomy*, he will then detach the uterus at a point corresponding to the internal os. Should he wish to remove the cervix, it will be necessary to open into the posterior cul-de-sac of the vagina, seize the tip of the cervix with a volsella, and then detach it from the vaginal wall by means of a scalpel (total hysterectomy). Suppose in the first place the surgeon thinks it will only be necessary to remove the body of the uterus, and after he has detached it finds that the cervix needs removal also, this can easily be enucleated with the assistance of a volsella.

Whichever method the surgeon adopts in dealing with the stump there will be a certain number of bleeding points. These are most numerous when the cervix is enucleated because the territory of the vaginal arteries is invaded. When the vessels are carefully occluded with silk and the ovarian pedicles securely transfixed and ligatured, taking care not to forget the artery in each round ligament, the anterior and posterior flaps are brought into apposition by one or two mattress sutures. (In the case of total hysterectomy the opening in the vagina may with advantage be reduced by a suture at each lateral angle, but it is not wise to completely close it.) The peritoneal margins are then carefully united with a continuous suture of fine silk, beginning at the left ovarian pedicle and terminating at the right one, taking care not to prick the bladder. In a skilful

and straightforward operation the floor of the pelvis should only show a narrow ridge in the line of suture.

The pelvis is cleared of blood and dabs; the intestines fall in their places and the omentum is spread over them. The dabs and forceps are counted to ensure that none is left in the belly. The incision is then sutured in layers; the peritoneal edges are joined with a continuous layer of very fine silk: the muscles and fascia with interrupted sutures of silk-worm gut, and the skin with a continuous suture of fine silk. The chief advantage among many of this method of suturing the incision is, that it has almost abolished the occurrence of post-operative hernia and the routine use of an abdominal belt.

The patient is restored to the horizontal position; any blood and clot that may have escaped into the vagina is carefully removed with gauze dabs; the bladder is emptied by means of a glass catheter.

The wound is dressed with a piece of moist cyanide gauze, covered with sterilised Gamgee tissue retained by a many-tailed flannel bandage.

The details of the operation set forth in this account refer to a simple or uncomplicated hysterectomy, and under these conditions it cannot be described as a difficult operation to any surgeon accustomed to dealing surgically with the abdomen, but the complications not infrequently met with in connection with uterine fibroids are occasionally very formidable and tax the skill and resource of the boldest, *e. g.*:

Large incarcerated cervix fibroids complicated with a big fibroid in the fundus.

Fibroids with extensive adhesions to rectum, colon, or small intestine.

Large fibroids of the cervix displacing the bladder.

Fibroids associated with suppurating ovarian dermoids, or pyosalpinx.

Perhaps the most dangerous condition is the co-ex-

istence of unsuspected cancer of the upper part of the cervical canal complicating a large fibroid of the body of the uterus and perhaps implicating it.

It is impossible to decide rules of operating under these difficult conditions; here skill and experience are required, and when successfully overcome mark the man.

COLPOHYSTERECTOMY (VAGINAL HYSTERECTOMY).

The preparation of the patient has been already described in connection with abdominal hysterectomy.

Instruments.—A crutch; a duck-bill speculum (Sims); a sound; two volsellæ; scalpel; six hæmostatic forceps; dissecting forceps; three or four long-handled forceps with fenestrated blades; silk of various thicknesses; six stout curved needles; six dabs or a roll of gauze; and a glass catheter.

Steps of the operation.—The patient is anæsthetised, secured in the lithotomy position by means of crutch (care being taken that the straps do not press unduly on the popliteal artery and cause gangrene of the foot, or on the musculo-cutaneous nerve and paralyse the peroneal muscles; both accidents have been observed) and so arranged that the perinæum faces a good light. The vagina is then exposed by means of a duck-bill speculum, and its cavity thoroughly irrigated with a solution of perchloride of mercury (1 in 2000), or something equally efficacious.

The surgeon, seated at a convenient level, passes the beak of the speculum into the vagina and seizes the cervix with a volsella. If there be much sprouting growth it is sometimes useful to scrape it away with the handle of the knife and then irrigate the parts. The assistant empties the bladder with a glass catheter, introduces a sound, and keeps the operator well informed of the relation of the bladder to the cervix throughout the first stage of the operation.

Stage 1.—This consists in seizing the cervix with a stout volsella, and then by means of a scalpel the mucous membrane on its anterior aspect is transversely divided at a point sufficiently low to avoid injury to the bladder. The bladder is then cautiously separated from the cervix with the forefinger, assisted, if necessary, with the handle of the scalpel; it is an advantage to divide the peritoneum forming the lower limit of the utero-vesical pouch, and gain access to the peritoneal cavity. Throughout this stage the operator constantly informs himself of the exact position of the bladder by manipulating the sound.

Stage 2.—The incision in the mucous membrane is now carried round each side of the uterus, and by means of scissors the recto-vaginal pouch is opened.

Stage 3.—The broad ligaments are dealt with in the following manner: A curved needle in forceps armed with strong silk is made to transfix the connective-tissue tract close by the side of the cervix in order to avoid the ureter. The object of this ligature is to secure the uterine artery near the spot where it turns on to the side of the uterus. The ligature is firmly knotted. Very often the artery may be seen. It is then picked up with forceps and deliberately tied. When the artery has been secured on each side, and the tissue between the ligature and the uterus divided with scissors, the organ can now, as a rule, be drawn low down into the vagina, and the upper segments of the broad ligament transfixed with double silk ligatures. These embrace the Fallopian tubes with the ligament of the ovary, the ovarian artery and veins, and the round ligament of the uterus; the tissues between the uterus and the ligatures are divided, and the uterus is removed. Should an ovary or a Fallopian tube be found diseased, then they should be removed by transfixing the pedicle with silk.

If all the lateral ligatures have been securely applied, and hold, there should be no bleeding from the sides,

but there is usually some oozing from the anterior and posterior folds. Any vessels which are freely bleeding should be seized with forceps and ligatured with fine silk. In regard to the posterior flap it is an advantage to compress its edges between the blades of fenestrated forceps and leave them in position for a few hours (twelve to twenty-four). The same manœuvre may be adopted with oozing from the lateral cut surfaces, but these should not be clamped too deeply for fear of compressing a ureter.

The parts are then gently irrigated with sterilised water, carefully dried with mops of gauze, and a thin gauze drain inserted to allow blood and serum to easily escape. The bladder should be tested with a sound, the crutch removed, and the patient returned to bed.

The method described above is that exclusively employed by me. I have given other methods which have been advocated a fair trial, and have decided after many modifications to cast them aside for this one.

THE PERILS AND COMPLICATIONS OF FIBROIDS AFTER THE MENOPAUSE.*

It was formerly taught and believed, even by thoughtful men, that uterine fibroids ceased to be troublesome with the cessation of menstruation. It is quite certain that a new chapter in their natural history requires to be written.

Uterine fibroids stand almost alone among tumours in the peculiarity of their age distribution, for they only arise during the menstrual period of life (from 15 to 45 years of age), but they stand absolutely alone among tumours in possessing another remarkable character. As a rule they cease to grow after the menopause, and in some instances they undergo a marked diminution in size. Many writers are of opinion that they may even disappear. This must be a very exceptional phenomenon and hard to prove satisfactorily, and upon which I have always entertained the gravest doubts.

The object of this communication is to discuss the complications of uterine fibroids after the menopause, for though as a rule they cease to grow after this event, they are frequently sources of great peril to life, not only in co-existing with other serious diseases of the uterus and ovaries, but the very fact that they are apt to diminish in size is in itself an occasional element of danger. Apart, however, from these conditions, the fibroids themselves are mainly sources of trouble on account of the degenerate and septic changes to which they are liable.

* 'Lancet,' June 6th, 1903.

At the outset of this essay it is essential to bear in mind that the presence of a fibroid in the uterus in a very large proportion of women has a very malicious influence in delaying the menopause. Many times I have removed fibroids from the uterus in patients between the fiftieth and sixtieth years of life in whom the monthly losses of blood were more profuse than at the age of 25 years. It is an important question whether the irregular and long maintained vaginal fluxes of blood in women with uterine fibroids after the fiftieth year of age should be regarded as menstruation in the proper acceptation of the term. On the other hand, a woman may enter on a menopause at 42 or 45 years of age though a large fibroid may occupy the cavity of the uterus. In October, 1896, I removed from a woman, aged 45 years, a fibroid weighing 10 pounds sessile on the fundus of the uterus. She ceased to menstruate at the age of 42 years.* An early menopause under these conditions is about as rare as is a fibroid taking on rapid growth after the menopause. My earliest experience of this is very vivid to my mind, because it happened in the first woman on whom I performed subtotal hysterectomy. The patient was a childless married woman, 48 years of age, who was known to have had a fibroid for nine years, associated with metrorrhagia; in October, 1889, the catamenia ceased. Subsequently the tumour increased in size and became impacted in the pelvis and interfered with the rectum, and I operated on March 12th, 1890, after a consultation with my colleagues.†

The fact that a fibroid may shrink after the menopause is in itself occasionally a source of danger, especially when pedunculated, for the tumour may be so big that its size prevents it from tumbling into the pelvis, but after the shrinking consequent on the menopause, such a fibroid may fall into the true pelvis and become

* 'Obstet. Soc. Trans.,' 1897.
† 'Middlesex Hospital Reports,' 1890.

impacted. This, I admit, is a very rare complication, but it happens. In 1902 a patient, 55 years of age, who had her menopause at her forty-seventh year, was placed under my care in the Chelsea Hospital for Women for recurrent attacks of retention of urine due to a tumour of this kind. So long as the patient remained quiet she had no trouble, but a long walk, jolting in an omnibus, or running downstairs, caused the tumour to fall into the true pelvis and to obstruct the urethra; the patient would send for her medical attendant to push the tumour out of the pelvis and relieve the retention. At last the obstruction occurred so frequently that I was asked to remove the tumour; it was pedunculated, grew from the fundus of the uterus, and was equal in size to a turkey's egg, and very hard. Since the operation she had remained free from retention of urine. Rare as complications of this kind undoubtedly are, they are outdone on the score of rarity by the remarkable case recorded by Arnott. A maiden lady, aged 72 years, was knocked down by a large dog and fell forwards on the pavement; she died in thirty-four hours. At the necropsy a circular hole was found in a coil of ileum which lay between the anterior abdominal wall and a large calcified fibroid of the uterus.

Let us now deal with what I regard as the most frequent and the greatest danger connected with uterine fibroids after the menopause, viz. necrotic and septic changes. During the menstrual period of life fibroids generally possess an abundant supply of blood. In some instances they are so vascular that they are like huge cavernous angeiomata, as those who have occasion to deal with them surgically know full well. In patients who retain their tumours till the menopause (and they are numerous) the cessation of menstruation is accompanied by a remarkable abatement in the blood-supply, and the tumour ceases in many instances to grow; but the very fact that the nutritive irrigation, so to speak, of the

tumour is arrested leads to degenerative changes, and the fibroid becomes in many instances a dead sequestered body, and so long as septic organisms are denied access it will remain inert; when from various causes putrefactive organisms gain access to these essentially dead tumours the results are often dire in the extreme.

It is far easier to prove that putrefactive organisms do obtain access to these dying or dead fibroids than to tell how they get to them. There is, however, one mode of access which to my mind is undeniable. The fibroids which give rise to most trouble after the menopause are the submucous variety, and there seems a strong tendency when the uterus passes into its resting stage, and the fibroid is shrinking and dying, for the organ to attempt the extrusion of the tumour. A careful study of the cases which have come under my observation shows that in the majority of troublesome post-menopause fibroids a large proportion of them have undergone partial extrusion, or the mouth of the uterus is widely dilated and renders the ingress of germs an easy matter. It is, of course, desirable to furnish some facts as to the relative frequency with which fibroids become necrotic and septic after the menopause. For this purpose there are some records available of an extremely valuable kind.

Recently Dr. C. J. Cullingworth has published a useful paper on the surgical treatment of uterine fibroids, in which he has particularly analysed the conditions which rendered operative interference necessary, and in some imperative. Among 100 consecutive cases of this kind distributed between the twenty-third and sixty-first years of life ten of the patients had attained the fiftieth year and onwards. The changes in the fibroids in these elderly women were in all instances necrotic or septic in character. Subsequently Mrs. Scharlieb reported an analysis of 100 consecutive cases, the ages ranging from 18 to 68 years, carried out on Dr. Cullingworth's lines. Seven of the patients were over 50 years old. Mr. C.

J. Bond, of Leicester, published a consecutive series of fifty cases in which hysterectomy was performed for fibroids. Four of his patients were 50 years old and upwards. The oldest patient on the list is noteworthy. She was operated upon for a fibroid in her fifty-sixth year, but she had her menopause at 40 years.* Dr. Lionel Provis, registrar to the Chelsea Hospital for Women, at my suggestion, made a list of 100 consecutive cases of operation for fibroids treated in this institution by the staff generally. The results are instructive. The youngest patient was 25 years of age and the oldest was 66 years of age, and of this number eleven of the patients were aged 50 years and upwards. The distribution is as follows: From 25 to 29 years, five operations; from 30 to 39 years, thirty-seven operations; from 40 to 49 years, forty-seven operations; and from 50 to 56 years, eleven operations. The oldest patient in this particular series was aged 66 years, and she had a very large septic submucous fibroid which had to be removed piecemeal. In 1902 I performed hysterectomy on a woman 69 years of age, for a very large septic fibroid and an incarcerated ovarian cyst. The peritoneum had been infected through the left Fallopian tube before the operation, and the patient died.† My oldest patient was 73 years of age, and I removed a mass of fibroid weighing 28 pounds with success. The operation, which took place at the Middlesex Hospital, was a necessity because the tumour had become so cumbersome that she could not rest in bed.‡

It will be clear to an impartial observer that even by fixing the menopause at the late age of 50 years, uterine fibroids are very often sources of trouble, ill-health, and great peril to those who unfortunately possess them. One of the greatest perils which can happen to a woman with a fibroid in her uterus is to become

* 'Lancet,' January 17th, 1903, p. 162.
† 'Obstet. Soc. Trans.,' 1903.
‡ Ibid., vol. xli.

pregnant, but after the forty-fifth year she is beset with a danger of quite another kind—namely, cancer of the endometrium. I have dealt with this serious subject so recently* that here I need only express it in the form of an aphorism. *When a woman with uterine fibroids has passed the menopause and begins to have irregular*

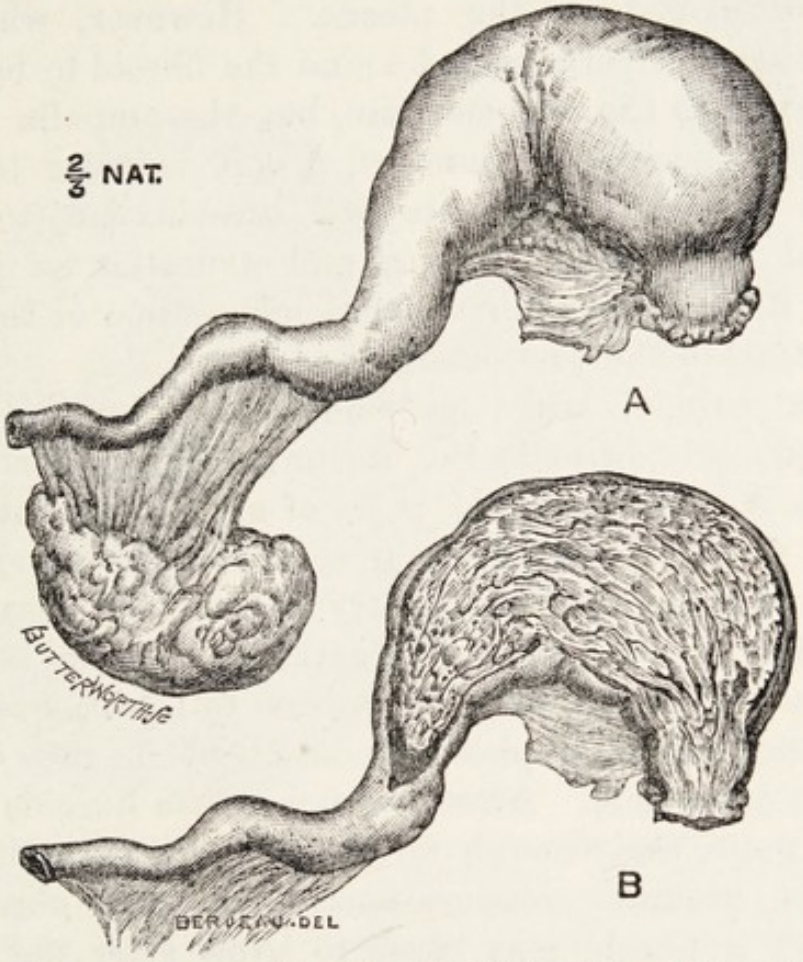

FIG. 3.—A. The ampulla of a Fallopian tube with cancer. B. ⅔ The tube in section showing a portion of the cancer making its way through the cœlomic ostium.

profuse uterine hæmorrhages it is extremely probable that she has cancer of the body of the uterus. In a remarkable case of this kind under my care the patient had primary cancer of the Fallopian tube. Her case is fully recorded in the 'Transactions of the Obstetrical Society' for 1902. She was a childless married woman, aged 57 years, and had had her menopause at the age

* 'Clinical Journal,' October 23rd, 1901.

of 49 years. For many years she had suffered from what was regarded as a large fibroid tumour. Some months before coming under observation the patient complained of irregular, frequent, and rather abundant fluxes of blood from the vagina, and this led me to suspect that the fibroid had become septic or that cancer had developed in the uterus. However, when an operation was performed I found the fibroid to be quite healthy, also the endometrium, but the ampulla of the left Fallopian tube contained a soft vascular tumour, which proved, on microscopical examination, to be a typical example of cancer, and a portion of it had made its way through the cœlomic ostium of the tube and infected the peritoneum (Fig. 3).

The subject may be summarised in this way. Fibroids only arise in the uterus during menstrual life —that is, from 15 to 45 years of age. As a rule they cease to grow and even shrink after the menopause. Some writers believe that they occasionally disappear, but this is very hard to prove, and harder still to believe; therefore, as a concession to tradition, it may be described as a phenomenon about as rare as the advent of a comet. After the menopause fibroids sometimes grow, and though an unusual condition, it rests on the accurate observations of trained observers. Though a fibroid may cease to grow after the menopause it is still liable to extrusion from the uterus and gangrene, with all its dangers and enmity to life.

Surely there is nothing in the whole range of surgery more ironical than a woman spending twenty, or even thirty years of her life as a chronic invalid on account of a uterine fibroid in the expectation that at the menopause she will be restored to health and begin a new life, and then to realise that, far from this dream being fulfilled, the fibroid becomes necrotic, extruded, or septic, and places her life in the gravest peril, and that she may die in spite of surgical intervention.

Note.—The subsequent history of the patient with primary cancer of the Fallopian tube may now be given. After the operation she enjoyed excellent health for eleven months, then signs of recrudescence appeared in the pelvis, and she succumbed a few weeks later.

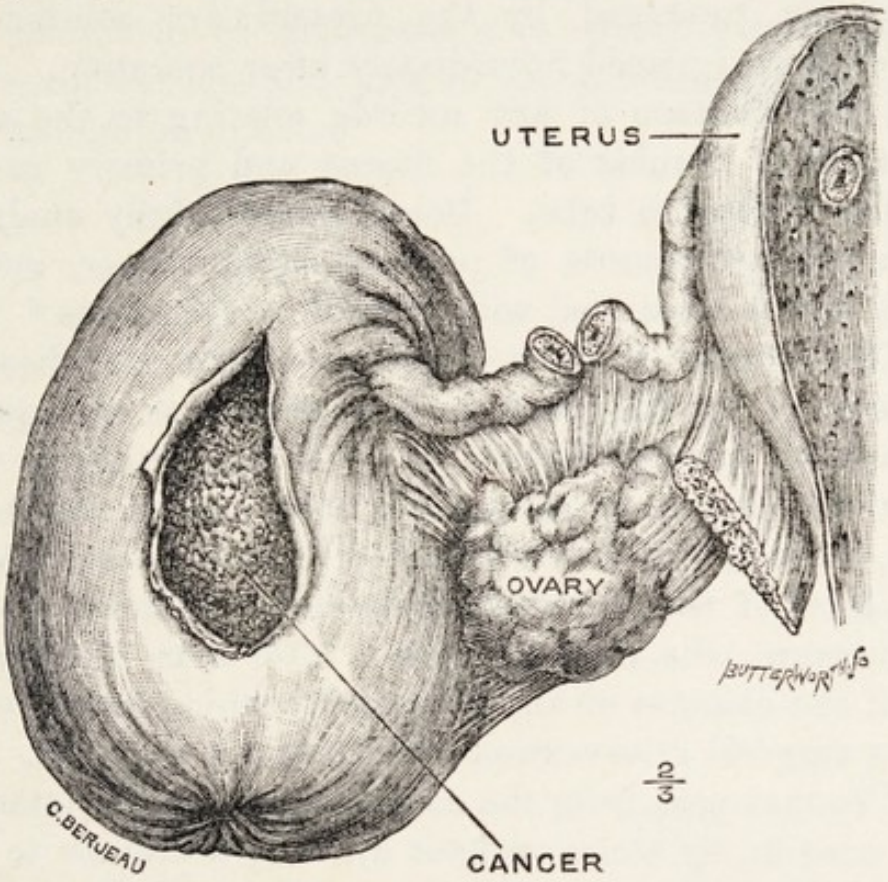

FIG. 4.—A Fallopian tube with the ovary, mesosalpinx, and adjacent portion of the wall of the uterus. The ostium of the tube is closed and the ampulla distended with a soft cancerous mass, which has extended along the lumen of the tube and can be traced in the tubal tissues in its course through the uterine wall. The endometrium was not implicated. The uterus contained several large fibroids. The chief symptom was profuse bleeding, which led the patient to submit to operation.

A second case of primary cancer of the tube complicating uterine fibroids has come under my notice. The disease arose in the ampulla of the tube, sealed the ostium, and crept along the tubal lumen towards the uterus (Fig. 4). The growth could be traced through the uterus, but confined to the tubal tissues, and we were able to satisfy ourselves by a careful micro-

scopical examination that it had not infected the uterine tissues.

The appearance of the tube when extracted from the pelvis was like that of a parsnip with a long thin root; its crimped appearance in the drawing is due to the distortion produced by the preservative solution in which it was placed immediately after operation.

I am unaware of any records relating to the combination of fibroids of the uterus and primary cancer of the Fallopian tube. Doran has carefully analysed twenty-three records of primary tubal cancer, but in none was it associated with fibroids of the uterus.*

The interest of the co-existence of the two diseases centres in the fact that as hæmorrhage is an equally significant clinical feature of both, the presence of a fibroid is easier of recognition than a cancerous tube, and, as it is the rule with many practitioners to allay the fears of the patient by false hopes of relief at the menopause, she is lulled into a false sense of security until the chances of anything approaching good result from surgical intervention are out of the question.

I cannot pass from the consideration of this interesting case in my series without drawing attention to the important feature connected with the occlusion of the cœlomic ostium. It is needless for me to refer to the value of this event in septic infection of the tube, gonorrhœal or puerperal, or to its far-reaching effect in connection with tuberculous salpingitis. Judging from the study of the two examples which have been referred to in this communication, it seems not at all unlikely that the occlusion or patency of the cœlomic ostium, when the tubal ampulla is the seat of primary carcinoma, may not only exercise great influence in determining whether the course of the disease shall be towards the peritoneal cavity, and therefore of necessity rapidly fatal, or shall tend to traverse the narrow course of the

* 'Obstet. Soc. Trans.,' vol. xl, p. 197, 1899.

tube and expend its violence on the uterus. In this direction it may be assumed that its clinical course will run less violently, though its final effect can in no sense be mitigated.

There are at present no facts available to enable an opinion to be expressed with anything approaching reliance, but it is a matter to which attention may with advantage be directed.

ON LATENT FIBROIDS.

Botanists apply the adjective "latent" to buds which remain undeveloped or dormant for a long time, but may at length grow. It is precisely in this sense that the word "latent" will be used in relation to fibroids of the uterus in this article, the object of which is to point out the significance of latent fibroids in regard to the operative treatment of such tumours; it will, however, be useful at the outset to justify the title.

Let anyone take the trouble to examine a number of uteri obtained from individuals between the twenty-fifth and the fiftieth years of life, by the simple means of sectioning them with a knife, and he will, in a very large proportion of the specimens, find small rounded bodies resembling knots in wood more than anything else, their whiteness being in strong contrast to the redness of the muscle tissue in which they are embedded. These discrete bodies, in many instances no larger than mustard seeds, are embryonic fibroids, and in their histologic structure are identical with the fully grown tumour. An investigation of this kind is very useful, for the observer quickly realises that a uterus may contain many of these small bodies (ten or more) without the least distortion of contour or alteration in its size,—indeed, nothing to indicate to sight or touch that the organ contained anything abnormal. These small fibroids may never cause trouble, may never pass beyond this stage, and in women who have attained the ages of seventy and even eighty years such minute fibroids may be detected, though in many instances they have undergone

calcification. When a uterus contains many fibroids they are seen of all sizes; one or two may weigh several pounds, others a few ounces, but a careful examination will invariably reveal some no bigger than mustard seed. A careful consideration of the great frequency of seedling fibroids, and their multiplicity when compared with the number of fibroids which attain proportions sufficient to render them clinically appreciable, makes it undeniable that an enormous proportion of them remain latent. That they may appropriately be compared to latent buds is shown by the fact that they may remain dormant through a long life, or assume active growth and become formidable tumours.

It is not an uncommon experience for an operator to dilate the uterine canal and abstract two or more submucous fibroids. However carefully the procedure be conducted, and no matter the thoroughness with which the walls of the cavity are examined for minute fibroids, no honest assurance can be given to the patient that other fibroids will not grow in her uterus.

A careful study of cases in which this has happened is instructive, as it affords some information as to the rate at which fibroids grow.

In April, 1901, I saw a patient, aged 40, with Dr. Gavin Stiell, on account of severe menorrhagia due to fibroids. Dr. Horrocks had enucleated a fibroid from her uterus six years previously, which was probably of some size, as it was extracted piecemeal. The husband was disappointed at the recrudescence of the fibroids, and wished me to remove the uterus. I was anxious to avoid this if possible, and succeeded in removing through the vagina six fibroids, two as big as acorns, three of the size of walnuts, and one as large as a bantam's egg. From what we know of fibroids the rate of growth in this instance was slow, even making allowance for the fact that the tumours in this case were of the very hard variety. In September, 1904, this

patient again came under my care on account of troublesome fibroids. On this occasion I performed colpo-hysterectomy. The uterus contained six fibroids, varying in size from a coffee-bean to a bantam's egg, and numerous seedling-fibroids. The recovery from the operation was quick and uneventful.

In my book on 'Tumours' (second edition) a case is briefly described in which I enucleated from the uterus through an abdominal incision a fibroid measuring 15 cm. in its major and 5 cm. in its minor axis. The patient was twenty-three years of age, and mother of one child. She was delivered of a second baby at full time eight months after the operation, so that it is reasonable to believe that she was pregnant at the time of the operation. Three years later she again came under my care on account of a pelvic tumour, and this grew so rapidly that I performed hysterectomy three months later, and found the uterus occupied by twenty fibroids, varying in size from a ripe currant to a hen's egg. The largest tumour occupied the cervix. There were no signs of these tumours when the first operation was performed three years previously.

The tumours in this case attained a larger size in three years than those in the preceding case had reached in six years. This may be explained in two ways. The patient was younger and had been pregnant since the primary operation, and I feel satisfied, from observations on similar cases, that *pregnancy exerts a quickening influence on latent fibroids.*

In June, 1901, a woman, aged 39, came under my observation with a large abdominal tumour. She stated that Mr. Meredith had removed a large fibroid from her abdomen. This surgeon kindly informed me in a letter that he removed from this patient in November, 1895, an extremely hard multiple fibro-myoma of the size of a large fœtal head; it was impacted and very firmly adherent in the pelvis, with a coil of adherent bowel

(sigmoid) overlying it. The uterine connection was a thick fleshy pedicle springing from the left anterior aspect of the fundus. This was dealt with by ligature. The uterus was normal as to size and consistence—no trace of other growths being discoverable by palpation.

When she came under my care the crown of the tumour reached the level of the umbilicus, and it was extremely tender when the hand was placed on the abdomen; the woman also complained of profuse menorrhagia. I came to the conclusion that it was a uterine fibroid undergoing secondary changes. Since the primary operation she had been living at Mafeking, South Africa, and had come to London to have the tumour removed.

On opening the abdomen I found the uterus uniformly enlarged and of a deep purple; it bled freely from any slight abrasion. Moreover, its surface presented a peculiar villous appearance due to a multitude of short single tags of organised lymph. There were no adhesions except on the anterior face of the uterus near the right cornu, where it was in firm union with the lower angle of the abdominal cicatrix, the result of Mr. Meredith's operation. I performed total hysterectomy, and removed both ovaries and tubes. The bleeding was free because the manipulations were somewhat hampered by the extreme fatness of the abdominal walls and the markedly funnel-shaped features of the pelvis. The patient recovered quickly and satisfactorily.

The uterus contained several fibroids, but the chief one was of the submucous variety, and lodged in the posterior wall. It was quite soft and of the myxomatous type. At first I thought the softening was due to infection, but the microscope did not support this view. It is well known that these soft (myxomatous) fibroids not only grow more quickly than the hard kinds, but they are associated with profuse menorrhagia. It is

also an important fact to bear in mind that after enucleation they sometimes quickly recur.

Up to this date I have enucleated fibroids from the uterus on very many occasions. In four of the patients there has been a recrudescence of the fibroids, which has necessitated a second operation. In two instances I have had to deal with recrudescent fibroids where other operators removed the primary tumour.

That similar cases have occurred to other workers there can be no doubt, but there is very little reliable information available to enable an estimate of their frequency to be even guessed at; under certain conditions, which easily suggest themselves to the minds of those who are engaged in performing these operations, this may have a very important bearing when an operator is deciding whether to be content to enucleate a uterine fibroid, or whether it is in the best interests of the patient to remove the uterus.

A TOPOGRAPHICAL AND CLINICAL STUDY OF FIBROIDS OF THE NECK OF THE UTERUS (CERVIX-FIBROIDS).*

In May, 1897, I exhibited at the Obstetrical Society of London some large specimens of fibroids growing in the neck of the uterus, and drew attention to the fact that tumours of this kind had not received adequate attention at the hands of those who had given close attention to the surgery of the uterus. These tumours are by no means rare, they possess very characteristic features, and sometimes offer formidable difficulties when submitted to operation. In order to obtain some notion of their relative frequency I carefully analysed 500 cases of fibroids which had been under my care for operative treatment during the previous eight years, and found that in every 100 cases there were five in which the fibroids occupied the cervix, and of these five, three, and sometimes four, were fibroids exceeding the dimensions of a fist. In the early stages of growth cervical, like the common forms of uterine fibroids are more or less globular, but when they exceed this size tend to become ovoid. Fibroids may grow from any part of the cervix; commonly they arise from its walls in such a way as to occupy the cervical canal (Fig. 5). These are known as intra-cervical or submucous cervical fibroids. Less frequently they grow from the periphery of the cervix and do not invade the canal, but burrow under the peritoneum on the anterior or the posterior aspect of the uterus (Figs. 6 and 7). These are known as subserous cervical fibroids.

* 'Lancet,' April 2nd, 1904.

The oval character of the cervical fibroid is best displayed in the submucous variety, for as it grows it pushes the body of the uterus, which is perched on its upper pole, high into the abdomen, and in the case of very large tumours the fundus of the uterus can be detected as high as the navel. The topography and shape of this kind of tumour are best displayed when the parts are sectioned in a sagittal direction. The ovoid shape of cervix fibroids is determined by the osseous boundaries of the true pelvis.

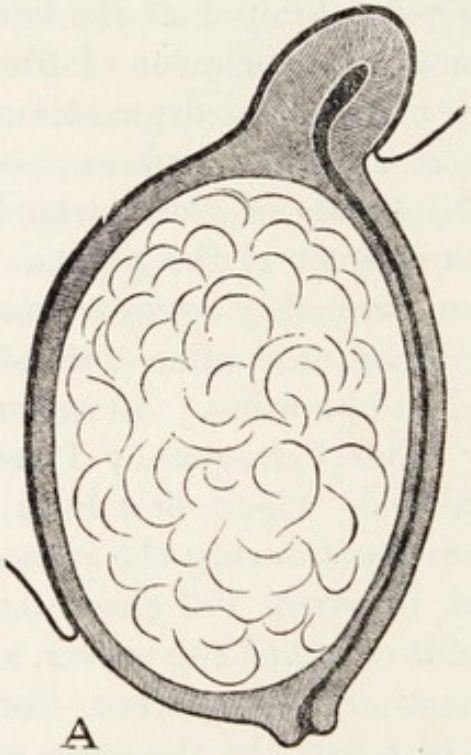

FIG. 5.—A diagram to show the relation of an intra-cervical fibroid to the cervical canal.

In a normal female pelvis the pelvic diameters at the level of the middle of the cervix measure, with the soft parts in position, about ten centimetres (four inches); thus the lower segment of a large cervix fibroid is a solid cast of the true pelvis. In one of my specimens the minor (transverse) axis of the tumour measured 12·5 centimetres, this excessive measurement being due to the slow but steady expanding effects of the tumour on the bony walls of the pelvis. It is well to bear in mind that the oval condition of the vaginal pole of a large cervix

fibroid corresponds with the shape of the occiput of a recently delivered fœtus at term. The ovoid shape is also attained by subserous cervical fibroids when they grow from the posterior aspect of the cervix as shown in Fig. 6. This kind of tumour as it increases in size pushes the body of the uterus high out of the pelvis on its upper pole, but its relation to the cervical canal is worth some attention. The intra-cervical fibroid, as shown in Fig. 5, uniformly expands the cervix, and in very large specimens its tissues

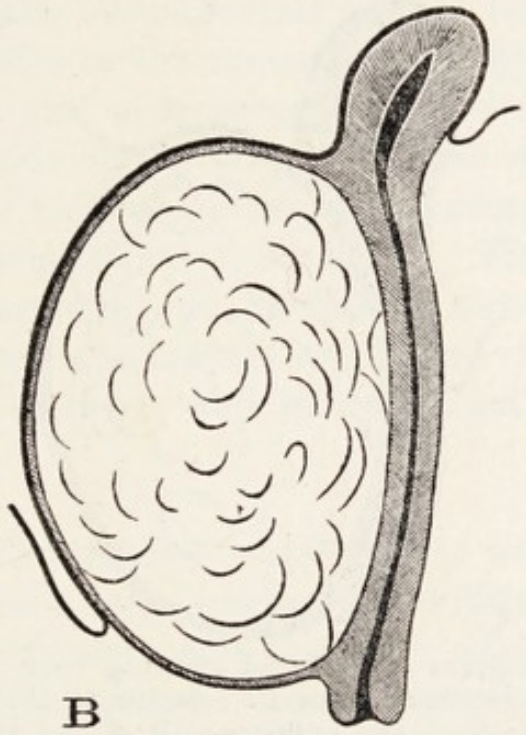

FIG. 6.—A diagram of a fibroid growing from the posterior wall of the cervix, showing its relation to the peritoneum.

form a thin covering to the tumour; but a fibroid of the posterior aspect of the cervix elongates it without expanding the canal, and is really situated between the cervix and the peritoneum. This is a topographical distinction of some importance in connection with the clinical aspect of these tumours.

Fibroids on the anterior aspect of the neck of the uterus remain more or less globular, and do not distort the shape of the cervix as a rule; when of large dimensions they push their way upwards, between the peri-

toneum and the anterior abdominal wall; in one example under my care the whole of a large tumour of this kind had become extra-peritoneal. It is a noteworthy feature of the cervical fibroid that in more than two thirds of the cases the tumour is solitary. All varieties of cervix fibroids are furnished with a distinct capsule; the tumour tissue on section presents the characteristic whorled arrangement of the common form of uterine fibroid, and is microscopically identical with it. Fibroids

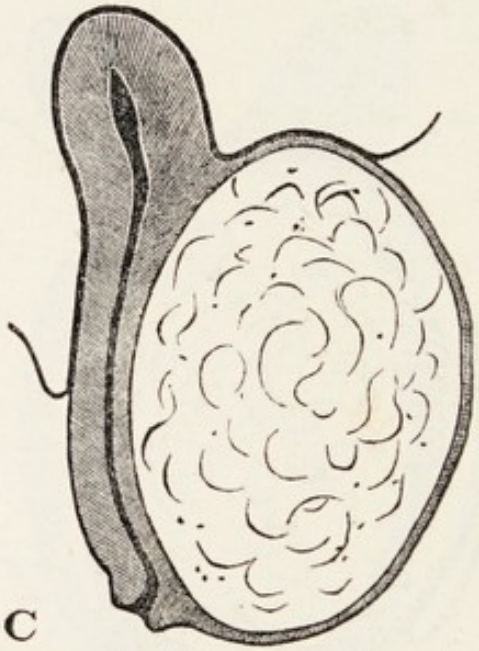

FIG. 7.—A diagram of a fibroid growing from the anterior wall of the cervix to show its relation to the peritoneum as it passes from the anterior wall of the uterus to the bladder.

of the neck of the uterus when they do not cause menorrhagia are very insidious and rarely give rise to serious symptoms until large enough to fill the pelvis and to exert pressure on the urethra, the vesical segments of the ureters, and the rectum. In some cases, especially variety C (Fig. 7), there is direct pressure on the bladder. The frequency of micturition, or dysuria, or retention of urine, which are such common concomitants of the varieties A and B, are due to the bladder being dragged upwards by the uterus as this organ is pushed out of the pelvis by the growing tumour.

I was induced to prepare this paper with the hope of reconciling some divergent opinions as to the frequency or otherwise of menorrhagia in connection with cervical fibroids. With this object in view I analysed the clinical reports of twenty cases under my care in the Chelsea Hospital for Women and the Middlesex Hospital. I have appended brief notes of ten consecutive cases in which two points come out very clearly: (1) menorrhagia and metrorrhagia are only noticed with the intra-cervical variety and bear no relation to the size of the tumour; and (2) hæmorrhages (menorrhagia and metrorrhagia) only occur with intra-cervical fibroids when the uterus has made attempts to extrude, or has succeeded in extruding, the tumour wholly or partially into the vagina. The corollary is plain. An extruded or partially extruded fibroid is exceedingly liable to become septic, and as surely as this happens menorrhagia and metrorrhagia are unfailing consequences.

Case 1.—The patient was a single woman, aged 41 years. She had a large intra-cervical fibroid. There was profuse metrorrhagia and profound anæmia. The os uteri was widely opened. Total hysterectomy was performed on December 14th, 1899. (Chelsea Hospital for Women.)

Case 2.—The patient was a single woman, aged 45 years. She had a very large intra-cervical fibroid. The os uteri was a mere dimple. Menstruation was normal. She complained of pelvic pressure and retention of urine. Total hysterectomy was performed on May 7th, 1900. (Chelsea Hospital for Women.)

Case 3.—The patient was a single woman, aged 45 years. She had a large fibroid growing from the posterior aspect of the supra-vaginal cervix. There were

menorrhagia and dysuria. Total hysterectomy was performed on September 9th, 1901. (Chelsea Hospital for Women.)

Case 4.—The patient was a married woman, aged 52 years, who had had six children. She had a large intra-cervical fibroid. The os uteri was patulous. There was profuse and prolonged menstruation. Total hysterectomy was performed on October 21st, 1901. (Chelsea Hospital for Women.)

Case 5.—The patient was an unmarried woman, aged 38 years. She had a large intra-cervical fibroid pushing the uterus high out of the pelvis. Menstruation was scanty but regular. There was frequent micturition. The os uteri appeared as a dimple at the lower pole of the tumour. Subtotal hysterectomy was performed on January 27th, 1902. (Middlesex Hospital.)

Case 6.—The patient was a married woman, aged 36 years. A large fibroid was growing from the anterior aspect of the supravaginal cervix. There had been amenorrhœa for two months. She had frequent micturition. Abdominal enucleation of the tumour was performed on May 12th, 1902. She was delivered of a boy at full term on January 2nd, 1903. (Chelsea Hospital for Women.) (For more details see p. 81.)

Case 7.—The patient was a married woman, aged 49 years, who had had two children. She had an intra-cervical fibroid. There was dysuria. Menstruation was irregular. There was painful pressure on the rectum. Total hysterectomy was performed on March 17th, 1902. (Chelsea Hospital for Women.)

Case 8.—The patient was a married woman, aged 45 years, who had had six children. There was a very

large fibroid growing from the anterior aspect of the cervix, and extending upwards beyond the umbilicus. The tumour is described in the notes "as big as a football." Menstruation was irregular, but not profuse. Subtotal hysterectomy was performed on September 10th, 1902. (Middlesex Hospital.)

Case 9.—The patient was a married woman, aged 43 years. She had had one child, and one miscarriage. She had an extruded intra-cervical fibroid of the size of a turkey's egg. There was profuse metrorrhagia. Vaginal myomectomy was performed on November 10th, 1902. (Chelsea Hospital for Women.)

Case 10.—The patient was a married woman, aged 31 years. She was sterile. She had a fibroid of the size of a turkey's egg growing from the anterior wall of the cervix and pressing on the bladder. This filled up the vagina, hindering coitus. Vaginal enucleation was performed on May 18th, 1903. (Chelsea Hospital for Women.)

The largest intra-cervical fibroid known to me is a specimen (Hunterian) preserved in the Museum of the Royal College of Surgeons of England. It measures 30 centimetres (12 inches) in length by 12·5 centimetres (5 inches) in width. Unfortunately it is without history.

A close study of these ten cases brings out some further facts. It will be noticed that in some of them the condition of the mouth of the womb is described in this way: "The os uteri was a mere dimple"; wherever this sentence appears it almost certainly follows that menstruation is described as normal, scanty, or irregular, and a closer study of the records shows that the patient is usually a spinster or, if married, sterile. On the other hand, the great majority of the women in whom the intra-cervical fibroid is a source of menorrhagia have

borne children and present a patulous and often widely patulous os uteri. It should also be borne in mind that cervical fibroids of all varieties, though commonly solitary tumours, are occasionally complicated by a submucous fibroid in the body of the uterus and this is a notorious agent in producing metrorrhagia (Fig. 9).

A glance at the brief notes of the ten cases shows that these cervix fibroids do not lend themselves to any routine kind of operation. When of moderate size and associated with a capacious vagina, the intra-cervical kind and those which arise on the anterior aspect of the supra-vaginal cervix may be easily, expeditiously, and safely enucleated through this channel. Tumours which attain and exceed the bulk of a fœtal head at term almost invariably demand treatment by the abdominal route. I have tried a variety of methods. When the uterus with the tumour in its cervix can be raised out of the pelvis far enough to allow the necessary manipulations, then total hysterectomy can be performed easily and quickly. Occasionally the tumour is wide and so fixed in the pelvis that it will be necessary to split the uterus longitudinally and to enucleate the fibroid from its bed ; then an ordinary subtotal hysterectomy can be carried out. The enucleation of a large impacted cervix fibroid requires to be conducted carefully without undue display of force, or so much shock is produced that the patient's life will be placed in the gravest peril. However, large cervix fibroids can be safely enucleated even when the uterus is gravid, as Case 6 testifies.

Perhaps the acme of difficulty is that met with when the body of the uterus is occupied by a large fibroid and another, even larger, grows from the posterior aspect of the cervix and tightly blocks the pelvis. In this particular condition the fibroid can be enucleated from the cavity of the uterus ; the larger tumour is then shelled out of the pelvis and the uterus is removed as

in subtotal hysterectomy. The lower extremity of the capsule forms a pouch and the unexpanded vaginal portion of the cervix lies in its anterior wall; before suturing the stump, in order to secure free drainage into the vagina I split the cervix longitudinally with scissors. In one instance in which I divided the uterus longitudinally in order to extract a large, tightly impacted intra-cervical fibroid, instead of removing the uterus I sutured the two halves and left the organ intact. The patient recovered without even a rise of temperature.

In conclusion, there is no form of uterine fibroid likely to test the judgment, resources, and common sense of the surgeon to such a degree as a large cervix fibroid tightly incarcerated in the pelvis.

The three diagrams used to illustrate this article were drawn by my colleague Dr. A. E. Giles, who has assisted me in the removal of many difficult cervix-fibroids.

ON CANCER OF THE CERVIX AFTER SUBTOTAL HYSTERECTOMY FOR FIBROIDS.

This paper is written in pursuance of what should be considered a duty incumbent on all those surgeons who are practically interested in hysterectomy, for its object is to record two cases in which, after the performance of abdominal hysterectomy for fibroids, squamous-celled cancer occurred in the cervical stump. This is a subject of great importance, because some writers urge that when it is necessary to remove the uterus for fibroids, it is in the patient's best interest to remove the neck of the uterus also in order to protect her against the occurrence of cancer in the cervical stump.

This matter, which has attracted much attention in France, especially by the writings of Richelot, has not escaped attention in England, for it has been critically considered by Doran, in his 'Harveian Lectures,' 1902. The importance of recognising malignant disease as a sequel of subtotal hysterectomy cannot be denied. The subject presents itself for consideration in three phases:

(1) A distinction must be drawn between sarcoma and carcinoma of the stump.

(2) The disease may have existed in the cervix at the time of the primary operation.

(3) It may occur subsequent to the operation.

This communication is concerned only with cancer of the cervical stump. It is by no means uncommon for a woman known to have fibroids in her uterus to lead a tolerably comfortable life, in spite of fairly profuse and even long-drawn-out menstrual periods. Occasionally a

patient of this kind suddenly experiences a marked increase in the flow, or has what she terms a "flooding," is alarmed, and seeks advice. Cases of this kind require careful consideration, for this alteration in the symptoms may indicate changes in the fibroid, or the supervention of cancer. If the patient is a spinster, or married but barren, there may be concurrent cancer of the body of the uterus. If married and fertile the coexistence of cancer of the cervix must be considered, and it is well to bear in mind that an early cancer a short distance up the cervical canal will give rise to bleeding and escape detection by the examining finger. This is illustrated in the following record:

In 1901 I saw a married patient, 49 years of age, in consultation with Dr. Kockmann on account of excessive menstruation, which we supposed to be due to uterine fibroids. It had long been known that this patient had fibroids in her uterus, but they had caused very little inconvenience until some few months before I saw her, but recently the menorrhagia had become so marked as to render surgical interference desirable. I performed abdominal hysterectomy October 22nd, 1901, and at the express request of the patient removed only one ovary and Fallopian tube (the right). The whole of the cervical canal was excised, but I left two thin flaps of the vaginal portion of the cervix. The patient recovered and went into the country. Three months later she complained of recurrence of the bleeding; this puzzled me, and I asked for an examination. To my great distress I realised that the vaginal vault was thoroughly infiltrated with cancer. This opinion I subsequently substantiated by an examination under an anæsthetic and a microscopic examination of a piece of the growth. The patient, being rich, passed from one consultant to another, and after a trial of Schmidt's serum died April 6th, 1903, from uræmia. Fortunately the parts removed at the primary operation had been preserved

by Dr. Kockmann, and they were carefully examined and reported upon at the London Hospital. From this report the following extract is made :

"*Naked-eye appearance of uterus and fibroids removed by Mr. Bland-Sutton.*—They consisted of (1) 'The body of the uterus, in which was present a large submucous myoma, several small, peritoneal myomata, and interstitial myomata the size of walnuts'; (2) 'The cervix os uterus: the os uteri has an irregular shape, and is eroded. The substance of the cervix immediately surrounding the canal near the os is soft, and readily breaks down. Within the muscle tissue of the cervix is a small myoma undergoing calcification.'

Microscopic examination of the os uteri removed at operation.—This shows undoubted epithelioma; the growth is of the ordinary variety; it had penetrated to a considerable degree into the muscular walls of the cervix; typical pearls are seen, as well as outlying chains of cells in the more distant lymphatics. The epitheliomatous growth is accompanied by an inflammatory reaction which is not excessive. In some places the growth had penetrated the glandular crypts, bringing about a destruction of the columnar cells of the latter. Little breaking down of the cells of the epithelioma is to be seen."

It is quite clear from this independent report that an early unsuspected squamous-celled cancer existed in the cervical canal at the external os at the time of the primary operation in October, 1901, and I may add: although total hysterectomy was performed in ignorance of this, it failed to exercise any influence for good on the progress of the disease.

The second case is instructive in another way: In February, 1901, Mr. A. E. Rook, of Eastbourne, asked me to operate on a patient, aged 42 years, and mother of one child 18 years old, on account of a large abdominal tumour, suspected to be a fibroid, which had under-

gone some change and rendered her gravely ill. The patient's abdomen was occupied by a lump as big as a uterus at the eighth month of pregnancy; this lump was very tender, and the patient appeared to be in a serious condition. Pulse 116 per minute, and the temperature 102°.

An operation was decided upon without delay. By means of a very free incision, a large tubo-ovarian cyst, reaching as high as the liver, was exposed; as it had a very broad connection with the uterus, and this organ contained an interstitial fibroid as big as a cricket ball, it was decided to make the operation a safe one by removing the body of the uterus with the tumour. In addition the left Fallopian tube had been converted into a hydrosalpinx of the size of a man's fist, so there were no particular indications to be too conservative in dealing with the case. When the huge right cyst had been removed, we found it to be filled with offensive pus, and the cut section of the cervix showed me that the uterus was septic also. Under these conditions I adopted the precaution of stitching the flaps of the cervical stump to the lower angle of the abdominal incision. This proved a wise decision, for an abscess formed in it and gave much trouble. In spite of this the patient made a good recovery under Mr. Rook's care.

In September, 1902, Mr. Rook asked me to see the patient on account of some bleeding from a suspicious ulcer on the vaginal aspect of the cervical stump. I soon decided that this ulcer was a squamous-celled cancer, and without any delay and with very little difficulty, enucleated the stump by the vaginal route. Recovery followed quickly and uneventfully, and the patient allowed Mr. Rook to examine her in February, 1904, and he reports to me that "the local condition is perfectly satisfactory." The roof of the vagina was soft, freely movable, and the patient's general condition excellent. The cervical stump was examined micro-

scopically and found to be the seat of a typical squamous-celled cancer. (The patient is in excellent health, January, 1905.)

The occurrence of cancer in the cervical stump after subtotal hysterectomy for fibroids is a matter which requires the fullest consideration. All cases should be carefully recorded in order that it may be determined whether cancer occurs more frequently in women who have submitted to this operation than in other circumstances. It is no argument that it is advisable to remove an organ for fear that it may become cancerous. It is quite certain that a uterus may become the seat of cancer after bilateral ovariotomy, but this is no valid reason for excising the uterus when both ovaries require ablation.

Literature.

Richelot.—"De la dégénérescence maligne du moignon cervical aprés l'hystérectomie subtotale : remarques sur la myomectomie." *La Gynécologie*, Paris, October, 1903. (In this paper he records three cases under his own care, and epitomizes the recorded, and refers to many unrecorded cases mentioned to him by contemporaries.)

Doran.—'Harveian Lectures,' London, 1902. (At the end of the third lecture there is a critical summary of this important subject.)

SOME POINTS IN THE DIAGNOSIS AND TREATMENT OF UTERINE FIBROIDS.*

Surgical aggression in obstetric territory has brought many new things to light. To my mind one of the most astonishing facts thus revealed is the great uncertainty of clinical methods in determining the nature of pelvic tumours. I propose in this communication to draw attention to some examples of erroneous clinical judgments in regard to uterine fibroids which have been exposed in the surgical treatment of these tumours, and it is certain that this method of radical treatment has led to increased accuracy in our knowledge of their pathology.

There is no tumour in the human body which in many instances can be so surely recognised clinically as the uterine fibroid, yet this occasional certainty in diagnosis is in itself a source of danger when the question of operative interference is under consideration. The recognition of an uncomplicated fibroid is usually regarded as a very simple clinical exercise; nevertheless the conditions with which such a tumour has been confounded make a very long list, and include ovarian cystic and solid tumours, pyosalpinx, gravid tubes in all stages, including fœtuses of the full period sequestered in the mesometrium, normal uterine pregnancy, cancer of the body of the uterus, ecchinococcus colonies of the uterus, tumours of the kidney, and displaced spleens. If errors arise when the tumours are single,

* An address delivered to the Pathological Society of Reading, October 11th, 1901.

how much more must be the chances of false diagnosis when two or more pathological swellings co-exist in the pelvis, and especially if these should be associated with a normal or an abnormal pregnancy.

I am sure that few to-day scarcely recognise that twenty-five years ago it occasionally happened that even after a tumour had been removed from the pelvis surgeons would wrangle as to whether it was uterine or ovarian; and the accounts of these remarks made on specimens exhibited at the London medical societies will be found very amusing in relation to this point to anyone who takes the trouble to hunt them out in the current literature of that period.

The chief signs on which a diagnosis of a "fibroid" is based are these:

The existence of a tumour which may be, and usually is, incorporated with the uterus. The tumour may be so large as to reach as high as the diaphragm, or no bigger than a potato of average size. The enlarged uterus may be of a smooth contour or irregular and tuberose.

Age is an important factor, for fibroids are rarely recognisable and troublesome before the twentieth year, and there is every reason to believe that they arise only during the menstrual period of a woman's life.

In many cases fibroids, especially those which encroach on the endometrium, give rise to excessive and prolonged menstruation. In some instances the bleeding may be so free that the women die.

As a rule, a fibroid large enough to be troublesome adds to the length of the uterine cavity, and in a certain proportion of instances yields a distinct hum to auscultation.

Any tumour of pelvic origin which furnishes two or more of these signs will often successfully simulate a fibroid; on the other hand, a fibroid which fails to

furnish all these signs causes doubt in diagnosis. It is common experience that it is impossible sometimes to distinguish between a very large fibroid and an ovarian cyst, especially when the fibroid does not disturb menstruation and yields no hum on auscultation.

In 1899 I saw at the Cottage Hospital at Ealing a woman about forty years of age with a large tumour filling and distending the belly uniformly; it was smooth in contour,dumb to auscultation, and had grown slowly for five years: there was no fluctuation. The uterine cavity was of normal length, and menstruation occurred regularly and normally. At the operation this proved to be a huge globular fibroid (weighing 36 lbs.), sessile on the fundus of a uterus, which in size was proportionate to the age and stature of the woman. It was successfully removed, but before the operation all who examined the patient believed the mass to be in all probability a solid ovarian tumour.

It used to be a fairly frequent event for a surgeon to perform cœliotomy with the intention of removing a suspected ovarian cyst, but, on finding a fibroid, to close the wound and leave the tumour. I have on several occasions subsequently had charge of such patients and successfully removed their tumours. On the other hand, ovarian and parovarian cysts very frequently simulate fibroids. Three years ago a cook, of forty years of age, was seen at the Samaritan Hospital, and Mr. Meredith, who examined her, came to the opinion that she had a large fibroid. The case being urgent, and as the hospital was closing for the annual cleaning, she applied to St. Thomas's Hospital. The gynæcologist at this institution told her that she had a fibroid. Eventually she came under Dr. Fenton's care at the Chelsea Hospital for Women, and he confirmed the diagnosis and transferred her to my care. After careful examination I regarded the tumour as a fibroid, but at the operation I found bilateral ovarian cysts, one, as big as a cocoanut, im-

pacted in the pelvis. In this case four individuals thoroughly accustomed to examine pelvic tumours were in error; fortunately, in this case it did not interfere with the appropriate treatment. It is, however, a much graver matter when a pelvic tumour is considered to be a fibroid of the uterus, and because it is a fibroid operative treatment need not be entertained; subsequently serious complications arise, and the supposed fibroid turns out to be a suppurating dermoid, or something equally obnoxious and inimical to life. The following case illustrates the ill effects of such erroneous diagnosis:

A married woman, aged 40, suffering from a pelvic tumour which extended well into the right iliac fossa. She was under the care of an experienced gynæcologist, who regarded the tumour as a fibroid of the uterus, an opinion confirmed by an eminent obstetric physician. An inactive mode of treatment was pursued for several years, then bladder symptoms became so urgent and distressing that it became a pressing necessity to attempt the removal of the tumour. A large dermoid filled with hair, teeth, macerated fragments of bone, phosphatic masses, and horribly offensive pus, was found communicating with the bladder. The operation succeeded, and the patient completely and quickly recovered; but what a lot of misery and suffering this poor lady endured because of an erroneous diagnosis!

Two very important signs will, when present, enable us, in a large number of instances, to distinguish between an ovarian cyst and a fibroid: An ovarian tumour yields no sound to auscultation and very rarely causes metrorrhagia. I have seen two instances in which irregular losses of blood from the uterus were associated with an ovarian tumour; both patients were twenty-eight years of age, and the tumours had twisted their pedicles.

In the case of an ovarian cyst with a long pedicle and a single pedunculated subserous fibroid the physical

signs are so similar that the distinction is very often mere guess-work. This is also true of many cases where an impacted fibroid softens to such a degree that it fluctuates on manipulation. Intuition, the outcome of long experience, will sometimes embolden men to venture on a differential diagnosis, but operation-records indicate that in more than half the cases the inferences are very erroneous. This is not a matter of any serious moment so long as it is not allowed to bar necessary surgical intervention.

Still confining our attention to the uncertainity of the differential diagnosis of simple uncomplicated tumours of the uterus and ovary, it is obvious that if there be so much difficulty in determining in which of these two organs a given tumour arises, how much greater must be the liability to error when attempts are made to decide the nature of the tumour.

Altormyan, of Aleppo, has related the facts concerning a woman of thirty-five years of age, who had a rounded mobile tumour of the size of a head which was thought to be ovarian in origin, but at the operation it was found to be an ecchinococcus colony in the fundus of the uterus. An even more striking case has been reported from Martin's Klinik, in Berlin. Cœliotomy was performed for the removal of two pedunculated tumours attached to the fundus of the uterus and suspected to be subserous fibroids. On lifting them out of the belly they burst in the operator's hands. They were ecchinococcus cysts the size of a fist.

In order to more strongly emphasise the occasional difficulties which are encountered in the diagnosis of uterine tumours it may be mentioned that a wandering spleen is very apt to drop into the pelvis. Sir Spencer Wells performed cœliotomy in a lady, expecting to remove a uterine myoma; in the course of the operation a large purple-coloured mass was exposed; on manipulating it, his hand suddenly broke into a large, soft

bleeding organ, which proved to be an enlarged spleen lying in contact with the uterus.

Varneck had a stranger experience, for he operated on a woman and with great difficulty succeeded in removing piecemeal what he regarded as a firmly adherent uterine myoma. When the fragments were examined in the laboratory it was discovered that the supposed myoma was an enlarged, displaced, and adherent spleen.

On one occasion I performed cœliotomy on a woman for what I regarded as a wandering spleen. On exposing the tumour, a mass of the shape and colour of a large spleen was seen lying on the uterus. It proved to be a subserous fibroid with a slender pedicle. It was not until I had exposed the spleen that I succeeding in convincing the onlookers that the mass was really the tumour and not the spleen.

On several occasions in performing splenectomy for "wandering" spleen, I have found this viscus in the pelvis in contact with and displacing the uterus.*

It must also be remembered that bias often counts for much in erroneous diagnosis. Dr. Dysart McCaw has recorded a good instance, in which a woman in the fifth month of pregnancy complained of severe pain in the belly, which led to the detection of a "lump" in the left lumbar region. The case was seen by a gynæcologist and a surgeon in consultation and regarded as a renal tumour. Cœliotomy was performed, and the lump proved to be a sessile subserous fibroid weighing four pounds. It was successfully removed, and the pregnancy went to term and ended happily.

A woman under my own care, four months pregnant, complained of pain due to a lump in the left iliac fossa. This was thought to be a pyosalpinx by one gynæcologist and regarded as an ovarian cyst by another;

* Bland-Sutton, "Remarks on Wandering Spleens," 'Trans. Medical Society London,' vol. xx, p. 95; and Frank E. Taylor, "The Pelvic spleen," 'Clinical Journal,' 1905, vol. xxv, p. 299.

I regarded it as a sessile fibroid, and so it proved at the operation, when I was able to remove it, and the patient recovered without disturbance.

Of the various signs on which reliance is placed in the diagnosis of "fibroid" the two most important are profuse menstruation and often metrorrhagia associated with a tumour incorporated with the uterus. Any condition which can produce a combination of these two signs usually renders diagnosis as uncertain as navigation in a fog. This combination is very common in diseases of the Fallopian tubes and especially in tubal pregnancy, and it comes to pass that of all pelvic swellings liable to be mistaken for fibroids, pyosalpinx, gravid tubes, and mesometric pregnancy hold the first place. Quite a large number of records may be gathered from the literature of the last ten years, where experienced men like Thomas Keith, Angus Macdonald, and Duncan, among others, have performed cœliotomy for the purpose of removing a suspected fibroid and have found a sequestered fœtus instead, and in some of the cases the swelling has been excised and the operation completed, when a subsequent examination of the parts removed has disclosed a fœtus. In spite of every care it is occasionally impossible to make an acute diagnosis, as the following details prove:

In 1897 a woman aged 38 came under my care for profuse metrorrhagia. The history and the physical signs indicated very strongly the presence of a submucous fibroid. The patient was anæsthetised and the cervical canal dilated; a large rounded mass could be felt as though a large sessile submucous fibroid, embedded in the posterior wall of the uterus, was projecting into the uterine cavity. I consulted with two of my colleagues who were present at the examination as to the advisability of enucleating it. After careful examination it was regarded as a safer measure to perform abdominal hysterectomy. The patient decided

to defer so serious a measure, but the bleeding continued to be so profuse during the succeeding three months that she sought relief. At the operation the supposed fibroid proved to be a gravid left Fallopian tube containing a "mole" as large as a turkey's egg. The cœlomic ostium of the tube was completely occluded. The operation was followed by arrest of the metrorrhagia. The right ovary and tube were not removed, and menstruation became subsequently normal in rhythm and in quantity. This case is also significant, as it favours the view that blood effused into a Fallopian tube with an occluded cœlomic ostium may escape by way of the uterus.

If difficulty and doubt arise in uncomplicated cases, how great must be the risks of error when two or more conditions co-exist! Uncomplicated pregnancy is, as a rule, diagnosed with certainty, but when pregnancy occurs in a uterus also occupied with fibroids it is not always a simple exercise. Some months ago a married woman came under my care, stating that she knew she had fibroids and was afraid also that conception had occurred. Her distress on this account was due to the fact that five years ago she had been in the same straits, and, though prematurely confined, had been so ill and ran such a narrow risk of dying that she wished to avoid the repetition of such a contingency if possible. On examination a fibroid was found to occupy the true pelvis, and a larger one the false pelvis on the left side: the uterus from the history and signs had probably been gravid two months. A colleague, who examined the patient, satisfied himself that if the pregnancy continued it was quite certain that the fœtus could not enter the world through the natural passage, and after very careful consideration of the facts she was advised to submit to hysterectomy. This was carried out with the preservation of one ovary, and the patient left the hospital convalescent, grateful, and happy in eighteen

days. If time permitted I could furnish quite a number of references where normal pregnancy and retroflexion of the gravid uterus have been mistaken for fibroids and *vice versâ*; and even when an operation was undertaken a retroflexed gravid uterus has been mistaken for a fibro-myoma.

Probably one of the most extraordinary examples of diagnostic difficulties where fibroids were concerned is the case recorded with great care and detail by Cullingworth ('Obstet. Soc. Trans.,' vol. xl, p. 285), in which fibroids and tubal pregnancy co-existed. The physical signs so simulated retroversion of a gravid uterus that on September 4th deliberate but unsuccessful attempts were made to reduce the supposed displacement. On October 5th a further but equally ineffectual effort was made. Misgivings then arose as to the correctness of the diagnosis, and on October 21st cœliotomy was performed, and a large fibro-myomatous uterus, complicated with a gravid tube containing a fœtus four and a half inches long was removed. It is gratifying to add that the operation was followed by an excellent recovery.

It is not my intention to attempt an exhaustive or systematic account of the differential diagnostic signs of uterine fibroids, but merely to show that in many cases it is very difficult and often impossible to decide between these common tumours and other very grave conditions, this being a matter of great importance. For instance, a woman, aged 25, came under my care with an abdominal tumour bigger than a football, stating that she had been in a hospital and the surgeon refused to remove it. This seemed curious, and my house surgeon communicated with him and received a letter to the effect that the tumour was a uterine myoma and did not require an operation. I did not agree with the diagnosis, acceded to the patient's request, and removed this very large tumour, which

arose in the ovary and proved to be a solid sarcoma composed of oat-shaped cells. The issue of the operation was all that could be desired, but it is impossible to forecast the results of an unfortunate delay of three months in the removal of the tumour on the future of the patient. This is an example of the great injury sometimes unconsciously inflicted on patients by an overweening confidence in our powers of diagnosis. It is also certain that women often endure unnecessary misery by our blind belief in the fact that "fibroids" are tumours capable of easy clinical recognition. Fortunately, surgeons are now realising that with the employment of strict aseptic measures in pelvic surgery, uterine fibroids can be removed with a measure of success which has lately been astonishing, so that in the future women with pelvic tumours of uncertain nature will be spared much suffering by the timely intervention of surgery.

Addendum.—The following case shows that tuberculosis of the corporeal endometrium may simulate a degenerating submucous fibroid.

In November, 1904, I saw with Mr. Farnell, Eastbourne, a spinster, aged 46 years, who had been suffering from menorrhagia for two and a half years. Latterly the bleeding had become very profuse and long-continued. A rounded body inseparable from the uterus could be felt in the hypogastrium. These facts led us to believe that the patient had a submucous fibroid in the uterus, and as the bleeding had become more profuse of late and was attended with fever, we suspected that some degenerate change had occurred in the tumour. The cervix uteri was small and normal, the "os" being a mere dimple.

Abdominal hysterectomy was performed January 2nd, 1905, with the assistance of Mr. Farnell. The uterus had firm and troublesome adhesions to the rectum and bladder. The ovaries and tubes were small and

shrunken: they were left. The whole of the cervix, except a small piece of the vaginal portion, was removed. The patient made an uneventful recovery.

On opening the uterus we saw at once that the enlargement was not due to a fibroid: its walls (see frontispiece) are hyperplastic, and a rounded mass protrudes from the anterior wall into the uterine cavity. This mass is not encapsuled, and though sessile on the wall of the uterus is mainly confined to the endometrium, but the disease extends into the cornual recesses, and in these situations it invades the uterine wall and extends into the terminal sections of the Fallopian tubes. On examining the cut surface of the mass patches of caseation are easily seen.

Dr. Gabbett, who was present at the operation, kindly undertook the microscopical investigation of the uterus and found it to be a tuberculous mass arising in the endometrium. Characteristic giant-cells and epithelioid systems were found and detached pieces of the uterine glands. He also succeeded in finding tubercle bacilli.

The manner in which the disease was localised to the corporeal endometrium in this case, and caused the uterus to enlarge, bleed, and simulate a degenerating submucous fibroid, is its most important clinical feature.

THE INIMICALITY OF PREGNANCY AND UTERINE FIBROIDS.

THE title of this communication has been chosen with great care, because it is my wish that it should convey a particular meaning. The banefulness or harmfulness of the association of pregnancy and fibroids is of three kinds:

(1) *Obstructive.*—The harm which may arise from the obstruction offered by a fibroid to a gravid uterus sometimes occurs early in the pregnancy because it may lead to impaction and even slow torsion of the uterus. If the fibroid be pedunculated the upward movement of the uterus may cause it to rotate and twist the pedicle; occasionally it will be incarcerated by the uterus.

(2) *Septic infection.*—An interstitial or a submucous fibroid may be infected from careless attention to antiseptic details following miscarriage or delivery at term. Occasionally a submucous fibroid may be extruded into the vagina during delivery, but this is rare.

(3) *Degeneration of the fibroid.*—This is an insidious danger, and one which has not been fully appreciated by obstetricians. It is this peculiar change which I wish to discuss under the title *Inimicality of Pregnancy and Uterine Fibroids,* for it is a condition often associated with pregnancy apart from septic infection; or mechanical injury which the tumour may receive in the course of the gradual enlargement of the uterus, or during its sudden diminution after delivery. Moreover, the change which pregnancy induces in fibroids has interested me for many years, and I have been able to collect a large number of facts from personal observation.

The usual colour of a uterine fibroid is pale yellow; in many degenerating and necrotic fibroids this colour deepens. In the course of pregnancy a fibroid, especially one of the interstitial kind, assumes a deep red or mahogany tint. In the early stages the tumour exhibits the colour in streaks, but as the pregnancy advances it permeates the whole tumour. Occasionally, even in the mid-period of pregnancy, this necrotic change may be so extreme that the central part of the tumour is reduced to a red pulp.

In 1903 Fairbairn wrote an excellent paper on this necrotic change in fibroids, and it is now becoming familiar as the "red degeneration." Until Fairbairn began to accumulate the material for this paper I held the opinion that this change was only seen in association with pregnancy, but he soon convinced me that it occurred in spinsters, and I have myself seen since well-marked examples in women who have never been pregnant. At the same time it must be stated that the largest number, the best marked, so far as colour goes, and the most extreme examples of this red degeneration occur in association with pregnancy.

In the early cases which came under my notice, the redness of the cut surface of these tumours so strikingly resembled beefsteak that it suggested to me, and appears to have done so to other observers, that the change in colour might be due to an increase in the muscle fibres in consequence of the physiological enlargement of the uterus. The microscope, however, dispelled this illusion, showing the colouring material to be blood pigment diffused through the necrotic tissue of the tumour.

This red degeneration is of interest outside the pathological laboratory, and the appended reports of actual cases will, I hope, show that it is of clinical importance.

Case 1.—A well-developed woman, aged 28, sought

advice for an abdominal swelling which she said had recently grown much larger and had become painful. Menstruation had been in abeyance three months. A hard rounded swelling as big as a fist occupied the right iliac fossa; a larger rounded tumour could be felt immovably impacted in the pelvis to the left of the cervix, whilst the vaginal portion of the cervix was pushed to the left side, and in order to reach it the finger had to sweep over the rounded contour of the impacted tumour, which appeared to usurp all the available space in the true pelvis. Pressure on the tumour caused pain, and there was some difficulty with the rectum, but fortunately there was no interference with the bladder. These signs led me to diagnose fibroids impacted by pregnancy. At the operation a large tumour in the anterior wall of the uterus was found impacted in the pelvis, the body of a gravid uterus occupied the hypogastrium, and a tumour in the posterior wall of the uterus was lodged in the right iliac fossa, so that the uterus was not only rotated through 90° but also acutely flexed. On removal the organ was carefully hardened and sectioned in its sagittal axis. The tumours when divided exhibited irregular red streaks; these were most marked in the larger fibroids, and its central parts were soft and diffluent (Fig. 8). The pregnancy had advanced beyond the third month ('Lancet,' January 4th, 1902, p. 17).

The interest of the case is threefold. The pregnancy had not only produced impaction of the uterus, but had also caused it to rotate, a condition of things which would require surgical intervention quite apart from any consideration of the degenerative changes which had happened in the fibroid. It is also impossible to decide whether the pain of which the patient complained depended upon the impaction and rotation of the whole organ or on the molecular changes in the tumour. That red degeneration is a cause of pain the following cases well illustrate.

Case 2.—A woman, aged 34, and advanced to the sixth month of pregnancy, suddenly felt acute pain in the abdomen. On undressing and examining herself she found a lump in the right iliac fossa. She was admitted

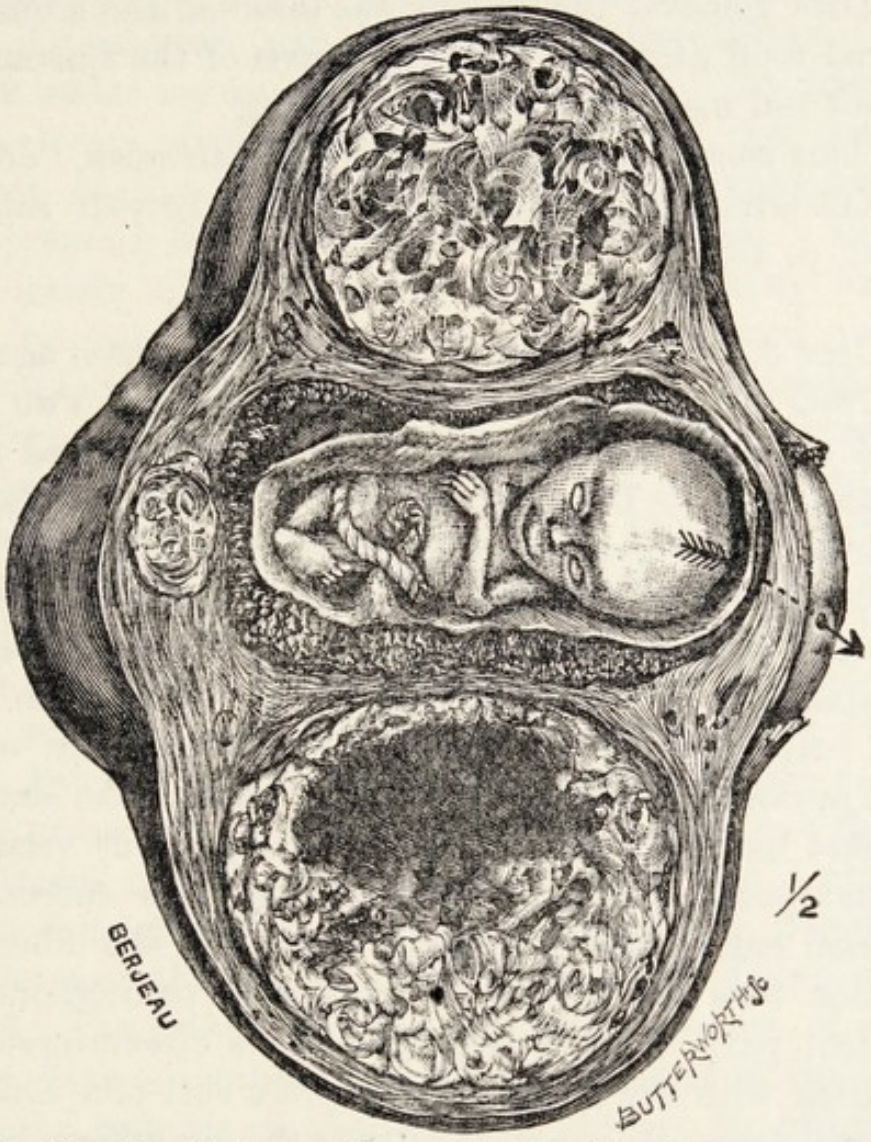

Fig. 8.—Gravid uterus deformed by fibroids which were soft, red, and one was diffluent. Removed from a woman aged 28 on account of pain, impaction, and rotation of the uterus. The arrow lies in the cervical canal.

into the Chelsea Hospital for Women two days later. A rounded, smooth, exquisitely tender tumour closely attached to the uterus was found; the patient's temperature had reached 100°, and she anxiously demanded relief. The swelling was thought to be an ovarian tumour with a tightly twisted pedicle. The tumour,

when exposed through a median subumbilical incision, was found to be a subserous fibroid, sessile on a gravid uterus. Its removal offered no difficulty; the patient recovered and the pregnancy ended successfully.

After removal the tumour was bisected and a quantity of red fluid escaped. The solid parts of the tumour had a dull red mahogany tint throughout.

(This case is briefly mentioned by Fairbairn, 'Journal of Obstetrics and Gynæcology of the British Empire,' 1903, p. 13.)

Case 3.—This patient was a married woman, aged 36. In 1896 she gave birth to a healthy child. Two years later a fibroid the size of a turkey's egg appeared in the epigastrium. Towards the end of 1900 she became pregnant a second time, and was delivered in July, 1901. A few days after the birth of the child the fibroid became tender; irregular losses of blood occurred and became so alarming as to induce Mr. W. K. Loveless to place the patient under my care. At this time the woman was profoundly anæmic and had a tumour the size of a cricket ball, very tender, freely movable, but sessile, in a puerperal uterus. Hysterectomy was successfully carried out by the abdominal method. The fibroid on section was the colour of mahogany throughout; its central parts and the segment of its circumference in relation with the uterine cavity were soft and diffluent. Bacteriologic examination of the solid peripheric portion of the tumour was negative ('Lancet,' January 4th, 1902, p. 17). In 1904 the patient was in excellent health.

The next case is of interest because it shows that when a fibroid with red degeneration is enucleated from the uterus of a woman during the child-bearing period it is well to bear in mind the probability of a co-existing early pregnancy.

Case 4.—This patient was 36 years of age and married.

For some months she had noticed an enlargement in the hypogastrium and believed herself pregnant, an opinion supported by the fact that she had missed two menstrual periods. She was examined in consultation by two doctors, who found the signs consistent with pregnancy, but inconsistent with two months' amenorrhœa. She came under my care, and I had no doubt of the existence of a large uterine fibroid growing from the anterior aspect of the uterus, bulging into the hypogastrium, compressing the bladder and producing pain. I could not satisfy myself in regard to the pregnancy, and as the tumour caused much inconvenience and pain I decided, with the consent of the patient's brother (a doctor), to remove it. The patient was extremely anxious to have the uterus spared if possible, for she desired to have a child. May 12th, 1902: I succeeded in removing a very large fibroid from the anterior aspect of the cervix through an incision in the abdominal wall with very little difficulty. The uterus, somewhat enlarged and soft, appeared healthy and was left in accordance with the patient's keenest wishes. The fibroid on section presented a uniform mahogany colour, but showed no traces of softening. August 31st: Her doctor informed me that the patient was advanced in pregnancy to between the fourth and fifth month. January 2nd, 1903: The patient became the happy mother of a fine boy. It is quite clear that the enlargement of the uterus and the redness of the fibroid were due to pregnancy which had been in progress for about six weeks.

In 1901 I published some Lectures on "The Surgery of Pregnancy and Labour complicated with Tumours" ('Lancet,' 1901, vol. i, p. 452), and recorded some cases in which fibroids complicating pregnancy had given rise to trouble, and the pain which they set up was of such a kind as to demand surgical interference. It is also noteworthy that in some of the cases recorded by other surgeons which are tabulated in those lectures, the

operations were undertaken for the relief of the pain and under the impression that the tumours were ovarian and had become incarcerated by the gravid uterus, or had undergone axial rotation.

Not the least remarkable feature in the clinical aspect of these tumours is the fact that a sessile fibroid may be enucleated from the walls of a gravid uterus even as late as the fifth month without disturbing the fruit. This is another example of the manner in which the uterus tolerates surgical interference even when pregnant. In a communication made to the 'Clinical Journal,' April 20th, 1904, p. 5, I briefly described a case in which a large fibroid growing from the anterior aspect of the cervix was associated with a retroverted and firmly incarcerated gravid uterus. The organ was with great difficulty replaced and the fibroid enucleated through an abdominal incision. The patient recovered and went to the eighth month. The child survived its birth two months. It is well for surgeons to appreciate uterine tolerance under these conditions, for they may save their patients much bodily suffering as well as mental anguish. Of this the following record may serve as an illustration :

Case 5.—A patient aged 28 years, and in the third month of her first pregnancy, complained of pain which led to an abdominal examination and the discovery of a tumour in the left iliac fossa, which an experienced gynæcologist regarded as an ovarian cyst complicating pregnancy. Median subumbilical cœliotomy was carried out, and a sessile uterine fibroid discovered instead of an ovarian cyst; the incision was at once closed for fear of disturbing the pregnancy. The patient recovered and went to term, but the child lived only thirty-six hours.

After the confinement the mother had so much discomfort from the tumour that she decided to have it removed. Four weeks after labour I succeeded in enucleating a sessile fibroid the size of my fist. Its central

parts were diffluent and its hinder parts here and there streaked with red, but the bulk of the tumour had the colour of wash-leather. Her recovery was quick and uneventful.

Myomata and fibro-myomata of the uterus are exceptional among tumours in several ways, and their life history is in accordance with that of the organ in which they grow. They arise during the functional period of the uterus, and usually their growth ceases with the cessation of uterine activity, and they may shrink coincident with the atrophy of the uterus.

Another striking feature of the myoma and the fibro-myoma is its painlessness; and yet, as the cases recorded in this essay show, when they undergo red degeneration painfulness and tenderness are very marked clinical features, and especially when the degeneration is associated with pregnancy.

Continued observations on pelvic tumours convince me more and more of what I have often expressed in my writings, that when a tumour suspected to be a fibroid of the uterus becomes painful and tender, it signifies that the tumour is undergoing secondary changes, and especially red degeneration, or that some complication has arisen in the pelvis; in a fair proportion of cases it means that the tumour is not a fibroid—in plain words, the diagnosis is probably erroneous.

It is also worth noting that the painfulness and tenderness associated with red degeneration is only markedly observed in fibroids when associated with pregnancy. This, at least, is my experience, but wider observation is necessary. It is, however, a clinical feature worth close observation. It is also a matter of interest to decide whether red degeneration occurs as frequently in cervical fibroids as in those which grow in the body of the uterus when complicated with pregnancy. This subject is considered in the next essay.

UTERINE FIBROIDS IN RELATION TO CONCEPTION, PREGNANCY, AND PUERPERY.

It is universally admitted by writers who have devoted careful attention to the matter that the presence in the uterus of a submucous or of a large interstitial fibroid is very unfavourable to conception. A fibroid in these situations, or even in the neck of the uterus, is by no means a bar to conception, or even to successful pregnancy, but such a combination is very dangerous to the mother and to the child. In this essay the details of five cases are furnished in their relation to this important question.

Case 1.—In April, 1904, a sterile married woman, aged 41, was placed under my care on account of profuse metrorrhagia and profound anæmia, due to a cervical fibroid. The extreme anæmia made it desirable to advise the patient to submit to operation, and on April 18th I performed total hysterectomy. On looking around the pelvis preparatory to closing the incision I detected a small growth constricting the sigmoid flexure of the colon. After careful consultation, we decided that the patient was too ill to bear resection of the colon as well as hysterectomy, so that I left the growth in the colon for a subsequent operation. She recovered easily from the hysterectomy, and in the following September I excised the growth from the sigmoid flexure, and sutured the cut ends of the bowel together in the Middlesex Hospital with a successful result.

The uterus removed from this patient is shown in section in Fig. 9, and displays a fibroid in its neck; it is an example of the intra-cervical variety, and grew mainly in the posterior wall of the cervix uteri, and it has greatly displaced the cervical canal. The uterine cavity is even more distorted by a submucous fibroid, which was probably the immediate cause of the exhaust-

FIG. 9.—Uterus in sagittal section; its neck is occupied by a large intra-cervical fibroid. There is also a submucous fibroid, which accounted for the very profuse bleeding which rendered operation imperative.

ing metrorrhagia which led to the necessity for the removal of the uterus. A study of the uterus would lead one at first sight to believe that the tumour in the neck of this organ might be held responsible for the woman's non-fertility. This view will be dispelled by the consideration of the next case.

CASE 2.—In August, 1904, I went to the Isle of

Wight in response to a very urgent summons to see a lady in great need of surgical help.

The patient, aged 35, had been married a few years, and knew she had a fibroid in her womb. About May, 1904, she consulted an able gynæcologist in regard to the removal of this tumour because it had recently caused her some inconvenience, and was advised to wait. The subsequent course of events showed that about this time she had conceived and the pregnancy continued, whilst the patient remained completely ignorant of its occurrence until August. One day whilst bathing in the sea she was suddenly seized with very acute pain in her abdomen. Dr. Hands, of the Isle of Wight, saw her, and on careful examination satisfied himself that she was pregnant, and the free escape of blood from the vagina led him to perceive the imminence of miscarriage and the gravity of the situation with the pelvis blocked up by an obstructing tumour. Dr. W. A. Kidd, who was spending his holiday in the island, kindly saw the case in consultation and hoped that it would be possible to have the patient removed to London, as a serious operation seemed to be necessary. Next day signs of intestinal obstruction supervened, with vomiting and acute abdominal pain.

It was late in the evening of August 13th when I reached the patient. We could make out a large rounded solid lump blocking the pelvis, a pregnant uterus displaced into the left iliac fossa, and a globular body as big as a fist in the right iliac fossa so exquisitely tender that it made the patient call out when merely lightly touched. Elsewhere the abdomen was moderately tender. The plight of the patient could only be described as grievous. The temperature was over 100° F. and the pulse beat 120 to the minute, and the pain was so great that it became necessary to adminster chloroform for its relief. Though an opera-

tion was imperative, I realised its magnitude and decided to wait for daylight.

Next morning, with the assistance of Drs. Hands, W. A. Kidd, and Hollis, I performed hysterectomy.

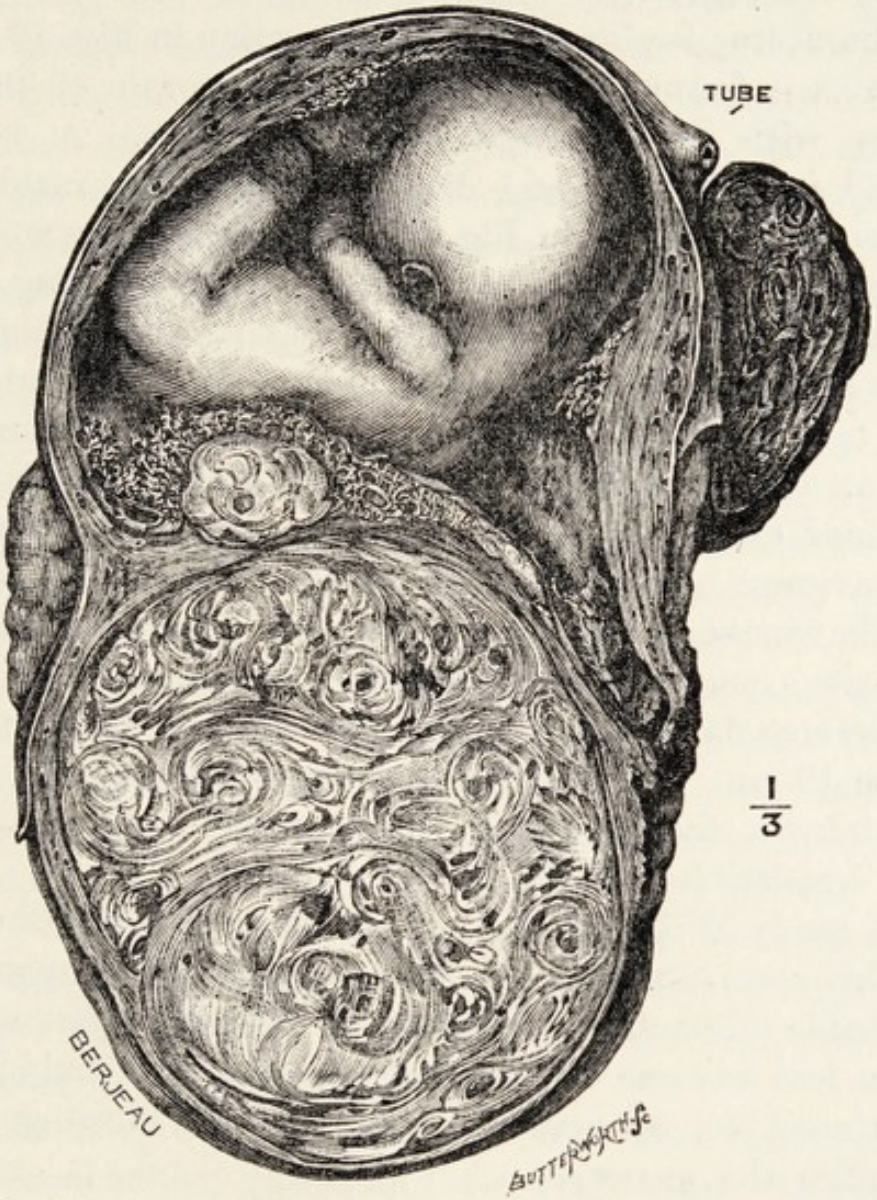

FIG. 10.—A pregnant uterus deformed by fibroids; removed by abdominal hysterectomy. The average diameter of the largest fibroid was 15 cm. (6 inches).

The operation was very difficult; the small intestines were loaded with fluid, and though they appeared deeply congested and suspiciously sticky in places, especially the coils which occupied the pelvis, I hoped that it was not due to peritonitis. My hopes were

doomed to be falsified. During the first thirty-six hours the patient seemed to hold her own, but then the pulse quickened, vomiting supervened, and she died fifty hours after the operation, to our deep disappointment and regret.

The uterus is shown in sagittal section in Fig. 10; it contains a fœtus of about the fourth month of pregnancy with the placenta and membranes. A large fibroid springs from and displaces the cervix much in the same fashion as in Fig. 9. This tumour, as well as the subserous fibroid also shown in the drawing, exhibited in a high degree the red degeneration which is so commonly associated with pregnancy. The uterus also contained some small fibroids. The largest tumour had an average diameter of 15 cm., although it remained confined to the true pelvis; this is instructive, because the average diameter of the true pelvis in an adult sterile woman is about 10-11 cm., but I have on several occasions carefully measured the antero-posterior and transverse diameters of cervix fibroids and found them to be 15 cm. This excessive measurement may be due, I think, to the expansive force exhibited by the slow but irresistible growth of the tumour.

A study of the relations of the fœtus and the fibroids in this specimen naturally leads one to reflect upon the probable difficulties which would arise if under somewhat less adverse circumstances pregnancy should have continued to, or near to, term. The following case supplies the answer.

Case 3.—Mrs. F—, aged 33 years, was placed under my care by Mr. L. Beer on account of an abdominal tumour complicated with pregnancy. The patient, who had been married a few months, ceased to menstruate October 27th, 1903. She considered herself to be pregnant, but her peace of mind was disturbed by a rounded tumour as big as a man's fist, which had

become markedly prominent in the neighbourhood of the umbilicus. Examination satisfied me that this lump was a fibroid in the anterior wall of a gravid uterus, but the pelvis also contained a large rounded elastic swelling, and as the cervix uteri was flattened against the pubes it caused some difficulty to determine whether the globular body in the true pelvis represented the fundus of a retroverted gravid uterus, or another fibroid incarcerated by the uterus. As there were no symptoms of urgency or interference with the urinary organs, it seemed judicious to keep the patient under observation, especially as she was anxious to have a living child. She reported herself at intervals, and the uterus rose in the abdomen, but the pelvic mass remained unaltered. On May 9th the patient came to the hospital in great pain and distress; on examination she was found to be in labour, with the arm of the fœtus protruding through the mouth of the womb. Dr. Eden kindly saw the patient and decided that an operation was urgently indicated, as the pelvic tumour absolutely obstructed the transit of the fœtus, and that it was dead. After the patient's abdomen had been rendered as antiseptic as the urgency of the case allowed, I exposed the uterus through a free abdominal incision and performed total hysterectomy, removing the uterus and its neck, with the tumours, fœtus, placenta, ovaries, and tubes intact.

The early stages of the operation were conducted in sterilized rubber gloves until the peritoneum was sutured over the vaginal opening. I then discarded the gloves, as they had probably become contaminated by contact with the vagina, and then carefully washed out the pelvis with sterilised water, and completed the operation without gloves.

In the course of convalescence an abscess formed at the pelvic end of the incision, the result probably of a staphylococcus infection, in consequence of the hurried

preparation of the skin. During the enucleation of the cervix I was a little puzzled to determine where the cervix ended and the vagina began, as the parts were soft and œdematous, but a subsequent examination of the parts showed that the whole cervix was removed. The specimen, as displayed in the drawing, shows the uterus divided in a sagittal direction; an interstitial fibroid occupies its anterior wall near the fundus; it is of the colour of mahogany. The larger fibroid grew from the posterior aspect of the cervix, and almost completely occupied the cavity of the true pelvis. This tumour was soft and in colour like wet wash-leather. It would be tedious to attempt a description of the extraordinarily contorted condition of the fœtus, but this is faithfully displayed in Fig. 11, as well as the œdema of the presenting arm.

I have on many occasions performed subtotal hysterectomy for fibroids complicating pregnancy, and find it is an easier task than removing an unimpregnated uterus; but this is the first occasion on which I have performed total hysterectomy upon a patient in labour. Moreover, when exhibiting the specimen at the Obstetrical Society, London (*vide* 'Transactions,' vol. xlvi, p. 238), I was unaware of any published record or statement in which any surgeon had performed total hysterectomy during labour. My friend Mr. Rutherford Morison has reported in the 'Northumberland and Durham Medical Journal,' July, 1904, a similar case, in which he successfully performed total hysterectomy for a fibroid obstructing labour. The patient had been in labour fifty-six hours. Mr. Morison's operation differed from mine in the fact that he first removed the child from the uterus (Cæsarean section) and then extirpated the uterus and its cervix; whereas in my case the uterus and its contents were removed entire. In my case the fœtus was obviously dead before operation, but in Mr. Morison's

FIG. 11.—A gravid uterus in sagittal section. The patient miscarried at the seventh month and the arm presented. Delivery being impossible on account of a large cervical fibroid, the uterus and its cervix were removed. The œdema of the presenting arm is well shown. The specimen is in the museum of the Royal College of Surgeons.

patient the fœtus, though living when extracted, only survived its delivery a few minutes.

It is worthy of remark that Mr. G. Grey Turner, who reported on the pathological aspect of the uterus, describes the tumour as being softened, œdematous, and exhibiting in places myxomatous degeneration.

In the patients described as Cases 2 and 3 the troubles depended on the presence of what may be called fairly large fibroids, and the difficulties produced by these tumours were manifested in the course of pregnancy, and in one case not only precipitated the labour but permanently obstructed delivery. The next case to be mentioned in this essay differs from these in the fact that it was a submucous fibroid of very moderate size which did not prevent conception, nor interfere with pregnancy, or delivery, but it gave much trouble during puerpery and nearly cost the patient her life.

Case 4.—Early in 1904 a lady was duly delivered at full term of her second child. Coincidently with the expulsion of the placenta the doctor detected a submucous sessile fibroid protruding at the widely-opened mouth of the womb. It soon disappeared within the uterus, and during the protracted lying-in it gave rise to troublesome profuse bleeding. Seven weeks later I was asked to remove the fibroid. In due course matters were arranged. On dilating the cervical canal a submucous fibroid, somewhat larger than a golf ball, but flattened at the poles, could be localised at the fundus. The uterine tissues were extremely soft, and in endeavouring to dilate the cervical canal the largest dilator (No 20) tore through the uterine wall at the base of the tumour. The slit was wide, the uterus soft, friable, and unsatisfactory. I explained the situation to the husband, and asked permission to remove the uterus. He wisely left matters to my judgment. Without any assistance beyond that of an excellent nurse, I performed vaginal

hysterectomy. The patient made a satisfactory recovery, and a year later I saw her in excellent health.

The last case in this series is of interest because the result of a successful myomectomy during pregnancy was marred by an unusual combination of conditions affecting the child and the uterus.

Case 5.—In December, 1900, Dr. Louis Beer placed under my care, in the Chelsea Hospital for Women, a patient, aged 33 years, on account of a tumour in the right iliac fossa. This woman had had three miscarriages. In each instance the pregnancy had advanced to the third month before expulsion occurred, and, as she was extremely anxious to possess a living child, Dr. Beer was particularly careful when the patient became pregnant for the fourth time to avoid anything that would militate against a successful issue; so that when the pregnancy reached the third month he kept her in bed. About the time of quickening the patient complained of pain, and a rounded knob of the size of a tennis ball appeared in the right iliac fossa. It was difficult to decide whether this lump occupied the abdominal wall or was intra-peritoneal. At the operation we found a sessile fibroid growing from the anterior wall of the uterus, adherent to the bladder and omentum. The tumour had so dragged on the bladder that this viscus extended to the right side of the pelvis, and probably accounted for the pain and distress which caused the patient to seek medical advice.

Without any particular difficulty I enucleated the tumour. It exhibited the mahogany tint peculiar to fibroids when they complicate pregnancy. The uterus was gently surveyed with the finger, but nothing interfered with the smoothness of its contour.

The operation immediately relieved the patient of pain. She convalesced in the quick and satisfactory manner which is such an astonishing feature of surgical

operations performed on pregnant women, went to full term, and had a living child. Dr. Beer noticed during the course of the labour that some small lumps, which he suspected to be fibroids, had appeared on the anterior surface of the uterus.

It was natural that all concerned should congratulate themselves on the apparently successful results of their efforts; but the happiness soon vanished, for the child could not retain or even swallow food, and Dr. Beer came to the conclusion that the baby had an imperforate pharynx. With the aid of chloroform and a bougie, the diagnosis was established. The baby slowly starved, and died about six days after its birth. It seemed an obvious thing to comfort, or, at any rate, to console the mother with the assurance that, though she had lost her baby, events had demonstrated her womb to be capable of retaining a living baby, and that the outlook was distinctly encouraging. During 1902 and the beginning of 1903 there were two miscarriages. After the second miscarriage metrorrhagia became very marked, and in March, 1903, the losses of blood were so frequent and abundant as to demand some radical treatment. Our knowledge of the patient's history and the size of the uterus led us to suspect a submucous fibroid, although we could not altogether exclude deciduoma. The patient, however, insisted that, as she had suffered so much, and as we were sure she had some fibroids in the uterus, she would not submit to any operation that did not aim at being radical and restore her to health. It was explained to her that this could only be attained by removal of the womb and the obliteration of all hopes of maternity.

Subtotal hysterectomy was performed in April, 1903. The uterus contained several small fibroids in its walls. and a peculiar sessile body at the fundus involving the endometrium. Macroscopically we could not decide its nature, and even in the laboratory we failed to satisfy

ourselves whether it is a degenerate fibroid or a spindle-celled sarcoma. However, in January, 1905, this long-suffering woman appears in excellent health, and though chastened by disappointed hopes of successful maternity, is nevertheless happy.

A REPORT ON 100 CONSECUTIVE ABDOMINAL HYSTERECTOMIES (ATTENDED WITH RECOVERY) PERFORMED AT THE MIDDLESEX HOSPITAL AND THE CHELSEA HOSPITAL FOR WOMEN.*

Some cynics among surgeons regard statistics as "lies in figures" calculated to impose upon the credulous. It is somewhat interesting in this connection to mention that a statistician of some note who flourished in 1660, Herman Conring, was a professor of medicine and politics. It is quite certain that in medicine, using the term in its broadest sense, statistics or the "employment of figures" is an important means of investigation. Indeed, whatever view cynical writers take in regard to the use of statistics "it is impossible to get over the fact that in meteorology, medicine, and other physical sciences statistical inquiries are plainly and obviously examples of the employment of a method, like microscopy, spectrum analysis, or the use of the telescope" (Hooper). It is worth recalling that one of the earliest examples of statistical writing, from the medical point of view, in this country dealt with *Bills of Mortality* relating to London, 1666. In considering a statistical statement of any kind the first thing is to understand the point or points requiring elucidation, and the source of the facts. The object of the present communication is to demonstrate *that with the strict application of Listerian principles in the form known as aseptic surgery*

* 'Lancet,' May 27th, 1905.

it is possible for a surgeon to perform abdominal hysterectomy successfully in a well-found hospital 100 *times consecutively for a variety of uterine diseases.* The abstracts of cases supporting this statement have been compared with the hospital books by the officials in charge of them at the time the operations were performed. Mr. F. Lionel Provis and Mr. J. Howell Evans allow me to state that they verified the references for the Chelsea Hospital for Women; whilst Dr. W. F. Victor Bonney and Mr. Aslett Baldwin sanction the statement that they have verified the references to the patients treated at the Middlesex Hospital. An account of the first 48 cases in the list appeared in the 'Clinical Journal' of April 20th, 1904, p. 1, but in the present communication an additional (or supplemental) account is given of the patients' condition. For these subsequent notes I alone am responsible, and the source of the information is given in all cases where the request met with success. Great care and pains have been taken to secure these reports in order to show that in the majority of instances the patients derived benefit from the operation, for it is necessary to remember that *recovery* from an operation is not always equivalent to *success* from an operation. A careful study of these supplemental reports is very instructive, and shows that in the majority of cases the patients require six months or even a year to obtain the full benefit of the operation, especially those who are profoundly anæmic from profuse menorrhagia.

It is important to point out that these operations were not only performed in a public institution, but were carried out in the hospital theatre accessible to qualified men and women; every operation in the list was witnessed by members of the profession other than those of the official staff of the hospital. In no case was an exploratory operation performed or any case abandoned as too difficult. Operative treatment was not refused to any patient save those with very extensive

cancer, and, except in this dreadful disease, there was no picking and choosing. Throughout this communication the term "sub-total hysterectomy" will replace the cumbersome expression "supravaginal hysterectomy" as signifying the removal of the body of the uterus with a variable portion of its neck. This change of terms is desirable, for the operation which has given me the best results is not quite what would be called a "panhysterectomy," yet it is something much more than is usually covered by the phrase "supravaginal" hysterectomy. The careful study of the subsequent course of patients after supravaginal hysterectomy led observant operators to notice that those cases did best in whom the supravaginal cervix had been most freely removed; as a matter of fact, in the majority of my operations classed as supravaginal hysterectomy the only part of the uterus left is the vaginal portion of the cervix, and after the operation is completed the united surfaces of the peritoneum merely appear as a slightly raised ridge across the pelvic floor, so that a surgeon inspecting the operation area from above would imagine that a total hysterectomy had been performed. On the other hand, if the cervix be examined from the vagina six months after the operation it will appear natural to the eye and touch. This is a matter of importance, as the operation in no way impairs the pelvic floor or hinders the function of the vagina. For this method the term in familiar use among Parisian surgeons, "sub-total hysterectomy," is peculiarly suitable. The morbid conditions of the uterus which rendered radical operation necessary in these patients fall into five groups—fibroids and adenomyoma, 81; cancer, 4; sarcoma, 1; chronic inflammatory disease of the uterus, 4; and fibrosis, 10 cases; these causes indicate the widening scope of hysterectomy.

Fibroids.—In 81 patients hysterectomy was performed for these tumours, including two cases of the remark-

able disease known as diffuse adenomyoma of the uterus. The commonest condition which induced these patients to submit to operation was profuse and long-continued bleeding from the uterus. The ages of the patients varied from 27 to 69 years. It is necessary to draw attention to the fact that out of a total of 81 hysterectomies for fibroids 13 of the patients had reached the age of 50 years and upwards, and in each of them it was necessary to perform a serious operation for a disease which is generally believed to become harmless about the forty-eighth year of a woman's life (see p. 36). Two of these are worth some special remarks. Case 72 had been known to have a uterine fibroid many years and she ceased to menstruate in her fiftieth year. In consequence the tumour diminished very materially. When she attained her sixtieth year the fibroid began to cause so much trouble with the bowel and bladder that she had to seek relief. A large tumour blocked up the inlet of the pelvis and pushed the cervix low into the vagina. At the operation I found a large conical fibroid firmly fixed in the pelvis like a cork; it required a fair effort to extract it and, as in all those exceptional cases which require surgical interference after the menopause, the operation was singularly easy and almost bloodless. The tumour had a transverse diameter of $4\frac{1}{2}$ inches, a vertical diameter of $5\frac{1}{2}$ inches, and in horizontal circumference measured $13\frac{1}{2}$ inches. The patient was a spinster of average proportions, so that these measurements will afford some indication of the tightness with which this fibroid blocked the pelvis.

The oldest case in this series is in some respects the most interesting. The patient (No. 91 in the list) had attained her sixty-ninth year and she knew for a quarter of a century that her abdomen contained a tumour which by its size and weight had been a source of great inconvenience and often actual distress. This woman when placed under my care had been suffering

from profuse uterine hæmorrhage and it was on this account that she deliberately sought the aid of surgery. The tumour equalled in size and hardness the head of a man. She was very fat, had an umbilical hernia, and unfortunately her urine contained sugar to the extent of 12 grains to the ounce. By rest and diet the amount of sugar diminished and I performed hysterectomy. The uterus contained a fibroid with an average diameter of 12 inches (30 centimetres) which yielded the odour of stale fish and the uterine cavity contained a degenerating tumour with the microscopic characters of cancer. On account of the glycosuria the operation was quickly completed, occupying from the time the anæsthesia was begun to the application of the dressing 22 minutes. The patient recovered easily and quickly. She left the hospital on the eighteenth day for her home. In a letter reporting her subsequent condition Mr. J. C. R. Braine-Hartnell, in expressing his satisfaction that the operation had been undertaken, states that the previous twenty years of her life had been "twenty years of misery." Such a case tells its own tale.

If I had been bent on selecting cases for the purpose of making good statistics, it would have been easy in regard to this old lady to urge the presence of sugar in the urine as a bar to operation, and doubtless some practitioners would have deemed it a manifestation of surgical prudence. It is, however, useful to remember that operating on bad cases is very apt to ruin statistics but it frequently saves lives, and this is the main consideration.

Diffuse adenomyoma.—Among the fibroids there were two examples of this condition; they are included with them, because, in these two cases, the uterus also contained typical fibroids, and the clinical signs of the disease are indistinguishable from those which indicate the existence of submucous fibroids and the treatment

eventually required is the same—namely, hysterectomy—on account of the long-continuing exhausting menorrhagia, which rest, drugs, and repeated curetting fail to cure (see p. 14).

Fibrosis of the uterus.—The prominent symptom which renders hysterectomy necessary in this disease may be described as rebellious menorrhagia, for it defies rest, drugs, and repeated curettings. Dr. A. H. Freeland Barbour recently brought a case of this disease before the Obstetrical Society of Edinburgh (January, 1905), and the communication clearly shows that he appreciates the leading features of the morbid anatomy of this affection, which, as he states, is essentially one affecting the arteries of the endometrium before the menopause. Dr. Barbour also recognises the most important clinical aspect of the condition—namely, the manner in which the bleeding and the enlargement of the uterus simulate cancer of the corporeal endometrium and that in the way of treatment hysterectomy alone gives good results (see p. 17).

In the cases in the following list the operation performed was sub-total hysterectomy unless otherwise specified.

Case 1.—A single woman, aged 49 years; fibroid; profound anæmia; January 19th, 1903. This patient had been an invalid for several years. She writes, January 10th, 1905: "I have been earning my living as a governess-housekeeper, and never had one day in bed since the first month after the operation."

Case 2.—A married woman, aged 33 years; fibroid; hæmorrhage and pain; January 19th, 1903. Bilateral oöphorectomy had been performed five years previously for menorrhagia, but without good consequences. Reported in good health from Africa January 25th, 1905. Letter from medical attendant.

Case 3.—A single woman, aged 44 years; fibroid; hæmorrhage; January 19th, 1903. "I am better now than I have been for the last ten years, and people cannot understand how it is that I look so well after all the misery that I have been through before the operation." Patient's letter, January 7th, 1905.

Case 4.—A married woman, aged 49 years; adenomyoma; January 26th, 1903. "I saw the patient to-day; she expressed herself as feeling perfectly well—in fact, better than she had felt for years." Letter from medical attendant, January 5th, 1905 (see p. 15).

Case 5.—A married woman, aged 45 years; fibroid; hæmorrhage; February 2nd, 1903. "I consider that I am very fortunate to be so well as I am as I have had no pain in my stomach since the operation, the only thing I perspire very much and flushing, but that is nothing to the pain I was in before the operation." Patient's letter, January 11th, 1905.

Case 6.—A married woman, aged 35 years. A very large fibroid; March 2nd, 1903. Reported herself on her birthday, January 9th, 1905. In excellent health.

Case 7.—A married woman, aged 35 years. Fibrosis; menorrhagia; March 2nd, 1903. In excellent health September, 1904, and placed her sister under my care for hysterectomy (see Case 82).

Case 8.—An unmarried woman, aged 48 years. Fibroids; hæmorrhage; March 9th, 1903. Re-entered the hospital for vesical calculus, July, 1904. Uterine stump quite free from the bladder.

Case 9.—An unmarried woman, aged 48 years. Fibroids; hæmorrhage; March 16th, 1903. Reported

herself one month after leaving the hospital with œdema of one leg.

Case 10.—A married woman, aged 52 years. Fibroids; hæmorrhage; April 6th, 1903. "I really enjoy life, which I never did before." Patient's letter, Jan. 25th, 1905.

Case 11.—A married woman, aged 35 years. Fibroids (? sarcoma); April 13th, 1903. In good health January 10th, 1905. Letter from patient (see p. 93).

Case 12.—An unmarried woman, aged 45 years. Large and rapidly growing fibroid; April 13th, 1903. This patient has been under treatment at home for recrudescence of disease in her knee which afflicted her when she was a child. Letter from patient, January, 1905.

Case 13.—An unmarried woman, aged 35 years. Fibroids; hæmorrhage; April 20th, 1903. "My health is really good and strong, I am able to follow my work as a nurse (in a hospital for infectious diseases). Previous to operation my life was unbearable." Patient's letter, January 16th, 1905.

Case 14.—A married woman, aged 38 years. Fibroids; profound anæmia; May 4th, 1903. "My health is very satisfactory." Letter from patient, January 6th, 1905.

Case 15.—A married woman, aged 53 years. Fibroids; bilateral ovarian cysts; May 11th, 1903. "I have greatly improved." Patient's letter, January 7th, 1905.

Case 16.—A married woman, aged 37 years. Fibroids; bilateral pyosalpinx; May 11th, 1903. "I am in good

health except that I have at times sharp pain in the right side of the abdomen." Letter from patient, January 6th, 1905.

Case 17.—A married woman, aged 43 years. Fibrosis; profuse menorrhagia; May 25th, 1903. "I am fairly well with the exception of frequent headaches and nerve troubles." Letter from patient, January 15th, 1905.

Case 18.—An unmarried woman, aged 49 years. Fibroids; profuse menorrhagia; June 1st, 1903. "She is perfectly well." Letter from medical attendant, January 5th, 1905.

Case 19.—A married woman, aged 54 years. Fibrosis; menorrhagia; June 15th, 1903. Left for Ceylon some weeks later.

Case 20.—An unmarried woman, aged 45 years. Fibroids, very large; July 6th, 1903. "Feeling better than I have for years." January 8th, 1905.

Case 21.—An unmarried woman, aged 47 years. Fibroids, very large; July 7th, 1903. In the October following the operation was able to commence work again. Patient's letter, January 7th, 1905.

Case 22.—An unmarried woman, aged 52 years. Fibroids, very large; July 11th, 1903. "I am very well." January 7th, 1905.

Case 23.—An unmarried woman, aged 37 years. Fibroids; hæmorrhage; cyst of the right ovary; July 27th, 1903. (Middlesex Hospital.) "Enjoying the best of health." Patient's letter, January 10th, 1905.

Case 24.—An unmarried woman, aged 46 years. Cancer of the body of the uterus; August 3rd, 1903. (Middlesex Hospital). Letter returned, "Gone away," January 10th, 1905.

Case 25.—An unmarried woman, aged 53 years. Fibroids and cancer of the body of the uterus; August 13th, 1903. (Middlesex Hospital.) This case was drained and she left hospital with a sinus. This closed some months later. She now complains of pain in the left side. January 9th, 1905.

Case 26.—A married woman, aged 46 years. Fibroid and ovarian dermoid; August 17th, 1903. (Middlesex Hospital.) "She enjoys better health than she has done for years." Letter from medical attendant, January 10th, 1905.

Case 27.—A married woman, aged 51 years. Fibroids; hæmorrhage; August 20th, 1903. (Middlesex Hospital.) "Is perfectly well as regards the operation for fibroids." Letter from medical attendant, January 9th, 1905.

Case 28.—An unmarried woman, aged 47 years. Fibroid, degenerating; hæmorrhage; September 7th, 1903. "I am beginning to feel much stronger." Letter, January 16th, 1905. As a matter of fact, I can state that this patient is very well.

Case 29.—A married woman, aged 45 years. Fibroid, degenerating; hæmorrhage; September 7th, 1903. "Her condition is much better than it has been for years." Letter from medical attendant, January 6th, 1905.

Case 30.—An unmarried woman, aged 42 years.

Fibroid; profound anæmia; September 7th, 1903. In good health, September, 1904. Personal visit.

Case 31.—A married woman, aged 24 years. Septic endometritis; September 7th, 1903. In good health when she left for Africa. Autumn, 1904.

Case 32.—A widow, aged 49 years. Fibroid; cancer of tube; September 14th, 1903. Known to be in good health six months later and contemplating re-marriage.

Case 33.—A married woman, aged 32 years. Fibroid; hæmorrhage; September 14th, 1903. "You will be pleased to hear that I was able to conduct and manage more business last summer than in any previous year." January 7th, 1905.

Case 34.—A married woman, aged 31 years. Fibroid; hæmorrhage and degeneration; September 21st, 1904, "For the relief of the operation I am most thankful. I hardly know myself, I feel so well." Patient's letter, January 26th, 1905.

Case 35.—A married woman, aged 44 years. Fibrosis; hæmorrhage; September 28th, 1903. Good report from medical attendant, January 6th, 1905.

Case 36.—An unmarried woman, aged 40 years. Fibroid; profound anæmia; October 19th, 1903. Had some trouble from a stitch, but is now all right. January 13th, 1905.

Case 37.—An unmarried woman, aged 23 years. Cancer of the cervix. Total hysterectomy, November 2nd, 1903. Seen at frequent intervals since operation; in good health, October, 1904.

Case 38.—A married woman, aged 33 years. Fibrosis. Suspected to be cancer of the cervix; November 9th, 1903. She is first-rate, is fat, and looks well. Letter from medical attendant, January 10th, 1905.

Case 39.—A married woman, aged 38 years. Fibroid, very large dermoid; November 16th, 1903. "I have now better health than I have ever had." January 7th, 1905.

Case 40.—An unmarried woman, aged 44 years. Fibroid, large and growing; November 23rd, 1903; "Fräulein —— is so well since her operation." Letter from her friend (Case 1), January 10th, 1905.

Case 41.—An unmarried woman, aged 38 years. Fibroid: profound anæmia; November 30th, 1903. "My condition is, on the whole, very satisfactory." Patient's letter, January 11th, 1905.

Case 42.—An unmarried woman, aged 55 years. Fibroids; pain; January 11th, 1904. Convalescence slow, and January 5th, 1905, her medical attendant writes: "Is now able to take up her school duties; so that, when we bear in mind the wreck she was at the time of the operation, I think it is remarkable."

Case 43.—An unmarried woman, aged 50 years. Cervix fibroid; retention of urine; January 11th, 1904. "I still feel a weakness in the left side, but beyond that I feel better and can walk better than I have done for some years." Letter from patient, January 7th, 1905.

Case 44.—An unmarried woman, aged 59 years. Cancer of the body of the uterus; total hysterectomy; January 18th, 1904. Suspicions of a recurrence, March 18th, 1905. Letter from medical attendant.

Case 45.—A married woman, aged 37 years. Fibroids, septic; January 18th, 1904. In excellent health. Seen personally on January 23rd, 1905.

Case 46.—An unmarried woman, aged 42 years. Cervix fibroid; January 25th, 1904. "My health is now excellent." Letter, January 7th, 1905.

Case 47.—A married woman, aged 52 years. Fibroids; hæmorrhage; February 8th, 1904. Recovered slowly. "She looks the picture of health and feels quite well." Letter from medical attendant, April 2nd, 1905.

Case 48.—A married woman, aged 42 years. Fibrosis; profuse menorrhagia; February 15th, 1904. Sent a post-card from the Matterhorn to show that she could climb a mountain in the summer, 1904.

Case 49.—An unmarried woman, aged 37 years. Subserous fibroid and diffuse adenomyoma; very profuse menorrhagia; March 7th, 1904. This patient, a surgical nurse, suffered from asthma, and it was thought that if the metrorrhagia was stopped the severity of the asthmatic attacks might be lessened. This hope has not been realised, though the patient's general condition is greatly improved.

Case 50.—A married woman, aged 44 years. Fibroid; very large and painful; March 7th, 1904. This patient (a monthly nurse) writes, January 6th, 1905: "I am pleased to say I am much better: the only thing I have to complain of, I have to hold my abdomen just by the navel when I cough or sneeze."

Case 51.—An unmarried woman, aged 43 years. Fibroid; profuse metrorrhagia; March 14th, 1904. This

patient, a surgical nurse, writes January 16th, 1905: "Quite well, having no pain or discomfort of any kind."

CASE 52.—An unmarried woman, aged 42 years. Fibroid; excessive menstruation; anæmia; March 21st, 1904. "Patient never remembers feeling better." Letter from medical attendant, February 27th, 1905.

CASE 53.—A married woman, aged 33 years. Fibroid; menorrhagia; March 21st, 1904. Total hysterectomy. Good report from the patient, March 1st, 1905.

CASE 54.—A married woman, aged 48 years. Fibroid; metrorrhagia; bilateral hydrosalpinx; March 21st, 1904. Patient is very well. Letter from medical attendant, February 27th, 1905.

CASE 55.—A married woman, aged 45 years. Cervix fibroid; menorrhagia; March 28th, 1904. Patient reports herself in good health. Letter, February 28th, 1905.

CASE 56.—A married woman, aged 43 years. Sarcomatous fibroid; intense pain; March 28th, 1904. Patient died in June, 1904. Dr. —— writes that she had much less pain after the operation.

CASE 57.—An unmarried woman, aged 29 years. Fibroid: soft myxomatous; menorrhagia; profound (toxic) anæmia; March 29th, 1904. Patient keeping in good health. Letter, February 28th, 1905.

CASE 58.—An unmarried woman, aged 56 years. Fibroids; pain and dysuria; April 12th, 1904. Convalescence slow but satisfactory. Letter from patient, February 27th, 1905.

Case 59.—An unmarried woman, aged 32 years. Fibroids; menorrhagia and pain; April 12th, 1904. In good health, December, 1904. Personal visit.

Case 60.—A married woman, aged 52 years. Fibroids; excessive metrorrhagia; April 15th, 1904. Good report from the patient, February 23rd, 1905.

Case 61.—An unmarried woman, aged 39 years. Fibroids; pain; April 15th, 1904. This patient had two large parovarian cysts removed on March 16th, 1903; the left ovary was not removed, nor were there any evidences of fibroids. Soon after this operation she began to suffer from profuse menstruation and pain, and the former became so profuse as to interfere with active life. She writes, February 28th, 1905: "I am much better since my last operation."

Case 62.—A married woman, aged 42 years. Fibroids; cystic ovaries and distended Fallopian tubes; April 18th, 1904. (Unable to trace this patient; she was in good condition when she left the hospital.)

Case 63.—An unmarried woman, aged 41 years. Cervix fibroid; menorrhagia; cancer of the colon discovered in the course of the operation, April 18th, 1904. Resection of the sigmoid flexure for cancer in the Middlesex Hospital, September, 1904. The patient subsequently reported herself in good health.

Case 64.—A married woman, aged 33 years. Chronic inflammatory disease of the uterus, tube, and ovaries; total hysterectomy, April 25th, 1904. Good report from the patient, February 28th, 1905.

Case 65.—A married woman, aged 31 years. Fibroids; red degeneration; pain and menorrhagia; May

2nd, 1904. April 2nd, 1905, the medical attendant writes: "She is now quite well, but a month or so after her return home she had an attack of hemiplegia which cleared up completely."

CASE 66.—A married woman, aged 40 years. Fibroids; profuse menorrhagia; May 9th, 1904. "Health much improved since the operation." Letter from patient, March 16th, 1905.

CASE 67.—A married woman, aged 33 years. Fibroids obstructing labour. Total hysterectomy during labour. May 9th, 1904. The patient was seen several times subsequently. In good health, January, 1905.

CASE 68.—A married woman, aged 37 years. Cervix-fibroid; retention of urine; total hysterectomy and both ovaries removed May 16th, 1904. The patient made a slow convalescence. April 2nd, 1905, the medical attendant writes: "Looks very well; she has flushings and the symptoms of the menopause."

CASE 69.—An unmarried woman, aged 48 years. Fibroids; May 16th, 1904. In good health, March 13th, 1905. Letter from medical attendant.

CASE 70.—An unmarried woman, aged 33 years. Fibroids, menorrhagia, pain; May 30th, 1904. Convalescence slow, but satisfactory. Letter from patient, March 29th, 1905.

CASE 71.—An unmarried woman, aged 47 years. Fibroids; painful micturition; total hysterectomy, May 30th, 1904. "Health greatly improved since the operation." Letter, March 3rd, 1905.

CASE 72.—An unmarried woman, aged 60 years.

Fibroid impacted in the pelvis; retention of urine; June 27th, 1904. The patient was much more comfortable since the operation. Her general health is not good. Letter, March 3rd, 1905.

Case 73.—A married woman, aged 48 years. Fibroids; profuse menorrhagia; July 4th, 1904. Reported herself at the hospital, February 27th, 1905, in good health.

Case 74.—A married woman, aged 48 years. Fibroids; menorrhagia; July 4th, 1904. The patient was reported well, February 28th, 1905, by her medical attendant.

Case 75.—A married woman, aged 38 years. Fibrosis; metrorrhagia; July 11th, 1904. "The patient is much better." Letter, March 3rd, 1905.

Case 76.—An unmarried woman, aged 40 years. Fibroids, pain, and frequent micturition; July 11th, 1904. "General health fairly good." Letter, March, 1905.

Case 77.—An unmarried woman, aged 33 years. Fibroids; menorrhagia; July 11th, 1904. Convalescence slow. Letter, March 9th, 1905.

Case 78.—An unmarried woman, aged 27 years. Fibroids, tumour thought to be a solid ovarian before operation, July 26th, 1904 (Middlesex Hospital). "I have been very much better in health since my operation." Letter from patient, March 13th, 1905.

Case 79.—An unmarried woman, aged 50 years. Septic uterus and hydrosalpinx; August 17th, 1904 (Middlesex Hospital). Personal visit in February, 1905. In good health.

Case 80.—An unmarried woman, aged 51 years.

Fibroids; profuse menorrhagia; August 24th, 1904 (Middlesex Hospital). The patient was very well March 2nd, 1905. Letter from medical attendant.

Case 81.—A married woman, aged 39 years. Fibrosis; profuse menorrhagia; September 12th, 1904. Reported to be in good health two months after leaving hospital.

Case 82.—A married woman, aged 39 years. Fibrosis; menorrhagia; a chronic invalid; total hysterectomy; September 26th, 1904. Convalescence slow, but satisfactory. Letter, March 29th, 1905.

Case 83.—An unmarried woman, aged 40 years. Fibroids; metrorrhagia; September 28th, 1904. (Middlesex Hospital.) The patient (a nurse in a county asylum) says she feels better than she has done for years. Letter, March 28th, 1905.

Case 84.—A married woman, aged 40 years. Fibroids; metrorrhagia; total hysterectomy; October 3rd, 1904. No report since leaving the hospital.

Case 85.—A married woman, aged 48 years. Fibroids; septic; continuous metrorrhagia; total hysterectomy; October 3rd, 1904. "Her health has improved wonderfully since the operation." The patient left for India in November. Letter from medical attendant March 3rd, 1905.

Case 86.—A married woman, aged 34 years. Fibroids; October 3rd, 1904. Very good report from the patient. Letter, March, 1905.

Case 87.—A married woman, aged 40 years. Cervix fibroid; tightly impacted and degenerated; October 7th, 1904. The patient had done extraordinarily well; can

do a hard day's work. Letter from medical attendant, March 31st, 1905.

Case 88.—A married woman, aged 46 years. Fibroids; three of very large size, and one impacted in the pelvis; November 14th, 1904. "My wife is better now than she has been for years." Letter, March 6th, 1905.

Case 89.—A married woman, aged 33 years. Fibrosis; persistent bleeding; November 14th, 1904. Good report from the patient, March 31, 1905.

Case 90.—A married woman, aged 37 years. Fibroids; menorrhagia; marked anæmia; November 21st, 1904. "My health is better than I have ever had it." Letter from patient March 3rd, 1905.

Case 91.—A married woman, aged 69 years. Fibroids; dangerous bleeding; diabetes; sugar ten grains to the ounce; cancer of the body of the uterus; November 28th, 1904. Her medical attendant writes, April 4th, 1905, that the patient "is wonderfully well."

Case 92.—A married woman, aged 30 years. Fibroids; profuse menorrhagia; marked anæmia; November 28th, 1904. The patient made an excellent convalescence.

Case 93.—An unmarried woman, aged 52 years. Fibroids; pain and menorrhagia; December 5th, 1904. The patient has resumed her work as a nurse in a county asylum, and is very well. Letter, March 28th, 1905.

Case 94.—A married woman, aged 37 years. Septic uterus; active bilateral salpingitis; total hysterectomy; December 5th, 1904. In good health, May, 1905. Personal visit to the hospital.

Case 95.—A married woman, aged 44 years. Fibroids, small but numerous; profuse metrorrhagia; distended Fallopian tubes; total hysterectomy; December 12th, 1904. The patient has done extraordinarily well. Letter from her medical attendant, March 31st, 1905.

Case 96.—An unmarried woman, aged 48 years. Fibroids; pain and frequent micturition; December 19th, 1904. Good report from the patient, February 15th, 1905.

Case 97.—A married woman, aged 35 years. Fibroids; menorrhagia; profound anæmia; December 19th, 1904. Good report from the patient, March 10th, 1905.

Case 98.—A married woman, aged 41 years. Fibroids; menorrhagia; anæmia; December 19th, 1904. Letter from patient, February 3rd, 1905. "Getting quite strong again."

Case 99.—An unmarried woman, aged 40 years. Fibroids; hæmorrhage and anæmia; December 20th, 1904. Good report from the patient, February 13th, 1905.

Case 100.—An unmarried woman, aged 52 years, Fibroids; hæmorrhage; December 20th, 1904. "Much stronger and doing well." Letter from patient February 3rd, 1905, and March 20th, 1905.

In addition to the 81 patients from whom the uterus was removed for fibroids and diffuse adenomyoma, there were 8 women in whom myomectomy or enucleation was performed, and one woman, aged 28 years, from whom a large soft fibroid weighing fourteen pounds was removed from the round ligament of the uterus. This tumour grew into the abdomen like a subserous

stalked fibroid. Each of these patients made an uninterrupted recovery. Myomectomy and enucleation are justifiable procedures in women contemplating marriage and in married women so anxious for offspring that they are willing to run serious risks on the chance of obtaining living children. Experience, however, teaches this stern lesson: *After the enucleation of a fibroid in the procreative period of life a woman is twenty times more likely to grow more fibroids in her womb than to conceive successfully.*

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