

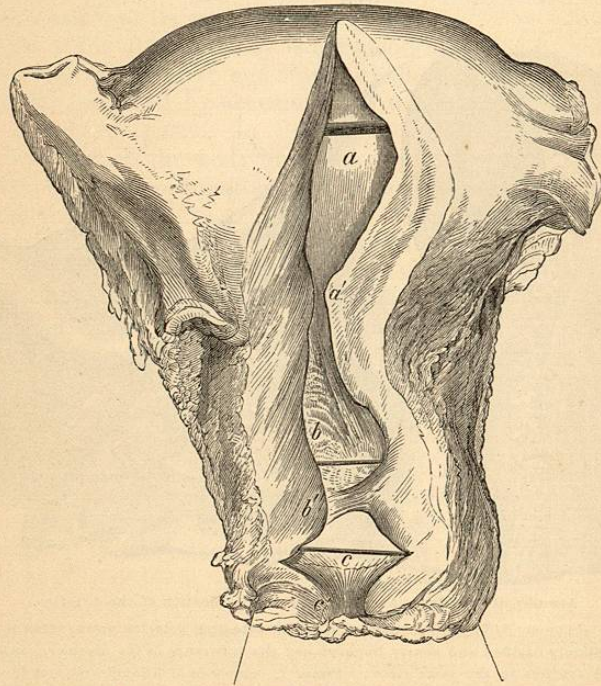
Dr. Thorburn, Dr. Lloyd Roberts, and Mr. Windsor corroborated the conclusion drawn by Mr. Whitehead.

The preceding drawing (Fig. 98) taken from Carswell's *Morbid Anatomy* represents a form of atrophy of the uterus connected with calcification of the ovario-uterine arteries.

Obliteration of the uterine cavity is sometimes the result of concentric atrophy; it often results from adhesions following accumulations of mucus, mucous polypi, or connective-tissue tumors.

Obliteration of the cervix uteri and of the orifices is commonly caused by closure from pullulating ovula Nabothi. More often the os internum is closed by flexions. Occasionally it is the result of longitudinal dragging of the cervix. The os internum may be closed by cicatrices from lacerations and bruising, from ulcerative loss of substance, from amputation of the vaginal-portion, from the action of cauteries. In aged women, it not unfrequently closes by a process of concentric atrophy, the margin of the ring of the os uteri getting glued up by dense epithelial scales resembling a membrane.

FIG. 99.



Stenosis; Atresia; Dilatation of Uterus (R. B.). London Hospital, Ea. 56, from nat. size ("Dr. Barnes").

Fig. 99, from a specimen in the London Hospital, put up by me, represents closure at three different points of the uterine canal.

This uterus came from a woman aged forty-three, married, barren. It is divided imperfectly into three cavities. The upper two, *a*, *b*, are

hour-glass shaped; the lowest, *c*, about three-quarters of an inch long, is separated from the middle one by a nearly complete fold of mucous membrane. In the middle cavity, the uterus is deeply furrowed, and studded with large gaping follicles. The atresia was no doubt due to endometritis with follicular inflammation.

Abnormities of Shape of the Uterus.—As a congenital anomaly, there occurs the congenital obliquity in connection with the uterus bipartitus, unicornis, bicornis, and bilocularis. The most marked form of this is seen when one horn with its tube stands higher than the other, and the vaginal-portion is correspondingly oblique. This uterus lies obliquely in the pelvis, inclining to one or other side of the vaginal roof. (See Fig. 92 from Tiedemann.) The broad ligament of this side is narrower, and the ovary lies nearer to the uterus. Sometimes this uterus is bent in an angular form on that side which is highest. Often the higher side is more dense and bigger.

There are asymmetrical forms of the uterus caused by excessive development of one half of the body of the uterus. When there is bending on this side, the retort form is produced.

Among acquired malformations, there is obliquity from one-sided dragging of a fibrous tumor, or an ovarian tumor, from dragging in hypertrophy of the vaginal-portion, from scars, from various accumulations in its cavity, and from inflammatory adhesions in one broad ligament.

CHAPTER XVIII.

GENERAL OBSERVATIONS ON UTERINE PATHOLOGY; EFFECTS OF LABOR AND LACTATION; INVOLUTION IN DEFECT AND EXCESS.

IN studying the pathology of the uterus, it is especially necessary to keep in constant view the peculiarities of structure and the physiology of the organ. No organ in the body undergoes such remarkable physiological changes. At each menstrual period there is increased vascularity, increased volume, increased muscular energy, the development of new tissue, followed by a retrograde process of involution, which effects the return to the ordinary state. At every pregnancy the changes wrought are more wonderful still. Under its physiological influences, the uterus is thus continually subject to alternate hypertrophy and atrophy, or more strictly speaking, involution. The mucous membrane is endowed with extraordinary regenerative power. And these active reproductive and solvent forces inherent in the uterus are constantly ready to be called

into action on any abnormal stimulus. Thus, if a fibroid tumor form in the uterine wall, or project into its cavity, the vessels and tissues respond just as they do to the stimulus of impregnation.

Interruptions, then, to the fulfilment of the organic changes evoked by function will account for a large proportion of the cases of uterine disease, especially congestion, engorgement, hyperplasia, hypertrophy, atrophy. Continually recurring functional acts will also exert an influence, generally injurious, sometimes beneficial, upon morbid existing conditions.

Perhaps there is no organ in the body more prone to hypertrophy than the uterus. Its functional hypertrophy has often been likened to inflammation, notably that hypertrophy of the mucous membrane which results in the formation of the decidua.

The diatheses also must not be overlooked. When one of these exists, it may be the primary cause of the development of disease in the uterus; or, if one of them happen to complicate uterine disease which has arisen from other causes, it will impress its stamp, it will greatly increase the difficulty of cure, and will, therefore, dictate largely the course of treatment. The strumous, dartrous, or herpetic, rheumatic or gouty diatheses, or the syphilitic, tuberculous, or cancerous cachexiæ often play a most important part in the production, continuance, and curability of uterine diseases.

The uterus is liable to alteration of structure and disturbance of function from causes external to itself. Some of these may take their rise in distant organs, some in neighboring organs; and the uterus, as an integral part of the whole organism, is subject to the constitutional disorders which affect the body, and to the disorders ensuing upon the multitudinous varieties of toxicohæmia. Thus the uterus is liable to tubercle. The blood dyscrasiæ which dispose to hemorrhages from the mucous membranes are perhaps more likely to induce hemorrhage from the uterus than from other organs. This is especially true during the period of sexual activity. Thus scurvy, smallpox, measles often cause uterine and tubal hemorrhages.

Certain medicinal substances or poisons circulating in the blood act with special intensity upon the uterus.

The uterus is remarkably susceptible to nervous impressions, emotional, reflex, and so-called sympathetic; and through these nervous impressions it is certain that functional and even structural disturbances are produced. The uterus stands in the most intimate correlation with the ovaries and breasts. With the ovaries it is directly associated by its vascular supply, which may be said to be common to both organs. The vessels supplying both so freely anastomose that it is impossible for hyperæmia to exist in the one without involving the other in a similar condition. This is most strikingly manifested in the uterine hyperæmia evoked by the ovarian menstrual nixus; but it is almost equally clear that what is called ovarian dysmenorrhœa reacts upon the uterus also.

The application of the suckling infant to the breast often causes contraction of the uterus. I have often known it cause uterine hemorrhage. Many women are conscious of pain in the uterus when suckling. The application of leeches, blisters, or cupping glasses to the breast has brought on menstruation. This was known to Hippocrates.

Obstinate *pruritus pudendorum*, by keeping up a constant excess of blood and local nervous disorder, not seldom brings about a congestion, enlargement, or infarctus of the uterus.

The uterus in its turn is the starting-point for manifold affections of the distant organs, and of the general system. I do not in this work more than glance at the influences which the pregnant womb exerts. Those which spring from the non-pregnant womb are scarcely less striking.

The uterus is especially liable to change of structure and disturbance of function under the influence of changes affecting its neighboring organs. Floating, as it does freely, between the bladder and the rectum, it is subject to constant change of position, according to the varying conditions of fulness or emptiness of these organs. Of course, so long as these conditions are within physiological limits, the uterus adapts itself readily to them; but if the natural mobility of the uterus be impeded, as by plastic deposits about the broad ligaments, by blood-masses and plastic deposits in the retro-uterine pouch, by tubal gestation, or by any body becoming attached to it, uterine hyperæmia proceeding to infarctus or hypertrophy is sure to follow. In every case of pelvic peritonitis, or so-called pelvic cellulitis, the uterine walls are found thickened. This is a frequent cause of secondary puerperal hemorrhage, and of hemorrhage continuing for months after labor as menorrhagia. This, it may be said, is due to arrested involution from the state of pregnancy, this form of inflammation commonly arising after labor or abortion. But I believe this is only one particular instance of a general law. The same state of engorgement and hyperplasia is observed, no matter what the cause which fixes the uterus. This fixing and the attendant changes in the circulation of the organ account in great part for the enlargement of the body of the uterus, which takes place when cancer invades the neck. If inflammation begin in the broad ligament or in Douglas's pouch, not spreading to the uterus, but fixing it by external deposits, enlargement equally follows.

The uterus, also, I have observed is liable to hyperplastic enlargement, as the result of oft-repeated or long-continuous hyperæmia produced by disorder of the liver, kidneys, or heart.

We shall find the history of the natural changes ensuing upon menstruation, pregnancy, and labor to be a necessary introduction to the right appreciation of engorgement, inflammation, hypertrophy, prolapsus, versions and flexions of the uterus, and of other uterine and peri-uterine affections. This history, then, which really includes the study of the etiological relations of so many disorders, will here be briefly traced.

EFFECTS, LOCAL AND CONSTITUTIONAL, OF LABOR AND LACTATION.

A very large proportion of the cases of uterine disease which come under treatment are the result, more or less immediate, of parturition. To understand this aright it is necessary to study what are the effects of parturition upon the uterus. Parturition is a violent process. Even in ordinary labor the dilatation of the cervix uteri is effected in great part by the direct pressure of the head or other part of the child. In many cases the pressure thus exerted amounts to severe bruising, contusion of

tissue, attended by a partial sliding, a glacier-like movement of the mucous membrane, away from the subjacent tissues. This traumatic process necessarily involves the rupture of many small vessels, producing ecchymosis and serous effusion in the connective tissue, and even in the wall of the cervix. That the edge of the os externum uteri is almost constantly torn in first labors is notorious. The peculiar distress arising from this rent has been well studied by Emmet.

Impeded Involution.—The first in time, if not in importance of the results of labor, is the persisting enlargement of the uterus, which marks the failure of the process of involution. Within a month the uterus ought to complete its return to the ordinary state; that is, it ought to recover from a bulk represented by one and a half pounds weight or more to two or three ounces. This wonderful change is brought about chiefly by two processes. The first is one of active and tonic contraction of the muscular fibre, which by diminishing the bulk of the organ, squeezes out of its vessels all superfluous blood. The second process is a compound one of absorption and excretion. The now useless solid tissue is first converted into granular fat, then absorbed into the circulation, and lastly ejected from the organism by the glandular apparatus. Both these processes are liable to be impeded. The first and most essential act, that of vigorous and persistent muscular contraction, is often badly performed. A degree of hæmostasis remains, which keeps up congestion, disposing to hemorrhage and inflammation. The excessive bulk and weight of the organ occasion local distress. This condition, moreover, retards the second essential process of absorption. And if to this be added, as is too commonly the case, feeble glandular action and weak nutrition, involution is seriously retarded.

Besides mere want of power, other causes may concur in frustrating the due involution of the uterus and vagina; and these it is desirable to enumerate. Associated under the general term, want of power, we of course include the influence of accidentally complicating diseases, as fevers, phthisis, and of the cachexiæ, as struma and syphilis. Under the influence of these diseases involution rarely goes on well. A marked excess of bulk, with chronic endometritis, may be observed for weeks and months. Flooding during and after labor, by weakening general power, and especially by impairing tonicity of muscular fibre, retards involution. The occurrence of perimetritic inflammation during childbed, especially if attended by effusions which impede the mobility of the uterus, surely retards involution. Indeed, I think it may be laid down as an aphorism that whenever the mobility of the uterus is arrested, whether the cause be external or internal, a degree of hyperplasia is the result. Thus, as in the case just mentioned of perimetritic adhesions, imperfect involution and a process of slow infarction follow. In the case of ectopic gestation where the foetal sac comes into adhesion with the uterus, the primary development of the uterus under the stimulus of conception is maintained, and even exaggerated. When peritonitis and adhesions form from malignant disease, the uterus is always increased in bulk, and this increase is greatly due to this cause, not alone to the direct influence of the malignant disease.

The inevitable injury inflicted upon the cervix, and especially upon the

vaginal portion, may evoke such an active process for repair that general involution may be impeded.

Displacements of the uterus also impede involution; and displacements are very apt to occur after labor. The most common displacements are retroversion, retroflexion, and prolapsus. When one of these occurs the free circulation through the uterine vessels is necessarily interrupted. The arteries may pump in blood, but the return by the veins is obstructed by the tortuous course and angulations produced by the displacement. Hæmostasis, frequent metrorrhagia, arrest of involution, and continuous infarction are the result.

Fibroid tumors, or polypi in the uterus, retard involution, by keeping up a developmental attraction of blood. There is a kind of spurious gestation.

I am disposed to fix the normal period required for complete involution at one month. But this applies to persons in health, and placed in favorable circumstances. Hospital air is an unfavorable condition; and I am told that in the lying-in hospitals abroad six weeks is the time usually required.

The reduction in size which the uterus has to undergo, and the brief space within which this change has to be effected, constitute one of the most striking facts in physiology. At the full term of pregnancy the cavity of the uterus, says Simpson, contains above 400 cubic inches; and in the non-pregnant it can hardly be said to be equal to one cubic inch. Yet to this latter capacity the uterus must be reduced in a month.

The extent of involution of the uterus after labor may be accurately traced, by observation, by touch, and by measurement with the sound. The following diagram (Fig. 100), from Simpson, gives an idea of the ordinary difference in bulk of the uterus in which involution has been arrested, and that of the uterus in its ordinary state.

The uterus is especially enlarged in the antero-posterior diameter. Its walls are thickened. The cavity is larger, and in many cases the walls not coming into contact as in the normal state, there is an actual cavity in the body of the uterus, in which the sound will revolve.

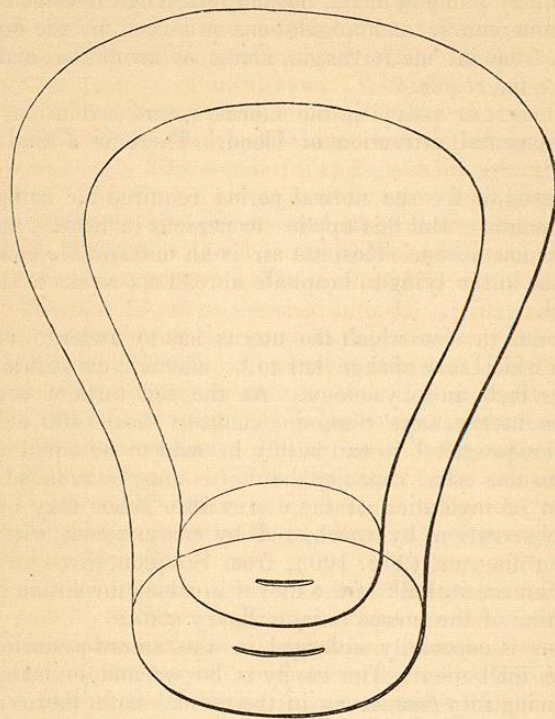
A considerable part of the bulk of the uterus in sub-involution is due to infiltration of fluid, as serum, in the tissue, and to blood partly stagnant in the capillaries and veins.

Treatment, Prophylactic.—By proper care immediately after labor and during childbed, involution may be effectively promoted. The first care is to see that the uterus is emptied of placental-remains and clots. The second point is to secure firm contraction, by compression, and by the administration of ergot, quinine, digitalis, or strychnine. For many years it has been my practice to give these remedies two or three times a day from the very first. They help not only to lessen the remote dangers of imperfect involution, but also the immediate danger of septicæmic puerperal fever. The third point is to support the strength of the patient by liberal diet. The fourth is to insist upon *rest* for two or three weeks. And lastly, to be satisfied that the uterus is not prolapsed or retroverted. If retroversion or retroflexion, a very common condition in childbed, is allowed to continue, involution will surely be arrested.

The evidence of the *traumatic injury sustained in labor* remains in

the indented cicatrices round the margin of the os, which are characteristic of the vaginal-portion in women who have borne children. But if the parts be examined soon after labor, much more striking marks of the injury they have sustained will be witnessed. Immediately after labor

FIG. 100.



The outer outline represents the bulk of the uterus arrested in its involution after pregnancy. The inner one represents the bulk it ought to retain. (After Simpson.)

the vaginal-portion is large, flabby, pulpy, so as to be almost indistinguishable to the touch. It is often some days before it retracts to any considerable extent, or regains much firmness of texture. The tissue of the cervix and of the connective tissue surrounding the vessels at their entry from the broad ligaments is infiltrated with serum, which has to be absorbed. The entire thickness of the vaginal portion, as I have repeatedly seen in post-mortem examinations, at the end of a week or even ten days after labor, is still soft, large, and black from ecchymosis.

It must also be remembered that the vagina during pregnancy and labor undergoes changes analogous to those which affect the uterus. During pregnancy the extreme vascularity of the vagina gives a characteristic test of this condition. Its walls grow in length and breadth; its tissues become softer, and more distensible. To the touch this is very perceptible. During labor it is subjected to enormous distension, and even violence. Involution will be arrested under the same conditions as those

which arrest involution of the uterus. The vagina then remains larger and looser; folds may even project through the vulva. Thus we get a heavier uterus, which has to be supported by a vagina of less than usual power.

Under favorable circumstances, the process of repair is rapid and complete. But in a great number of instances, the conditions are not favorable. Repair is retarded by a weakly state of the constitution, by the intercurrent of various morbid actions, by imprudence in getting about too soon, and the too early resumption of ordinary duties. I am persuaded that *rest, physical and physiological*, for at least a month after labor, is essential to complete the repair of the injuries sustained, and the involution of the pelvic organs. This proposition will perhaps appear overstrained in the opinion of those who advocate a generous diet from the day of labor, and removal to the drawing-room in less than a week. I have so frequently seen pernicious effects, immediate and remote, from this practice, that I cannot hesitate to condemn it. It is easy to induce any number of cases of women who have been thus treated, and have made good recoveries. But the practice is not thus justified, if the exceptions also are numerous. It is true, that many women return to their ordinary mode of life within a fortnight, and continue with more or less success to perform their duties. But the frequent penalty is uterine and constitutional disease. The speed and completeness of recovery from labor depend also greatly upon the health and physical power of the individual. Women accustomed to hard work, hard living, and exposure to the weather, complete the process of repair much more quickly than those who are nursed in luxury, and whose first experience of hard work is acquired in the task of bringing forth a child. In the first class of women, the muscular, vascular, and glandular systems are in vigorous working order. Effete matter is quickly got rid of. Every organ soon returns to its wonted state. In delicate and pampered women, on the contrary, the muscular fibre is lax, the glandular organs, especially those of the skin, including the breasts, are imperfectly developed; they do their duty feebly, and are easily overpowered when an unusual strain is thrown upon them. The nervous system is stimulated beyond measure, and acquires predominance over the rest. Under these conditions, it is not surprising that the extraordinary revolution in the system, and the important local changes which have to be effected after labor, are accomplished with difficulty, imperfectly, and are the point of departure for various constitutional and local morbid processes.

Neglect of the due period of "rest" for repair is especially apt to retard the restoration of that part of the uterus to which the placenta adhered. The changes that have to be effected here are more extensive than in the rest of the internal surface. It is no uncommon thing to see in women dying a month and more after labor, a rough area, marking the site of the placenta. This is often covered with muco-purulent secretions, showing that the return to the ordinary condition is not completed. It is easy to understand that to tax the uterus in this condition with the premature resumption of functional work, will start endometritis, which will readily assume a chronic, and even a permanent character.

Analogous conditions follow abortion, although the actual violence in-

flicted upon the cervix is not so important an element. Abortion also differs from labor at term in this respect: the development of the uterus is brought to a sudden termination prematurely—that is, before the tissues and the system have attained the conditions favorable to rapid and complete involution. Within the first three or four months, for example, the muscular contractibility of the uterus—a prime agent in starting healthy involution—is not nearly so effective as at term; and, in addition to this, the transformation of the mucous membrane into decidua, is arrested at a stage when the adhesion to the uterus is much more intimate, more vascular, and embraces a relatively much larger area. Its separation is a far more violent process; and if, as is not unlikely, the mucous membrane was unhealthy before conception, its separation will be apt to leave a subacute endometritis, with unhealthy new mucous membrane.

Rest is as essential after abortion as after labor. The indifference with which many women in every rank regard “a slight miscarriage,” is a source of much future trouble. A miscarriage is looked upon as slight in proportion to the earliness in pregnancy at which it occurs. But it is a grave error to measure in this way the importance of an abortion. The earliest abortion may entail consequences far from slight, if due hygienic precautions are not observed.

Now, one of the surest means of inducing some one or more of the foregoing involution-retarding conditions, is premature exchange of “rest” for exertion. The upright posture within the first week or fortnight will surely increase the local vascular tension, and promote displacement of the uterus. To add the influence of gravity, and of increased hydraulic pressure in the vessels whilst the uterus is still of inordinate weight and softness, with its supports disabled, cannot fail to be injurious. The most healthy stimulus to uterine involution is the natural function of lactation. If this duty—this physiological complement to parturition—be neglected, involution will not go on smoothly. The application of the infant to the breast causes contraction of the organ. It is injurious to lose this. Lactation, moreover, causing a derivation of physiological activity to a distant organ, tends to promote rest in the pelvis. Indeed, one of the beneficent purposes of this alternative or cyclical action of the generative organs, is to give each in its turn the rest that is necessary for restoration. This natural order cannot be broken with impunity. The penalty, or rather, one of the penalties, of suppressing the function of the breasts, by depriving the uterus and ovaries of their allotted respite, is the resumption of work before they have had time or opportunity to recover their fitness for the task.

It is to this evil that women of the easier classes are more especially exposed. The increasing neglect of the function of lactation, is, I believe, a prolific cause of uterine disease. This neglect does not, however, entirely arise from indifference to maternal duties, or the fancied more imperative duties of social life. The inability to suckle is, in numerous cases, real. The system, the breasts, want the power, the capacity, to secrete milk. After honest endeavors, it is too often found that after a few weeks of scanty secretion and painful suckling, the child and mother alike show evidence of the futility of the effort. Nothing can lend stronger confirmation to the theory I have expressed, as to the rela-

tive unfitness of a woman nursed in luxury to carry out in its completeness the function of reproduction, than this failure of the breasts. The breast are glandular organs developed out of the skin. They are closely analogous in structure to the sebaceous glands of the skin. Their activity and degree of development may be taken as a measure of the activity of the skin and other glandular organs. All show the same kind and degree of incapacity. Unless the general system have been duly exercised and called into activity by the whole course of life, the glandular system, like the rest, will remain imperfectly developed. It is unreasonable to expect the breasts to become all at once competent to do their work.

On the other hand, there frequently occur amongst the working classes and others, cases where involution of the uterus is arrested by lactation. This is because lactation is a task that exceeds the strength. Deficient food, bad health, and hard work combine to exhaust the struggling mother. The process of repair is arrested, and a chronic endometritis, with engorgement, abrasion of epithelium from the os uteri, and leucorrhœa, sometimes tinged with blood, or even alternating with metrorrhagia, always more or less prolapsus or retroversion result. The worn, thin, pallid aspect of the subject attests exhaustion. The pulse is small, accelerated; nutrition is feeble; the muscles are flabby; at one point muscular debility is invariably marked, the dorsal muscles, especially between the scapulæ, are always painfully aching; they are in fact overstrained by the heavy burden of carrying the child. The nervous system in many ways suffers from imperfect nutrition; vertigo, syncope, are the sure signs of anæmia, and show how the brain is starved; dimness of sight, *muscæ volitantes*, every degree of amaurosis commonly attend.

Mr. Jonathan Hutchinson has investigated this subject. He says that dimness of vision during suckling may be merely an indication of the existence of hypermetropia, and does not necessarily indicate retinal disease. Until weakened by lactation, many hypermetropic women experience no inconvenience, being able to bear the accommodative strain necessary to overcome the error of refraction; but during lactation they find it difficult to keep the ciliary muscle up to its unusual exertion. He says it is well to examine if spectacles are not requisite.

Any nervous affection to which the subject retains a predisposition, from antecedent attacks, or from hereditary transmission, is now extremely apt to break out. Thus, over-lactation induces a recurrence of epilepsy, chorea, hysteria, ague—affections from which the subject might otherwise have been freed.

Another point of suffering is the lower lumbar and sacral region. This is partly the indication of reflex distress, proceeding from the diseased uterus, partly of pressure of the enlarged organ on the pelvic nerves, and partly of spinal exhaustion from the constant wear and tear occasioned by the irritation of a diseased organ acting upon an imperfectly nourished nervous centre.

These subjects will also frequently complain of pain referred to the seat of one or other ovary, most frequently the left. Dr. Henry Bennet has long insisted upon this as characteristic of irritation propagated from the inflamed cervix. It may, according to him, and I am disposed to