

wall, the peritoneal surface of the uterus will be found nodular. The cervix is commonly dilated enough to admit the examining finger, upon introducing which the friable spongy mass may be felt. It bleeds readily.

Whereas usually the primary tumor is in the uterus, occasionally it will occur first in the vagina.

Deciduoma malignum is of more rapid growth than any other neoplasm.

The patient dies from anæmia, hemorrhage, or metastatic complications.

**Diagnosis.**—In every case of labor or abortion, in which late hemorrhages occur, an immediate intra-uterine examination is indicated. If a rough surface is found, and if, after the roughnesses have been removed, they soon reappear and are accompanied by hemorrhage, this disease must be suspected and the microscope appealed to. The very frequent association of hydatid mole with deciduoma must compel keen watchfulness in all cases of such moles.

Marchand found that eleven patients died in less than six months, and five within a year, while only one lived as long as three years. When the disease occurs primarily in the vagina, the progress is not so rapid.

**Treatment.**—As soon as a diagnosis is made, if the disease be limited to the uterus, total abdominal hysterectomy should be performed according to the technique laid down for cancer.

William R. Pryor.

**UTERUS, DISEASES OF: NON-MALIGNANT NEW GROWTHS.**—The benign neoplasms affecting the uterus may be divided into two groups according to their histogenesis:

1. Those originating in the uterine parenchyma—fibroma, myoma, and adeno-myoma.

2. Those originating in the remains of embryonal structures—cysts of the Wolffian duct and cysts of the Müllerian duct.

**Relative Frequency.**—The uterus is extremely prone to invasion by non-malignant neoplasms, especially fibromyomata. Thus, in W. R. Williams' series of 2,649 uterine new growths 883 were myomata. In Gurlt's series of 4,115 uterine neoplasms 481 were fibro-myomata.

The relation of non-malignant new growths of the uterus to malignant ones is 40.62 per cent. of the former to 58.38 per cent. of the latter. The non-malignant glandular tumors occur with much less frequency.

Of the neoplasms originating in the uterine parenchyma the fibromata and myomata are recognized as being of identical structure, varying only in the relative proportion of the fibrous and muscular elements present. They are therefore grouped under the common head of myoma.

**Etiology.**—The etiology of myomata, in common with other neoplasms, is not as yet understood. These tumors usually develop during the period of sexual maturity, seldom if ever before puberty (never according to Gussow), and they very rarely appear after the menopause. They are more common in the negro than in the white race, and it would seem from many case-histories that heredity is a predisposing factor.

Myomata may be said to be in general growths of the menstruating uterus, since their greatest activity of growth is during this period. They frequently atrophy after the menopause.

**Morphology.**—According to their situation uterine myomata are divided into those of the body of the uterus, those of the cervix, and intraligamentous tumors. Those of the body of the uterus are again divided into subserous, interstitial, and submucous tumors.

Strictly speaking, the subserous variety should include only those tumors which are sheathed with peritoneum and lie free in the abdominal cavity, attached to the uterus only by a pedicle. Submucous tumors should include only those which hang free in the uterine cavity, are attached only by a pedicle, and have no muscular coat. All intermediate forms should be designated as interstitial. Ordinarily, however, those growths which project into the abdominal cavity and which originate in the subperitoneal layer of the uterine muscle are called

subperitoneal, and those projecting in a like manner into the cavity of the uterus, whether or not they be covered with muscle, are known as submucous tumors.

Besides these situations the tumor may be confined between the layers of the broad ligament, the intraligamentous form.

Subperitoneal myomata are single or multiple nodules which, from being primarily interstitial, have secondarily become subperitoneal. They are closely covered by the peritoneum and are attached to the uterus by a broad pedicle. The tumor is immediately surrounded by loose connective tissue. Torsion of the pedicle may occur with entire detachment of the tumor from the uterus. Through inflammatory adhesions the growth may become attached to surrounding structures, or it may remain as a migratory tumor in the abdominal cavity. The intraligamentous myoma is a subperitoneal growth arising from the lateral wall of the uterus or from the supravaginal cervix. It pushes apart the peritoneal folds of the broad ligament, and grows either beneath or between them, being thus extraperitoneal. The intraligamentous myoma from its position may exert pressure upon important structures and cause grave symptoms. Usually firmly bound down and in close relation with the pelvic vessels and nerves and the ureters, the intraligamentous myoma is extremely difficult of access.

Interstitial myoma, the primary type of all myomata of the uterus, occurs as circumscribed tumors lying in the uterine wall and attached to the myometrium by a loose connective-tissue capsule. In some cases the capsule cannot be differentiated, and in other rare cases there occurs a diffuse myoma of the myometrium. Submucous myomata are those in which the greater part of the nodule projects into the cavity of the uterus as a polypus, having a pedicle of varying lengths. The tumor is soft in consistence, usually has a free blood supply, and is covered with loose connective tissue and to some extent with endometrium. The pedicle is formed of dense fibromuscular tissue, with a sheath of mucous membrane, and contains a few blood-vessels.

The submucous myomata may become adherent to the neighboring uterine wall by inflammation.

Cervical myomata are of rather infrequent occurrence, forming from five to six per cent. of all uterine myomata. They develop either from the infravaginal or from the supravaginal cervix, the former growing usually into the vagina, the latter into the retrocervical connective tissue.

Myomata in general are multiple; sometimes they are single oval nodules, usually sharply circumscribed and surrounded by a capsule of loose connective tissue. The growth may be hard or soft, is whitish or pinkish in color, and may vary greatly in size. Arising in the myometrium, the tumor develops in the direction of least resistance, and eventually assumes one of the positions described above. On section the tumor is glistening and may be of homogeneous structure, though more frequently it is divided into lobules by septa of dense fibrous tissue which give it, on section, a striated appearance. The consistence of the tumor varies from the soft pure myoma to the hard fibromyoma and the almost stony pure fibroma. The blood-supply of the tumor substance is poor, being limited to a few small vessels. The connective-tissue capsule is freely supplied with large arteries and venous sinuses.

Histologically, myomata are formed of a muscular tissue the cells of which possess the spindle-shaped nuclei and the homogeneous protoplasm characteristic of unstriated muscle in other localities. The muscle bundles are separated into lobules by septa of dense connective tissue. In certain cases this dense connective tissue forms the basis of the tumor. In all cases mast cells of various shapes—long, spindle, ovoid, or round—are present in varying numbers, occurring mostly in the neighborhood of the blood-vessels.

The myometrium undergoes an associated true hypertrophy in interstitial and submucous myomata, as well as in some cases of subperitoneal myomata. The uterine walls become thickened and the cavity is distorted and en-

larged. The endometrium also undergoes hypertrophy in myomata, some cases showing a hyperplasia of the gland substance, some a thickening of the stroma, some both.

In the presence of a large myoma the Fallopian tube frequently is the seat of a salpingitis, while the ovary almost always undergoes a hyperplasia of the connective tissue, with some degeneration in the neighborhood of the blood-vessels.

The myoma itself very frequently undergoes pathological change. Among the conditions which may result are atrophy, calcareous infiltration, fatty degeneration, amyloid degeneration, maceration, myxomatous degeneration, inflammation, necrosis and gangrene, thrombi, telangiectatic change, sarcomatous degeneration, and the association of carcinoma.

Atrophy results when the myoma undergoes a part of the general physiologic involution of the genital system following the puerperium, the menopause, or after a bilateral oöphorectomy. The muscle cells decrease in number and the relative proportion of fibrous matter is greatly increased, the tumor being converted into a dense structure of practically cicatricial tissue. Occasionally the growth entirely disappears.

Calcareous infiltration may take place locally or generally. It occurs with advanced atrophy, and in some instances the entire myoma is converted into a calcareous mass by the deposition of lime salts—the so-called womb stone. Bony changes or osteomyoma have also been described.

Fatty degeneration occurs in the muscle fibres and is frequently found in the interstitial and submucous tumors, rarely in the subperitoneal. It occurs after pregnancy and also in those growths which have a dense consistence.

Amyloid degeneration of the tumor alone or of the tumor and the myometrium may be found, but this change is of rather rare occurrence.

Maceration of the tumor may occur as a result of an acute disturbance of the circulation; the tissue becomes soft, infiltrated with blood, and finally assumes a brownish-green color. Myxomatous degeneration occurs frequently, more especially in the intraligamentous variety, and rarely in the subperitoneal variety. It begins with softening, the consistence of the tumor becomes cystic, and finally cavities filled with mucoid substance are formed in the centre of the nodule. Tumors undergoing myxomatous degeneration increase rapidly in size.

Inflammation, necrosis, and gangrene of myoma are frequent, the pathogenic organisms entering through the vagina, or, in the case of subperitoneal myoma, through the intestines.

Thrombi may be found in the blood-vessels, especially following torsion of the pedicle and incarceration.

Telangiectatic change is an occasional condition. The tumor tissue is infiltrated with numerous dilated blood-vessels. In some instances the lymph vessels may undergo dilatation, as a result of which numerous cystic cavities lined with endothelial cells (cystic myoma) are formed.

**Malignant Degeneration.**—Myomata may undergo a sarcomatous metaplasia, or they may be associated with carcinoma. The transition into sarcoma is thought to be due to a direct change of the muscle cells into sarcoma cells. The tumors increase rapidly in size, undergo necrotic change, and the sarcoma infiltrates the surrounding structures.

The association of carcinoma with myoma is thought to be due to an inversion of the polypoid growth of the mucous membrane into the myoma tissue, or it is a carcinoma developing from the glandular elements of an adenomyoma, or there may possibly occur a true metaplasia of the myoma elements into carcinoma.

The symptoms of myoma uteri are hemorrhage, pain, intermenstrual discharge, and pressure symptoms. Hemorrhage is present in the great majority of myomata of all kinds; it occurs as a menorrhagia or a metrorrhagia. There may be an increase in the menstrual bleeding, or the hemorrhage may appear at irregular intervals, follow-

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ing unvoiced exertion, coitus, etc., or it may occur as a continuous bleeding from the uterus. Usually the hemorrhage is not alarming in amount, and can readily be controlled by rest in bed and the exhibition of astringent drugs, as ergot. In some cases, however, a profound and sometimes fatal anæmia is produced. The hemorrhage is independent of the size of the tumor, but varies greatly with its position and variety. Thus the bleeding is most severe in the uterine polyp, less marked in the interstitial variety, and least in the subperitoneal form. Again, the hemorrhage is more severe in the soft and oedematous myomata than in the dense fibrous forms. The hemorrhages are caused by the increased area of the endometrium, due to the uterine enlargement and to a hemorrhagic endometritis set up by the irritating presence of the tumor.

**Pain** is a more or less constant symptom. It varies greatly in character and degree. It may be referred to the occiput, the top of the head, or the sacral region. Bearing-down and dragging sensations in the pelvis and expulsive contraction of the uterus are frequent. The pain is always increased during the menstrual periods, and during the early growth of the tumor it may be present only at these periods; later, it becomes constant.

**Intermenstrual discharge**, the result of a profuse secretion from the utricular glands, occurs between the hemorrhages. The secretion is usually thin and serous, and may be very profuse. In some cases in which hemorrhage is not marked its place seems to be occupied by this serous discharge. Dysmenorrhœa is a common symptom.

**Pressure** may cause many mechanical disturbances: constipation or mucous diarrhœa, hemorrhoids, difficult, painful, and frequent micturition. Pressure upon the ureters may cause hydronephrosis and eventually death from uremia. Pressure upon the pelvic nerves may cause neuralgia or even paralysis of the legs.

Fatty degeneration and brown atrophy of the heart are sometimes noted. Thrombosis and embolism are frequent complications, especially in the telangiectatic myomata. This is probably the cause of some of the sudden deaths following operations upon these tumors.

The **diagnosis** of myoma is made from a study of the symptoms and a physical examination of the patient. The symptoms described above, while characteristic, are in no sense pathognomonic, and the diagnosis usually depends upon a careful physical examination. In tumors large enough to be palpated through the abdominal wall, the dense consistence and irregular outlines of the myoma may be noted. Bimanual examination detects the general enlargement of the uterus, the outline of the tumor and the consistence, hard and dense, fluctuating or semifluctuating, according as the myoma is hard, oedematous, or cystic. The growth is found to be attached to the uterus and movable with it. Sometimes in the case of a small interstitial myoma a slight elevation or merely an area of induration may be felt. The presence of such an area, together with the increased length of the uterine cavity, is strong evidence of the existence of a small myoma. The symmetrical enlargement of the uterus which occurs in some cases is more difficult of diagnosis.

**Differential Diagnosis.**—Myomata must be differentiated from pregnancy, ovarian cysts, retroflexion of the uterus, etc. The separation of a myoma from pregnancy is usually easy. The irregular hemorrhage, the mammary changes, the nausea, and the skin pigmentation may be present in both. The absolute signs of pregnancy—the fetal movements and heart sounds, the bluish discoloration of the ostium vaginae, and the soft cervix—will usually establish the diagnosis. Should the pregnancy be complicated by myoma the difficulty of diagnosis is much enhanced.

The differentiation between ovarian cysts and myoma is not difficult, and a mistake is not at all serious, celiotomy being indicated in both conditions.

Small myomata in the posterior uterine wall may be mistaken for retroversion. This mistake may be avoided



by feeling with the abdominal hand the fundus uteri in its normal position and by the passage of a sound.

**Treatment.**—Operative treatment is usually demanded in a case of myoma. Palliative measures are of little value, and are indicated only where serious degenerative changes in the heart, lungs, or kidneys preclude the possibility of surgical interference. Operation is indicated because of the danger of the accidents possible to myoma, viz., inflammation and infection, malignant degeneration, etc., and because of the very faint hope of spontaneous cure and atrophy of the growth following the menopause. Should the patient be a young woman with a small tumor, and desirous of maternity, the expectant treatment is justifiable. The patient should be warned that the tumor may interfere seriously with labor, may cause her to abort, and may grow with great rapidity during pregnancy. On the other hand, there is a possibility that the tumor may disappear after labor. Should the tumor be intraligamentous and of pelvic growth, expectant treatment is not justifiable, as dangerous pressure symptoms may result and labor be certainly obstructed should pregnancy occur. In the case of a woman who has reached the menopause, in whom menstruation has ceased, and who suffers from no serious symptoms, expectant treatment may be tried in the hope that the disease may become quiescent.

Among palliative measures may be mentioned the exhibition of drugs, electricity, and various palliative operations. Drugs have no effect upon the growth of the tumor. Ergot perhaps does good in arresting hemorrhage in some cases, but is of no other value. Electrolysis has been practised by Martin, Engelmann, Keith, and others, but it does no good; and, on the other hand, it may do positive harm by setting up inflammatory adhesions, thus rendering the subsequent operation more difficult.

Thorough curettage of the uterine cavity, by removing the hemorrhagic and chronically inflamed endometrium, is a very efficient means of checking hemorrhage. The bleeding is usually much diminished for several months after this procedure, though recurrence of the symptom almost invariably occurs. Curettage, which may be expected to check hemorrhage and to remove polypi, is indicated in all those cases in which the physical condition of the patient does not warrant more radical measures.

Ligation of the uterine arteries and broad ligaments to shut off the blood supply of the uterus and thus to cause atrophy of the tumor, has been practised. While this operation seems to have done good in some reported cases, it is now used only as a rare palliative measure. Salpingo-oophorectomy has been of value in many cases. Its dangers are as great as those of hysterectomy, and at the same time it does not remove the disease. It is not available in all varieties of myomata, and is of no value after the menopause.

Of the radical operations salpingo-oophoro-hysteromyomectomy is the operation of choice in the great majority of cases. The operation is indicated in the presence of large adherent tumors, when radical measures are necessary, and where degenerative or inflammatory changes are present in the ovaries or Fallopian tubes.

Myomectomy is the least mutilating of the radical operations. Its advantages are the possibility of pregnancy after operation and the avoidance of the surgical menopause. Its dangers are the liability to recurrence of the tumor and the frequency of post-operative hemorrhage. It is also applicable only to isolated pedunculated tumors and some few isolated sessile, interstitial, or broad-ligament growths so situated that they may be easily shelled out without undue injury or loss of tissue. This operation, which preserves the uterus, tubes, and ovaries intact, is the most conservative operation in the treatment of myoma of the uterus.

Further conservative measures are hysteromyomectomy, an operation which leaves the ovaries and tubes intact wherever possible, and a hysteromyomectomy with high amputation of the cervix. This latter pro-

cedure is of greatest value in those cases in which total hysterectomy is not necessary and myomectomy is impossible. The tubes and ovaries are left intact, and the uterus is amputated at the highest possible point, so that a portion of the uterine body, lined with corporeal endometrium, even though it be small in amount, may be left in the stump.

**ADENO-MYOMATA** are rare forms of uterine myomata containing glandular elements. The epithelial structures are derived either from the endometrium or from the remains of the Wolffian body. In those developing from the endometrium the tumors are situated in the anterior, posterior, or lateral uterine wall, and have the usual characteristics of myomata, except for the presence of glandular elements and the absence of capsule. Those derived from the remains of the Wolffian body are found on the posterior surface of a uterine cornu, in the tube, or occasionally in the peripheral layers of the myometrium. These growths occur in the following forms: A dense, hard tumor in which the muscle tissue is in excess of the adenomatous tissue; a cystic tumor with many distinct cystic cavities; a soft adenomyoma in which the adenomatous tissue is in excess and in which germinal epithelium is present; and a telangiectatic adenomyoma.

Histologically, the tumor is composed of muscle tissue containing epithelial canals. The cystic cavities may contain pigment or bloody fluid.

Rhabdomyomata are pedunculated polypi of the cervical canal which always contain sarcomatous elements.

The treatment of adenomyomata should be radical, a supravaginal hysterectomy being the operation practised.

The cysts of the uterus developing from the remains of the Wolffian or Müllerian ducts are of very infrequent occurrence. They are usually small, though they may attain the size of a fetal head. They are lined with cylindrical or cuboidal epithelium, which may be ciliated. Polypoid pseudoplasms, the outgrowth of subacute inflammatory processes, occur more especially in the cervix, the mucosa of the corpus being rarely affected independently of the cervix. These pseudoplasms are usually small, multiple, soft, vascular growths.

The round ligament, which may properly be considered a part of the uterus, is at times the seat of certain benign neoplasms. Myomata and adenomyomata, having the same histogenesis as similar growths in the uterus, are sometimes observed in this part. Myomata of the round ligament are more common in nulliparæ, and are more frequently found on the right than on the left side. They may be intra- or extraperitoneal, are usually pedunculated, hard, painless and of slow growth, and when they are large they may give rise to pressure symptoms.

Hydrocele of the canal of Nuck may be present, forming a cystic tumor in relation with the round ligament. A true cystic myoma may develop in the parenchyma of the round ligament. Clinically, these tumors are found in the inguinal canal, beneath Poupert's ligament, or in one of the labia majora.

The treatment of these round ligaments consists of extirpation of the sac and direct suture. Should the myomata of the round ligament attain a size sufficient to cause pressure symptoms they should be removed.

Henry D. Beyer.

**UTERUS, INVOLUTION, SUBINVOLUTION, AND SUPERINVOLUTION OF THE.**—I. INVOLUTION.—

Involution is the process of retrograde metamorphosis by which the puerperal uterus returns from its condition of physiological hypertrophy to the normal non-gravid state. There is a broader sense in which the word is occasionally used, including those cases of reduction in the size of the uterus following the evacuation of retained contents, as in physometra, hydrometra, or hamatometra, or after the removal of submucous fibroids, uterine hydatids, or other tumors accompanied by hypertrophy. The processes in these cases are identical, but the latter conditions are relatively so rare that it is fair to disregard them and use the word in its relations to pregnancy only.

Every writer upon the subject calls attention to the wonderful nature of the change which occurs. Striking as is the alteration effected in the uterus during the nine months of gestation, by which its weight is augmented from twenty-one to twenty-four times, even more remarkable, if possible, is the process of involution by reason of its great rapidity. The increase in size of the uterus is due almost wholly to hypertrophy of the individual muscular fibres, together with the development of new fibres from previously existing embryonic cells, this latter process being probably confined to the inner layer of the muscular wall, and occurring wholly during the first six months of pregnancy.

Many authors claim that, in the process of involution of the uterus, the muscle fibres undergo fatty degeneration, that absorption takes place, or that the fatty material is carried off in the lochial discharge, that this process is followed by regeneration, that new cells which develop into muscle fibre are seen in the midst of the fatty mass, and that a new uterus is formed. The blood-vessels, both arteries and veins, participate in the process of fatty degeneration, and from the fragments of the mucous membrane which remain intact at the placental site a new one is formed.

Others of a later date, since histology has developed, claim that it is a process of atrophy—that is, a diminution in volume of the muscle fibres.

Helme<sup>1</sup> has made a study of the process in rabbits at all stages of the process and has examined many specimens immediately after death. He finds no evidence of a fatty degeneration and a later regeneration. There is not a pathological atrophy, but a shrinking of the muscle tissue—a physiological retrogression. It may be a chemical change, but not a fatty change. The contents of the cells become more soluble so that they can pass into the lymph stream. The atrophy continues alike in all parts of the uterus, but there are no groups of degenerated cells found in the midst of the healthy tissue.

At first the muscular fibres which at the end of labor are translucent become cloudy or dusky, and diminish in volume very rapidly for the first thirty-six hours. Then follows a more gradual shrinking up to the tenth day. Helme finds that there is no evidence that old muscle fibres are destroyed and new ones produced, but that it is a retrograde change or shrinking and that the larger fibres simply become smaller. It is simply a diminution in volume.

The change that takes place in the connective tissue is a different process. There is a gradual diminution in amount and a disappearance of the connective tissue. The connective-tissue fibres and cells become granular, and some entirely disappear, while others do not undergo the degeneration.

The veins and arteries of the uterus show the same diminution, and some again entirely disappear.

It would seem that, concerning so universal and carefully observed a phenomenon as involution, there need be no difference of opinion as regards the rate of its progress and the time of its completion, and yet absolute knowledge of the matter does not exist. The modifying conditions are so numerous, and the methods used by which to arrive at conclusions so various, that no two observers appear to agree. Pathologists judge from appearances found after death, clinicians from the relations of the fundus to the symphysis pubis, statisticians from measurements made either with the pelvimeter or with the intra-uterine sound. Sources of error only too readily creep into the observations in each case and seriously affect the deductions. Post-mortem examination furnishes, of course, positive results, and yet who can say how much the retrograde process has been interfered with, in any given case, by the illness causing death, or by the other attending circumstances during life? The relation of the fundus uteri to the pubis may depend more upon the amount of prolapse, version, or flexion, the fulness of bladder and rectum, the size of the pelvic cavity, and the degree of tension of the abdominal walls, than upon the size of the uterus. It has seemed to me

that measurement of the vertical diameter of the uterus by means of a pelvimeter must be unreliable, by reason of uncertainty as to the thickness of the abdominal wall, and as to the importance of existing flexion and of longitudinal compression resulting from the necessary expenditure of force.

Unquestionably, the best results must be looked for from the actual measurement of the depth of the uterine cavity in a large number of normal cases, at intervals, during the puerperal month. Much has been done in this line of investigation, and yet I know of no results which are at all satisfactory or conclusive. Up to eight or ten years ago, it was taught that reduction in the size of the uterus was most rapid during the second week after delivery, but that not until the end of six weeks or two months was the normal size regained, and this statement was regarded as authoritative until the appearance of a series of intra-uterine measurements,<sup>2</sup> begun by A. D. Sinclair and continued by W. L. Richardson, both of Boston. From these figures there has frequently been deduced the conclusion that involution is much more rapid than was formerly believed, and teaching has been modified in accordance with this belief. This conclusion has been partially corroborated by Charpentier, though his averages are materially larger than those of Sinclair; and Skene, in his recent work, accepts it completely.

Now were the question at issue merely one of scientific interest, having no important practical bearing upon the management of the puerperal state, it would not properly arise for discussion in this article, but it has a very vital connection with the vexed questions as to how long a patient should keep her bed after delivery, and how much latitude should be permitted her in resuming her customary avocations; and it has also a plain relation to the remaining topics to be considered under this heading. This being the case, it is not out of place here to call in question the accuracy of the reported measurements, and to assert that the old belief, founded upon post-mortem investigation, is the correct one, the one upon which all rules of conduct should be based. The reason for so confident an assertion is the knowledge that the measurements, as reported in the papers above mentioned, vary more with the skill and boldness of the house physician in passing the sound than with the condition of the patient or the duration of her puerperal period. A part of those published were made by myself, and, though septicæmia was rife in the hospital at the time, they evidenced a most phenomenal involution amounting in some cases to superinvolution. These results I knew to be untrustworthy, and yet they corresponded with the work of my predecessors.

I was succeeded in this line of work by Dr. W. J. Otis, who, believing with me that his sound rarely reached the fundus, and fearing to do injury to a soft and friable uterus by the employment of greater force, entered upon the use of a Jennison elastic sound, to which he adapted a sliding marker or guide. With this soft and elastic instrument, used with gentle yet persistent manipulation, the whole aspect of the figures at once changed, and from that time on only once did the measurement fall below three inches. He has very kindly furnished me with the results of his examination in thirty cases, after the adoption of the new instrument, and from his figures I select the following as indicative of the general conclusion. Of the 30 uteri, 6 had a depth of three inches, 5 of three and a half inches, 4 of three and three-quarter inches, and 7 of four inches. The average depth was 3.63 inches, and the average day of measurement was the seventeenth.

I learn from the house physicians of more recent years that the depth of the uterus always increases after a few weeks' experience in measuring, and that the figures are uniformly much greater during the service of some men than they are recorded by others. Though septic influences have been absent of late, yet the average depth, I am assured, is greater rather than less than it was found by Dr. Otis. The fallacy in this method of investigation lies in the fact that the uterus is so softened as to be