

ber; it is 1½-in. diameter, and half an inch deep. This is supported on a stem of wood slightly curved to answer to the curve of the vagina, and this stem has attached a coil of steel wire. In use the hand is passed into the vagina; the uterine cup of the reposer is then adapted to the fundus, where it is held by the hand. The coil is then pressed against the breast of the operator, keeping a pressure of about eight or ten pounds. Counter-pressure to prevent too great strain upon the vagina is made by the hand outside, so that the fingers dip into the inverted uterus (*Transactions of the International Medical Congress, Philadelphia, 1876*).

Courty (*Maladies de l'Utérus, 1866*) relates a case in which inversion had existed ten months, inducing repeated hemorrhage and extreme debility. He reduced it in the following manner. The uterus was dragged outside the vulva by Museux's vulsellum; then, the index and middle finger of the right hand were passed into the rectum, and hooked forward over the neck of the uterus; then the uterus was seized with the left hand, and passed back into the vagina; still holding the neck hooked down, the fundus of the uterus was turned so as to look forwards to the pubes, the neck turned to the sacrum. The fingers in the rectum separating, rest firmly in the angular sinuses formed by the utero-sacral ligaments; then the thumb and index of the left hand pressing on the pedicle of the tumor gradually increase the depth of the utero-cervical groove. The two hands acting thus in concert, the uterus was reduced without violence in a few minutes. He had failed with the air-pessary; the patient could not bear it. He cites Barrier (*Bull. de l'Acad., 1862*) as having reduced a case of fifteen months' standing, who found a *point d'appui* by pushing the back of the uterus against the sacrum. Dr. Emmet (*Amer. Journ. of Med. Sci., 1866*) succeeded in the following manner: he passed his hand within the vagina, and whilst the fundus uteri rested in the palm, the five fingers were made to encircle the portion within the cervix as near as possible to the seat of inversion; whilst the portion was thus firmly grasped, it was pushed forwards, and the fingers were immediately afterwards expanded to their utmost. This manipulation, with the aid of the other hand over the abdomen, was persevered in until the fundus had passed within the os uteri. The advance gained was in proportion to the amount of dilatation accompanied by the spreading of the fingers, thus increasing the transverse diameter of the uterus, and shortening its long diameter. When the reduction had so far advanced that the fingers could not be passed fully up to the seat of the inversion, steady pressure was applied to the fundus by the tips joined together, whilst an increased effort was made by the hand outside to roll out the parts by sliding the abdominal parietes over the edge of the funnel.

It has happened in several cases that only partial reduction could be effected; that is, the body would return through the cervix in a doubled form, the fundus still being depressed, and presenting just above the cervix. In such cases, continuous steady support by a cup-shaped pessary or the end of a stethoscope, may in time complete the restoration. This difficulty has been met in an ingenious way by Dr. Emmet. He effected the closure of the os externum by silver sutures, so that the fundus im-

prisoned in the cavity of the neck tends to dilate the constriction near the os internum. At a subsequent period the stitches are removed, and the taxis practised again.

Dr. Emil Noeggerath, of New York, has described a method of taxis which deserves attention. "It consists in compressing the uterine body opposite to each horn, so as to indent one of these, and thus offer to the cervical canal a wedge, which passes up, and is followed rapidly by the other horn, and the whole body." Thomas reports that he has practised this manœuvre on two occasions with success.

From time to time a method which may be described as the *forcible taxis* has been employed. Of late years a proposition has been made, supported by several distinguished American physicians, to admit this method to a recognized place in the treatment of chronic inversion. The fact that death after rupture of the uterus or vagina has several times been the consequence of forcible taxis should alone be sufficient to discredit the method. No number of successes ought to outweigh failure so deplorable. Forcible reposition has been attempted either by the hand alone or by aid of a *repoussoir*, that is, some kind of blunt instrument of wood or ivory. Depaul (*Gaz. des Hôp., 1851*) used a *repoussoir* in a case eleven days after labor. The patient died in a few days from rupture of the uterus. Laceration has also occurred in several cases in America.

It is true that success restores the woman to her former integrity, but the penalty of failure to return the uterus is not infrequently death. The part will not sustain more than a certain amount of violence without laceration; much force is necessary, and it is impossible to restrict with nicety the force employed within safe limits. Sustained solid or elastic pressure is free from the objections that surround the preceding methods. Success means restoration to integrity, and failure does not mean death or mutilation. It simply leaves the patient *in statu quo*, and in a condition to be treated with every prospect of success by the adjuvant method of cervical incisions to be presently described. This method of forcible taxis has been confounded with that of gradual reduction by sustained elastic pressure. The principles of the two procedures are totally opposite. One tries to overcome resistance by sheer force rapidly applied, the other by wearing out resistance by gentle pressure long sustained. The first is replete with danger, the second almost absolutely safe.

A method of effecting reduction remarkable for its boldness has been put in practice by Professor Thomas. This consists in making an incision through the abdominal wall so as to get at the constricted os uteri from above, and then applying a dilating force. The idea was enunciated by the late Sir James Simpson at the discussion of my paper before the Medico-Chirurgical Society in 1869. A case in which it was carried out by Thomas is thus described: An assistant introduced his hand into the vagina, and "lifted the uterus so that I could detect the cervical ring against the abdominal wall. I then slowly cut down upon the median line, as for an exploratory incision in ovariectomy, and leaving the wound exposed to the air until all oozing had ceased, cut into the peritoneum. I then inserted my finger into the uterine sac, and found no adhesion whatever to exist. Replacing the assistant's hand by my left hand, I

now inserted the steel dilator and dilated the stricture. (The dilator is constructed on the principle of a glove-stretcher, R. B.) The dilatation was exceedingly easy and rapid, but I found that as I withdrew the dilator, the tissue of the organ would at once contract. After dilating the stricture fully, I partially returned the uterus. . . . Drawing it down to the vulva, I rapidly pushed it up, and was gratified at finding that it was nearly replaced. Drawing it down again, this time outside of the body, to my dismay I discovered that the artery cut one week before was spouting freely. . . . I rapidly returned the organ, and was delighted to find one horn rise into place. But the additional force employed was a little more than the vagina could bear, and one finger passed through between the uterus and the bladder. One horn was still inverted. Passing the dilator into this, I stretched it open, and instantly the uterus resumed its normal position. The artery bled freely that day into the vagina and into the peritoneum through the vaginal rent. But the patient ultimately recovered." Dr. Thomas operated in the same way in another case. "She did perfectly well for forty-eight hours, but at the expiration of that time peritonitis developed itself, and proceeded to a fatal issue."

Reflection upon these cases will hardly, I think, justify the recommendation of Dr. Thomas. In the first case, even after dilatation of the cervical ring, so much force was necessary in taxis as to rend the vagina; whilst in the second, fatal peritonitis was the result. A method which requires gastrotomy for its execution, involves conditions of danger so great that even amputation seems preferable.

Amputation may be likened to cutting the Gordian knot. It is an apt illustration of John Hunter's aphorism. It is a confession of impotency to solve the problem of reduction. It is the last resource; one to which I am firmly convinced we need hardly ever, if ever, be driven. Notwithstanding the histories of a considerable number of cases of recovery after the operation, it cannot be said to take rank as a scientific proceeding.

The conditions of safety depending upon Nature may be absent, and the surgical means at present known are imperfect. When the uterus is cut across at the neck, of course a hole is made opening from the fundus of the vagina into the peritoneal cavity. The danger of fatal peritonitis is great. The shock of the operation also is serious. Hemorrhage is likely to ensue, and some blood will escape into the abdomen. There are various methods of performing the operation. The uterus has been seized by a vulsellum, drawn down, and the cervix cut through with a knife. Next, it was thought that the ligature applied to strangle and to slough through, as in the case of a polypus, would be less dangerous. Treated in this way the result has been varied. In several instances, where a whipcord ligature has been applied by Levret's or Gooch's double canula, agony so intense has been produced, as to render it necessary to remove the ligature, and the patient has died notwithstanding. The cause of the excruciating pain is, I believe, the compression of the included Fallopian tubes. I have observed the same pain in cases where the tubes have been tied in the pedicle of an ovarian tumor. And it has been observed in several cases that the surface and substance of the uterus pro-

per was nearly insensible, pain being developed only on tightening the ligature. In some cases the patient has died with the ligature attached. There is a preparation illustrating this in the museum of St. Bartholomew's Hospital, death ensuing from peritonitis eight days after tying. On the other hand, it seems not unreasonable to hope that a ligature gradually tightened may set up adhesive inflammation in the neighboring peritoneum, and thus shut off the abdomen from communication with the vagina when the uterus falls away. Certain it is that this hope is not always realized. Thus McClintock relates a case in which a ligature was applied during eighteen days, occasionally relaxing it on account of the severity of the pain, before the uterus was separated. No peritoneal adhesion had taken place; the woman, however, made a good recovery. In eighteen cases where the time that elapsed before the uterus fell is stated, the ligature took from nine to twenty-eight days to sever the parts. The average time was seventeen days.

It has been remarked that the ligature has arrested the hemorrhage. Dr. Ramsbotham has related a case in which the ligature had to be removed at the end of twenty-four hours, owing to symptoms of violent peritonitis; but the profuse sanguineous and mucous discharges ceased.

J. G. Forbes (*Med.-Chir. Trans.*, vol. xxxv.) suggests that the simple application of a ligature around the neck of the tumor to destroy its vitality appears to possess more advantages than the other modes of operating.

McClintock relates two cases in which strangulation was first effected by a ligature for four days, and then the uterus was removed below the ligature by the chain-écraseur. The patients recovered. This combined method seems likely to unite most conditions of success. Dr. Marion Sims relates (*op. cit.*) a case in which after vain attempts at reduction, and being compelled by the consequent pain and prostration to abandon the ligature, he resorted to the chain-écraseur. When the parts were all divided except the right broad ligament, "all at once the most fearful hemorrhage he ever encountered took place. It was happily stopped by passing the finger into the abdominal opening and compressing the source of the hemorrhage. The blood which had escaped into the peritoneal cavity was sponged out, and the divided edges of the cervix were united by five or six silver sutures. The patient recovered. Mr. Baker, of Birmingham, relates (*Brit. Med. Journ.*, 1868) a case of recovery after amputation by the chain-écraseur. The bleeding vessels were sealed by actual cautery. Dr. Hall Davis relates (*Obstetrical Transactions*, 1873) a case in which he amputated the uterus ten months after labor. He used the single wire écraseur. He employed it without first dragging upon the neck of the uterus, expecting thus to lessen the risk of the sudden springing up into the peritoneal cavity of the severed cervical portion of the uterus. No hemorrhage occurred. The patient recovered. Pain was subdued after the operation by subcutaneous injection of morphia every six hours during the first twelve days, it being found that any suspension of its use was followed by severe uterine and ovarian pains. The pulse was very small immediately after the operation, and the temperature fell to 97° F. It appeared that in this case there were peritoneal adhesions, a condition which, no doubt, supplied a safeguard against

peritonitis, and which, as it would have rendered reduction impossible, justified the recourse to amputation. Professor Barba (*Il Morgagni*, 1872) amputated an inverted uterus of three months' standing by Chassaignac's *écraseur*. There was no great bleeding; but syncope set in immediately, and lasted seven hours. This was followed by peritonitis, which subsided in fourteen days. The patient recovered.

Dr. Valette (*Lyon Médical*, 1871) relates a case of successful amputation by means of a clamp, each blade of which was grooved to carry chloride of zinc paste. The neck of the tumor being seized in this caustic clamp, the uterus was cut off in front of it, and the stump cauterized with chloride of zinc. The actual cautery would give greater security against hemorrhage. The preceding histories will show some of the dangers attending amputation, and how they may best be encountered. In those rare cases where adhesions or extreme exhaustion forbid the attempt to reduce, the best method of amputation appears to be by the wire-*écraseur*. The induction of anæsthesia is of course indispensable. Were I compelled to resort to this *ultima ratio*, I should, before amputation, transfix the neck of the tumor by a needle carrying a wire suture, so as to command the divided edges of the opening, and facilitate the application of the cautery to the bleeding surface. The use of the galvanic cautery wire to effect the amputation seems to possess advantages over the other forms of *écraseur*.

In cases where neither reduction nor ablation can be attempted, hemorrhage and other discharges may be restrained by lotions of tannin, alum, perchloride or persulphate of iron, or of carbolic acid; and probably some advantage may be derived by compressing the uterus by wearing an air-pessary in the vagina.

In my memoir in the *Medico-Chirurgical Transactions*, 1869, I gave a summary account of the results which had attended the various modes of operating in the cases which I had then been able to collect. Further research, and the records of subsequent histories, some of which are referred to in the preceding paragraphs, involve some modification of the conclusions then arrived at. But the practical lessons flowing from this summary are still valid.

"Six different modes of dealing with *chronic inversion* have been tried with the following results in the cases I have been able to examine.

"I. By ligature alone. Of these twenty-six were successful, ten unsuccessful. Of the unsuccessful eight died, and two recovered without extirpation.

"II. By ligature and excision: nine were successful, three unsuccessful. These three all died.

"III. By excision simple: three were successful, two died.

"IV. By sustained solid pressure there have been several successful cases.

"V. By sustained elastic pressure in eight cases the uterus was restored, in seven of them recovery was perfect, one died, being already beyond hope. In three or four cases reported, the pressure was given up.

"VI. By forcible taxis: six successful cases are reported; four failed, all of them dying."

In appreciating the relative merits of these different operations it must

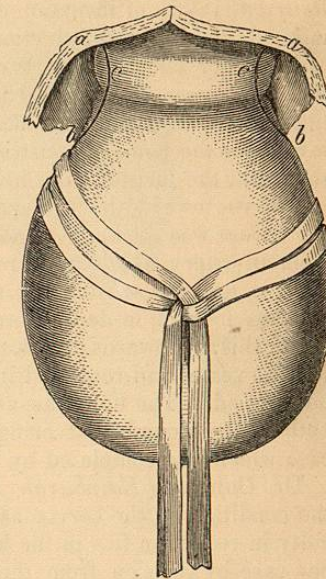
be remembered that the highest success attained by ligature or excision is achieved at the cost of mutilation; the woman is unsexed; and failure commonly means death.

The Author's Operation.—The following passage is quoted from my memoir above referred to: "Another proceeding stands before amputation. For twenty years I have taught in my lectures that the unyielding cervix may be divided by incisions carried into its substance from above downwards at different points of its circumference. Pressure then applied will cause it to yield more easily. Huguier, Professor Simpson, and Dr. Marion Sims have suggested the same plan.

"I am not aware that it had ever been carried into execution before 1868, when I treated a case in this manner with complete success. The inversion was complete; it had lasted six months; the patient was so prostrate from continuous discharges that the prospect of her holding out many weeks was small. I first tried to re-invert by keeping up continuous elastic pressure during five days, with occasional attempts by taxis as recommended by Tyler Smith. This failing, I drew down the tumor to the vulva by passing a sling-noose of tape round it, thus putting the neck on the stretch (see Fig. 147); I then made three incisions in the neck about a third of an inch deep, one on each side and one behind in a longitudinal direction, that is, across the fibres of the cervical sphincter. Then, compressing the uterus with my left hand, and supporting the os uteri by the fingers of the right hand through the abdominal wall, I found the cervix yield, and the body went through into its place. The cervix yielded by laceration extending from the incisions; and I very much feared at the time that serious if not fatal mischief had been done. No material inconvenience, however, followed; and examination three weeks afterwards showed the cervix and uterus to be in their proper places. Notwithstanding the successful issue, I believe that the method should only be resorted to after a full trial of Tyler Smith's plan, and then with great caution. I should recommend that only two incisions be made, one on each side of the os, and these of moderate depth. The re-inversion should be trusted to sustained elastic pressure."

This suggestion I have since had the good fortune to carry out with complete success (see *Obstetrical Journal*, 1873).¹ The first woman has

FIG. 147.



Showing Inverted Uterus drawn down by Tape noose (R. B.).

a b c. Line of Incision in the Cervix. Dr. Barnes's operation.

¹ On a New Method of Reducing Chronic Inversion of the Uterus.

had two children since the operation. Dr. William A. Wilson records (*Lancet*, 1877) a case in which inversion had lasted probably nine months. Having tried sustained elastic pressure during a fortnight without effect, he incised the neck according to my method, and reduction was effected easily, "with a distinct feeling of tearing of the uterine tissue." There was very little hemorrhage. Recovery was perfect. W. G. Kemp, of Wellington, New Zealand, relates a case (*Obstetrical Journal*, 1875) of inversion of five years' standing. He carried out my method, and effected reduction without hemorrhage or laceration.

Professor Thomas reports a case in which he incised the cervix as follows (*Diseases of Women*, 1872): In June, 1869, attempts by taxis having failed, "I pushed the uterus as far as it would go; thus fixing by my finger the point of constriction, I drew it down, and cut down through the neck, the incision first involving the mucous membrane, and extending down toward the subjacent peritoneum, as recommended by Aran. No sooner was the knife withdrawn than a free jet of blood was projected from an artery which appeared nearly equal in size to the radial. This jet was not *per saltum*, but steady as it is often seen to be from small arteries located in dense fibrous tissue. For half an hour we strove to ligate this. Upwards of a dozen ligatures were one after another applied, but the vessel had retracted into the brittle tissue of the uterus and could not be tied. The flow was at last checked by passing a suture through both of the wounds and bringing them forcibly together." This is the case which was completed by Thomas's plan as described at p. 633.

Dr. Duncan (*Edinburgh Medical Journal*, 1877) does not regard the condition of the cervix as of any importance. He thinks the difficulty in reduction lies in the body of the uterus. He accordingly treated one case by incision from the internal os to the middle of the body as deeply as could be done without injuring the peritoneum. One incision was made in front, one behind. Blood flowed freely in jets. Then taxis was applied, and partial reduction was effected, sensible free laceration of tissue attending. This reduction was afterwards completed, and the patient recovered. I cannot, reflecting on my own experience, accept Dr. Duncan's opinion that the cervix is not concerned in the obstruction to replacement. It is possible that partial reduction in his case was facilitated by the lessened bulk of the uterus through the free bleeding. No bleeding to cause anxiety occurred in my cases.

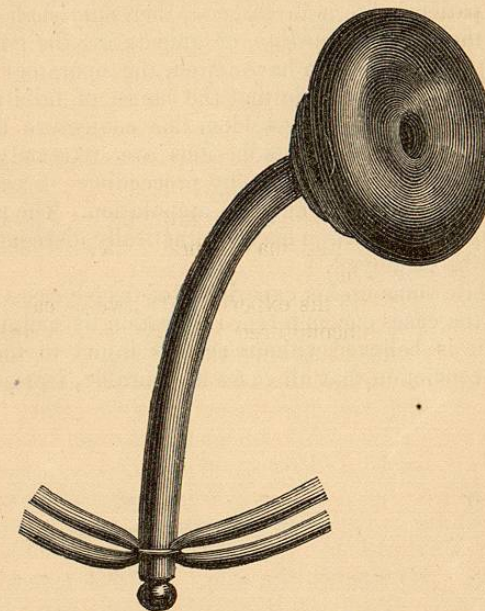
The application of sustained elastic pressure requires care and watching. The distress, even pain, occasioned by the continuous distension is severe; and in several cases it has been felt necessary to abandon the method. To obviate this difficulty, the pressure may be occasionally relaxed; and we may have recourse to chloral or the subcutaneous injection of morphia. The proceeding undoubtedly requires steady perseverance and some skill in adjusting and regulating the pressure. But these conditions given, success will rarely be wanting.

The best time for attempting Reduction.—Sometimes, as when the symptoms are very urgent, we have no choice. But where the opportunity is given, it would, I think, be better to work between the menstrual epochs, observing the general rule to avoid operations during menstria-

tion. Malgaigne, however, preferred a menstrual period on the ground that at this time the tissues are softer and more yielding.

In my second case I used the elastic pessary (Fig. 148). It consists of a fixed stem made to fit the pelvic curve, and surmounted with a cup-shaped disk of hollow rubber which receives the inverted uterus. At the end of the stem, which is outside the vulva, are attached strong

FIG. 148.



Dr. Barnes's Elastic Pessary for Reduction of Chronic Inversion of the Uterus (R. B.).

rubber bands which are brought up before and behind to be attached to an abdominal belt. By means of these bands the difficulty of maintaining steady pressure, which occurs when inflated bags are used, is entirely obviated. By tightening or relaxing these bands it is easy not only to regulate the pressure to a nicety, but also to give it the exact direction we want. For example, by bracing up the posterior bands we throw the force forwards, and may spend it directly upon the neck of the tumor. Thus dragging upon the ring of reflection, there is kept up a constant eccentric pull tending to open the constriction. The pressure upon the body of the uterus at the same time tends to squeeze out the blood and serum from its tissues, diminishing its bulk and arresting hemorrhage. Counter-pressure should be exerted by pads to the abdomen supported by a firm binder.

Once a day, or every other day, the instrument may be removed, and, under chloroform, an attempt at reduction by taxis may be made. For this purpose one hand should be passed into the vagina, whilst the other hand applied above the pubes exerts counter-pressure upon the funnel-like ring of the inverted organ. The fingers grasping the neck of the tumor, alternately compressing and pushing at the circumference, we

persevere either until we feel the ring expanding and a part of the mass going through it, or until fatigue or the condition of the patient warn us to desist. In the latter case we readjust the elastic pessary. In the former case the reduction is commonly effected at last suddenly; we feel the fundus go into its place with a jerk. The restored cavity of the uterus should then be swabbed with a solution of iron, and the patient left to rest.

When well adapted and steadily pursued attempts to reduce have failed, and the patient's life is threatened, then only shall we be justified in resorting to the *anceps remedium* of amputating the offending organ.

When attempts at reduction have failed, the operators have in some cases been too ready to conclude that the cause of failure lay in adhesions. But it is remarkable how seldom this conjecture has been borne out by facts. The truth is that adhesions are extremely rare. It has even been difficult to produce them by proceedings directed *ad hoc* in order to obviate some of the dangers of amputation. The possibility then of adhesions opposing reduction may be practically disregarded if gradual elastic pressure be employed.

Professor White sums up his experience of twelve cases: "The result has been in all the cases encountered, restoration by manipulation on the first trial, and it is believed without serious injury to the tissues, thus confirming the conviction that all cases are curable, irrespective of their duration."

CHAPTER XXIV.

TUMORS OF THE UTERUS; MALIGNANT AND NON-MALIGNANT; FIBROID OR MYOMATOUS; STRUCTURE OF UTERINE TUMORS; SEAT; SHAPE; DENSITY; VASCULARITY; LAW OF GROWTH; CONVERSION OF MUSCULAR INTO FIBROID TUMORS; PROCESS OF EXPULSION, FORMATION OF POLYPUS; FLESHY AND FIBRO-CYSTIC TUMORS; RECURRENT FIBROID; ERECTILE; DEVELOPMENT AND DECAY OF FIBROIDS; FATTY DEGENERATION; SOFTENING; CRETIFICATION; INFLUENCE OF FIBROIDS ON UTERUS, SURROUNDING ORGANS, AND SYSTEM GENERALLY; ENLARGEMENT, DEFORMITY, DISPLACEMENT OF UTERUS; DYSMENORRHEA, METRORRHAGIA, STERILITY; ATROPHY OF UTERUS; ULCERATION, PERFORATION; PRESSURE UPON SURROUNDING ORGANS; PAIN; PHEGMASIA DOLENS, PERITONITIS; SYMPTOMS AND DIAGNOSIS; TREATMENT.

ALIKE for pathological and clinical study, new growths or tumors in the uterus may be divided into malignant and non-malignant. Although there are forms of transitional character which it may be difficult to refer with absolute certainty to one or the other class, it is still convenient to

observe this distinction as far as we can. Thus I propose to devote the present chapter to non-malignant tumors, and another to the malignant diseases generally associated under the common name of "cancer."

Non-malignant tumors are classified first, according to their histological characters; secondly, according to their seat or other clinical characters. It may be stated as a proposition generally true that non-malignant tumors affect the body of the uterus, and malignant growths affect the cervix. //t But in accepting this statement we must be careful in practice not to forget that there are many exceptions. In most cases the seat of the tumor, malignant or non-malignant, exerts a material influence upon the clinical history, and often influences treatment.

For clinical purposes Atlee (*Trans. of International Med. Congress, Phila., 1876*) divides fibroid tumors into those which are usually accompanied by hemorrhage and those which are not.

Fibroid Tumors.—There is perhaps no organic change in the uterus more common than the development of tumors of this character. The statement of Bayle that 20 per cent. of all women dying after the age of thirty-five have fibroid tumors in the uterus is always quoted in reference to this point; and Klob, a more recent writer, says, "Undoubtedly 40 per cent. of the uteri of women who die after the fiftieth year contain fibroid tumors." Although unable to oppose these statements with numerical deductions, I venture to doubt whether the frequency of this affection is so great as these figures would indicate. Admitting their approximate accuracy, two conclusions are sufficiently justified. First, in a large proportion of cases fibroid tumors in the uterus occasion no marked distress, and entail little danger to health or life; secondly, they occur with increasing frequency with the advance of age until the climacteric is reached. I do not know that it has ever been clearly made out that fibroid tumors originate after the climacteric. Undoubtedly they may grow after this epoch, and that very rapidly, but the time of their formation is mainly, if not absolutely, limited to the period of sexual activity. My American friends tell me that fibroids are especially common in negro women. Virchow says they are comparatively rare in women who have borne children, and more common in old maids.

Cruveilhier called attention to the remarkable affinity of the uterus for these fibroid bodies. It must also be borne in mind that similar tumors form wherever there is muscle resembling that of the uterine wall. Thus they are found in the broad ligament, and in the vagina. Although far more frequent in the body of the uterus, where the muscular element preponderates, they occasionally arise in the cervix. Indeed there is a form of fibroid degeneration which seems especially to affect the cervix, producing thickening of some portion of its wall, generally the anterior. This form, however, is not identical with the common fibroid; it is not distinctly capsulated. But tumors in all respects resembling the true fibroids do occur in the cervix. Thus Professor Faye (*Christiania, 1866*) relates a case of unusually large fibrous tumor growing from the anterior lip of the vaginal-portion. I have seen several such cases assuming a polypoid condition. I have also removed several from the vagina quite separate from the uterus. Dr. Höning (*Berlin Klin. Wochenschr., 1869*) relates the case of a woman aged forty-one, who