PROLAPSE OF THE WOMB.

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LECTURE I.

THE term *prolapse of the womb*, in its primary and strictly etymological sense, means the displacement of the womb as a whole by descent. A wider meaning has, however, been loosely given to it, partly because our nomenclature does not keep abreast with the times, and partly because it is not easy to give up a term firmly established by long use. Three widely different affections are now included under it, viz.: (*a*) A simple descent, or settling down of the womb. (*b*) A hypertrophic elongation of the infra-vaginal portion of the cervix. (*c*) A (so-called) hypertrophic elongation of the supra-vaginal portion of the cervix. In its present comprehensive sense, then, the term *prolapse of the womb* has come to signify a condition of that organ in which the *os tincæ* is found lower down than natural, the position of the fundus being practically disregarded. Apart from the violence thus done to language, there is questionable propriety in including under one general name three distinct lesions, simply because they happen to have one symptom in common.

In the simple prolapse of the womb,—which should more properly be called a substantial descent of the womb,—that organ as a whole, together with its furniture of tubes, ovaries, and ligaments,

merely sags down, dragging with it the vagina and the bladder. The degree of displacement being proportionate both to the weight of the prolapsing body and to the relative relaxation of its supports, the womb will be found either more or less low down in the vagina, or else wholly extruded from the vulva. By many writers, the transitional stages of descent while the womb is yet within the vagina are included under the term *prolapsus uteri;* but when the descent is complete, and the womb wholly or in part outside of the vulva, the condition is called *procidentia uteri.* I must, however, warn you that these distinctive names have not been adopted as such by the profession at large; for by some they are employed interchangeably, as if they were synonyms, and by others in a reversed sense. The terms *complete* and *incomplete* would, therefore, be far more acceptable.

Studies from life quicken our apprehension far better than diagrams or verbal descriptions, and I shall therefore illustrate this form of displacement from one of our patients. This tall, thin woman is unmarried, and, although over sixty years old, is obliged to work hard for a living. Five years ago she began to suffer from a leucorrhœa, from dragging pelvic pains, and "bearing-down" sensations. These symptoms had lasted for a few months, when one day, as she was in the act of lifting a scuttle of coals, "something gave way," and with a sudden pang of pain, her womb jutted out from the vulva. At first, after being replaced, it would stay so for one or two days; then, only for a few hours; but now, as long as she is on her feet, it hangs outside of her body. After getting into bed she is always able to push it back into the vagina, where, unless she coughs, it remains until morning. Of course, by this complete descent of the womb, all her former sufferings have been heightened; whilst in

addition she now experiences difficulty in emptying her bladder, and strains much at stool.

As I expose the parts, you see a pyriform tumor hanging from the vulva. At its apex there is an opening—the *os externum*—into which I now pass up this sound to a distance of not quite two and a half inches. Now, since I can feel the tip of the sound outside of the vulva, and can with my fingers also define in the tumor the whole outline of the womb; and since a rectal examination informs me that the womb and vagina have vacated the pelvis, there can be no doubt that we are dealing with a case of complete prolapse, of true hernia, of the womb. The vagina, being of course completely inverted, as much so as a stocking turned inside out, constitutes the hernial sac; but the weight of the womb has not been sufficient to smooth out its rugæ. I wish you particularly to note the fact that the womb is retroverted and somewhat retroflexed. This results necessarily from the mechanism of descent, whenever the womb is the primarily prolapsed organ. For, since the womb is, as it were, slung at its middle, viz., the os internum, by its attachment to the bladder, it follows that in its descent the fundus must hug the sacrum, and describe the arc of a circle around the internal os as the centre of motion. Further, since the fundus is the heavier end of the suspended body, and also is forced down by the bulging in of the rectum into the vagina during the act of defecation, whilst the cervix is braced against the pubes or the neck of the bladder, some degree of bending will usually ensue. In fact, a retroversion or a retroflexion is but a modified form of prolapse, and must perforce precede the extrusion of a primarily prolapsed womb.

This simple form of prolapse is very generally the result of senile atrophy, and is therefore far more commonly found in old women. The pelvis has

lost its padding of fat; the lax and wrinkled vagina no longer holds up the womb; the retentive power of the abdomen has been weakened by the absorption of the fat-packing in the omentum and in the abdominal walls. By the general decrepitude of old age, or by the muscular debility from disease, the woman's figure becomes altered. Her spine loses its sigmoid shape, her shoulders droop, and her chest bends forwards. Hence, the axis of the superior strait, instead of striking a point on the abdomen below the umbilicus, tends now to coincide with the axis of the trunk. As a consequence, the intestines crowd down into the pelvis, and their weight is spent, not upon the pubic bones and the adjacent portion of the abdominal wall, but directly upon the womb, which now no longer lies under the shelter of the sacral promontory and of the lower lumbar vertebræ.

In younger women there are other causes which bring about this form of prolapse. For instance, those which increase the weight of the womb, such as congestion, subinvolution, and the presence of a polypus or of a fibroid tumor; those which weaken the lower supports of the womb, and shorten and straighten its line of descent, such as a relaxed vagina, and perineal lacerations; those, finally, which produce succussion or compression from above downwards, as a chronic cough, long-continued vomiting, tight-lacing, the wearing of skirts supported from the waist, and last, not least, the prolonged use of the obstetric binder, under the mistaken notion that it preserves the shape. Again, there are acute cases of prolapse from sudden jars, or from abrupt abdominal pressure.

This form of prolapse was deemed almost the only one until Huguier, in 1859, contended that so far from being a common form, it was an exceedingly rare one, and especially so when compared

with that caused by a hypertrophic elongation of the supra-vaginal portion of the cervix. As you grow, and as knowledge grows, you will often be constrained to strip off even the poor tatters of some traditional belief; but I cannot yet ask you to adopt Huguier's opinion, supported though it is by many careful observers. My own observations teach me that the simple prolapse of the womb is by no means an infrequent affection of women—preferably of old maids—who have passed the climacteric, or who have been unbraced by chronic ailments. Nor have I failed to find it in younger subjects; although in such cases, either from imperfect involution after labor, from inflammatory action, or from subsequent derangements of circulation in the pendent mass, and also from friction and exposure to the air, there is usually some degree of hypertrophy of the womb, in its totality, however, —fundus, corpus, and cervix,—and not in one portion to the exclusion of another.

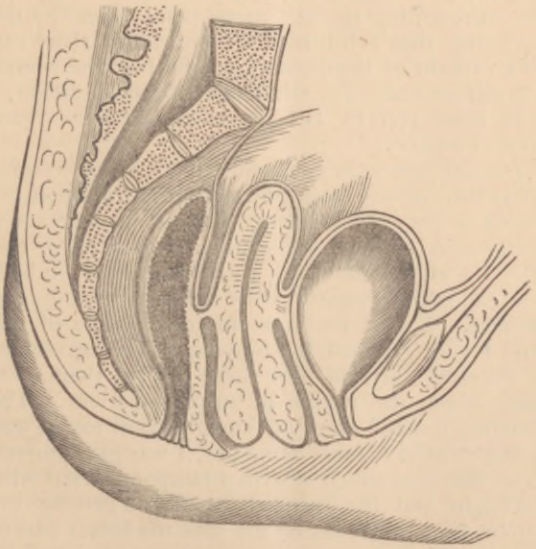
The indication in the treatment of this poor woman is clearly to return the womb and keep it in its place. As the perineum is intact, I think this can be done by Hodge's pessary or by some one of its modifications, which acts by restoring the posterior wall of the vagina and by propping up the fundus. At the same time I shall enjoin her to keep the contents of her bowels soluble, to avoid the lifting of heavy weights, to wear loose dresses, and to support her underclothing by shoulder-straps. Should the floor of the pelvis prove too slack to sustain this or the ring pessary, I shall try one which has an external base of support, such as Cutter's or Harlow's. Were her womb hypertrophied or otherwise diseased, in addition to the use of the pessary a special treatment should be addressed to these complications. Had she a torn perineum it would be well not only to restore it, but, by prolonging

the incisions, to narrow still more the outlet of the vagina. This operation will of itself temporarily prevent the extrusion of the womb; but it can give permanent relief only when it furnishes to the pessary a firm base of support. To maintain an erect carriage, and to restore the sigmoid curve to the spine, a brace with a pad over the lumbar vertebræ is said to answer well; but with this I have no experience whatever. In general, whenever the prolapse is incomplete, and dependent, as it then usually is, upon some congestive or inflammatory condition, begin your treatment, not with pessaries, but with the usual remedies for such lesions. By removing the cause you remove also its consequences; but when foiled in this, then, and only then, may you resort to mechanical means.

In the second variety of prolapse,—that from a *hypertrophic elongation of the vaginal portion of the cervix*,—an entirely different condition obtains. Through nutritive activity this portion of the cervix becomes larger and much longer than natural; and although by its increased weight it usually drags down the body of the womb somewhat, yet this is so unessential a sequence that the affection has been termed "prolapse without locomotion of the fundus." In this variety, the cervix so rarely attains to a length greater than that of the vagina that, in our clinic, we have not yet met with an example in which the os tincæ showed itself outside of the vulva. You are, however, all familiar with that modified form of it, the conical cervix, which is interesting from its bearing upon dysmenorrhœa and sterility. Whenever the vaginal portion of the cervix is so long as to protrude from the vulva, it is, as a rule, either a congenital condition or an exaggeration of a congenital condition, and is therefore found in nulliparæ. In child-bearing women, through metritis from the contusions of

repeated labors, the vaginal portion often takes on an hypertrophy, but this is then less an elongation than a general increase in every direction. There is yet another form of hypertrophic elongation which involves one lip of the os, usually the anterior. The prolongation becomes proboscis-like, and, from its resemblance to the snout of the tapir, has gained the name of *tapiroid*. All these acquired forms of hypertrophy are usually traceable to the traumatisms of labor, or to defective involution.

FIG. 1.



From the diagram (Fig. 1) you can see that the diagnosis of these affections is not difficult. Their character is sufficiently marked by the unnatural length of the uterine cavity and by the absence of

vaginal invagination and of vesical prolapse. The tapiroid cervix may possibly be mistaken for a polypus, but, as the remedy in each is the same, no harm could happen. In all the varieties of hypertrophy attended by elongation, the redundant portion of the cervix when troublesome must be cut off. For this purpose the scissors, the écraseur, and the galvano-cautery, have each its advocates. The risk from hemorrhage is less when the latter instruments are used; but the scissors offer the advantage of a cleanly incised stump which the operator can cover by sliding over and stitching together the edges of the surrounding mucous membrane. Healthy tissue being thus substituted for unhealthy, there can be no return of the disease, and further, the wound will sooner heal. For the details of this operation, I must refer you to Dr. Sims's classic work upon uterine surgery.

Let me here warn you against performing at your office this, or any other cutting operation upon the cervix or the vaginal tract. A smart hemorrhage is pretty sure to follow, either then and there, or else after the ride home; but, with your patient in bed, you can always control it by astringents or by the tampon. I shall not soon forget a scrape of this kind I once got into, by snipping off several clumps of venereal warts—I have been shy of them ever since—from the vagina of an office-patient. The bleeding resisted every astringent within reach, and as she resisted harsher remedies, I was glad enough to be able to staunch it with a tampon. What with the fright and the pain, there was no getting my patient home; she lay on my sofa the better part of a day; and that, to say the least, was not agreeable.

LECTURE II.

WE pass now to the third form of prolapse of the womb,—that from (the so-called) *hypertrophic elongation of the supra-vaginal portion of the cervix.* But to understand it fully we must first furbish up our knowledge of the anatomy of the parts involved.

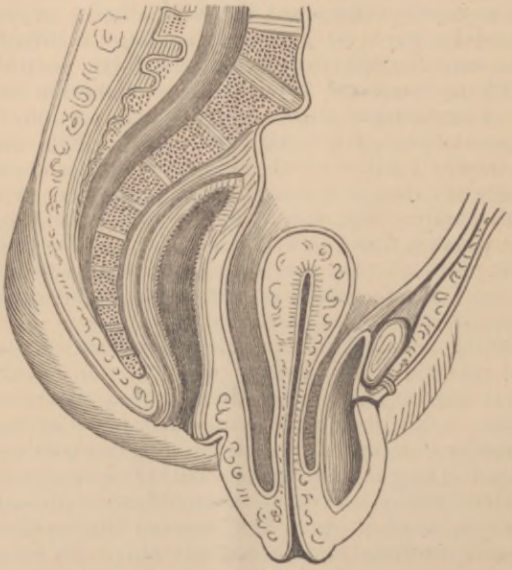
The womb is described as having a body, or corpus, and a neck, or cervix. The latter is divided into two unequal parts,—the glandular portion, which is comprised between the os externum and the os internum, and the non-glandular portion, or isthmus of the cervix, viz., that intermediate and contracted portion which unites the fusiform and glandular cavity of the neck to the triangular cavity of the body. The length of the healthy multiparous womb is about three inches. Of this the glandular portion of the cervix measures approximately one inch and a quarter, the isthmus one-half of an inch, and the body one inch and a quarter.

By the terminal fibres of the vagina, which gird it at the middle third of its glandular portion, the cervix uteri is still further divided into the infra-vaginal and the supra-vaginal portion. The free extremity corresponds to the infra-vaginal portion: about this there is no dispute. But the supra-vaginal portion of the cervix, as commonly described, is that portion of it which lies between the apparent vaginal insertion and the os internum. By some it is made to include this upper third of the glandular portion of the cervix, and the whole of the non-glandular portion,—viz., the isthmus; and these two portions are then believed to be the seat of the elongation. Either view strikes me as an error,

founded upon a misconception of the true extent of the supra-vaginal portion of the cervix.

Anatomically, this portion of the cervix is limited to the isthmus, and is therefore above the glandular portion. For, although the bulk of the vaginal fibres lie below the internal os, and the surface of attachment is to the eye a narrow one, yet in reality it is a broad one, covering two-thirds of the cervix, and reaching up to the os internum, where its fibres end.

FIG. 2.



Again, the base of the bladder rests upon the anterior wall of the vagina, to which it is fused by connective tissue, and it is also firmly attached to the anterior aspect of the cervix as far up as the os

internum. These fibres of attachment are so closely blended with those of the vagina, that the supra-vesical portion of the cervix is practically the supra-vaginal portion, and each, therefore, lies above the os internum, and consequently above the glandular portion of the cervix. I beg you to bear these anatomical facts in mind, because on them hinge the arguments by which I hope to prove to you that the elongation found in this affection is not essentially hypertrophic; and that it is not the commonly accepted supra-vaginal portion of the cervix which is principally lengthened out, but rather the supra-glandular portion of the womb, that is to say, the isthmus and the lower portion of the corpus. But, until this has been proved to you, I shall adhere to the conventional name and attributes of this affection, although they assume it to be an hypertrophy, and its seat in the supra-vaginal cervix.

By studying this diagram it will be plain to you that a wide difference subsists between a prolapse of the whole womb by descent, and a prolapse from an elongation of the supra-vaginal portion of the cervix. The term prolapse, as applied to this kind of elongation, as well as to that of the infra-vaginal portion, is a misnomer; because, although in both the cervix may protrude from the vulva, it does so more through elongation than from displacement. There is, in other words, a descent of the cervix,—a prolapse of the cervix, if you please, without necessarily any sinking down whatever of the fundus. Indeed, these two affections would seem to imply such a firmness in the suspensory ligaments as should, at first, keep the fundus from sagging down in the pelvis. This brings us at once upon debatable ground; but we will prudently keep neutral, and not display our colors until the "situation" has been studied out. But for that matter, to tell you the truth, I have hardly yet been able fully to

make up my mind and range myself under any one banner. The question of hypertrophic elongation is to the gynæcologist what the late Schleswig-Holstein question was to European diplomatists. "I and another man," said Lord Palmerston, "were the only two persons in Europe who understood this question. He is dead, and I—well, I have forgotten all I knew about it."

The woman who has just been brought in is greatly afflicted by the disease which we are discussing. In order to spare her feelings, and to give us ample facilities for studying the condition of her reproductive organs, I have had her completely etherized. She is forty-one years old, but hardship and over-work make her look much older. Her family consists of an invalid husband and six children, all of whom she supports by taking in washing. Five of her labors presented no difficulties; but the sixth, four years ago, proved tedious from the size of the child's head, and ended with the mishap of a torn perineum. She never afterwards felt strong; had lingering lochia, more or less leucorrhœa, "bearing-down feelings," and other uterine symptoms, which she attributed to her getting up and working too soon. Three years ago her urine began to scald her. The pain, at first bearable, daily grew worse, and soon became so acute that she now empties her bladder as seldom as possible. Not long after this, a tumor began slowly to protrude more and more from the vulva. It was and still is reducible, but its reduction, which at first gave her no pain, causes her so much suffering that she has dispensed with a perineal pad, long worn to keep it within the vagina. Her condition is truly a sad one: micturition and defecation are both difficult and painful; the former exceedingly so. The urine, no longer voided in a jet, dribbles over her person and excoriates it. She straddles when walk-

ing, complains bitterly of the constant dragging weight of the tumor, and now, in the prime of life, finds herself too crippled to work; while, to add to her afflictions, both she and her eldest daughter are confirmed epileptics.

This, in brief, is the history of the case; but it leads to no diagnosis more positive than a shrewd guess. Certainty can be gained only by a careful examination of the diseased parts. As I separate the thighs, you see protruding from the vulva this large boggy tumor, shaped like a truncated cone. Its apex is evidently occupied by the vaginal portion of the cervix, which is clubbed, snout-like, and apparently much hypertrophied, but not elongated. Upon a closer inspection, this condition of the cervix seems to be owing not so much to a hyperplasia of its parenchyma, as to a thickening of its mucous investment, to the gaping open of a lacerated os, to the turgid papillæ of the cervical canal, and to the exuberant growth of its submucous layer. There is an eversion of the lips, and a partial rolling out of the *arbor vitæ*. It constitutes, in fact, an imperfect attempt at an inversion of the glandular portion of the cervix, in which the loose mucous lining has participated to an extent greater than that of the more resisting parenchyma.

See this opening at the apex; it is not the external os, as you may think, but a portion of the canal much higher up. Here, about an inch from it, and describing an irregular margin around it, is the os externum. Let me prove this to you. I stroke down and pull together the jagged and widely divergent lips of the os externum, and now the cervix is somewhat elongated, reduced one-half in thickness, and made to look like a bishop's mitre. The vagina is wholly inverted; whilst partly upon it and partly upon the cervix are two large ulcers, one of them covered by a croupy exudation. These, I

think, are attributable to friction from her clothing, to exposure to the air, and to the action of the dribbling urine.

Permit me to digress for a moment, in order to point out to you the difference in the behavior of true and false mucous membrane when exposed to atmospheric action. Under such circumstances, true mucous membrane—viz., that covered by conoidal epithelium—does not materially alter in structure. For instance: the lining membrane of the bladder in exstrophy; of the rectum in prolapse; of those air-tubes, the bronchia, does not become cuticular. Look at the folds and arborescent plicæ of this everted portion of the cervical canal; they are swollen and angry-looking, but not at all changed in structure. Contrast with them the squamous epithelium which lines the vagina and covers the vaginal portion of the cervix. It has become so derm-like as to resemble the pink skin of a new-born infant. There is here no sharp margin defining the limits of these two forms of mucous membrane, but the one shades into the other by transitional, or spheroidal, epithelium. It is this change of structure in the false mucous covering of the cervix that makes the dilating stage of labor so tedious in wombs that are or have been prolapsed. In such cases multiple incisions of the os have often been resorted to.

To determine whether the bladder is prolapsed, or whether it enters into the tumor as one of its constituents, I shall now pass in the uterine sound. As I expose the meatus, which is much sunken, a cluster of vascular growths comes into view. These are nothing more than hypertrophied mucous papillæ, and yet they are exquisitely sensitive. Their presence explains, in part, our patient's painful micturition; for, small as they are, from the irritation excited by friction and by the passage of the urine, they give intolerable anguish. These caruncles

range in size from that of a millet-seed to that of a raspberry, but the suffering caused by them bears no relation whatever to the amount of growth they have attained. Mark the unusual course which the sound takes; it passes in almost vertically, with its concavity looking downward. I can feel its tip at a point half an inch from the apex of the tumor. You can now understand why, in passing her water, our patient experiences a difficulty apart from the pain caused by the presence of the vegetations. For, since a large portion of the bladder is outside of her body, the muscles of the abdomen can no longer compress it; and, further, the urethra is curved sharply around the sub-pubic ligament, and flattened against it. Clearly, then, the bladder is prolapsed, and its two walls, together with the utero-vesical fold of the peritoneum, and the inverted vagina, form the anterior half of the tumor. But what forms the posterior half? To ascertain this, I pass my index-finger into the rectum, and with my thumb push up the posterior wall of the inverted vagina. By this double touch I learn that a small pouch of the anterior wall of the rectum (a rectocele) has been diverted into the protruded mass. This explains her difficulty in defecation. Again; you know that Douglas's pouch is so closely fused to the posterior *cul-de-sac* of the vagina that the descent of the latter necessarily involves that of the former. Hence we may unhesitatingly include this peritoneal fold among the constituents of the tumor.

Up to this point we have learned that the cervix uteri, the inverted vagina, a pouch of the bladder, a rectocele, and the two peritoneal folds combine to make up this large hernial mass. This much is evident; but what is it? It is clearly not the vaginal cervix unduly elongated, because it, and only it, would compose the tumor. Can it be an inversion of the womb, or a simple descent of the womb?

Or are we dealing with a hypertrophic elongation of the supra-vaginal cervix? These are questions, gentlemen, which the uterine sound will readily answer. For a distance of three and a half inches it meets with no obstruction, but now there is a hitch to its further progress. It has not, however, reached the fundus, but the bend of a retroflexion: this I know from my past experience in gauging these tumors. By a little coaxing, and by raising the handle of the sound, the tip slips onward an inch and a half more before it fairly impinges upon the fundus. Five inches, therefore, is the length of the uterine cavity, as measured from the apparent apex, or false os, of the cervix to the fundus. But if to this the everted portion of the cervix be added,—as it should be, by restoring the os externum to its proper position, —then the uterine cavity will, in reality, measure about six inches. The case, then, is not one of inverted uterus, else there would not be a uterine cavity. Neither is it one of simple descent, because the sound has proved not only a condition of preternatural elongation, but the fact that the fundus is high up in the pelvis. This completes our diagnosis; for, by exclusion as well as by direct evidence, it is as clear as noon that we have before us a case of so-called "*prolapse of the womb from hypertrophic elongation of the supra-vaginal portion of the cervix.*"

Every departure from health, every manifestation of disease, is the product of a train of influences which it is the business of science to track out. Let us try to unfold their significance in this case, beset though it is with so many difficulties that I have postponed its discussion to this the last week of the spring course, in order that all of you might be sufficiently advanced to catch the drift of argument. Four theories have been advanced,—and I now bespeak your earnest attention,—four interpre-

tations of the phenomena, which at first blush seem hopelessly irreconcilable, and which yet have much in common. These theories are as follows:

(*a.*) That the primary affection is a downward growth, a true hypertrophic elongation, of the supra-vaginal portion of the cervix; and that the prolapse of the vagina and bladder is secondary, being the necessary result of the former. (*b.*) That there are no changes of structure in the cervix, other than the strictly mechanical one of elongation, which is a secondary accident, consequent upon the traction exerted by a primary prolapse of the vagina and bladder. (*c.*) Martin's (*Boston Gynæcological Journal*, 1871, pp. 230, 307),—that the circular hypertrophy of the vaginal portion of the cervix, of which the eversion of the os is the result, is a disease *sui generis;* and that it constitutes the weight which lengthens out the supra-vaginal cervix. (*d.*) Isaac E. Taylor's (*Bellevue and Charity Hospital Reports*, 1869),—that, contrary to the commonly accepted belief, the glandular portion of the cervix during gestation is not effaced, but hypertrophied, and that even after labor it still exists; for it has undergone nothing more than a momentary expansion of its canal for the passage of the fœtus; that consequently, if the natural process of involution does not take place, the gravity of this hypertrophied cervix will aid and sustain the elongation of the non-glandular part of the supra-vaginal cervix, viz., the isthmus, which is thick, soft, and ductile in the non-involuted womb.

Now, to my thinking, each one of these theories contains germs of truth, but no single one is of itself adequate to explain all the phenomena. For instance, granting that the disease is a true hypertrophic elongation; then, according as the suspensory ligaments of the womb are more or less yielding than its vesical and vaginal abutments, one

of two things ought to happen: either the cervix must grow downward, carrying along with it the bladder and vagina, or else the cervix must grow upward, lifting the body of the womb higher and higher in the cavity of the abdomen. But the upward form of displacement never happens, to my knowledge, in this affection, although it is common enough whenever a fibroid in the lower segment of the womb begets a true hypertrophy of the cervix. Again, in this affection the upper portion of the cervix is cylindrical and of uniform size, but attenuated, as if wire-drawn, rather than hypertrophied. By firmly compressing the base of the tumor, I can feel and trace high up a firm cord-like body not thicker than my little finger. That such a shape cannot be attributed to growth alone, witness the bulbous and nodulated form of the vaginal cervix in cases of chronic cervical metritis. But growth combined with traction will produce this cord-like and symmetrical form. In Oriental countries, for example, where fancy prices are paid for jasmine pipe-stems eight and ten feet in length, the wood is made straight and of uniform size throughout by reeving a pulley and fastening one end of the cord to a growing shoot, and the other to a weight. Further, counter to the theory of growth alone is the telling fact that after a few days of rest in bed the uterine cavity will be found very much shortened. True hypertrophy implies a change of structure incapable of speedy resolution; even with the actual and potential cauteries it takes months to melt down a cervix enlarged by metritis. Hence this quick reduction in length is a behavior impossible in hypertrophic elongation. Once more, the so-called supra-vaginal portion in this patient is dense and hard, whilst the infra-vaginal portion is soft and spongy, as if its substance had been absorbed. The former is stem-like, the latter clubbed. There are

extremely few cases—according to Huguier and Savage there are none—in which the two kinds of hypertrophic elongation coexist in the same cervix. The elongation is in fact limited either to the supra- or to the infra-vaginal portion; very rarely indeed does it affect both portions of the same cervix. Such an exclusiveness does not comport with the theory of hypertrophy; for how thereby explain this lack of concord in the behavior of two portions of one continuous structure? Is it reasonable to suppose that a merely superficial muscular collar, such as the vaginal attachment, can act like a conjurer's ring, and, by a sort of magic, inhibit deeply-seated tissue-changes on one side of it from passing through to the other? Rather than be embarrassed by this difficulty, I much prefer to apply the aphorism of the schoolmen,—*quod non habet, dare non potest*, a cause cannot communicate what it does not itself possess,—and consequently that the elongation, if supra-vaginal, is not communicable because it is not essentially hypertrophic. I say *essentially*, because I am willing to concede some degree of growth, not primary but secondary, caused by the irritation of another factor,—traction,—and by the stasis in the circulation induced by it.

If these arguments are sound, we must reject this theory. Nor should that of Martin's, if taken by itself, fare any better; for, if the weight caused by a circular hypertrophy of the vaginal portion can lengthen out the supra-vaginal portion, why cannot the same effect be produced by the far heavier weight of a cervix elongated in its infra-vaginal portion, of a cervix greatly hypertrophied eccentrically by chronic metritis, or of a large polypus or cancer of the cervix? Dr. Isaac E. Taylor—to whom the profession is greatly indebted for first showing that the cervix uteri is not effaced either by gesta-

tion or by parturition—has advanced an ingenious theory, which hinges upon this stability of the cervix, and has the great merit of consistency. His testimony regarding the autopsic lesions of this disease shows conclusively, if I understand him correctly, that the elongation does not affect the glandular portion of the cervix, but that portion of the womb just above the os internum, at the junction of the body with the neck. In other words, it is the supra-glandular portion of the cervix—the isthmus—which is drawn out from the corpus, and that at the expense of its thickness. Other observers have demonstrated that the glandular portion is hypertrophied circularly, not longitudinally; and this statement is further confirmed by the two important facts: first, that the internal os, so far from being separated more widely from the external os, is, by eversion of the cervical canal, often brought nearer to it; and, secondly, that the vesico-uterine peritoneal fold, instead of receding from the end of the tumor, approaches it so closely as to run some risk in the operation for its amputation. Granting, then, these premises, I think we are logically forced to admit, in the non-involuted uterus, not only the ductility of its isthmus and corpus, but also the gravity of its hypertrophied cervix. I shall, therefore, invite you to accept Dr. Taylor's theory; not, however, as one covering the whole causation of this affection, but as one throwing additional light upon it.

Of the four theories presented to you, let us now provisionally adopt the second one,—that of primary prolapse of the vagina and bladder,—in order to see how far it meets the phenomena. I speak and shall speak of the conjoint prolapse of the vagina and bladder, because from the fusion of the anterior wall of the vagina to the base of the bladder, a prolapse of the one must be accompanied by that

of the other; and, therefore, in the study of the mechanism of elongation, it is immaterial to us which of these organs is the first to prolapse. Should, then, the vagina and bladder prolapse, they plainly must conspire either to drag down the womb as a whole, constituting a simple prolapse, or descent, of the womb; or else, in case the uterine ligaments resist this traction, to pull upon and stretch out the isthmus and lower portion of the corpus—viz., that portion of the womb lying between the vesico-vaginal attachments below, and the uterine ligaments—or, perhaps, pelvic adhesions—above.

Now, in fact, this very thing happens in this affection. The elongation is limited to that portion of the cervix and corpus just above the os internum, which would be dragged upon; and does not extend to the glandular portion, which would not be dragged upon, and which, therefore, could not increase in length, save only by growth. That the healthy womb is a somewhat ductile body, capable of extension without growth or change of structure, is proved by its behavior under steady traction. Thus, when adherent to the wall of a growing ovarian cyst, it has been found stretched out to a length of six or more inches. I have seen the same thing happen to a womb firmly bound to the cyst of a ventral fœtation; and this is a happier illustration, because the womb is always so jealous of an extra-uterine pregnancy as to form a decidual membrane, and to present such characteristics of post-partum sub-involution as congestion, softening, and ductility. In these cases the elongation is analogous to that predicated of a prolapse of the vagina and bladder, but in an opposite direction,—from below upwards,—the static, or resistant, force being now in the vesico-vaginal attachments; the dynamic, or active, force in the adhesions to a growing cyst.

Thus far this theory of traction has analogy and the autopsic lesions on its side. It also has the further merit of explaining how a few days' rest will bring about so marked a diminution in the length of the womb. Thus, the recumbent posture removes the weight of the prolapsed organs, and the womb shrinks up like an over-stretched rubber band. It may, however, be reasonably objected, that since neither the weight of a very large polypus growing from the cervix, nor that of a vaginal cervix hypertrophied circularly or longitudinally, does materially lengthen out the supra-glandular cervix, it does not seem plausible that the lesser weight of the prolapsed vagina and bladder should effect that which greater weights fail to do. This objection can be met by assuming that, either through chronic congestion or through arrest of post-partum involution, the womb is thick, soft, and ductile,—conditions which of themselves would tend to make the gravity of the cervix act upon the plasticity of its intermediate portion. For instance, —to borrow a homely illustration from our candy-pulling days,—if a rope of molasses candy is held out at arm's length, the weight of its free extremity will draw out and thin out that portion just below the grasp of the hand. To sum up, then: the predisposition to this disease depends upon a tendency to cystocele or vaginocele; the receptivity, upon the coincidence of subinvolution or of its analogues.

The conjunction of the theory of *traction* with that of *ductility*—traction from the prolapsing vagina and bladder; ductility from a chronic congestion of the womb—thus offers a very reasonable explanation of the phenomenon of uterine elongation. It also accounts for the eversion of the lips of the os externum and for the circular hypertrophy of the glandular portion of the cervix. By the

attenuation of the mechanically elongated part, and by the constant dragging of the vagina and bladder upon their belt of attachment, the veins of this presumedly non-involuted or otherwise softened structure—and more especially the veins below the os internum — are unduly constringed, and their circulation is, therefore, rendered sluggish. Through the stasis thus induced, the whole cervix, but principally its glandular portion, gains an excess of nutrition. The papillæ and capillary loops of the arbor vitæ become turgid; the sub-mucous layer of the cervical canal grows exuberantly from within outwards, and by rolling out makes the flaccid lips of the os gape open. By the tertiary accidents of friction against the sacrum, of exposure to atmospheric action, and of irritation from the dribbling urine, the mucous coat of the cervix becomes thickened and changed in structure. Thus is brought about that circular hypertrophy which intensifies all the other symptoms.

It is a vicious circle throughout: the prolapsing organ—say the vagina—tugs at the bladder, which yields, and in turn lends its weight towards the further descent of the former; by alternately coercing and being coerced, their united action at last begets the circular hypertrophy of the cervix; the latter returns the favor by edging and nudging on the vagina, which responds by still more increasing the prolapse of the bladder and the hypertrophy of the cervix, and by aiding them in drawing out the supra-glandular portion of the cervix. Thus this reciprocation is kept up until the constantly elongating and growing cervix has attained length and weight enough to act aggressively. Aided now by the downward succussions communicated to it by the movements of the body, it completes the work by wholly inverting the vagina. The resistance of

the vaginal tube to this final extrusion, being spent upon its cervical attachment, pulls the already gaping lips of the os still more apart, makes the cervical canal funnel-shaped, and sometimes everts it so completely as to convert the internal os into an external one.

From this point of view, the condition of the cervix in any given case of prolapse determines the nature of the disturbing cause. If the uterine cavity is barely or not at all lengthened out, as in the simple descent of the womb, we may infer that the prolapse of the womb has been the initial event. If, however, marked elongation of the cervix is present, then the vagina and bladder have been the primarily prolapsed organs. Thus defined, the latter affection is essentially a prolapse of the vagina and bladder, and not of the womb; whereas the former is as essentially a prolapse of the womb. I beg you, however, not to regard this interpretation as final or authoritative. Pressed to the quick it may show flaws, and I therefore invite you to accept it simply as one more flexible than any other yet advanced. The truth is perhaps not yet reached, for nature transgresses by anonymous agents, whose ways are often past finding out.

We must now put our theories to test, in order to see whether they can be clinically sustained. Like our former patient, this one has also reached that period of life when senile atrophy of the reproductive organs begins to take place. The vagina, having lost its pelvic packing of fat, tends to sag down. This tendency is urged on by her occupation as a laundress, which compels the erect posture and much lifting of heavy weights. In one of her numerous confinements the perineum has sustained injury. The rent has not only deprived the vagina of its chief abutment, but has also straightened out and shortened its natural curve, making its axis coincide very

nearly with that of the superior strait. The anterior wall of the vagina, being now unsupported, began to bulge downward. During gestation the vagina, like the womb, becomes hypertrophied, and after labor undergoes the same process of involution. Perhaps after the birth of her last child this process was arrested, and the vagina remained thickened and with impaired tonicity. Such a condition would of itself tend to promote a descent of the vagina; for, indeed, in the last months of gestation a prolapse of its anterior wall is by no means an uncommon event. Again, the vascular growths at the meatus urethræ gave so much anguish that she schooled herself into the habit of holding her water as long as possible, and consequently—for the latter act implies the performance of the former—of putting off the evacuation of her bowels. Of course, then, the over-distended bladder and the overloaded rectum, by pouching in the vagina posteriorly and anteriorly, would materially aid in dragging down this already prolapsing canal.

From the first, her bladder has kept pace with the vagina in its descent, until its base is now far below the level of its neck, and the pouch thus formed cannot be wholly emptied. In many cases, from the decomposition of the retained urine, cystitis is excited; even calculi are sometimes formed. Occasionally the neck of the pouch gets tightly jammed under the pubic arch; then the orifices of the ureters may become so obstructed as to bring about a dilatation of the ureters or a hydronephrosis. Fortunately, not one of these accidents has happened to this woman; but, of course, the gravity of the urine contained in this pouch has helped to pull down more of the bladder, and still more of the vagina as well; for these arch-conspirators abet one another. The changes previously detailed have all along been taking place in the intermediate part of

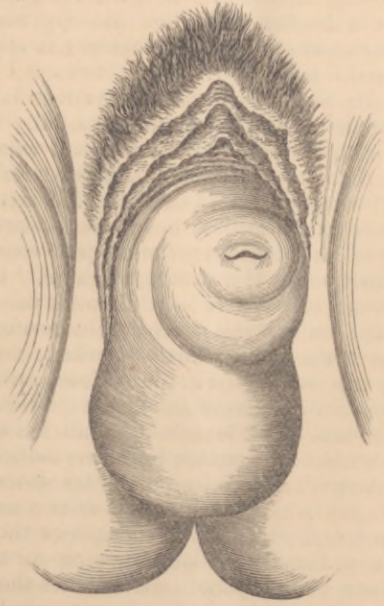
her womb, and in the glandular portion of her cervix, until you now see how long and stem-like the former has become, and how much the latter has come to look like the snout of a pig. This resemblance is heightened by an ununited transverse fissure of the cervix, resulting from one of her labors, which exaggerates the eversion of the os.

I told you that the final weight and length of the cervix, aided by the jars of the body, completely invert the vagina, which then pulls the gaping lips of the os widely open. Here are my vouchers: As I push the tumor back into the vagina, the eversion becomes less and less; and now, as I force it out by supra-pubic pressure, the eversion is exactly proportioned to the extent of extrusion. Again, the gravity and prolongation of the cervix, aided by the final descent of the womb as a whole, have smoothed out the rugæ of the posterior vaginal wall into mere water-lines. This could not happen from the weight of the vagina alone; nor, in my experience, does it happen in the simple prolapse of the womb, however complete it may be. Finally, this mechanism of descent explains a remarkable uniformity in the length of the uterus in all those cases of elongation in which the womb itself partly descends and the cervix appears outside of the body. Then usually the sound indicates a length of five inches or thereabout,—a limit attributable to the resistance to any further elongation and descent by the anterior wall of the vagina, which measures about two and a half inches in length. This great length of the uterus, by the way, furnishes a good reason for the pain felt by our patient when she reduces the tumor. For, since the fundus is not very much below its proper position, the return of the tumor—necessarily involving that of the cervix—can be effected only at the expense of either an undue stretching upwards of the suspensory ligaments of the womb,

or of a forcible bending or retroflexion of the elongated cervix.

You must not, however, infer that in all cases of this affection the fundus will be found so high up in the pelvis as it is in our patient. On the contrary, in the majority of old cases you will find it very much lower down than it would be in health.

FIG. 3.



Occasionally you will meet with a case—such as some of you last week saw in my private room—in which the elongated and heavy womb has finally overcome the resistance of its ligaments. It will

then be found in a state of retroflexion, wholly outside of the body and contained in the vaginal sac. By palpation and the uterine sound, such a complete prolapse is easily recognizable. Even to the eye there are presented certain unmistakable marks. For the tumor is then of large size, and, as you will be able to understand from this figure, which I have borrowed from Dr. Taylor's admirable paper, the bulge of the retroflexed fundus makes the posterior vaginal wall hang down below the snout-shaped apex like a dewlap. Nor, on the other hand, is it rare to see cases in which the fundus has apparently not budged from its normal site.

This affection of the cervix is restricted as a rule to the laboring-classes, and especially to those women, such as cooks and laundresses, whose work compels them to stand much on their feet and to lift heavy weights at a disadvantage. It and a host of other uterine disorders have very lately been attributed to an alleged excitation provoked by the treadle motion of the sewing-machine. I do not believe this; to the pure all things are pure, whilst even in the impure the wearisome movements of a laborious trade could hardly awaken, much less content, any sexual solicitation. True, professional operators on the sewing-machine are liable to uterine disorders, but, as a class, so are all seamstresses. Their susceptibility is not, however, traceable to a prurient source, but to the combined effects of bad air, bad food, over-work, close confinement, the sitting posture, and of such accessories as tend directly or indirectly to determine pelvic or portal congestions. Nor do I believe that onanism, in any form whatever, plays an important part in the production of this disease; for all the examples of it that I have seen have occurred in married women with large families.

Granting, then, that this elongation arises in

the main from traction, and not primarily from any constructive energy inherent in the cervix; what are our resources for its cure? Could I put this woman to bed for a few weeks, and thus relieve the cervix from its own dead weight and from that of the vagina and bladder, it would shrink back very materially, but not to the standard length of the healthy womb. It would act, as I have before said, precisely like an over-stretched rubber band. I might then adjust some suitable pessary which would keep the prolapsing organs in their proper positions. Unfortunately, the poverty of this class of patients renders such a treatment inadmissible. At best, the womb is too ductile, the vagina and perineum too lax, even when contracted by appropriate operations, to render this treatment other than tedious and unsatisfactory.

The desideratum here is something that can furnish a support to the unstable pelvic organs, and, at the same time, consolidate the ductile womb by giving a fillip to the now dormant process of involution. Both indications are often met by the mere amputation of the vaginal portion of the cervix, although in bad cases the former may further demand the constriction of the vulval opening. From a misconception of the nature of this disorder, Huguier recommends an unnecessarily severe and dangerous operation, by which the whole vaginal portion is removed, and with it a conical core of the supra-vaginal portion. You will naturally ask, "How can the removal of an infra-vaginal slice cure a supra-glandular elongation measuring three or four inches?" I shall reply, first, by two illustrations: after the ablation of a uterine polypus, its pedicle, however long and broad, will disappear; an elongation of the uvula is curable by snipping off merely its tip. In the second place, the hemorrhage during the operation, by depleting

the womb, causes shrinkage; the rest in bed furthers this contraction; whilst the prolonged suppuration necessary for the repair of an open wound sets up so alterative an action as will carry out the process of shortening and finally consolidate the whole uterine body. Once more, this operation lessens the weight of the cervix, and establishes a retrogressive metamorphosis of the subinvoluted vagina and of its thickened mucous investment, giving, thereby, tonicity and stability to those parts.

One danger attaching to this operation is that of hemorrhage, but with care this can be avoided. Such accidents as peri- and para-metritis, tetanus, and septicæmia will occasionally happen, but not with a frequency greater than in any other surgical operations upon the cervix. To avoid the loss of blood, and to obtain a deeply granulating wound, the amputation is usually made with the chain- or wire-écraseur, or by the galvano-caustic loop. But, whatever the instrument, the operation is always attended with the risk of invading the bladder and especially the retro-uterine pouch. Hence, I should advise you, whenever you can closely watch your patient, to use the knife or the scissors. For, thereby, not only can you remove with greater safety a larger slice of the cervix, but also can, in case of this accident, bring together, by metallic sutures, the cleanly-cut edges of the vesical or peritoneal wound. Whereas no union would be likely to take place were the edges crushed by the écraseur or seared by the galvano-cautery. This mishap has happened to the most skilful operator; but, if every case has been reported, no great fatality attends it. Whenever amputation with a cutting instrument is resorted to, it will be safer first to transfix the cervix, as high up as prudent, with a long straight needle; then to place above this, as a tourniquet, the loop of an écraseur, and, finally, to slice off all that por-

tion of the cervix on its distal side, making the incision between it and the needle. If, upon loosening the loop, any smart bleeding occurs, you may either sear the wound with the hot iron, or plug up the vagina; for, to catch up and tie a vessel in a hypertrophied cervix is no easy task. The only sure way of using the ligature is to transfix deeply each bleeding point with a curved pin, and then to ligate under it the raised-up flesh *en masse;* the pin being left *in situ* for several days.

I have described this operation somewhat fully, because, although it offers several advantages, I shall not perform it this morning, but shall use the wire-écraseur. My reasons for this seeming inconsistency are, that the excessive heat of the weather forbids the use of the tampon except as a sheer necessity, and that I shall not to-day be within call should a secondary hemorrhage take place. After placing our patient in the lithotomy position, I first catch up with a forceps the cluster of vegetations dangling from the meatus of the urethra, and snip off its base with the scissors. To prevent its otherwise sure return, I rub the raw surface with the frayed end of a match moistened with fuming nitric acid, and with a little olive oil decompose any excess of the acid. I next draw off the urine, and at the same time measure, with the catheter, the depth of the vesical pouch, and also sound the bladder for stone. In order to make myself easy on the score of wounding the bladder, I shall follow Huguier's example, and explore that organ with my finger. By gently opening the blades of a dressing-forceps in the urethra, I have, in a few minutes' time, so dilated this short and elastic canal that it will now permit me to coax in my little finger. Note how low its tip reaches,—certainly not more than half an inch from the apex of the everted cervix. So far, good! We have accurately defined the lower

boundary-line of the bladder; but very unfortunately there are no diagnostic criteria for ascertaining the depth of the retro-uterine fold. Usually, this fold does not descend so low as the pouch of the bladder; but this rule is not invariable, and the peritoneal cavity will occasionally be opened in spite of the greatest care. Guided by the tip of my little finger inside of the bladder, I now transfix the cervix antero-posteriorly by a sharply pointed skewer, entering it just below the lower margin of the bladder, and slanting it upward and backward so that its point may emerge somewhat higher up on the opposite side. The bladder is, therefore, safe, whilst the pouch of the rectum is so small, and so far from the course of the skewer, as also to be out of harm's way. Could this be affirmed as positively of the peritoneal fold, the operation of itself would be without any hazard whatever; but, with regard to that, much must be left to chance. It remains now to adjust the wire loop of the écraseur, and this is done by slipping it over the cervix and close up to the distal side of the skewer. I give a few turns of the screw; and now see how bloodlessly the whole vaginal portion of the cervix has been amputated.

Some of you may perhaps wonder why the écraseur was not used without the skewer. There is a good reason for this: Whenever the wire or the chain of an écraseur begins to bite into living flesh, it tends not only to slip in the direction of least resistance, but also to drag into its loop the more relaxed tissues of that side. Now, since the vaginal portion of the cervix is clubbed and tuberous, the direction of least resistance and the looser tissues lie above the surgical neck. Hence, unless guarded by the skewer, the loop might slip upwards and pinch off a piece of the bladder or of the peritoneum.

Our patient will now be put to bed, where she

must stay for at least two weeks. Should secondary hemorrhage take place—which is improbable—I shall be forced either to sear the raw surface with the hot iron, or to plug up the vagina. As soon as pus begins to form, the vagina will be washed out several times a day with carbolized injections. If left to itself, the wound will not cicatrize under four weeks; but the healing process can be hastened by an occasional touch with the nitrate of silver.

This operation will most likely result in our patient's cure, so far as the elongation of the cervix is concerned,—that is to say, after the lapse of five or six weeks her uterine cavity will not measure over three inches in length. But it may not prevent more or less prolapse of the relaxed vagina and bladder, and another operation will perhaps be needed to repair the torn perineum. Some surgeons advise in every case an operation either for contracting or shortening the vaginal canal or for narrowing its outlet; but this is by no means necessary. Whenever the fundus has barely sagged down, I believe that, whatever the degree of cervical elongation, the removal of the vaginal portion will alone effect a cure in the majority of cases. For the same stays which have hitherto sustained the fundus will afterwards, through the medium of the now contracted and consolidated cervix, sustain also the vagina and bladder. On the other hand, whenever the fundus is found to be displaced to any marked degree, and especially when wholly extruded,—as in Fig. 3,—then, in addition to the amputation of the cervix it will be necessary either to lengthen the perineum and at the same time narrow the outlet by the operation of episioperineorrhaphy; or to perform some one of those operations for contracting the vaginal canal which you will find described in Dr. T. G. Thomas's excellent work on the Diseases of Women.

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