

resistance; and by gently continuing the pressure we produce a degree of re-inversion or re-position. We see the everted os uteri turn inwards, and the mass outside becomes diminished in length. It is needless to say that this demonstration must be conducted with great care, lest we injure or even perforate the uterus.

2. The second condition, that of pure procidentia uteri, may be recognized by the fingers. First, the fingers compressing the tumor can trace the included uterus by its hardness, and determine with precision its form, size, and position; the fingers get all round the uterus, grasping it completely, and thus demonstrating that it is wholly outside the vulva. Secondly, the sound again takes measure of the uterus, and proves that there is no elongation; that it is two and a-half inches long, or barely a little more.

3. In the third condition, that of procidentia of the retroflexed uterus, the diagnosis is made out in a similar way.

Since I meet all these three conditions, I cannot accept any doctrine which absolutely excludes one of them as impossible. The real question to settle is the relative frequency of their occurrence. I believe the hypertrophic elongation is the most frequent, but I can give no numerical data.

The two conditions arise under different circumstances. Although both are observed in women in the decline of life, the hypertrophic elongation is more frequently found at an earlier period. It is an active process of growth. The cervix elongates in continuation of a process of inflammation and engorgement, aided no doubt by other conditions, taking their rise from pregnancy and labor. The procidentia uteri more commonly results from a process of which atrophy of the uterus and of the pelvic padding is the first step, and superincumbent pressure is the second. This is more frequently observed in women past the climacteric; it first appears at this period; it is not the climax of processes begun after child-birth. Indeed, it may occur in women who have never borne children. I have seen it in a girl aged seventeen, who had never borne a child. In these cases the uterus is sometimes so shrunken that it is scarcely bigger than a walnut, and there is commonly closure, complete or partial, of the os uteri. In one case I found atrophy of the uterus almost absolute.

S. Cooper has cited cases of complete procidentia of the gravid uterus. I have seen a case of the kind in the practice of the Royal Maternity Charity. In this condition it is obvious that to expel the child the uterus can derive no help from the diaphragm or abdominal muscles. If the whole mass can be easily returned within the pelvis, this will be the better course. If not, it will be wise to dilate the cervix uteri artificially by means of my water-dilators, and to deliver by forceps or turning, taking care that the uterus be well supported by the hands of an assistant during the delivery. When this is effected, the uterus must be returned, and a firm perineal bandage be applied to prevent it from falling through again. Occasionally procidentia of the gravid uterus is simulated by pregnancy with hypertrophic elongation of the cervix. When labor comes on, the child passes along the lengthened canal of the cervix, and is arrested at the os externum uteri, which lies outside the vulva. The os externum being thus enormously distended, has been taken for the uterus

itself, the body of which is really in its normal position. I have seen several examples of this. In each case the practitioner attending assumed it to be complete procidentia. It may fairly be doubted whether some of the recorded cases of presumed procidentia of the gravid uterus were not in reality cases of hypertrophied cervix.

The uterus, in a state of prolapsus, is sometimes affected with scirrhus and cancer. A case of this description was met with by Ruysch; such a complication was seen in one instance by Cruveilhier. (*Anat. Pathol.* livr. xvi.) Its extirpation was completed by MM. Rézamiér and Marjolin, by means of a ligature, though the patient is stated to have died afterwards from some cause which had nothing to do with the operation. Instead of this method, which must inevitably be attended with great risk of tying a portion of the bladder, Cruveilhier recommends making an incision into the posterior parieties of the vagina, and thus getting into the great peritoneal *cul-de-sac* between the bladder and rectum, drawing the uterus outward, and separating its cellular connections to the bladder. A woman, whose uterus was cancerous, and in a state of complete prolapsus, without any inversion, was attended by Langenbeck, who succeeded in removing the diseased organ with a knife, and the patient recovered. According to this author's description, after the vagina had been separated from the uterus, the latter organ was detached from the peritoneum without opening into the peritoneal cavity, a small portion of the fundus uteri being left, however, apparently quite sound. The bleeding was very profuse, and required the use of the needle and ligatures.

The Treatment of Procidentia and Hypertrophy of the Uterus.—The treatment best calculated to meet the early stages in the production of these conditions has been described in preceding chapters. It remains now to discuss the modes of dealing with the more advanced or confirmed cases. Keeping the uterus at its proper level is a very effectual factor in curing inflammation and hypertrophy of the cervix. This is due, I believe, to the relief which the vessels supplying the organ obtain when supported in their natural relations. When the cervix is sunk low in the pelvis the vessels are dragged down, become elongated, varicose, they form large loops, with a depending curve, liable to angulation by compression; the circulation through them is necessarily sluggish, and seeks relief by serous effusions into the tissues, thus increasing the hypertrophy, and impeding curative processes. A considerable degree of œdema is a frequent complication of the advanced degrees of prolapsus, with inversion of the vagina. To such an extent is this the case that occasionally the bulk of the protruding mass becomes so great that there is extreme difficulty in returning it into the pelvis. To facilitate this step it is necessary first to get rid of the œdema. This is done by applying strips of plaster around the mass, so as to compress and support the tissues. It is often useful to prick the swollen tissues with a lancet, to let the serum drain off. After two or three days, the patient keeping her bed, the mass will commonly be so far diminished as to enable it to return. If swelling be attended by inflammation of the surface of the mass, it will be proper first to subdue this by cooling astringent lotions; lead or tannin answer well; or it may even be desirable to apply leeches. A properly applied pessary acts partly by reinverting the vagina and cervix, and partly by

restoring the vessels to their natural relations, thus opposing two of the most prominent factors in the production of prolapsus.

Maintaining the uterus at its proper level further acts by taking off the strain upon the ligaments, and thus giving them the opportunity of recovering their tone. They are somewhat elastic, and if relieved of the drag upon them they slowly retract, and in time regain much—I believe rarely all—of their pristine value.

Sometimes the procidentia is irreducible. Inflammation may have been followed by adhesions which bind the uterus and appendages down. In one case pain was so much increased, and so obstinate a constipation came on, that it became absolutely necessary to let the uterus descend again. In any irreducible case we must be content with supporting the swelling, and preventing its increase by a suspensory bandage, and drawing off the urine by catheter, whenever requisite. Sometimes the displacement of the bladder causes an incontinence of urine.

The extreme pain which attends the attempt to return the procident mass into the pelvis is often due to some degree of inflammation having been set up in the peritoneum lining the pouch, into which the intestines descend, at the upper and back part of the womb, or of the peritoneal investment of the intestines themselves; and death may in these circumstances take place, with many symptoms of the same kind as attend upon fatal strangulated hernia, or ileus.

Another cause of the bulk of the tumor, and of the difficulty in replacing it, arises from the presence of the intestines in the sac, which seldom reside there long without inflammation of their peritoneal coat being set up; not of so acute a character as to produce formidable symptoms, but matting their different coils together, and tying them firmly to the interior of the sac.

Again, where a mass of intestine has been long protruded reduction is difficult, and retention *in situ* perhaps impossible, owing to the loss of capacity of the abdomen to accommodate it. The abdomen has shrunk.

These considerations, then, suggest that reduction should be tried very gently, closely observing any resistance that may be presented to the return or retention of the parts within the pelvis.

The immediate effect of returning the procident uterus to its place is to shorten the elongated neck, if the case be one of hypertrophic elongation. The structure is elastic; it retracts like the ligaments when the strain is taken off. But much is not gained in this way; perhaps nothing in extreme senile cases, where there is thinning of the cervix. In these cases when the procident mass is returned, the cervix being too long for the space in the pelvis which has to receive it is doubled up. But the plan of reduction and supporting the mass inside the pelvis by mechanical means is not so irrational as it is by some thought to be. Certainly it is not a cure; it is a palliative proceeding. But this indication is often fairly fulfilled. I could exhibit a considerable number of hospital patients who by help of suitable pessaries are placed in comparative comfort, and are enabled to earn their livelihood by washing and other laborious occupations.

The keeping the uterus within the pelvis at its proper height is further an important condition preparatory to any of the various operations per-

formed upon the vagina and cervix. By this means, aided by rest in the recumbent posture, the uterine supports regain strength; and this will be of essential service when the patient recovers from the operation. A troublesome consequence of prolapsus is the "spasm" or reflex irritation, caused by the presence of the uterus near the vulva. This distress is pretty sure to be removed by a pessary which will carry the uterus up to its proper level.

Whatever other treatment be adopted, it is a point of great importance to keep the bladder periodically relieved. For want of attention to this the pouch formed at the lower part of the bladder, by the dragging down of the cervix uteri, tends to get bigger, and becomes an aggravation of the uterine and vaginal displacement. To empty the bladder fully it is necessary that the protruding mass should be returned into the pelvis. Some women afflicted with procidentia have learned the trick of pressing the anterior part of the mass upwards by the hand during micturition, and thus of emptying the bladder more completely. The collection of phosphatic deposits, and the formation of calculi may thus be prevented.

Mode of Returning the Procident Mass.—The patient should lie in the semi-prone or knee-elbow posture. The tumor should be treated as a hernia; the part last emerging should be returned first. The base should be grasped by the two hands, and gentle pressure exerted at a part of its circumference at a time, whilst the mass is being pushed back in the direction of the axis of the pelvis.

When the parts have been reduced we have to consider how to keep them in position. The patient should be in bed, the bowels relieved, and an astringent lotion used twice a day, as a preparation for the use of a pessary. Under these precautions any inflammation or ulceration of the uterus or vagina soon heals, and the mucous membrane recovers its normal moisture. The vulva also regains some portion of its natural firmness, and becomes better able to retain a pessary.

It must not, however, be concluded that mechanical treatment is everything. It is always indeed useful, but sometimes it is not the most important part of the treatment. It is essential to consider the complications, as hypertrophy, inflammation, or engorgement. In many cases the prolapsus disappears when the uterus is restored to health.

In a considerable number of the slighter forms of prolapsus much benefit is obtained from the frequent use of astringent injections. And nothing more conclusively proves the value of the vagina in supporting the uterus than the action of astringents upon it. The corrugation and contraction of the canal which these induce is often found sufficient to keep the uterus in place so long as the effect upon the vagina lasts. An effectual and convenient way of applying astringents for this purpose is to wrap up a scruple of alum or sulphate of zinc in powder, in a piece of cotton wool, and to insert this in the vagina. This the patient can commonly do with her fingers; but where this is difficult it is easily accomplished by aid of the plug-speculum.

The Use of Pessaries.—It is one of the many controverted points in gynaecology whether the use of pessaries in prolapsus is or is not a scientific proceeding. If pessaries are found useful, it matters little whether they satisfy the conditions of science. That thousands of women

do find comfort and benefit from their use is a fact too notorious to be disputed. Still it is asserted that their usefulness being only palliative and temporary, and science supplying modes of treatment which are curative, pessaries should be discarded. If the premises were true we could not reject the conclusion. But they are only partially true; and a wide field is still left for study and the application of various modes of treatment, according to the various forms of the malady.

The operations to which alone the claim to be scientific is arrogated, however well devised, are not certain in their results; they are not free from the dangers which attend other similar operations; and they not seldom fail in their intent. No doubt these operations may be, and will be, improved, and become more certainly successful. But, in the mean time, it is not wise to discard instruments so useful as pessaries.

As prolapsus is a hernia, so a pessary is a truss. Mr. John Wood and other surgeons have devised and successfully executed admirable operations for the radical cure of inguinal hernia. These have not, however, supplanted trusses. So it is with prolapsus. Notwithstanding the ingenuity and success of several of the operations for its radical cure, pessaries are still found necessary.

Before applying pessaries it is necessary to ascertain the absence of adhesions binding down the uterus. This is done by careful manipulation, and by the use of the sound. On carrying the uterus gently upwards, obstruction, if existing, will be felt. Occasionally the part is returned, after a great deal of trouble: but owing to the long altered state of the parts, the reduction brings on worse symptoms than resulted from the procidentia.

Description of Pessaries.—The word pessary comes from πέσσω, to soften, and was originally used to signify a soluble medicinal substance, similar to a suppository. It is only by a corruption that it has come to be applied to the instruments designed to support the uterus. To these instruments it has been proposed to give the more appropriate name "hysterophores," from ὑστέρα, womb, and φέρω, I bear.

Pessaries, that is hysterophores, act on different principles. The object of most is to counteract prolapsus, or to keep the womb in proper form and place. Others are designed to stimulate development and function. Others to subdue inflammation and irritation and to overcome contraction of the vagina.

Those which have the first object in view act on one or more of the following principles:—

1. By mere distension of the vagina below the uterus they block up the outlet, and so keep the uterus from falling out. The balls and air-pessaries mostly act in this way.
2. Others act by utilizing the contractile power of the vagina. The stem-and-cup pessaries act in this way, combining something of the leverage power of the next class.
3. A third class act by leverage principally, thus utilizing the normal act of respiration and the contractile property of the vagina as well.
4. A fourth class act by directly supporting the uterus or its axis of suspension by a disk which bears up the uterus, and is itself supported

by a wire-stem, which is in turn supported outside either in front or behind.

5. A fifth class are intra-uterine. These may be subdivided into two orders.

A. Those designed to straighten the uterus when flexed. These are of two kinds: those which are attached to extra-uterine supports, and those which are simple.

B. Those designed to stimulate development and function, as the galvanic.

6. A sixth class are vaginal pessaries, designed to overcome irritability and inflammation, by keeping the walls apart and at rest—"vaginal-rests."

An attempt to give anything approaching to a complete account of the pessaries that have been contrived would be hopeless. Dr. A. K. Gardner gives drawings of 123 different forms; and he is far from exhaustive. Almost all fall within one or other of the classes indicated above. Most, especially of those of the first and fourth classes, may be discarded as vicious in principle and faulty in practice; and a judicious selection from the most approved specimens of the other classes will bring the really useful instruments down to a very small number.

The Choice of Pessaries, and the Mode of Applying them.—In one class of cases, chiefly of simple prolapsus, we can avail ourselves of the contractile property of the vagina. In another class, we can derive no assistance from this source. We must apply all the support. These conditions govern the choice of pessaries.

The first class of cases includes those where there is prolapsus, not procidentia, where it is comparatively recent, and the patient is not past the climacteric. For many of these cases, especially if there is any inflammatory complication, and the patient's circumstances forbid her to rest, some modification of Hodge's pessary is the best. Since in the cases under consideration, it is assumed that the vagina preserves contractility, our study should be not to destroy or diminish this property, but to utilize it. Hence we must reject the whole array of box-wood balls, and huge thick rings, which depend for their efficacy upon mere bulk. A globe of moderate size will not do, because it will in all probability be soon expelled. To be retained, it must be large enough to cause some difficulty in getting it in through the vulva, it must then take a bearing upon the floor of the pelvis, resting upon the ischiatic tuberosities and sacro-sciatic ligaments. Thus placed in the way the uterus cannot escape. But the penalty is the destruction of the contractility of the vagina by constant distension, and often serious inflammation and ulceration of its walls. Offensive discharges of mucus, pus, and blood follow; and pain compels the patient to seek relief. Under these circumstances the removal of the pessary is sometimes a task of difficulty, particularly if the ball is of large diameter. When such a ball has been worn for some years, the vulva will be found so much contracted that it represents a ring, whose diameter is much less than that of the pessary. The vulva by age and abandonment of use may have, moreover, become extremely rigid. *It becomes of greater practical moment to know how to remove these pessaries than how to introduce them.*

The extraction of a ball-pessary under these circumstances resembles the delivery of a child whose head is impacted, with this difference, that the ball, although smaller, is absolutely unyielding. Sometimes the ball may be hooked out with the fingers by getting the last joint fairly above it and pressing it down upon the perineum. But this is often difficult; the ball rolls over and cannot be fixed. It must be seized with a forceps. A small midwifery-forceps will perhaps answer the purpose, but the extreme rigidity of the vulva may prevent the introduction of the blades, unless the margin be first incised. It is better to do this than to use violence. To grasp the ball, whatever forceps is used, the ends must be curved so as to get beyond the equator, otherwise they will not hold. In one very difficult case that came under my care at the London Hospital, I got a long and strong polypus-forceps curved at the ends so that it held well. The ball was nearly as large as the head of a seven months' child.

There are still to be found in the instrument-makers' shops huge rings or disks made of india-rubber or box-wood, or other material, which also act by bulk and by blocking up the pelvic outlet. The surgeon now and then becomes acquainted with them through the mishaps they occasion. Like the balls they set up vaginitis, ulceration, and cases are not rare in which even perforation has ensued, and the pessary has made its way wholly or in part into the bladder or rectum. The vaginal-portion also received into the ring has become swollen, inflamed, and incarcerated.

Lüders' relates a case of a lady who had a pessary of caoutchouc stuffed with hair, $3\frac{1}{2}$ inches long, $2\frac{1}{2}$ inches broad, and 1 inch thick. Peritonitis followed, and then hectic. A swelling was felt between the vagina and rectum; the pessary was not found. A year later another physician found the same swelling; and a transverse scar in the posterior vaginal wall. Two years later a fistulous opening appeared in the anterior wall of the rectum, which enlarged, and the pessary was removed. The pessary had passed into Douglas's pouch. The patient recovered.

Where resort is deemed necessary to the principle of filling the pelvis below the uterus, the best of all means is the air-pessary contrived by Gariel. This consists of a globe of india-rubber prepared so as to resist moisture, and which can be distended after it is introduced into the vagina. The patient can apply and remove it herself; and removal is easy by letting the pessary collapse.

Some more modern forms of pessary are not free from objection. Zwanck's instrument is, in my opinion, one of these. It had, and may still have, under various modifications, considerable vogue on the Continent; and a few years ago it was much used in London. It does not, indeed, act like the ball by blocking the lower cavity of the pelvis; but it depends greatly for its efficacy upon stretching out the upper part of the vagina. The wings, when expanded *in situ*, present margins narrow enough to bury themselves in a groove which they form in the vagina; after a time the vagina contracts below this groove, ulceration and granulation take place, and the granulations projecting through the fenestræ

¹ Monatschrift für Geburtskunde, 1858.

meet and unite, and thus the pessary is incarcerated. I have experienced considerable difficulty in extracting the instrument under these circumstances. They can only be liberated by drawing down the instrument, and dividing the incarcerating tissue. And sometimes the ulcerative process perforates the bladder or rectum. I do not say that these accidents are common, but considering the frequent carelessness of the class of women who use pessaries, we ought not to use instruments which require constant medical observation.

The Hodge or lever-pessary answers most of the indications with the least amount of drawbacks. It is of essential importance to bear in mind what is too often forgotten—namely, that it is a lever. A lever must be freely movable. The lever-pessary, to act properly and safely, must float in the pelvis. Hence the correlative condition that the uterus itself must be movable. The lever is simply held in the vagina. It should not take any bearing upon the walls of the pelvis; to make it do this would be to degrade it to the level of the old ring-pessaries, and to sacrifice its principle of action. This is what happens if too large an instrument is used. Then the vagina will be put on the stretch, its elasticity will be impaired, leverage is lost, and the pessary pressing unduly may cause inflammation and ulceration.

The best material is flexible white metal. This admits of moulding by the surgeon. As sold the shape is rarely suitable. The best general form is that, when viewed edgewise the shape is sigmoid, the upper limb so curved as to be nearly concentric with the hollow of the sacrum when *in situ*. The upper or sacral limb, when viewed in front, is wider and flatter than the lower or pubic limb. If the upper limb is convex, it can only touch the globe of the body of the uterus by a point, and thus the uterus may glide aside.

Let us apply a lever to a case of prolapsus, with engorgement of the vaginal-portion. This can be done with safety, because the pessary does not, like Zwanck's or many others, touch the os uteri. We select one moulded to the form of the vagina—that is, when viewed laterally, of a sigmoid shape. The size may be determined approximately by the measurement taken of the vagina by the finger. The length should be such that whilst the upper limb will rise into the vaginal duplicature behind the cervix uteri, the lower limb will sit behind the symphysis pubis well above the meatus urinarius. If it project below this, it will be troublesome, and be liable to expulsion. Its breadth should be such as not to stretch the vagina.

The mode of action is as follows: During inspiration or exertion, the intestines driven down upon the uterus and bladder cause the anterior wall of the vagina to descend. The lower limb of the pessary being applied to this wall is carried down with it, and the upper limb necessarily rises in the opposite direction, lifting the roof of the vagina and the uterus, and keeping the fundus of the uterus inclined forwards. So long as the body of the uterus is maintained in anteversion, it can hardly suffer prolapsus. The leverage action of the pessary is also greatly aided by the posterior wall and floor of the vagina. This at the lower part forms a thick elastic and muscular structure, which, partly by its contractile property, and partly under atmospheric pressure, is normally kept in

close apposition to the anterior wall giving it material support, and thus constituting one of the greatest impediments to prolapsus. The pressure so exerted of course will bear upon the upper limb of the pessary, which is embraced in the vagina. The sphincteric action of the vulva also comes in aid. This contracting the outlet, helps to support the instrument above it. The instrument is figured on a subsequent page under the treatment of "Retroversion."

The instrument should be worn continuously. It is not necessary to remove it at night. It does not prohibit intercourse, although it would often be better that this should be avoided. Conception has often taken place whilst it was being worn. As it requires accurate adaptation, the patient or a nurse cannot always be trusted to remove or replace it. But by help of diagrams and direct demonstration this may be accomplished. I have several patients who manage the instrument with perfect precision.

After a time—several weeks, or perhaps months—the uterus having been kept in position, the vaginal-portion being prevented from chafing against the lower part of the vagina, engorgement will have subsided, and the supports of the uterus will have recovered tone.

In many cases, under proper adjuvant treatment, such as the use of local astringents and general tonics, a cure is effected. The uterus is sustained by its natural supports. If this favorable result is not more frequent, it is because so many interfering conditions occur.

It should be enforced as an imperative rule that women wearing this or any other pessary should have it removed at fixed intervals, to avoid mischief, and to observe the condition of the parts.

The manœuvres for introducing the lever-pessary are described under "Retroflexion."

Some modifications of Hodge's pessary, designed to meet special cases, or to obviate special inconveniences, have been designed. One of Professor Hodge's original forms was that of the letter **U**, the legs being curved. The two ends being applied behind the symphysis have been found to dig holes into the bladder. A great gain was effected when these pointed ends were got rid of, by completing the ring. I have generally found it possible to obviate all trouble by widening the lower arch—that is, by making the transverse portion a little straighter. This completion of the ring by adding the transverse portion, increases the leverage power, since it is the central portion of the vagina that descends most.

If there be marked vaginal cystocele or rectocele, with large yielding vulva, it may be difficult or impossible to get a Hodge to act. It will generally fall out, and even if it keep in, the conditions upon which its leverage action depend are so feeble, that we must turn to other means.

When the Hodge fails, we have often a valuable resource in other forms of pessary, which act upon somewhat different principles. The next form to try is the *stem-and-cup pessary*. (See Fig. 126.) To a certain extent, this, I believe, also acts upon the principle of a lever, but it does not depend entirely upon it. Here, as in the case of the lever, it is important to select an instrument as small as will answer the purpose. It consists of an upper expanded portion, the cup or corolla, which receives the vaginal-portion, and a somewhat tapering cylinder,

curved to correspond with the pelvic or vaginal curve. It is likened to a horn. The whole is hollow, for the escape of discharges.

Now, the bare instrument in this form will, under favorable circumstances, maintain itself *in situ*, and act curatively. The study of them will best explain upon what principles the instrument acts. When the instrument is *in situ*, the vaginal-portion resting on the corolla, the narrow stem is grasped by the vagina, which contracts upon it. As the instrument represents a cone, of which the apex is directed downwards, a force grasping it necessarily carries the cone upwards, and the uterus rises with it. Then the cone, by its length, is also a lever, and is subject to exactly the same influences as Hodge's lever pessary. That the instrument acts in this way is proved by the facts that in suitable cases when the vagina is contractile, the pessary is self-retaining, and that in many cases it ends by curing the prolapsus.

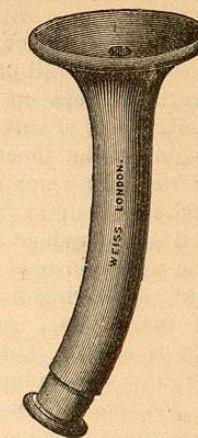
In other cases, where the power of the vagina is insufficient to grasp the stem, its retention is aided by external elastic bands which are carried up in front and behind, and attached to an abdominal belt. The elastic bands, yielding at every inspiration, permit the natural ascent and descent of the uterus, and obviate the concussion and violence which rigid external supports would cause. The material of these pessaries should be vulcanite.

The introduction is not difficult. A finger of the left hand is introduced into the vagina, and presses back the perineum; the corolla of the pessary held in the right hand is slipped by its edge beneath the guiding finger, and in front of the fourchette, being made to press backwards, so as to make its way in by expanding the perineum. The direction given is towards the hollow of the sacrum, and away from the symphysis pubis.

If the vagina be very much relaxed, if there be any considerable amount of rectocele and cystocele, the corolla must be proportionately large, or the folds of the vagina will bag over the corolla, and drag the uterus down by the side of it.

When there is no vaginal contractility, there is nothing but the external elastic bands to depend upon to keep the pessary *in situ*. But even under these circumstances it is still a very useful instrument. This is the case in prolapsus and procidentia of aged women. When the functions of ovulation and pregnancy are at an end, the uterus undergoes atrophy, losing bulk, increasing in hardness. At the same time, the cellular tissue of the pelvis loses much of its fat; the vessels having less call upon them for supplies, bring less blood. The vagina, too, partakes in the atrophic process. The general result is a small uterus imbedded in shrunken tissues. The padding is gone, the uterus falls. Especially is this the case if the woman leads a laborious life. Under great exertion in the standing or kneeling postures, the ill-supported uterus easily falls through the pelvis. Hence, the prolapsus and procidentia of senility being mainly

Fig. 126.



The Cup-and-stem Pessary.

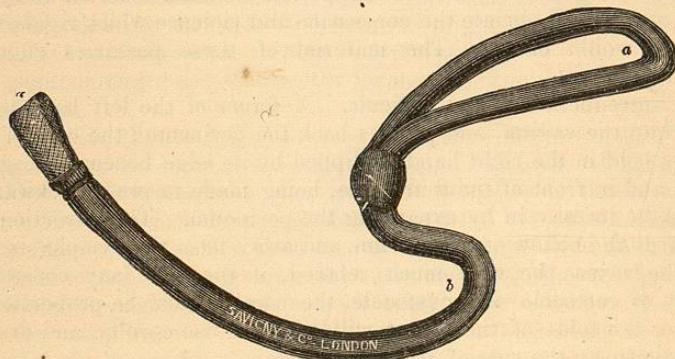
the consequence of atrophy, nothing short of mechanical support will avail.

Another class of pessaries act upon the principle of directly supporting the anterior wall of the vagina. If this is kept up, as we have seen, the uterus is kept up with it. The essential constituents of all these are: first, a disk of suitable shape which is adapted to the anterior wall of the vagina at the junction of its roof with the vaginal-portion; secondly, an elastic wire which supports the disk and which is carried out of the vulva and curved up in front, to be connected with a pad which is secured by a spring or bandage against the symphysis pubis. Professor Martin used one which, instead of a disk taking its bearing upon the anterior vaginal wall, has a ring-disk which receives the vaginal-portion. Dr. Whitehead, of Manchester, uses one constructed on this principle, which is very effective. Dr. Gibson, of Newcastle, describes (*Brit. Med. Journal*, 1869) a truss adapted to support the vulva.

Professor Thomas has contrived a modification of the Hodge's pessary sometimes effective in extreme cases of prolapsus. It is made wider, and the sigmoid bend is more pronounced. It acts not altogether as a lever, but takes a support on the floor of the pelvis.

In practice I find it inferior to a pessary designed by Dr. Scott, of Woodstock, Canada (see Fig. 127). This being itself elastic and sup-

FIG. 127.



Scott's Pessary.

a, the intra-vaginal part; b, the part which fits the perineum; c, the part which lies between the nates; d, an elastic loop to which a tape is tied, and which is in turn tied to an abdominal band.

ported by an elastic band outside respects the normal movements. It can be taken out and replaced by the patient. The size, of course, must be adapted to the individual circumstances.

Where internal pessaries cannot be borne or do not answer, many patients find relief in wearing a firm perineal pad, attached by straps before and behind to an abdominal belt. This contrivance is a kind of artificial perineum. The pad strengthens the floor of the pelvis, and its pressure by keeping up the posterior wall of the vagina in contact with the anterior wall, prevents the uterus from descending.

Before the introduction of Zwank's and Hodge's pessaries, the use of external supports was much more frequent than it is now. But we should

not lose sight of what has often proved a valuable remedy. Hull's utero-abdominal supporter is the best known; and another—Dr. Ashburner's—is highly commended by Dr. West and others. I have seen many cases in which one of these appliances answered the indications of keeping the uterus inside the pelvis, and of enabling the patient to get about, and even to go through severe work with comparative comfort. "Each of these instruments tightly embraces the hips. Hull's is furnished with a large padded metallic plate, fitted over the pubes, and Ashburner's is fitted with a similar plate, fitted over the sacrum. The chief utility of these metallic plates is that by their firm yet gentle counter-pressure they relieve the sympathetic pains referred to the back in one case, or the dragging and distress in the region of the ovaries in the other. To both of them a strap passing between the legs, with a perineal pad is adapted, and though it can be dispensed with at pleasure, will be found of great service in all cases of considerable relaxation of the vagina, with disposition to actual proclivitas, when used either alone or in combination with some form of internal support." (West.)

The strap and perineal pad have, indeed, the disadvantage of heating the parts, and of keeping up leucorrhœal discharge; and I have even known them to cause hypertrophy of the labia vulvæ.

In all the contrivances we have as yet discussed, the support is given below the uterus, and they are designed to meet the uterus, and to resist its fall. But whilst adapting these often indispensable aids, we should not forget that we may often do much to take off the superincumbent pressure which is the active factor in producing and maintaining the prolapsus. A well-adjusted abdominal belt will do this; and patients often experience considerable relief from this contrivance alone.

Some form of internal support may often be usefully combined with the abdominal belt.

General Treatment.—But we should not confine our attention too exclusively to mechanical means. Portal congestion, hemorrhoids, dilatation of the rectum, and retrograde disorder of the digestive system, so frequently accompany prolapsus, and so surely aggravate its consequences, that special attention should be directed to mitigate these conditions. Alteratives, such as mercury or podophyllin, chloride of ammonium, and tonics as strychnia, quinia and iron will often be of signal service. We must act, in short, on the general principle of removing or mitigating all intercurrent or associated morbid complications. Amongst the most common are the climacteric affections, which have already been discussed.

Surgical Treatment.—Where artificial mechanical support adapted internally or externally is excluded, or where, for other reasons, a radical cure is indicated, several *surgical proceedings* are available. The several operations are based upon different principles, arising out of the different views entertained as to the causes of prolapsus.

The first attempts at a radical cure were based upon the simple idea of closing the vagina or vulva. The following historical account is taken from S. Cooper's *Surgical Dictionary*:—

"The late Dr. Hamilton formerly suggested the propriety of endeavoring to relieve very bad and confirmed cases of prolapsus uteri, by exciting adhesive inflammation in the vagina, so as to bring about an agglutination

of its surfaces. However, notwithstanding the more or less partial closure of the vagina, occasionally met with in the practice of surgery and midwifery, every pathologist is aware of the difficulty of making a mucous tissue undergo the adhesive inflammation; and this consideration led Dr. Hamilton not to attempt it. A more valuable and practical operation is that of treating such cases by approximating the pared surfaces of the labia, and uniting them by suture. Dr. Ireland tried this method in Dublin, and has published an account of the success which attended it. (See *Dublin Journ. of Med. Science*, vol. vi., p. 484.) Cruveilhier prefers to this proposal the plan of bringing about a contraction of the upper part of the vagina, by touching it with the nitrate of silver, or an acid. An anonymous writer remarks that a similar operation has been several times since performed by Velpeau, Boivin, Laugier, and others. Some produce adhesions between the opposite surfaces by means of wounds made with the knife; others by means of sloughs and granulating surfaces, resulting from the application of escharotics. Dr. Ireland seems to attribute the merit of devising this operation to Dr. Marshall Hall; but it is probable that Girardin, who proposed it in the year 1823, has the claim of priority. (See *Dublin Journ. of Med. Science*, vol. x., p. 126.) For an historical account of this operation, I must refer to the *Annali Universali di Medicina*, edited at Milan by Omodei, for December, 1835. In 1831 the operation was performed by Dr. Fricke, of Hamburg, with a complete successful result, and he is a strong advocate for it.

"The following quotation from Dr. Heming's translation of Madame Boivin's work, p. 53, affords some particulars of Dr. Marshall Hall's operation, which appears to have consisted in the excision of a strip of the mucous membrane of the vagina: 'Dr. Marshall Hall has lately cured a case of complete prolapsus uteri by artificial contraction of the vagina: a strip of the mucous membrane, an inch and a half wide, was removed along the whole of the canal, and the wound was sewed up. We hear nothing of hemorrhage, and are assured that the patient suffered neither pain nor fever after the operation.' In a note, the translator mentions that there was scarcely any hemorrhage, and that in November, 1833, two years after the operation, the uterus and bladder were found by Mr. Vincent to be perfectly supported in their situation.

"Dieffenbach treated bad cases of prolapsus uteri by removing an oval piece of the membrane of the vagina; a plan suggested to him by the observation of a case in which some parts of the vagina sloughed away, while the uterus was in a state of prolapsus. The uterus and the remains of the vagina were reduced during the granulating process, and the result was a complete cure of the disease."

In recent years modifications and extensions of the proceedings initiated by Hamilton, Marshall Hall, Fricke, and Dieffenbach, have been devised under a more accurate knowledge of the causes of the displacement and of the conditions of cure. These have accordingly been attended with a far greater amount of success.

The operation which first attracted attention arose out of that for restoration of the lacerated perineum. It was observed that prolapsus not infrequently arose in connection with rent perineum. The restoration

of the perineum, especially if the rent extended through the sphincter ani, was indicated independently of consideration for the prolapsus. The restoration of the perineum was an effective means of restoring the integrity of the vagina, which is one of the chief supports of the uterus. Then as it was observed that, in many cases, prolapsus uteri was complicated with vaginal rectocele, it was hoped that by narrowing the vagina in its posterior wall, it would be so far restored to its normal condition, that it would be able to support the uterus. As we have seen, the posterior wall of the vagina and the perineum form a most efficient support for the anterior wall. Much benefit might, therefore, reasonably be expected from making good this part. Mr. Baker Brown was one of the earliest and most energetic advocates of this plan. A considerable number of operations of this class have been performed by him and others, and with varying degrees of success. But there are clinical observations in abundance to prove that it is based upon imperfect appreciation of the causes of prolapsus. In many of the cases, notwithstanding the narrowing of the posterior wall of the vagina, and the union of the labia much anterior to the normal fourchette, the prolapsus after a time returned. The true factors of the prolapsus remaining untouched, gradually the uterus made its way down again, and distending the new perineal floor appeared outside the vulva. It cannot, therefore, be called a radical cure, except in those cases in which vaginal rectocele is the essential cause of the prolapsus. Nor is the relief often permanent, unless the vulva be almost completely occluded. It has been seen that the small vulva and perfect hymen of the virgin are not an absolute safeguard against prolapsus. The narrowing of the vulva simply forms a shelf to receive the falling uterus.

The operation is so similar to that for restoration of the rent perineum, that the description of the two will be given together.

An operation that seems based upon a sounder view of the pathology of prolapsus, is that proposed and practised by Dr. Marion Sims and Dr. Emmet, of New York. Its object is to strengthen or brace up the vagina near the junction of the cervix uteri with the bladder. It consists in removing a portion of mucous membrane from the anterior wall in the form of a V, the open part of the V embracing the cervix uteri, and then the uniting the sides by sutures. I have performed this operation as well as the preceding one several times. Although in each case the cure seemed perfect for some time afterwards, the parts gradually opened out again, and the prolapsus was reproduced.

Then there is a third operation performed in yet a different part. It may be distinguished as Huguier's. It is the amputation of the hypertrophied cervix. The principle appears to be different from Sims's operation, but I think they touch each other in their mode of action. It is difficult to amputate the vaginal-portion of the cervix without removing a portion of the contiguous mucous membrane in front; and when healing, a process of cicatricial contraction anteriorly necessarily follows. I have seen this in cases where nothing but amputation of redundant vaginal-portion was contemplated. But still the proceeding has independent advantages. In the first place, the elongated cervix is *pro tanto* shortened; and in the second place, a process of altered nutrition, attended