paroxysmal disorders in general, and analogy gradually leads us to suspect that, as in these so in uræmic asthma, the nervous system must in some way be concerned. We are confirmed in this suspicion by the undoubted fact that the paramount causes of the accessions of uræmic asthma—the determining causes, I mean, of the times of their recurrence—are almost wholly of the kind which influence the nervous system. Although locomotion is not without some effect in disturbing respirations, yet, as I have already hinted, perturbation of mind rather than of body is the potent antecedent. In one of the worst cases I ever saw, the attacks were always brought on or greatly aggravated by such kinds of excitement. The needful strain of making his will, the painful visits of dear friends, the annoying visits of business people, or even the reception of more than a very few persons of any kind during the day, were the efficient causes of renewed seizures. On the other hand, perfect tranquillity in one chamber, and the remission of all calls and messages postponed the attacks more or less completely. Again, one lady who had lost a friend in Bright's disease, and knew, therefore, but too well the meaning of albumen in the urine. She had her first asthma on the night of the day when I had unwittingly revealed to her the same terrible diagnosis of her own case also. In a third case, the first asthmatic seizure came upon a patient in the night of the day on which his partner had selfishly and rudely complained to him of his absence from business; and such instances I need not multiply.

How, then, can such irritations of the central nervous system determine the occurrence of this asthma? Before the Medical Section of this Association, at the meeting in Sheffield and on previous occasions, I expressed an opinion that mental distress or anxiety is a potent cause of chronic granular kidney.

Can, therefore, the cause which, when protracted, sets up granular kidney be, in its fluctuations, the cause of the asthmatic attacks? I think not. There seems to be a want of explaining hypothesis in this direction. It would seem rather to be some irritation descending directly upon the heart or pulmonary vessels and stopping or hindering the pulmonary circulation in such a manner that the air entering the air-cells finds no blood to meet it. This seems to me, on the whole, to offer a more likely explanation than the humoral hypothesis; namely, that these asthmatic attacks are evidences of efforts of nature to eliminate blood-poison by the pulmonary mucous membrane. We cannot well conceive of nature striving to push out an offensive tenant; the conception would rather be that, under conditions of osmosis, some ingredient of the blood was escaping upon the pulmonary tract. But the auscultatory phenomena do not support this view; they do not suggest asphyxia by infiltration of the air-cells, nor is the aspect of the patient the aspect of pulmonary congestion, with distribution of un-aërated blood in the systemic vessels. A more likely hypothesis is, that the transient hindrance to the arrival of the blood at the air-surfaces is in the pulmonary vessels themselves. As the bronchioles, by a spasmodic contraction, prevent, in ordinary asthma, the passage of air to the blood, so it may be imagined that like cramping up of the pulmonary arterioles, on the other hand, in uræmic asthma could prevent the passage of blood to the air, and thus the one disease would be a tolerably precise counterpart of the other.*

So far, the hypothesis runs on four legs; but some difficulties still remain. The chief of these is the occurrence of pulmonary hæmorrhage as an integral part of the seizure. This seems to point to a repletion of the pulmonary vessels, and of their relief by bursting or transudation. Moreover, the establishment of some mucous exudation in all cases points in the same direction. Another difficulty lies in the relief often obtained by the use of digitalis. If digitalis contract the blood-vessels, it might rather aggravate than diminish the distress; now it does the reverse. If Dr. Johnson's belief in the opposition between the arterioles and the heart be correct, it may be that the administration of digitalis confirms the heart more than it increases the vascular resistance. If, as some other physiologists believe, the heart and muscular arterioles are consentaneous, the good effects of digitalis would be more easy to comprehend; but the explanation of the attack would be discredited. From this discussion we may pass onward to treatment; for the effects of drugs upon the condition may help us to some assurance of the nature of the complaint.

As the good effects of digitalis are in some degree opposed to my hypothesis of a spasm of the pulmonary arterioles, so again, in its failure, nitrite of amyl offers a like opposition. When I had guessed that the attacks depended upon such spasm, I turned with much hope

to this drug and with slight hopes to aconite. From neither of them, however, have I found the least aid.* In large and increasing doses of digitalis, on the other hand, I have found a means of permanent alleviation of the condition. By large doses, I mean doses between ten and thirty drops of the tincture repeated under careful observation. The essentially neurotic origin of the attacks points to a like direction of the means of relief, and points correctly; for in nervine sedatives we have most potent means at hand. Unfortunately, it is in chronic nephritis of all diseases that sedatives are least admissible; and, although in this disease sedatives often pass away, leaving the patient unharmed, yet in other cases the lightest doses of them cause serious or even fatal lethargy. The patient who in one week has had a quarter of a grain of morphia injected under his skin without harm, in another week dies of an eighth of a grain in his cough-mixture. Nor have we, so far as I know, any trustworthy guide to the state which permits and the state which forbids the opiates. Strangely enough, opiates by the stomach, with the gradual absorption of which the damaged kidneys would seem more able to compete, appear more harmful than morphia suddenly introduced into the circulation by the skin. To my great surprise, I have repeatedly seen subcutaneous morphia used for the breast-pang sometimes seen in chronic nephritis, as well as in uræmic asthma, without ill effects and with ease so precious that I have not dared to forbid its repetition. In no such case have I happened to see it cause danger, though I have never myself dared to prescribe it. To chloral and the inhalation of chloroform a like objection exists, but these means I do venture carefully to prescribe, and with some success. Bromide of potassium is not strong enough to produce rapid effects, but, in full doses, is much safer than stronger sedatives, and is a valuable adjunct to these. Finally, a few leeches to the sternum are often efficacious in giving some relief to the labouring chest.

To sum up, then, we must use all those well known means which prevent or diminish uræmia; we must guard the patient from annoyance and even from pleasurable excitement. If, in spite of our care, the attacks recur, we must give a mixture containing, say, twenty minims of tincture of digitalis, thirty or forty grains of bromide of potassium, and ten grains of chloral, with a liberal addition of ether and cardamoms, and we must repeat this after a due interval. If, nevertheless, the attack hold on its course, we may administer a little chloroform upon a handkerchief, so as to relax the spasm and dull the *besoin de respirer*. Perhaps we ought, in extreme cases, to inject a little morphia under the skin; but this I dare not recommend.

THE MECHANICAL AND OPERATIVE TREATMENT OF PROLAPSE OF THE UTERUS.†

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IN the present communication, I do not intend to attempt a full consideration of so important a subject as that indicated by its title, but only to give a short account of two cases of unusually severe character, and deduce from them some practical conclusions as to the treatment of the affection.

CASE I.—Ann M——, aged 36, was admitted into Guy's Hospital under my care on June 27th, 1874. She had been married four years, and had one child two years before. The menses were regular and profuse. She never suffered from prolapse until six months previously, when the womb came down during a severe fit of coughing. This had continued ever since, and latterly she had been unable to restore it. On admission, the vagina was completely inverted, and its mucous membrane converted into a dry skin-like substance, its circumference being more than twelve inches. The proident tumour was found to contain not only the whole of the uterus, but both ovaries, which were recognised by their size and position, and by the pain produced on manipulation. The fundus uteri was directed backward and downward, and the sound passed into it to scarcely more than the normal length. Posterior to the cervix was a large triangular ulcerated surface. The uterus was restored, but became prolapsed again on the slightest muscular effort. The perineum was found to be very deficient. The patient was kept in bed, and astringent injections were used for about six weeks, at the end of which time the ulceration was completely healed. I then put the case into the hands of one of my surgical colleagues, and on August 7th, Mr. Bryant undertook a plastic operation. This was performed while the uterus was completely external. Two triangular pieces of mucous membrane were removed at the sides of the vagina,

* This hypothesis has been proposed by Dr. Dickenson in his edition of 1877 (p. 446), and also by Dr. George Johnson in his lectures recently published in this JOURNAL. Dr. Johnson pursues the comparison with other apnoeas, in a very complete and interesting way, as my readers already know. He also offers a likely explanation of my difficulty in understanding the occurrence of pulmonary hæmorrhage.

† It appears, as regards nitrite of amyl, others have been more fortunate than I.
‡ Read at the West Kent District Meeting of the South Eastern Branch.

the apex of each being close to the os uteri, and the base two inches from the ostium vaginae. The denuded surfaces were then covered by bringing together the edges of mucous membrane by a continuous suture of carbolised gut, and the uterus was returned within the vagina. The circumference of the vagina was diminished in this way at least as much as from six to seven inches. The usual operation for the restoration of a ruptured perineum was then performed, and the denuded surfaces were brought together by deep quilled sutures of fishing-gut. There had been considerable hæmorrhage during the removal of the vaginal mucous membrane, and bleeding recurred again in the evening, so that it was found necessary to plug the vagina. On the third day, bleeding again took place, and the vagina was again plugged, and ice applied. The sutures were removed from the perineum at the end of seven days, when good union had taken place. From the fourteenth to the twenty-seventh day after the operation, the patient suffered from severe febrile symptoms, and the temperature rose as high as 104.5 deg. She was treated with five grains of quinine every four hours, and eventually recovered well. When she left the hospital, the uterus was in good place, and the vagina would with difficulty admit two fingers.

About a year afterwards, the same patient again made her appearance among my out-patients. The vagina had again dilated, and the uterus and both ovaries were again completely external to the vulva, notwithstanding that there still remained a ring of dense inflammatory deposit encircling the vagina near its outlet. The new perineum, however, remained intact, and it was found that a modified Hodge's pessary, having its anterior limb bent upward, was retained within the vagina, and kept the uterus in good position.

The result of this case made strikingly manifest the fact, which has been noted by many observers, that, if the ligaments of the uterus have once become relaxed, even though a plastic operation is for the time most completely successful, there is a great liability to the recurrence of the prolapse, if the same causes be still in operation. This occurred in this instance, even though there was no enlargement of the uterus, and it is still more likely to happen if the uterus be elongated and increased in weight. It will be seen, however, that although not permanently successful by itself, yet the operation allowed mechanical means to be afterwards effectually used, which before were impossible.

CASE II.—Mary Ann H—, aged 38, was admitted into Guy's Hospital under my care on July 3rd, 1875. She had had three children, and one miscarriage seven months previously. She had suffered from prolapse since the birth of the last child, two years before, but had always been able to return the womb herself until recently. She was now suffering from extreme difficulty in micturition. The menses were regular and profuse. On admission, the vagina was completely inverted, the mucous membrane dry and resembling skin. The whole of the uterus was external to the vulva, the fundus sharply retroflexed. The os uteri was represented by a minute aperture, which at first would scarcely admit a small probe. This was dilated a little, and the sound was then found to pass four and a half inches, with its point curved backward. Posterior to the os was an extensive ulcerated surface. The uterus was returned with difficulty, and kept up as far as possible by sponges dipped in tannic acid lotion, the patient being kept in bed. She always, however, complained of pain when the womb was within the vagina, and was never happy except when it was external to the vulva. At the end of six weeks, the ulceration was nearly, although not entirely, healed, and I then performed a plastic operation. The uterus was first drawn down externally, and a triangular piece of mucous membrane, having its apex near the os uteri, was removed from the posterior wall of the vagina. A continuous suture of carbolised gut was then put in from the apex nearly to the base of the triangle, and the uterus was returned within the vagina. The mucous membrane was then pared, as is usual in the operation for restoration of the perineum, so that the vivified surface was continuous with the base of the triangular piece already laid bare. The perineum was brought together by deep quilled sutures of fishing-gut, and superficial sutures of carbolised gut. The perineal sutures were removed on the sixth day, those of carbolised gut within the vagina being left to dissolve out of their own accord. Both the vaginal and external incisions united well, and the vagina appeared to be well contracted. In this case, however, the patient was not allowed to leave the hospital until a moderate-sized Hodge's pessary had been introduced, with the view of obviating the tendency to a recurrence of the prolapse. The uterus was measured with the sound after the operation, and its length was found to be three inches, or an inch and a half less than it was when the patient first came under observation.

The point which I wish specially to bring before you in reference to these cases, is the advantage which may often be derived in prolapse from a special modification of Hodge's pessary. In the earlier stage

or in the milder form of this affection, a Hodge's pessary is often available in its ordinary form, namely, that in which it has a sigmoid shape when viewed laterally. Under such circumstances, its use is recommended by the most eminent authorities.

The action of the Hodge's pessary in the early stage of prolapse is readily understood; for just as, in following the curved axis of the pelvis, the foetal head becomes extended as it descends during parturition, so the uterus in most cases becomes retroverted as it is prolapsed. If, therefore, by the action of the lever-pessary, the uterus be maintained in a position of slight anteversion, and, therefore, nearly at right angles to the axis of the vagina, while at the same time the posterior vaginal *cul-de-sac* is stretched backwards and upwards, the tendency to prolapse is checked, and in favourable cases the uterus is kept in its natural position at the summit of the vagina. If, however, a Hodge's pessary of the ordinary form be introduced when the vagina has lost its elasticity and the uterus the support of its ligaments, its anterior limb falls below the arch of the pubes, and it is quickly expelled. I believe, however, that in many cases in which it cannot be retained by the tonicity of the vagina, without resting against bony supports, it will yet prove useful if the shape be modified. The kind of instrument which I am accustomed to use is broad and somewhat short, rather square below but rounded at the corners. Its anterior limb is bent upwards and not downwards, so that, viewed laterally, it forms a single curve, namely, a circular arc varying in extent from 90 deg. to nearly 180 deg. The object of this is, that the anterior limb may rest high up behind the pubes, pushing up before it the anterior vaginal *cul-de-sac*. The mode of action of the instrument may be observed by watching the effect of an expulsive effort. The posterior limb is acted on most by the downward force; and, by a leverage action, the broad centre of the pessary, being retained by the vulva, pushes the anterior limb still higher up behind the pubes. This springs back when the muscular effort is relaxed, and, in so doing, pushes the posterior limb up again. The form of instrument preferred by Professor Thomas of New York is one in which the anterior limb is somewhat pointed and curved very much downward, in order that it may fit in beneath the arch of the pubes, and so prevent any displacement by rotation. An approximation to this shape is recommended by Dr. Barnes for the ordinary Hodge's pessary. This projection downwards, however, of the anterior limb of the instrument into the vulva is a serious inconvenience to married women, and in the case of prolapse with a very relaxed vagina, I have found that the wedge-like action of the more pointed extremity greatly favours the escape of the instrument, and that the pessary is never retained unless its anterior limb be kept high up behind the pubes—the resistance of which prevents its escape—and not beneath the arch. In all cases, therefore, I prefer the more square form.

The form of pessary which I have described fails if the vagina be so relaxed and the perineum so deficient that there is no grasp of the centre of the instrument, a condition which is essential to its action as a lever. Its widest part is then first expelled through the vulva. Various palliative measures are then possible, the best of which is probably the use of a cup-and-siem pessary. In many cases, this does good service, but there are serious drawbacks to the use of any instrument taking its support externally. I believe, therefore, that in most such cases, if the age of the patient be not too great, it is desirable to perform a plastic operation, as was done in the second case which I have related, not with the hope that it will by itself effect a permanent cure, but with the object of bringing the vagina into such a condition that a Hodge's pessary, either of the usual or the modified shape, may afterwards be easily retained. If the vaginal wall be only partially prolapsed, it is generally sufficient for this purpose to restore the ruptured perineum. If, however, the vagina be completely inverted, and especially if this be the case at its posterior part, it seems to be desirable to lessen its circumference by removing a portion of the mucous membrane. Considering, as I do, that the chief object to be aimed at in the operation is to enable a Hodge's pessary to be afterwards easily retained, I should endeavour to narrow the lower rather than the upper or middle part of the vagina. Hence, of all the methods which have been proposed, I believe that one to be preferable in most instances which was adopted in the second case of which I have read notes, namely, to remove a piece of membrane at the posterior part continuous with that which is laid bare in the incisions for the restoration of the perineum, and broader below than above. The proceeding recommended by Marion Sims and Emmett, namely, to operate on the anterior vaginal wall, seems to involve a greater risk of involving important structures by approaching too near to the urethra or bladder. Moreover, both this and the operation performed by Mr. Bryant in the first case which I have read, namely, the removal of two pieces at the sides of the vagina, have the effect of narrowing rather

the upper and middle than the lower portion of the canal. Hence, if the uterus once begin again to fall below its natural position and the contracted vagina to yield again, the efficacy of the operation is entirely lost.

In all these operations on the vaginal mucous membrane, the amount of venous hæmorrhage is apt to be very considerable at the time, and there is some danger that the recurrence of bleeding afterwards may require the employment of means which are apt to interfere with the prospect of union. In Case 1, it seems probable that the febrile symptoms of septicæmic character, which commenced about a fortnight after the operation, are to be attributed in great measure to the effects of the considerable loss of blood which the patient had undergone. I think that in this respect the plan of removing a single piece of mucous membrane posteriorly has the advantage of effecting the greatest amount of contraction of the canal with the smallest extent of surface vivified.

It would seem that in bringing together the mucous membrane, there is a very great convenience in the use of carbolised gut sutures, which can be left to dissolve and come away of their own accord; for it is very important that the same operation should include the lessening of the vulval orifice by the restoration of the perinæum, and if this be done to a considerable extent, it is scarcely possible to remove sutures from the vagina without endangering the union of the newly formed perinæum.

Hitherto, I have not touched upon the division of cases of prolapse into those of a simple kind, in which there is little or no enlargement of the uterus, and those in which the main condition is that of hypertrophic elongation of the cervix. It is evident, however, that the latter are the more difficult to treat by the means which I have described. In some cases, it is the vaginal portion of the cervix which is mainly affected by hypertrophy. I believe that this is a primary and sometimes a congenital condition, and that the only satisfactory treatment for it is to remove the redundant portion of the cervix by knife, scissors, or écraseur. It is very different, however, with those cases, far more commonly met with, in which it is the supravaginal portion of the cervix which is lengthened; with reference to these, there arises the question of the formidable operation recommended by Huguier, namely, to dissect away the cervix from the peritoneum on the one side and the bladder on the other, and to remove by the knife a considerable portion of it. I believe that Huguier and some of his followers have much exaggerated the importance of this elongation of the cervix as a primary condition, and that it but rarely happens while the fundus uteri remains quite at its normal level; for in many cases the supravaginal cervix is not increased in circumference, but, if anything, thinned, and a perceptible diminution is effected in the length of the uterus, as measured by the sound, by merely returning it within the vagina. Engorgement and hypertrophy of the supravaginal cervix may supervene after delivery, and may then be a factor in the causation of prolapse; attenuation of the same part may result from the tension produced by primary prolapse of the anterior vaginal wall. But the most important mechanism by which elongation of the cervix is a secondary result of the displacement commences when the uterus begins to descend externally. During an expulsive effort, the swollen and hypertrophied cervix is forced suddenly through the vulva, and, while it is held strangulated in that position for a greater or less time, the elastic supports of the uterus, tending to lift it again to its normal position, have a direct influence in stretching the supravaginal portion. Many observers have noted how considerable is the diminution in the length of the uterus which may be obtained by strict confinement to bed, while the organ is maintained in its proper position. This was very manifest in Case II, in which the length of the uterus, as measured by the sound, was reduced after the operation on the perinæum from four and a half to three inches, or to two-thirds of its former magnitude. I think, therefore, that the operation for the abscission of the supravaginal cervix can very rarely be required, and that most observers will be disposed to agree with the opinion of Dr. Barnes, that the hope of relieving a condition not in itself entailing serious danger to life does not justify resort to surgical proceedings fraught with such danger of opening the peritoneal cavity or the bladder, of hæmorrhage, and of consequent pyæmia.

There is one instrument which might seem likely to be often available in the milder cases, or when there are reasons against the performance of a plastic operation. This is Blackbee's pessary, which is constructed of somewhat elastic steel wire covered with India-rubber tubing, and has an anterior limb to fit in front of the cervix, while its posterior limb rests behind it, and its lateral arches, convex downward, are intended to be supported, if necessary, against the ischia. It might at first sight be supposed that an elastic pressure, such as that exercised by this instrument, would be more readily borne than that of a rigid body; my experience, however, has been precisely the contrary, and I have

found that elastic pressure, unless transmitted by a very broad surface, such as that of an air-ball pessary, is much more likely to produce irritation or ulceration. Thus I have more than once found ulceration produced by Blackbee's pessary at the somewhat vulnerable spot in front of the cervix, a result which I have never seen from a lever-pessary of vulcanite or metal which in any degree fitted the vagina. It would seem that the elastic pressure of a bar which is at all narrow is destructive to the tissues, somewhat in the same way as an elastic ligature, while a rigid body obliges them to yield once for all, and does not afterwards exercise injurious pressure. This objection to the use of an elastic instrument applies to one which has been much used by some for prolapse, and especially in America, namely, a simple circular ring of watch-spring or elastic wire covered with India-rubber. This has also the disadvantage that it stretches the vagina, and, like Blackbee's pessary and many others, it has another drawback, namely, the nature of the material of which its surface is composed; for it appears that India-rubber after a time becomes so softened on the surface that it retains the secretions, and renders them offensive, the inevitable result of which is the production of irritation of the vaginal mucous membrane. This objection, therefore, applies to the India-rubber air-ball pessary, an instrument which in other respects has many recommendations for the treatment of prolapse, and which is not unfrequently used with benefit, notwithstanding this drawback.

Far more to be condemned than India-rubber on this score, is gutta-percha, the surface of which rapidly becomes roughened, is liable to be incrustated by secretions, and, in any case, produces increased vaginal discharge. Instruments covered with this material are only fit to be used as a temporary expedient, in order to ascertain what is the shape most suited to any particular case. I believe that it may be laid down as a rule without exception that, of the materials commonly used for the construction of pessaries, there are none which prove entirely satisfactory in the essential point of cleanliness, except vulcanite and metal. Of these, vulcanite seems to be best suited for ordinary use, for it is lighter than pewter, and somewhat less liable to become encrusted, while, in comparison with aluminium or platinum, it has the great advantage that it can be readily altered in shape to suit the changing requirements of a case.

AN ADDRESS ON MEDICAL TOPICS.

Delivered at the Annual Meeting of the Southern Branch.

By FREDERICK J. BUTLER, M.D., Winchester,
President of the Branch.

GENTLEMEN,—In entering on the office which your kindness has assigned to me, my first agreeable duty is, in the name of my professional brethren, to bid you all heartily welcome to this our ancient city, once the metropolis of England, the birthplace and residence, and where now rest the mortal remains of many mighty kings and mitred prelates, and to assure you of our anxious desire to render your visit as pleasant and interesting as we can.

My next duty is not of quite such a pleasing nature, but it is not my design to trespass long on your time and attention in the address, with which the customs of our Association require me to open our proceedings. To do so, would be an abuse of the privilege which my present position confers, and prove only an irksome delay of the far more interesting opportunities that will be afforded you of visiting some of the grand old monuments with which our city abounds; and that you may be the better able to appreciate them and refresh your memories with some of those great historical facts which this visit will call forth, we have fortunately secured the services of one of our most valued local archaeologists, the Rev. C. Collier, who has kindly consented to conduct us over the Cathedral and County Hall, which will consume most of the time at our disposal. But we have plenty more objects of almost equal interest in store for you, should the opportunity occur; in short, if your stay amongst us could be extended over as many days as there are hours now allotted to your visit, our time could be well spent; but, as this cannot be, we hope ere long another opportunity may occur for completing the peasant work which we this day only commence.

In a society like ours, consisting of so many members, it seldom happens that our meetings can be altogether unchequered and without alloy. Since our last meeting, two of our members have been taken from us. In the death of Mr. Mayo of this city, who died full of years and full of honour, we have lost an old and valued friend, who was scarcely ever absent from any of our social gatherings, and who ever felt a lively interest in all professional matters. His bright and cheery face will long remain in the memories of most of us; and, though for years he