the present sketch is essentially inadequate. But it may be said, *en résumé*, that this system is the connecting link for function between all organs; that its close brotherhood, I had almost said cohesion, with the cerebro-spinal nerves and centres, brings into association in a thousand ways the purely nervous phenomena with those more primarily sympathetic; that it is frequently the seat of coarse lesions, but that, where the same symptoms are met with, when these coarse lesions or injuries cannot be recognised, it is only fair to believe in an irritability, a morbid condition of the sympathetic ganglia, the anatomical elements of which may probably present themselves to means of research, as these become more accurate.

In congestion, in hyperidrosis, in some forms of angina pectoris, in sunstroke, in the regulation of vascular tone, and in its many abnormalities, in vaso-motor neuroses of the extremities, in symmetrical vaso-motor gangrene, in some varieties of aneurysm and of albuminuria, in diabetes mellitus, in diabetes insipidus, in hysteria, hypochondriasis, and other forms of neurasthenia, in those protean disturbances of the economy that are excited by emotion, and lastly in pigmentation, including Addison's disease, the influence of the sympathetic seems primary, and almost, if not wholly, independent. In inflammation, including practically inflammatory disorders of all organs, in fever, in hemicrania, in exophthalmos, in progressive facial hemiatrophy, and in epilepsy, the part played by this system of nerves is secondary, though important. In most of these, however, as of other ailments, the cardiac phenomena, the conditions of vascular tone, the perspiration and diarrhoea, the marvellous influence of the abdominal nerves and vessels on the distribution of blood in the body, are evidences of collateral and coincident disturbances of the sympathetic.

This system is far more than a chain of transmission from the higher nervous centres. It often stands alone; far more often in correlation with the cerebro-spinal system.

REMARKS

ON

SUBINVOLUTION OF THE UTERUS.

Being an Introduction to a Discussion in the Section of Obstetric Medicine at the Annual Meeting of the British Medical Association in Worcester, August 1882.

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SUBINVOLUTION of the uterus is a condition of very frequent occurrence, and one credited with a very important place in the diseases of the sexual organs of the female; and yet so little is accurately known about it, that I think most of us would hesitate before making any positive assertions about its causes or its results. Whether a halting state of mind be favourable to opening a discussion, depends upon the way in which the subject is regarded. For my part, I feel it not a little inconvenient. I shall have to bring before your notice some statements respecting subinvolution which have often been reiterated, but for which I have been able to find little or no substantial evidence; I shall also call your attention to certain observations made during recent years, which have an important bearing upon the subject under discussion. I must express my regret that these are so meagre; but I trust the discussion will be the means of eliciting not opinions only, but facts calculated to elucidate a question of which little is known, and the investigation of which is surrounded by many difficulties.

Before referring to subinvolution, I must direct your attention to the process, to the arrest of which the condition is due, the process of involution of the uterus after delivery. This consists in the fatty degeneration of the enormously developed fibre-cells of the uterus, and their gradual disappearance by absorption. This process of decay is followed by one of regeneration and growth, whereby a new uterus is formed in the place, and from the ruins, so to speak, of the old one. The process of fatty degeneration is said to begin about the fourth day, and not later than the eighth, and to be completed in about four weeks. At the end of this time the formation of new fibre-cells is said to commence, and the organ is completely renovated about the end of the eighth week. This is the true process of involution, the restoration of the organ after delivery to the state which is natural to it when not impregnated. Any failure in the process of degeneration or of regeneration leads to subinvolution of the uterus. Clinically, however, involution consists in the reduction of the volume of the puerperal

uterus to the size of the unimpregnated organ. We can appreciate no more than this, and this only imperfectly by the bedside. A full account of the process can be given only when its course has been worked out both anatomically and clinically; and until this has been accomplished we can have but an imperfect knowledge of the causes of its arrest, and of the part which such arrest plays in the diseases of women.

Heschl has studied the process of involution from the anatomist's point of view, by examining the uteri of women who had died at different intervals after childbirth. He found that the uterus weighs, immediately after delivery, 1 lb. 6 or 7 oz., to 2 lbs. 7 oz.; at the end of a week, 1 lb. 3 to 5 oz.; at the end of two weeks, 10 to 11 oz.; at the end of five weeks, 5 to 6 oz.; at the end of two months, 1½ to 2½ oz.; and concluded that the highest rate of decrease in the volume of the uterus occurs during the second week after delivery.

Clinically, several methods have been adopted to determine the rate of involution.

1. It has been estimated by measuring, day by day, the height of the fundus above the pubes. This method is open to the objection, that the measurements are affected by the varying conditions of the bladder and rectum. With care, this can be overcome—at least, in a great measure. Another source of error, and a more formidable one because it cannot be eliminated, is the fact that the difference in the measurements taken depends, not upon the difference in the size of the uterus simply, but upon this *plus* the sinking of the organ into the pelvis, consequent upon the decrease in its volume.

2. The length of the uterus has been estimated by daily measurements by means of callipers, one arm of which is placed in the vagina, and the other on the abdominal wall over the fundus. This method is also open to serious error, owing to the dilated and flabby state of the cervix, and to the impossibility of directly applying the outer arm to the fundus.

3. The transverse measurement of the uterus at its widest part has been daily taken. It has been shown, however, that even this measurement is greatly affected by the condition of the bladder; but, since the bladder can readily be emptied before the measurement is taken, this method is calculated to give more accurate results than the other two.

These three plans are available only for the first eight or ten days after labour; that is, so long as the fundus is well up above the brim of the pelvis.

4. To avoid the errors to which the preceding methods are open, as well as to enable the investigation to be carried on after the uterus has sunk into the cavity of the pelvis, the length of the uterine cavity has been measured by means of a sound or graduated bougie.

This has been done daily for the first eleven days after birth by Milsom; and Dr. Sinclair has measured the uterus once just before discharge in a large number of women confined in the Boston Lying-in Hospital, the day of discharge varying from the ninth to the seventieth after delivery. This method of catheterisation, as it has been called, appears to me to be liable to equally serious errors as the others during the ten days following delivery, in consequence of the flabby and dilated state of the cervix. After the uterus has sunk into the pelvis, however, catheterisation, combined with bimanual examination, is the only method to which recourse can be had.

The practical outcome of observations hitherto made is this. The uterus, as a rule, sinks into the pelvis on or before the twelfth day after delivery. In many cases, the organ disappears behind the pubes earlier. Jules Guérin, after having observed twenty-one cases, concluded that this happened about the fourth day. Wieland found it happen about the tenth day. Serdukoff found the fundus two to three inches above the pubes on the seventh day. Milsom found it two inches above the pubes on the eleventh day. In one hundred and thirteen cases, I found the organ in the pelvis on or before the twelfth day in ninety-six.

In some cases, the uterus is in the pelvis immediately after delivery, when involution has not begun. In others, again, the organ may be felt above the brim on the fifteenth or sixteenth day, although involution has proceeded normally. I am not going to discuss the reasons for this difference, but mention it merely to point out that the disappearance of the uterus behind the pubes is not an infallible sign of healthy involution. At the same time, it seems to me to be the best practical test we can adopt; and I will assume that the uterus has undergone normal involution when the fundus cannot be felt above the brim on the twelfth day, and *vice versa*; although this assumption will lead to some errors.

The process of involution may be arrested at any time during the stage of degeneration or of regeneration; and I may say at once that, in so far as I know, we have no means of discerning in any given case what period the process failed,

The process, together with the causes of its arrest, can be studied satisfactorily in lying-in hospitals only; and it is therefore convenient to consider the conditions which interfere with involution during the time that women usually remain in such institutions after their delivery, that is, the fourteen days subsequent to childbirth. In very few cases has the process been carefully and systematically observed after this period.

The causes of subinvolution are said to be, general debility, advanced age (that is, parturition occurring towards the close of menstrual life), multiparity, premature delivery, protracted labour, *post partum* hæmorrhage, retention of portions of the placenta and membranes, laceration of the perinæum, bruising and laceration of the cervix uteri, pelvic inflammation, too early exertion or overexertion, displacement of the uterus, not suckling.

Upon the first two causes mentioned, I have no observations to offer; except that, on *à priori* grounds, general weakness may be expected to exercise an influence predisposing to retardation of involution. Although multiparity is said, and generally believed, to cause subinvolution, yet observation seems to show otherwise. Both Serdukoff and Milsom are agreed that involution proceeds better in young multiparæ than in primiparæ, although in aged multiparæ it does not go on so well.

Serdukoff confirms the general opinion that premature delivery is not favourable to the process of involution, but Milsom states that it proceeds in the same manner in those delivered in the seventh or eighth months of pregnancy as in those delivered at term. The cases of premature delivery I have had opportunities of watching closely, are too few to warrant me in drawing any conclusions from them. The effect of protracted labour is differently estimated by different observers. Serdukoff supports the general opinion that it tends to retard rapid involution, while Milsom maintains that the duration of labour has no influence upon the process. My experience leads me to agree with the latter view.

I have had delivered under my care at the General Lying-in Hospital this year 113 cases; 58 multiparæ, and 55 primiparæ. In 56 multiparæ the uterus was in the pelvis on or before the twelfth day; in two the fundus was above the brim on the fourteenth day; and in six the time was not noted; so that in 50 cases it may be assumed that involution proceeded normally. Of these, seven had a temperature of 102° Fahr. or higher for six or more days, and six had laceration of the perinæum. One of the cases in which the uterus did not sink into the pelvis until the fourteenth day had sharp fever; the other was feverish for four days; neither had tear of the perinæum. Of the 55 primiparæ, 52 had normal labours, in two, forceps were used, and in one the breech presented. In 40 the uterus was in the pelvis on the twelfth day; in 12 the fundus was above the brim at that period; and in three the condition was not noted.

Portions of placenta or membrane were retained in two. In both, involution proceeded badly; in one there was fever, and in one none. *Post partum* hæmorrhage occurred in two, and in both involution was retarded.

The perinæum was intact externally in 13; in 11 of these, involution proceeded well, and in two badly. In 24 the perinæum was slightly torn; in 18 of these, involution proceeded normally, in six badly. Deep lacerations of the perinæum were found in 18; in 13 of them involution went on well, in five badly. These cases appear to indicate that lacerations of the perinæum play an important part as a cause of subinvolution; for one-sixth only of those in whom the external parts were intact, was involution retarded, while it was retarded in one-fourth of those with slight, and in nearly one-third of those with deep tears. It appears further that the process is retarded in a larger proportion of those with deep than slight lacerations.

There were 28 cases in which the cervix was lacerated; in 18 deeply, and in 10 slightly. Involution went on well in 15, and badly in three of those which had deep tears; well in six, and badly in four of those which had slight tears. Hence it does not appear that lacerations of the cervix affect the process, for a larger proportion of cases of retarded involution was met with in women with slight than in those with severe tears.

Spiegelberg states that puerperal affections do not, as a rule, affect the process of involution. Heschl says, "Puerperal diseases do not in general check in any appreciable degree this chain of changes (degenerative and regenerative), even though the uterus itself be diseased; but, on the other hand, the reconstruction, although unchecked, nevertheless in divers puerperal processes, both in chronic diseases and uterine malformation (as bicornis, etc.), gives rise to serious modifications of the malady. These very newly formed fibres, instead of becoming consolidated, undergo very soon a fat metamorphosis, and their condition gives rise to the marked friability and yellowness of the uterus existing in such cases as have been just men-

tioned, even after some months. The *marciditas uteri* then is nothing more than a deficient reconstruction of the organ." In estimating the influence of puerperal diseases, I shall take those cases only in which a temperature of 102° Fahr., or higher, was present for six or more days, or in which there was pelvic swelling caused by effusion. Cases of high temperature, with effusion, or marked tenderness on pressure upon the uterus, or pain on moving the organ, are clearly cases of para- or peri-metritis; while other cases of fever, when these local symptoms are absent, may be regarded as cases of inflammation of the vagina, of the inner surface, or of the substance of the uterus. There were thirty cases of high temperature; and involution proceeded well in nineteen, badly in eleven.

Effusion into the pelvis was present in eight cases; it was not large, and it disappeared rapidly in all. In one of these only was the uterus above the pelvic brim on the twelfth day. There were nine cases in which peritonitis was present, manifested by elevation of temperature, and tenderness on pressing or moving the uterus. In three of these involution was retarded, so that the general opinion that pelvic inflammation retards involution appears to be well founded. Too early exertion is enumerated among the causes of subinvolution, and it is generally believed with good reason. Dr. Goodell appears to maintain that absolute rest in bed after delivery favours the development of puerperal diseases and bad recoveries. He accordingly gets his patients out of bed once or twice daily for the first four days, and after that period they get up and dress. I have not ventured to follow this plan, and have no data which bear upon it, except that, in my hands, an opposite plan of treatment has proved at least equally successful.

The influence of nursing is generally held to be highly favourable to involution. Serdukoff alleges that, during the first four days, involution goes on more slowly in those who nurse than in those who do not, while after this period the process is more rapid in nurses. Milsom, on the other hand, maintains that nursing retards involution. According to Milsom's observations, the cervix undergoes involution less rapidly than the body. I have no accurate statistics on this point; but in many cases I have found this portion of the organ markedly retracted on the tenth and twelfth days.

Though so often met with, yet it is difficult to estimate the exact effects of subinvolution, owing to the rarity with which it is seen in an uncomplicated state. The pathological lesions which accompany it are, however, in the great majority of instances, not its effects, but in part its causes, or results common with it of causes already enumerated. To this category belong all the pelvic inflammatory lesions commonly associated with subinvolution.

There can be no doubt that subinvolution may exist without any symptom, and that the subinvolved uterus may perform all its functions normally; and there appears no reason for ascribing to subinvolution any greater evils than disorders of menstruation, together with the consequence of the increased weight of the uterus; that is, hæmorrhage, dysmenorrhœa, and prolapsus. Hæmorrhage occurs as a result of the increased area of the uterine cavity and the loss of tone of its wall. Dysmenorrhœa is consequent upon structural changes in the uterine wall, while prolapsus is the result of the increased weight of the organ acting upon weakened supports.

We may then sum up as follows. The causes of subinvolution are general debility; multiparity at an advanced age; *post partum* hæmorrhage; retention of portions of the placenta and membranes; lacerations of the perinæum, and pelvic inflammations. Its results are hæmorrhage, dysmenorrhœa, and prolapsus.

The preventive treatment of subinvolution consists, in the first place, in the removal or prevention of the causes which lead to it. Some of these are irremovable; but *post partum* hæmorrhage, laceration of the perinæum, pelvic inflammation, retention of portions of placenta and membrane, can in a great degree be prevented. Wounds of the perinæum should be immediately and completely closed; for there is no doubt that the cases in which this is done make far better recoveries than those in which the wound is left open. I have already referred to Goodell's opinion that prolonged rest in bed after delivery is conducive to puerperal disease and bad recoveries, and his method of treatment by early getting up. One great and perhaps the chief advantage claimed by him for this plan is efficient drainage. He maintains that, while the patient rests in bed, neither the uterus nor the vagina is properly drained of the discharges. Now, I do not think that there is any evidence that the uterine drainage is improved by the sitting or erect posture, although it is amply evident that the drainage of the vagina is greatly bettered. The position of the uterus when the woman is in the lying posture is such, that the conditions of drainage are perfect. It is not so as regards the vagina. I have no doubt that the removal of the discharges from the uterus and vagina, and the prevention of their deleterious effects upon the patient, is one of the chief

questions of the treatment of the puerperal state. I have mentioned one means of effecting this; that is, closing the wounds of the vaginal orifice. The next means is vaginal injections. These should be commenced immediately after delivery, and repeated twice a day at least. They should be abundant, hot, and contain a disinfectant. They should be abundant (three or four pints of water), in order to ensure cleanliness; they should be hot (temperature 110° to 115°), to induce contractions of the uterus and vagina; and they should contain a disinfectant, in order to destroy, as far as possible, any septic matter that may be present. Goodell has obtained excellent results by his plan of early getting up in the Preston Retreat; but equally good results have been obtained during the last twenty months at the General Lying-in Hospital by the plan of treatment I have sketched. The prevention of subinvolution means three things—an empty uterus, a well-contracted uterus, and the absence of fever; and I know of no better means of securing the second and third objects than the use of hot disinfecting vaginal injections and closing wounds of the perinæum.

Dr. PLAYFAIR (London) said that no one could have listened to Dr. Williams's interesting paper without feeling that it was one of great practical value; but it was one that was not easy to discuss without study. He did not quite gather what were Dr. Williams's gauges of subinvolution, which had a condition not easy to detect *per se*, and to which attention was, as a rule, only called on account of co-existent symptoms. For all he knew to the contrary, there might be many women with subinvolution of the uterus, in whom the fact was quite unimportant, in consequence of the absence of concomitant lesions, to which it had led. He fully agreed with Dr. Williams's remarks as to causation. It was difficult, however, to understand why lacerations of the perinæum should be found to be further sources of subinvolution; while lacerations of the cervix itself, much more intimately connected with the uterus, had no such effect. He was sure there must be some mistake in this, since he found lacerations of the cervix connected with subinvolution in a large proportion of cases coming under his care. As to Dr. Williams's rules for the management of the puerperal states, he would thoroughly indorse them. He felt sure that they were such as every scientific and well instructed practitioner should follow. He thought, however, he had done some little injustice to Dr. Goodell, who did not recommend movements *per se* after delivery, but simply advised that the patient should be placed, from time to time, in the semi-erect position for the purpose of effecting thorough drainage of the vagina—a point of great practical value.

Dr. HENRY BENNET (Weybridge) remarked that the range of Dr. Williams's paper on subinvolution of the uterus merely extended to the two first months after parturition, and he was quite prepared to accept the results at which Dr. Williams had arrived. The subject, however, was too important for consideration of it to stop at that epoch, influencing, as it did, the entire range of uterine pathology. He thought that Dr. Williams had made an important omission in not mentioning, among the causes of subinvolution, inflammatory lesions of the uterine organs, ovaries and uterus, which, in his experience, were often the cause of subinvolution after parturition. When he published, in 1845 and in 1848, the first edition of his work on *Uterine Inflammation*, his statement as to the frequency of these lesions were met by an indignant denial on the part of many of the gynaecologists of the day, foremost amongst whom was the late Dr. Robert Lee of St. George's Hospital. This physician stated that, on searching the records of the dead-room for uterine lesions, he had found no record of cervical inflammation in 10,000 *post mortem* examinations; indeed, scarcely any uterine disease but cancer and fibrous tumour. This led Dr. Henry Bennet to make the dead-room of this hospital the theatre of assiduous research. He long attended the *post mortem* examinations, finding constantly inflammatory lesions. Dr. West, then also incredulous, instituted research in the dead-room of St. Bartholomew's Hospital, with the same result. He so constantly found uterine inflammatory lesions in women between twenty and forty, that he concluded that they could be of no clinical importance. Thus, lesions were not found when not sought for, and were found when sought for. Both at this time, before, and since, he carefully weighed the uterus removed from its attachments, and invariably found that the weight of the organ was greater than normal—two, three, four, five ounces, instead of one and a half or two—whenever there was any diseased action, inflammatory or other, existing in the ovaries, uterus, or ligaments; in a word, there was non-involution in the child-bearing woman, enlargement in the sterile woman. The organ which alone, in the human organisation, could enlarge in nine months from an ounce and a half to two pounds, and then, in six weeks or two months, return to its normal weight, and that twenty or more times in a woman's life, was ever ready to respond to any morbid stimulus, to remain subinvolved, or to en-

large; clinical experience taught the same lesson. The uterus or its cervix was generally found enlarged on examining patients presenting marked pathological lesions. The influence of this fact on gynaecology was immense. The uterus was a very movable organ. Enlarged and heavy, it was anteverted, retroverted, prolapsed. The rational treatment was to remove the morbid condition, whatever it might be, to place the patient under favourable conditions. Once disease was removed, the uterus resumed its physiological functions; involution took place; the uterus regained its natural volume; and the displacements often either passed away or gave no trouble, causing no suffering. During the latter part of his career, he had been able to resurvey his early work. Hundreds of his patients of former days, then between twenty and forty, and thus treated, had come to him between forty and sixty, and he had then been able to ascertain that they were quite sound and well, and had been so for very many years.

Mr. DEWAR (London) was disappointed that the subject was not carried further, and treatment mentioned for subinvolution several months after delivery. What medicament, if any, would be useful? and especially, what would be the effects of ergot?

Mr. NUNN (Bournemouth) remarked that Dr. Williams had failed to notice that the sanitary condition of the patient's house was an important factor for or against involution.

Mr. LATIMER (Swansea) observed, that surely overlactation was a frequent cause of subinvolution. Abortions also were a very frequent cause. Iron he considered a wrong treatment of subinvolution.

Mr. DUTTON (Sidlesham) thought washing out the uterus and vagina during convalescence, after labour, was an important aid to the process of involution.

Dr. BANTOCK (London) regretted that he was not in a position to found his remarks on this discussion upon a knowledge of Dr. Williams's arguments. He agreed with Dr. Playfair, that it was a very difficult matter to form an estimate of the relative frequency of subinvolution; for it was only because of the symptoms which manifested themselves, at a more or less remote period, that we became aware of its existence. In his opinion, one of the most frequent causes of subinvolution was the occurrence of abortion. Whether this was due to the fact that the uterus was emptied at a time when the tissues might be said to be unprepared for those changes which were so peculiar and so beneficial, or otherwise, he could not say; but of the fact he had no doubt. Another cause was the too early getting about. While he was in obstetric practice, it was his rule never to allow a patient to get about until a fortnight had elapsed; and he was scarcely able to recall a case in which he had been obliged to treat this condition. In his gynaecological practice, he had met with a great many cases of subinvolution, and in a very large number he could usually find evidence of this cause. Another cause existed in the abuse of a too stimulating diet, and especially of alcoholic liquors. No doubt, in a considerable number, the occurrence of subinvolution might be traced to putrefactive changes in the lochial discharge, and inflammatory conditions consequent thereon. A statement of the causes of subinvolution was tantamount to a statement of the preventive treatment. He regretted that, by the terms announcing the discussion, they were prevented from entering upon the curative treatment, which, after all, was the most important branch of this subject: for, amongst the poorer class of the community, and where this condition was most frequent, it was a very difficult matter to have appropriate preventive treatment carried out.

Dr. GRIFFITHS (Swansea) remarked that he considered that the uterus, just after delivery, was in a condition similar to the stump of an amputated limb; and, just as sanitary surroundings were good for the one, so were they for the other. In each case there was a wounded surface to heal. Rest in the semi-sitting posture, during convalescence from parturition, was a very important method of drainage. Defective drainage of passages might lead to pelvic inflammation, and be followed by subinvolution.

Dr. WALLACE (Liverpool) drew attention particularly to the preventive treatment of subinvolution of the uterus. In the first place, the state of the general health of the patient had to be taken note of during pregnancy, in relationship to known causes of tendency to the lesion. In weak and insufficiently developed muscularity, a constitutional dyscrasia, a gouty, rheumatic, or other diathesis, had to be taken into consideration. The condition of the uterus, as to the existence of localised pain, either in the body of the organ, or of a peri-uterine character, must be investigated. Utero-tubal impregnation was almost invariably followed by the disease; and, in cases of previously known open Fallopian tube, Dr. Wallace had again and again seen subinvolution, and he agreed with Dr. H. Bennet in the summing up he had given of vaginal, endometric, and perimetric lesions, as a frequent cause; but, in addition, malformations of the uterus, associated with pregnancy, were attended with retarded involution. With regard to Dr.

Playfair's statements of the *post partum* treatment of patients, Dr. Wallace perfectly agreed; but, in addition, he drew the notice of the Section to the deleterious effects of pads and tight bandaging after labour, thus forcing the enlarged uterus into the pelvic cavity, without bearing in mind the fact that, after labour, the organ normally remained an abdominal organ, if left alone, and did not become a pelvic organ until involution had been completed. There could be no doubt this mistaken practice was a frequent cause of retained clots, excessive after-pains, chronic hyperæmia, and resulting subinvolution. Dr. Wallace regretted that chronic subinvolution, associated with hyperplasia, the fibrous tissues predominating over the normal mixture of muscular and fibrous elements, did not form part of the discussion; for he had hoped for some addition to our knowledge of the treatment of this difficult part of the subject.

Dr. DEMPSY (Belfast) had observed that, if a pad and binder were applied too tight and too low down, the uterus might be pushed up by them, instead of being steadied and kept down. He had seen such results, and had found that the uterus, a few hours after delivery, escaped from under the binder, and that the fundus reached to one or other of the hypochondriac regions. This accident might prove a case of defective involution.

Dr. ROUTH (London) stated that he had gone over some of his cases of subinvolution treated in the Samaritan Hospital under his care. He found two well marked causes. 1. Either the women were very young or very old. This result was to be expected, as the women were weak, and in them the processes of reparation were necessarily often defective. This was especially the case in miscarriages, after which subinvolution was more commonly traced than after labour at full period. 2. Too early resumption of social duties, household work, but especially too early resumption of conjugal duties, was another cause, especially among the lowest orders. He thought, also, Dr. Williams's paper might perhaps lead to the belief that subinvolution was only a process first of degeneration, then regeneration, and confined to the parturient period. He believed it was often a process kept up by interstitial hypertrophy of tissue going on for months and years. This was a class of cases very common in all gynecological hospitals. This complicated subinvolution was due to some parenchymatous inflammation of the uterus, or inflammation of surrounding tissues, as Dr. Bennet had shown. But it was an error to attribute subinvolution to laceration. He believed it was a mistake. Whether it was cervical or perineal laceration, a wound was made, and the real cause was septicæmia, which poisoned the wound. He laid it down, therefore, that septicæmia was always the cause of such succeeding inflammation; in other words, septicæmia could not exist without producing local inflammation of the uterus or its appendages. The proper plan to avoid these accidents was to use hot injections with antiseptics; not cold, but hot, lest the lochia should be checked.

Mr. WILLIAM DONOVAN (Whitwick) believed the causes of subinvolution to be protracted labour, the abuse of ergot, the ulceration of the os and cervix existing previously to labour. He was strongly of opinion that injections after labour were fraught with danger. Carbolic injections, and having the child born under the carbolic spray, he looked on as simply useless and absolutely dangerous. Bandaging so as to push the uterus up under the ribs or down into the pelvis was, he believed, practically impossible; as a woman after delivery could not bear, and would not bear, the pressure necessary to displace the uterus.

Dr. NESFIELD (Manchester) remarked that vaginal injections after labour were good, but that intra-uterine injections were a serious matter, and might cause mischief, and so lead to subinvolution.

Mr. POPE recommended that ergot be given after expulsion of placenta, so as to avoid a laxity of uterine tissues, and tendency to subinvolution.

Mr. MORRIS thought subinvolution more generally due to miscarriages than to labours at full term, and considered vaginal injections of various kinds to be one of the preventives of defective involution.

Dr. WALTER (Manchester) regretted that he had not arrived in time to hear the papers read on subinvolution, and confessed that, in his experience, by far the majority of cases of subinvolution miscarriage was the cause. In these cases, as well as those succeeding labour at full time, he believed the best preventive treatment was to place the patient at once on a course of ergot combined with strychnine; and he thought that, if this line of treatment was continued sufficiently long, the majority of cases of subinvolution would be prevented. In those cases, however, where a traumatic lesion existed, it required, in many instances, local surgical treatment before the subinvolution consequent on the lesion could be cured.

Mr. VEYERS (Hereford) would divide the causes of subinvolution

into those of a local and general character, and would lay stress more especially upon those of a general character, such as anæmia and debility in such case as were met with in the poor, and overfeeding in the rich too soon after parturition, or after miscarriage, which seemed to be a fruitful cause of subinvolution, whether as the original cause or as the result of previous inflammatory attacks. He believed that the rapid suppression of the mammary secretion (which was readily done by the use of belladonna), without the use of evacuates at the same time, could not but retain in the blood protein elements, the excess of which must clog the operations of nature, *quoad* the retrograde change, which she attempted to carry out in restoring the uterus to a condition similar, or nearly similar, to that which existed before parturition. He would advocate the use of a bandage applied carefully from the margin of the thorax to the level of the pubes, both for the purpose of support to the uterus, and also as support to the diaphragm, especially where any considerable hæmorrhage had occurred.

Dr. EDIS (London) thought the subject under discussion was one of great interest, both in an obstetrical and gynecological point of view, and was worthy of far more consideration than had hitherto been bestowed upon it. Dr. Williams, in enumerating the causes of subinvolution, suggested inferentially the indications to be followed in avoiding its occurrence. Anticipation and prevention were the mainpoints which demanded attention. General debility might, in a large number of cases, be obviated by a careful supervision of the pregnant female, the judicious administration of tonics—such as quinine and iron, bark and acid, with regulation of the various functions and secretions. This would tend to eliminate one at least of the causal conditions—viz., abortion and premature delivery, and at the same time avert another frequent cause of subinvolution—viz., protracted delivery. The art of midwifery consisted in guiding a patient safely through the process of parturition; not allowing her power to become exhausted before rendering assistance, but supplementing feeble uterine efforts by the timely application of the binder before delivery, sustaining the bodily powers by appropriate nourishment, attending to the ventilation and temperature of the lying-in-room, and other similar details. Where the natural powers proved inefficient, the application of the forceps, so soon as the preliminary stage of dilatation of the os uteri was accomplished, would not only serve to expedite labour, but also prevent *post partum* hæmorrhage, and lessen the tendency to retention of portions of the placenta or membranes. Septic infection with inflammatory complications would thus be averted. The administration of ergot, together with the systematic application of the binder, unquestionably assisted in preventing relaxation of the uterus and keeping up contraction of the organ, thereby diminishing materially the supply of blood to the uterine tissues. The avoidance of too stimulating a diet, and especially of alcohol, unless otherwise indicated, was very important. The plan of allowing patients to sit up for necessary purposes for a brief interval seemed to be one worthy of encouragement, facilitating as it did a proper drainage of the uterus, and obviating any tendency to accumulation of the lochial secretion. It might not be safe in all cases, but, under proper supervision, was certainly free from danger. Vaginal injection of hot antiseptic solutions, night and morning, obviated the risk of septic absorption, and at the same time encouraged contraction of the uterus, and thus favoured the process of involution. Getting about too soon after delivery no doubt explained the frequency with which prolapsus uteri was met with in the lower classes, the uterine ligaments and supports having been so stretched and weakened, as to be unable to retain the bulky subinvolved uterus in its normal position. Too rigorous adhesion to the dorsal position, together with too tight and persistent application of the abdominal binder, so as to restore the figure of the patient as much as possible, doubtless accounted for many cases of retroversion and flexion, which condition again influenced the process of involution. The omission to suckle appeared to retard involution by withdrawing the stimulus to uterine contraction, long since recognised as due to mammary irritation. But it must be remembered that it was in those patients who were not considered strong enough to suckle, that the predisposing causes of subinvolution were most likely to be combined. It was a question, too, whether belladonna, so frequently used in the form of plaster, lotion, or liniment, in these cases, to prevent mammary troubles, had not some influence in lessening uterine contraction; and so retarding the process of involution. The influence of subinvolution was a most potent factor in the production of uterine disorders, and the sooner this fact was recognised more generally, the soon would attention be paid to the prevention of such cases.

LYCOPodium can, it is stated (*Cincinnati Lancet*) be put to an excellent use when sprinkled over oiled silk. It prevents the fabric from adhering together.