small and weak. This was immediately followed by a considerable increase in the quantity of urine, which rose to 130 ounces on the 13th and 20th. The codeia was resumed on the 21st, in doses of four grains and a half, and on the 30th was increased to nine grains daily, with the same result as before—an immediate fall in the urine from 130 to 90 ounces.

On July 5th, morphia (half a grain three times a day) was substituted for the codeia, and a few days later in grain doses, whereupon he was made an out-patient, and ordered to continue the morphia and cod-liver oil steadily for a month.

These three cases all exhibited marked improvement whilst taking codeia, which improvement ceased when the codeia was withheld, and was renewed on its repetition. Morphia had a good effect in two of the cases; but the improvement was much less marked with it than with the other alkaloids.

NOTE ON UTERINE HÆMOSTATICS.

By J. BRAXTON HICKS, M.D., F.R.S., etc.

Obstetric Physician at Guy's Hospital, and Lecturer on Obstetrics, etc.

As a small contribution to the practical portion of the subject of uterine hæmostatics, I venture to make a few remarks on the mechanical kinds, which we know by the name of plugs or tents. In doing so I must be understood to refer only to those cases where the cavity of the uterus is not sufficiently large to contain blood in quantity, the loss of which from the circulation is likely to produce anything of serious detriment.

If we go back to former practice and to text-books, we find it recommended that, in case of threatened abortion with much hæmorrhage, a vaginal plug should be used.

The vaginal plugs recommended are the tampon, cotton or wool, silk or cambric handkerchief, rags, or sponges passed in till the vagina is filled up. An India-rubber ball also has been suggested, covered with felt or such like material. Now, even with the best management, there is much of distress to the patient in the use of the vaginal plug; and with regard to its hæmostatic effect very much of uncertainty, and generally partial failure; and in the hands of the unskilful and careless there is positively no restraint of bleeding worth the mention. If at any time any good results be produced, it is rather by the reflex irritation that it causes, whereby the uterus expels its contents. It is not so very rare an occurrence that one finds, on removal of the plug, the ovum on the uppermost part of it.

But besides its palpable inefficiency, a vaginal plug, being of a porous texture, absorbs a large quantity of blood and thus conceals it from our sight; it also favours decomposition, and this, as is well known, occurs within a few hours; and thus we have a new element of danger.

Again, in many cases, when called to such a case, we have no speculum at hand; and although we may extemporise one out of card-board, book-covers, or such like material, yet, before we have thoroughly and firmly filled the vagina, we must have given the patient considerable pain and distress, besides having occasion to put such pressure on the urethra as may necessitate subsequent catheterism. For these reasons, namely, the imperfection of action, pain in introduction, and danger if left in long—in other words, its general crudity, it seems to me that as a general rule the vaginal plug should, in the cases I have supposed, be discarded.

And as a substitute I would urge the employment of the cervical plug as being more precise in action, as well as being capable, if we use a dilating kind, of expanding the canal for the purpose of exploration, or for the expulsion or removal of its contents.

If, then, in any case of uterine hæmorrhage, where we have the conditions above alluded to, we desire, besides immediately checking the bleeding, to dilate, we can use the compressed sponge-tent; the best form of which I have found to be those made, after Sir James Simpson's plan, by Duncan, Flockhart, and Co., of Edinburgh. These can be introduced by a long pair of forceps, and retained *in situ* by placing a piece of sponge, with tape attached, in the upper vagina. Of course, even these materials retain some secretions, etc., and tend to facilitate decomposition; but their removal and cleansing can be effected much more readily than the vaginal plug, because it requires but a small portion. The sea-tangle tent, by reason of its slipperiness, is unreliable as a plug in hæmorrhage. If we desire, however, only to plug the cervix, we can very easily extemporise a plug from materials to be found in every house.

For instance: take a stick (say a flower stick) about a foot long, and taper it at one end to about the size of an uterine sound, or rather larger; wind round this end, for about three inches down, strips of cambric

rag, lint, or sponge to the required thickness, judging from the size of the os. Strips of sponge can be readily obtained from cup-shaped sponges of compact texture, and they can be tied on by thread, layer after layer, till the requisite conical form is obtained. The strips of the other materials can be laid on similarly. After the covered end has been well greased, it is passed into the canal, and the stick retained *in situ*, after the manner in which we tie in a catheter; an elastic tape, if obtainable, is to be preferred.

A catheter or bougie, or the end of the long injection-tube, can be treated in the same way. If we require great precision of application, then it is best that the hand should hold the external end till the hæmorrhage has ceased. If the catheter and stilet be used, then I have found it convenient to bend the external portion backwards, between the buttocks, tying the tape round the ring of the stilet—the ends of the tape being carried, as usual, to back and front of the waist-band.

These more homely adaptations I have recommended, rather than the especially made kinds, because they are often wanted at times when we cannot send home for a more showy sort. In any case, a cervical plug, expanding or not, is more precise, less crude and painful in application, than the vaginal, and, in my experience, nearly always successful. In all cases of abortion, where a plug is necessary, I would lay it down as a rule, that the expanding tent should be employed. In cases of flexion with abortion (and it is this complication which so frequently increases the hæmorrhage) it will be found that the covered stick or stemmed plug, above described, is very useful: for, if the fundus be elevated during its introduction, the uterine cavity is straightened, and evacuation of the contents thereby facilitated.

ON STERILITY.

By ARTHUR W. EDIS, M.D., F.R.C.P.,

Assistant Obstetric Physician to the Middlesex Hospital, etc.

It is somewhat surprising that more notice has not been taken, in our modern works on gynæcology, of the frequency with which married women miscarry during the first few months of their matrimonial existence, or become mothers within the first twelve months, and yet never afterwards conceive.

The mere fact of conception occurring once, shows that the reproductive organs are in a normal physiological condition to start with. Some new factor must, therefore, have been introduced to explain this sudden cessation of fertility. Can it be that the effort is too great, and the capacity for further child-bearing exhausted? Is it not rather from some of the numerous complications likely to follow the act of parturition? That these latter will explain the occurrence of sterility in many cases, may be readily admitted; but there are a large number of cases where parturition is safely accomplished at full term, where there is no history of subsequent inflammatory mischief, and where, beyond a somewhat tedious convalescence, with possibly prolonged or profuse vaginal discharge, no active symptoms are present, such as to necessitate a local investigation.

A history by no means unfrequently met with is, that the patient was perfectly well up to the time of marriage, menstruation being normal, and unattended by pain or any serious discomfort. The first few periods may be somewhat painful and profuse, and followed by more or less mucous discharge. Cessation of the catamenia and other well recognised symptoms soon warn the patient that pregnancy has commenced. Increased leucorrhœal discharge, pain in the back, inability to stand or walk far, are naturally attributed to her condition, and no steps are taken to relieve them. Miscarriage occurs before the first half of pregnancy has been reached, due really to gradually extending inflammatory mischief of the cervix uteri, aggravated, it may be, by some imprudence in the way of over-fatigue or undue excitement, such as dancing, riding on horseback, travelling, etc. The miscarriage being attributed solely to some apparently preventable cause, no steps are taken to ascertain the exact condition of the uterus. After resting up for a longer or shorter interval, generally the latter, the patient begins again to take her place in society and attend to her domestic duties. Although warned by her own sensations in the form of backache, leucorrhœa, menorrhagia, and other distressing symptoms, that all is not as it should be, the patient imagines that these are but the sequelæ of her miscarriage; and, beyond resting up a little more than usual, simply because she cannot endure fatigue as heretofore, nothing is done to improve the state of the uterus, which meanwhile is in a very unhealthy condition.

Now, what is the interpretation of this? In many of these cases, the patient has become infected with latent gonorrhœa, as pointed out

by Dr. Emil Noeggerath; and the whole genito-urinary tract becomes involved in the specific inflammatory process—chronic endometritis and ovaritis of a very intractable form resulting.

The mischief begins so insidiously and extends so gradually, as not at first to interfere with impregnation. With the increased functional activity of the uterus, however, a fresh impulse is given to the development of the diseased action; and, the two conditions being incompatible the one with the other, the process of gestation is cut short, and the ovum expelled.

The presence of inflammatory disease of the cervix, as Dr. Henry Bennet long since pointed out, however slight, often appears to arrest, independently of any diseased state of the body of the uterus, the natural process of absorption which occurs after parturition, before the uterus has regained its natural size and weight. This morbid size and weight of the organ is generally attended with displacement, mostly retroversion, and often keeps up hæmorrhage. When the disease of the cervix is removed, nature will often renew the interrupted process of absorption, and slowly restore the uterus to its natural size and position without any special treatment. Inflammation of the cervix uteri has a remarkable tendency to perpetuate itself indefinitely, notwithstanding the removal of all acute and subacute inflammatory action. This tendency is no doubt increased by the periodical sanguineous congestion to which menstruation physiologically exposes the inflamed tissues.

In many other cases of acquired sterility, the uterus remains for many months following parturition in a state of subinvolution, due possibly to some strumous diathesis, or to some temporary cause of depressed vitality, the result of, or independent of, the performance of the act of parturition, complicated or not by ill health during pregnancy. In some instances, no doubt, it is due to patients getting about as usual too soon after their confinements. The uterus, more than double its normal size and weight, in place of being supported by the relaxed and distended vaginal walls and suspended in its proper place by ligaments now stretched and weakened, and unable to bear half the usual strain, sinks in the pelvis beyond its proper level; congestion is thus kept up, and the process of involution still further interfered with. The increased bulk and partial prolapse of the uterus generally cause symptoms of backache, bearing-down, and other pelvic distress. For this, the patient finds it requisite to lie up, and generally does so, in the dorsal position. The uterus being heavier than normal, often becomes markedly retroverted, and, being also softer in structure, becomes not unfrequently retroflexed; tendency to this being often still further increased by the compression due to a tight binder or abdominal belt. Should peritonitis occur at the time, from the patient catching cold or other cause, the uterus may become bound down by adhesions whilst retroverted or flexed. Coupled with this subinvolution, we not unfrequently find an intensely granular degeneration of the mucous membrane lining the cervical canal, in many cases doubtless intensified, if not produced, by the cervix having been slit up on one side during labour. Where the perineum has also been ruptured to any extent, the vaginal walls lose a great part of their support. The uterus thus descends lower in the pelvis, even if it do not become otherwise displaced; the external atmosphere thus gains ready access to the vagina, and keeps up a constant irritation of the exposed cervical mucous membrane. Much acrid discharge results, and not unfrequently prolonged menorrhagia. The patient being obliged to rest a great deal, and not being able to take exercise in the open air, her general health often becomes much deteriorated, her appetite impaired, her bowels confined, she sleeps badly, feels very languid, is unable to attend to her domestic duties, becomes depressed in spirits, and too often drifts into confirmed invalidism.

The ovaries themselves may have become atrophied from having undergone a considerable amount of inflammatory mischief at the time, or from the subsequent contraction of the deposit by which they are surrounded, or from an abscess having formed in the ovary, leading to the destruction of the normal structure of the organ. Adhesions binding down the Fallopian tubes, or fixing the uterus in some abnormal position, may also interfere with impregnation.

Superinvolution of the uterus when the organ undergoes an excessive amount of involution, becoming inordinately diminished in size, as seen later on in life in senile atrophy, occasionally occurs, as if really the effort of reproduction had been too great, and the capacity for had become exhausted. We frequently meet with instances of patients who are fruitful once only in a series of years, more especially in ill-nourished women and in those who are inordinately stout, where presumably the ovarian activity is much below par, or there is a natural tendency to premature decay. Although superinvolution is by no means so frequent as the contrary condition of subinvolution, yet it is by no means so unfrequent as might be imagined. Some inflammatory

mischief following parturition, involving one or both ovaries, may possibly have been the initiating cause. Although well authenticated cases of fertility are on record where, at the necropsy, only one ovary has been found to be developed, still it is a question whether, contrary to what obtains in other double organs of the body—such as the kidneys, for instance—when one ovary is destroyed or impaired in function, instead of the energy of the sound one being redoubled, the very reverse occurs, and the remaining ovary becomes atrophied, the uterus following suit in due course. This may explain some of the cases of premature menopause, with subsequent atrophy of the uterus.

Where there is any tendency to the development of fibroids in the uterine walls, the increased determination of blood to the uterus during pregnancy, and the unusual developmental activity, unquestionably encourage the growth of fibroids. These do not, as a rule, take part in the process of involution which follows parturition, but go on gradually increasing in size, and so offer an effectual barrier to conception.

The menorrhagia which usually accompanies intramural uterine fibroids, more especially when they tend towards the mucous surface, may cause extravasation into the decidua membrane, or produce such other disturbance in the uterus as to interfere materially with the fixation, maintenance, or development of the ovum; and thus practically the woman remains sterile.

It is curious to observe with what persistency the uterus will revert to any abnormal position, whether of flexion or version, that was present before the pregnancy occurred. Acute ante- or retro-flexion that for many years produced sterility, when overcome by the wearing of an intra-uterine stem, or by other appropriate treatment, so as to allow of impregnation taking place, and where the pregnancy advanced to the full term, has yet been found to recur to its original condition on completion of the process of involution following parturition. The cause of the sterility in the first instance becomes again the cause of acquired sterility, and needs treatment equally as in the former case.

Treatment.—It would be out of the question to attempt entering into the details of treatment in all cases. The mere enunciation of the probable cause is sufficient to suggest the appropriate line of treatment. What I am anxious to direct special attention to is the preventive treatment. It should be considered a part of every medical man's duty who attends a patient in labour, to examine her carefully at the end of a month or six weeks afterwards, in order to determine whether she has incurred more than the ordinary penalties of parturition, and whether she is in a fair way to recover her former physiological condition. Every surgeon, before discharging a patient who has undergone an operation, sees that the wound is properly healed; and we should equally satisfy ourselves that everything is as it should be. Where, however, precautionary measures have not been taken, and we are only consulted after some years' interval, our first care must be to ascertain the exact nature of the uterine disorder, and not to promise too speedy relief, or the patient may become discouraged, and neglect to follow up treatment. A very important element of success in these cases is, that treatment should be patiently and perseveringly pursued for many consecutive months. As soon as one difficulty is overcome, we frequently find some other associated condition, which has been thus far overlooked or obscured, and only now becomes evident.

We must remove, as far as practicable, every abnormal condition that can be discovered; and, even when we have done this, it may still be many months, and in some cases years, before nature restores the uterus to its normal physiological condition, such as allows impregnation to take place, and pregnancy to advance in due order. Supposing, as frequently happens, we find the uterus excessively bulky and tender, retroverted, the cervix more or less slit, the os patulous, and this and the cervical canal intensely granular, giving exit to a thick glairy mucous discharge, what are we to do? The first thing probably will be to lessen the bulk and diminish the sensibility of the congested or inflamed organ, by means of puncturing or scarifying the cervix, the employment of hot water vaginal injections, the application of the tampon soaked in glycerine, and other well recognised expedients. Nitric acid may then be applied to the granular mucous lining of the cervix; or the operation of tracheloraphy, for the restoration of the slit cervix to a normal condition, may be performed, as the nature of the case may seem to require.

When the uterus has become less bulky and less sensitive, gentle efforts may be made to rectify any displacement, noting carefully if the uterus be mobile or bound down by adhesions. In the latter case, we must proceed very cautiously, not attempting to tear down adhesions, but rather trusting to the wearing of a well adjusted pessary to exercise gradual yet constant pressure upon the fundus, and so keep the adhesions on the stretch; and then we may trust to their gradual removal by absorption.

Lying in the prone position, or resorting to the genu-pectoral position from time to time, will also assist in encouraging a return of the uterus to its normal position, where it is retroverted; though at first the patient will probably experience much inconvenience, and perhaps state that it is impossible for her to carry out the suggestion. The importance of so doing must be explained to her, and she must be encouraged to persevere in her attempts, gradually prolonging the time as she finds it practicable. The patient must avoid long standing or prolonged exertion of any kind, more especially just before, during, and after the menstrual period. The diet and bowels should be carefully regulated, and the general health improved in every way possible. Skirt-supporters and garment-suspenders, by taking off pressure round the lower abdomen, assist in relieving congestion of the pelvic organs, and may be recommended if thought desirable.

I will not here enter into further details of treatment; but, from much practical acquaintance with these cases of acquired sterility, I can confidently assert that the difficulty may be overcome (if only sufficient time be allowed to follow up the treatment) in a fair proportion of cases, and that without any unreasonable trouble on the part of the practitioner, or prolonged rest on the part of the patient.

THE SCIENTIFIC PRINCIPLES OF INHALATION.

By ROBERT J. LEE, M.D., F.R.C.P.,

Senior Assistant-Physician to the Hospital for Children, etc.

THE important relation recently shown to exist between septic agents diffused in the atmosphere, and certain forms of pulmonary disease, is receiving so much attention, that it is well to consider the scientific principles on which it depends. Experiments show that it is possible to diffuse antiseptic agents in the atmosphere by evaporation, and that organic substances may be preserved in such atmosphere without decomposition; or, in other words, that the air may be treated as a fluid, and be charged with antiseptics which prevent bacterial development. Now, when we burn any of the hydrocarbons or gum-resins, we do not volatilise them, and the air is not rendered antiseptic, except to the extent that a certain amount escapes unburnt and is diffused. It follows from this, that destruction of the antiseptic agent must be avoided. After numerous experiments—and the general results of those made a few years ago were presented at the Cambridge meeting of our Association—it appears that carbolic acid is the only antiseptic, as far as I know, which can be volatilised in a definite and constant manner. This is a most important fact in treatment, and deserving attention. If a solution of 1 part of carbolic acid in 80 of water be distilled under slight pressure, the vapour will contain the same proportion of the acid as the solution during the process of boiling; so that we can obtain vapour of any strength, and diffuse it in the atmosphere. Other antiseptics are either more or less volatile: as, for example, thymol, which comes off very rapidly from the boiling water, as does also benzoic acid; so that they are not convenient for inhaling.

It is also necessary to observe that vapourising a solution in the form of spray does not volatilise the antiseptic to any great extent, since the dew settles quickly on the nearest surfaces, and does not rise and diffuse itself as the vapour of steam does.

Again, the sprinkling of solutions on clothes does not necessarily secure diffusion of the agent; for, at the ordinary temperature, the agent may not evaporate, but will remain in the texture of the cloth. There are other details which will occur to those who reflect on these matters, and will secure such success as may fairly be expected from the scientific use of atmospheric disinfectants. I trust that I shall be forgiven for egotism in saying that I think the small inhaler exhibited by Maw, Son, and Thompson for me at the International Sanitary Exhibition, at the present time affords the most convenient and scientific means of atmospheric disinfection; and that, until more perfect methods are offered to the profession, I believe it will be found deserving of more general attention than it has yet received.

SYMPTOMS SIMULATING THOSE OF ANGINA PECTORIS, ARISING UNDER THE LOCAL APPLICATION OF ERGOTIN.

By T. NESLEY MILLS, M.A., M.D., L.R.C.P. Eng.,

Assistant-Professor of Physiology, McGill College, Montreal, Canada.

THE Rev. J. C., aged 36, came under my care for a growth on the left vocal cord. After making trial of the usual remedies for diminishing such growths, it occurred to me to try the effect of applications of ergotin. To one ounce of glycerine one drachm of tincture of iodine

and fifteen grains of ergotin (increased on March 24th to thirty grains) were added. This was freely applied (with a laryngeal brush dipped in the mixture four or five times) every morning. This treatment was begun on March 20th, and continued till March 26th, without any special developments. That day being Sunday, the patient did not visit me; but on the following morning he made complaint of having had an attack of pain in the cardiac region of the most alarming and agonising character. It had then almost or quite disappeared; but had been severe after the onset for three or four hours. He stated that the action of the heart was rapid "throbbing", and that there seemed to be interference with respiration. He also made special mention of a sensation of coldness around the heart. An examination of the chest revealed no disease that could explain these symptoms. No special complaint was made in the interval up to April 1st, of anything except a marked "oppression on the chest", which the patient attributed to a cold.

On the evening of April 1st, the patient called to state that he was suffering from peculiar symptoms. There was pain extending down the neck, along the inner border of the sterno-cleido-mastoid muscle, outwards beneath the clavicle, and down the arm to the finger-tips; there was numbness and partial loss of power in the arm and hand. These symptoms were confined entirely to the left side, and passed off gradually within twenty-four hours. The ergotin being now suspected to be the cause of these disturbances, it was discontinued; though its use may have been beneficial as far as the growth was concerned; for, on April 6th, a portion of it was coughed up. I could discover no pallor of the arm affected, and no difference in the pulse of that side. Unless certain of these symptoms are to be referred solely to the use of the ergotin, such as coldness in the cardiac region, and numbness, etc., of the arm and hand, it seems difficult to explain them.

These are symptoms almost peculiar to angina pectoris; and this case seems to confirm, in a most remarkable manner, Dr. Lauder Brunton's theory as to the causation of angina pectoris, at least one of its possible modes of causation. This man had had no such symptoms at any period of his life previously, and the most careful examination revealed no aneurysm or any form of cardiac disease. Moreover, there were no such symptoms while under my observation prior or subsequent to the use of ergotin. I resolved to use nitrite of amyl should such symptoms arise again; but had none at hand when the patient called upon me suffering with the second attack.

ABSTRACT OF LECTURES

ON THE

ANATOMY, PHYSIOLOGY, AND ZOOLOGY OF THE EDENTATA.

Delivered at the Royal College of Surgeons of England.

By W. H. FLOWER, LL.D., F.R.S.,

Hunterian Professor of Comparative Anatomy.

LECTURE VI.—ANATOMY OF THE ANTEATORS (MYRMECOPHAGIDÆ—continued).

THE second genus of true Anteaters, *Tamandua*, has also one species, *T. tetradactyla*, generally admitted by naturalists; but, as different individuals vary much in their coloration, it is possible that there may be more. It is an inhabitant of the dense primeval forests of South and Central America, and differs from the Great Anteater, essentially in its habits, living mainly among the branches of trees. Its size is usually that of a large cat. It closely resembles *Myrmecophaga jubata*, but its head is much less elongated; the fur is short and bristly; the tail, tapering and prehensile, with the under side throughout, and the whole of the terminal portion, naked and scaly. The tongue, salivary glands, and buccal apparatus generally, resemble those of the Great Anteater; the stomach is also similar, but with the muscular pyloric gizzard not quite so strongly developed. There are a distinct ileo-colic valve, and a short globular cæcum. The fore foot has a very large claw on the third toe, moderate sized claws on the second and fourth, a very minute one on the first, and none on the fifth, which is entirely concealed within the skin. The hind foot has five subequal claws. The vertebrae are seven cervical, seventeen dorsal, two lumbar, five sacral, and thirty-seven caudal. There are rudimentary clavicles. The placenta has been described by A. Milne Edwards; it is dome-