Presidential Address

ON PROPHYLAXIS IN OBSTETRICS.

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BY

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SINCE my election, but especially within the last few weeks, the idea has gradually taken form in my mind that I might do the society some service, as I certainly have greatly profited myself, by grouping together and illustrating some outstanding and important ideas under the central heading of Prophylaxis in Obstetrics. At the outset, when I began to look through the index of subjects in the various medical journals and works on obstetrics for help in the development of my subject, I was somewhat dismayed to find an almost complete absence of reference in any of them to the word "prophylaxis," or even to its more common equivalent "prevention." I have been obliged, therefore, in the comparatively short time at my disposal since it was decided that I should give an address at the first meeting of this present session, to depend almost entirely on my own mind and my own experience for the considerations that I have now to bring before you.

DEFINITION.

Prophylaxis is defined in the ordinary English dictionary as "the mode of defending the body against disease."

In relation to obstetrics we may define it as the prevention of complication in relation to childbirth, meaning the prevention of complications in the course of pregnancy, during the process of parturition, and throughout the puerperium until complete convalescence has been again established. Difficult as it has been to find references to the word in our obstetrical literature, it is the central principle of the art of obstetrics, the ideal towards which the true obstetrician must constantly strive, the persistent effort he must always make to maintain the physiological character of childbirth. It would be impossible in one comparatively short address to traverse the whole field of our subject, but I can give some indication of its scope.

HEREDITARY INFLUENCES.

I think it is Oliver Wendell Holmes who somewhere says that, if we want to cure some diseases of the present generation, we must go at least two generations back. I do not propose, however, to take much account of hereditary influences, though we must not entirely forget them even in such an inquiry as the present. Antenatal pathology is a fascinating field of study, and a whole address might with profit be devoted to the interesting facts of such study, or a night given to their discussion. As yet prophylaxis, as applied to this particular period, is probably limited to the prevention of the pregnant woman from exposing herself to any of the infectious diseases, as her immunity, acquired by previous attack, does not extend to the unborn infant. In an epidemic of small-pox it might be advisable to vaccinate her to increase the immunity of the infant. If she is the subject of syphilis, she should be treated both for her own and for her child's sake, and, even if the father alone is affected, she should be treated for the child's sake. It is important also to remember that in certain cases where the infant's vitality is reduced in the last month of pregnancy, the induction of premature labour at an earlier date may save a subsequent child. I pay little regard to what has been written about maternal impressions, but it has been established with almost scientific precision that alcoholic indulgence on the part of the mother is seriously prejudicial to the growth and life of the child. I believe, also, that the expectant mother should be encouraged to a cheerful life and the avoidance of mental irritation and excitement and low desires. If we cannot remove such influences, we can at least endeavour to secure that they will not be perpetuated in future generations

THE FUTURE MOTHER.

Motherhood being the most important, though not necessarily the only function of womanhood, I speak of woman from her earliest stage of growth as the future mother.

SAVE THE INFANT FROM RICKETS.

For the proper development of the future mother infancy itself needs to be watched, for it is then that the seeds are sown that provide for us in after-years some at least of the forms of distorted spine and contracted pelvis. Rickets, with its delay in the development of the bony structures and the train of symptoms which so seriously handicap the future mother, cannot be cured in an obstetrical sense. Here, if anywhere, it is prophylaxis or prevention that is necessary, and the nutrition and general hygienic management of the infant have, therefore, a very necessary and important place in the work of such a society as ours. It is one of the signs of the times that the laity is wakening up to the seriousness of our persistent infantile mortality, and the efforts of our municipalities and of unofficial private organizations are already taking effect in a lessened infantile death-rate. In this connexion we look forward with interest to the original communication on "Intestinal Toxaemia in the Infant" promised to us by Dr. Ralph Vincent of London, for our November meeting.

The medical man, and especially the obstetrician, must go further in his efforts, for it is not only the treatment of the weakly and already rickety that must concern him. The weakling infant is too often the forerunner of the unfit mother. The practitioner must concern himself far more with the prevention of the onset of a disease that always cripples and deforms, and it is now a commonplace fact in our knowledge that errors in the nutrition and hygiene of the infant are the main causes of rickety disorders.

GIRLHOOD AND THE APPROACH OF PUBERTY.

It is of great importance to watch critically the future mother's growth into girlhood. I need only enumerate the various points: Feeding—now, as always, important; hygiene, including physical exercises, such as gymnastics and swimming, and sports such as cycling, golf, and hockey; education, involving not only due regulation of the amount of mental work, but also consideration of the proper position and attitude in school life and home study in relation to light, the desk, etc.; mode of dress, so as to leave room for play of limbs and body, and save from cramping or displacing organs.

As the future mother approaches puberty she comes to one of the critical periods of her life, and stress deserves to be laid on the special need for care at this time. Lessons should be slackened off. Short intervals of rest should be encouraged.

The girl should be taught the meaning and nature of the change which is about to take place. By this time the simpler facts of reproduction ought to be part of her education. There is room for exercise of prophylaxis in relation to the menstrual function, and in these months and years of its establishment much may be done to secure its subsequent regularity and freedom from pain.

THE YOUNG WOMAN.

The period of adolescence that succeeds the onset of puberty has its own perils. If the young woman belongs to a poor family she has to go to work in a factory or shop, or enter domestic service, and she runs the risk of digestive disturbance from errors in feeding, and of anaemia as a result of this and the confinement and often defective sanitary conditions in which she may be working. These play their part, though it may be a minor one, in handicapping the future mother. The obstetrician welcomes, therefore, and takes his share in, the advancement of knowledge of hygiene as to dress, food, etc., the inspection of factories, laundries, and workshops, and the regulation of work and hours.

It is of even greater importance now, if such knowledge has not already been sufficiently communicated, that the necessary amount of information with regard to the points of physiology already referred to should be given.

MARRIAGE.

When marriage is contemplated, or has already taken place, the obstetrician gets nearer the period of life when

he is likely to be consulted, but a healthier public opinion ought to be created, so that for the better exercise of prophylaxis in relation to motherhood his advice may be sought more regularly in these earlier stages of the young woman's life. The importance of this as a routine practice on the part of parents cannot be exaggerated.

From the point of view of prophylaxis some interesting points arise with reference to marriage. I can only allow myself time to mention several that occur to me. The need for correct and reliable information as to the sexual functions, and the proper relation of the sexes, becomes of urgent importance, if not already provided. Now, if it has not already been done, the medical examination should be made, so that such abnormalities as bony deformities may be discovered and noted, and occasional abnormalities in the fleshy parts remedied. At the same time the general health can be investigated. This is the time to correct disorders of the reproductive organs that might influence unfavourably the progress of a subsequent pregnancy. The existence of tuberculosis, heart disease, kidney disorders, or syphilis should be ascertained. Endometritis, whether due to ordinary inflammation or of gonorrhoeal origin, should be treated. It is almost a criminal thing that gonorrhoeal infection of a wife by her husband, with its disastrous consequences to her much more than to him, should be of so frequent occurrence.

It should be possible for the woman in poor circumstances to get the same privileges as her more fortunate sister of the middle and upper classes, and the future mother of the race, even if she is poor, should be saved from all forms of labour that are likely to interfere with the production of healthy children when her time comes.

MOTHERHOOD.

I have now reached what many will think the most serious part of my subject, that part which is directly concerned with motherhood itself, and therefore with the exercise of prophylaxis throughout this important period of a woman's life.

If prophylaxis has not been complete in these earlier stages of her life which I have tried to trace, we may already discover constitutional conditions or physical deformities that are certain to form complications in pregnancy. There is, therefore, all the more need for constant vigilance from the beginning of her pregnancy onwards to enable the mother to maintain the best of health, and without undue strain or injury, give birth to normally healthy children that are properly fitted to survive the risks of their infancy.

Let me deal with what remains of the subject under the three natural subdivisions of pregnancy, parturition, and the puerperium. Prophylaxis in relation to obstetrics I have already defined as the prevention of complication from the time of conception onwards through childbirth and the period of childbed and convalescence.

PROPHYLAXIS IN PREGNANCY.

The objects to be promoted during the course of pregnancy are the maintenance of the mother's health and the proper implantation of the ovum and its subsequent healthy development.

1. As to the latter point, it should be the obstetrician's aim to see that the uterus that is liable to become pregnant is free from disease. Where care has been taken in a previous confinement or after abortion—which is just as serious an experience—to secure freedom from sepsis and complete involution, and where all lacerations have received surgical attention, there is much less likelihood of the occurrence of those chronic inflammations, displacements, subinvolutions, abortions, extrauterine pregnancies, etc.; that make the big part of the work in a gynaecological department, and there would probably be fewer cases of accidental and unavoidable haemorrhages than there are.

2. Disordered health in the mother must be corrected. For perfect prophylaxis the mother must be saved from the effects of syphilis and gonorrhoea, the former taking effect in interruption of the course of pregnancy, but always capable of cure, the latter leaving its effects rather on the pelvic organs and ultimately preventing pregnancy, though liable to cause salpingitis as a complication of pregnancy, and, when present at the end of the pregnant condition, liable to injure the eyes of the infant. Tubercu-

culosis also is a serious complication which, while active, ought to debar the possibility of pregnancy, and, if pregnancy has already taken place, should suggest the desirability of its being at once terminated in the interest of the mother. Heart disease complicating pregnancy provides one of the most anxious problems for the practitioner, and yet the obstetrician gets surprising results by the exercise of a judicious prophylaxis displayed in rest, dieting, and suitable medical treatment during the pregnancy and the skilful conduct of labour in relation to strain of the heart. Here also it may sometimes be imperative to terminate the pregnancy early.

3. The acknowledgement of a certain slight amount of digestive disturbance in the form of morning sickness, as an almost constant concomitant of pregnancy in the earlier months, has diverted attention from the fact that even this is due to disturbed digestion and faulty metabolism, and it is highly probable that sufficiently early attention to this would greatly lessen if not entirely stop the occurrence of the more serious forms of pernicious vomiting or hyperemesis gravidarum, the neurotic element being usually, in my opinion, a later development in cases that should have been treated earlier. A really bad case of hyperemesis is one of the most serious and trying things with which a physician has to grapple, and no time should be lost in deciding the course to pursue after a complete clinical investigation, if the patient's life is to be saved. The toxæmia of pregnancy is still largely a *terra incognita*, and much work remains to be done before our treatment of this disorder can be put on a satisfactory footing.

4. This remark applies even more forcibly when we come to consider the more frequent and still terribly fatal disorder of pregnancy, eclampsia. Nowhere better than in Glasgow can this dire disorder be studied. Hardly a week passes that we do not get one or more cases in our maternity hospital, and in one week lately there were four consecutive fatal cases. Some one has said, in writing on this subject, that in all his experience he had never met with a case of eclampsia in which the urine had been previously examined—and thereby hangs a moral that still requires to be impressed. The urine of every pregnant woman should be repeatedly examined throughout her pregnancy. At this point I cannot help emphasizing the need for a thorough clinical investigation of these often terrible cases of toxæmia both during pregnancy, as seen in pernicious vomiting and eclampsia, and during the puerperium, as seen in septic infection. Advantage should be taken of all the modern means of chemical and biological research, and a complete equipment for this should be provided in our special hospitals and be available for the community. Till this has been done we need hardly expect any material lessening of the death roll due to these complications.

5. The haemorrhages of pregnancy carry their own lessons as to the exercise of prophylaxis. The promotion of the mother's health in the intervals of pregnancy, the precautions she ought to take as to sexual intercourse during pregnancy, the kind of work that it is safe for her to do, the proper regulation of the digestive functions as to constipation, the correction of displacements of the pregnant uterus, the proper treatment of such a disease as syphilis, all help to reduce the risk of haemorrhage during the pregnant state. And when haemorrhages do threaten, prompt and skilful medical treatment may still be an agent of prophylaxis against the worse fate.

6. Another important class still requires to be considered from the point of view of prophylaxis—the numerous cases of contracted pelvis. Nowhere is there more need for exercise of judgement and skill and care in the previous examination.

That due importance is not attached by medical practitioners to this aspect of prophylaxis is proved alike in private and in hospital cases. This is the proper moment to discuss the matter, as it is long before the end of pregnancy, and not when the patient is well into labour, that her treatment should be decided upon. So far as contracted pelvis is concerned. Till this fact is generally recognized we shall still have the almost unjustifiable operation of craniotomy or embryotomy to perform, and in less severe cases the mother, the infant, or both alike, will be maimed, perhaps permanently maimed, as a consequence of difficult instrumental delivery. Prophylaxis here concerns itself

with the accurate estimation of the size of the pelvis, and account is taken of the relative sizes of the head of the child and the birth canal through which it must pass. After a long experience of hospital work as well as private consultations I cannot help remarking my surprise that, with all the natural anxiety of practitioners as to their midwifery cases, there should be so frequent a disregard of the clear indications regarding the proper methods of treatment of contracted pelvis that can be obtained from the simple measurements of the pelvis and a comparison of the size of the child's head with the size of the pelvis. As a consequence difficult cases which, if properly diagnosed, would be sent into a maternity hospital or placed under the charge of an obstetrician at once without being touched, are in this twentieth century still subjected to bruising, laceration, and infection from frequent handling and futile application of the forceps or by injudicious attempts at version, when really one of the special operations is required for the safety of the mother and child. The principle of prophylaxis is not completely observed unless the expectant mother is carefully examined at the latest by the time that the child becomes viable. The practitioner has then a wonderful choice of methods by which he can secure the healthy recovery of the mother as well as the life of the child. I need only mention induction of premature labour and the various methods of widening the pelvis—symphysiotomy or pubiotomy—or Caesarean section in all its varieties. One of the most important communications on this subject ever given to any society was the address of our last Honorary President, Professor Schauta, on "Spontaneous Labour in Contracted Pelvis," a translation of which appears in the last volume of the *Transactions* of our society. I must not omit to mention the possibility of modifying the severity of labour in cases of slightly contracted pelvis by dieting the expectant mother during the last half of pregnancy. This need not affect the vitality of the child, though it has a good chance of reducing its weight. This is an especially important point where the tendency is to have big children. Another point is the induction of labour at full term when the previous children have been above average weight and development, and pregnancy has gone beyond the calculated time.

7. One other complication of pregnancy, though fortunately a rare one, may be mentioned. When there is a history of previous insanity and pregnancy has again occurred, the true prophylaxis in this case is the immediate termination of the pregnancy. It is worth recalling here the danger of a second pregnancy in those rare cases of puerperal aphasia.

8. A final point occurs to me as regards pregnancy. The breasts seldom receive the attention that they deserve, and as a result now and then a case occurs where the nipples are not suitable for suckling, and difficulties arise as to the nursing of the infant, or septic absorption may take place, ending in mastitis which might have been prevented by timely attention before labour.

PROPHYLAXIS IN LABOUR.

The aim here is to promote normal labour, and do nothing at any stage of it that will be prejudicial to the mother or the child. Prophylaxis is exercised in regulating the conduct of the patient as to her movements or her rest or her position in bed, according to the stage of the labour, and in protecting her from chill, from exhaustion, and from mental excitement. The rules as to asepsis must be observed from the very beginning of labour. The patient must be handled or examined internally as little as possible, and attention must be given instead to external abdominal palpation as a means of diagnosis, and when such handling or examination is necessary it is desirable that rubber gloves be used. Premature rupture of the membranes must be avoided, but it is just as important to rupture them at the right time.

The greatest care must be taken at this stage to diagnose the exact position of the child, for often in lingering labour the delay and difficulty arise from the least error in the position of the presenting part, and any abnormality of this character can best be corrected before rupture of the membranes.

This may be illustrated in some of the varieties of cephalic presentations. Excessive flexion of the head—Roederer's obliquity—causing the occiput and the small

fontanelle to present, with very little of the sagittal suture to be felt, is usually an indication of some abnormal condition, such as rigid cervix or vagina, contracted pelvis, unusually large head, or macerated fetus. To prevent undue delay in such cases an attempt is made to get the head to engage. When the bregma or anterior fontanelle presents, on the other hand, insufficient flexion is indicated, and unless this is corrected a prolonged labour, with greater risk to mother and child, is the result, while it may develop into the more troublesome brow and face presentations, in which cases there is still more need for the skill and judgement that are prophylactic in their effects by obviating the well known difficulties and complications that are apt to arise. Anterior parietal presentations (Naegle's obliquity) and posterior parietal presentation (Litzmann's obliquity) should equally suggest the desirability of specially careful examination. The occipito posterior position in vertex presentations is perhaps the best illustration of the benefit of the prophylaxis of the skilled obstetrician, and it is at the same time the condition to which too little significance is attached in the routine of practice. I quote from the article on Vertex Presentations in the first volume of Norris and Dickenson's textbook, by Dr. Edward Reynolds: "It may safely be said that there is no variety of labour in which easily avoided ill results are so commonly incurred as in posterior positions of the vertex; and there is certainly no subject in obstetrics that better deserves attention than the means of detecting extension and of preserving or re-establishing flexion in these cases." When asked in a former session to introduce a discussion on occipito-posterior positions in vertex presentations, I had the opportunity of dealing with this question in detail, and the paper is included in vol. v of the *Transactions* of the society.

Were there time for it, the need for judgement and skill might be similarly illustrated throughout all the varieties of labour—for example the familiar precautions so necessary in the conduct of breech cases, the desirability of early rectification of transverse or oblique presentations before rupture of the membranes, the avoidance of the effects of precipitate and protracted labour, the proper conduct of the third stage of labour so as to facilitate complete expulsion of placenta and membranes and avoid haemorrhage. Especially should everything be done throughout the labour to prevent septic infection.

For the preservation of the perineum many directions have been given, but probably none of them are universally applicable. Any involving the insertion of a finger into the rectum deserve unqualified condemnation. The least we can do is to maintain flexion and to keep the presenting part, especially if it is the head, from emerging hurriedly at the crisis of a pain. A laceration often begins high up in the vagina, owing to the lack of sufficient flexion or some other abnormality in the position of the presenting part. A torn perineum is not the worst thing that can happen, but it should, of course, be at once and carefully repaired. It is better to postpone the repair for a few hours than to do it ineffectively at the time, for it has been found that such a repair is a poor support to the pelvic structures and often necessitates secondary repair.

PROPHYLAXIS IN THE PUERPERIUM.

Even if the precautions hitherto described have been properly observed, there is still need in the puerperium for a vigilant prophylaxis, as a mere enumeration of the possible complications sufficiently shows. The patient must be saved from the effects of constipation, haemorrhoids, retention of urine, blood disorders, nervous disturbances (such as eclampsia, insanity, neuritis, aphasia), anomalies of the breasts and the milk secretion, too severe "after pains," tardy involution of the uterus, undue haemorrhage, and septic infection. Alike in the worst and in the least serious complications that threaten the puerpera, attention to the earliest symptoms will often save her from troublesome after-results, and sometimes even from a fatal issue. The first and most alarming complication, on account of its suddenness, is *post-partum* haemorrhage. If prophylaxis has been exercised in the final stage of labour by controlling the uterus from the moment that the presenting part emerges from the vaginal orifice until the placenta is born, there is little likelihood of alarming haemorrhage. Where there is

reason to suspect the possibility of haemorrhage ergot may be readily used, and should always be at hand. Ergot in these days suffers by neglect, and I think we would do well to use it not only on an occasion like this, but regularly during the puerperium, to promote uterine contraction and favour involution.

Eclampsia may come on with equal suddenness at any moment, but by this time the practitioner should have been able to examine the urine and note signs of kidney disease or disturbance of metabolism, and so foresee the possibility of such an attack.

Of the minor complications none is more upsetting than mammary abscess, and it hardly needs to be remarked that this can almost invariably be traced to some previous inattention to precautions in the care of the breasts and the regular feeding of the infant. I have not included the nutrition of the infant in my consideration of prophylaxis in obstetrics, but I may be allowed to remark here that sufficient attention has not been given in the past to this, though there are now signs that the work of investigators and clinical observers during the last ten years in this department is being recognized.

Perhaps the most serious of all the complications of the pregnant state is sepsis, and it is not creditable to us that the occurrence of sepsis shows little sign of abatement in private practice during the last twenty or twenty-five years, in spite of all the advances of knowledge on the subject.

In 1908 241 deaths from puerperal fever were notified to the R-gistrar-General for Scotland, and of these 119 occurred in Glasgow. The registered deaths in Scotland during the ten years 1899-1908 numbered 2 612, and yet it is a preventable disease. What a toll to pay to defective method! And this is not all, for it is impossible to estimate the much greater number of women who have more or less "morbidity" from milder sepsis and are more or less handicapped afterwards in their lives. The reasons are some of them not far to seek, and until every practitioner, midwife, and obstetrical nurse not only practises surgical cleanliness as to the hands, instruments, and swabs that are used, but also, and as carefully, cleanses the parts of the patient that are to be handled, one need not expect in private practice to abolish puerperal septicaemia as one of the most frequent and least justifiable causes of death of women in childbed and of chronic ailment during their subsequent lives when they survive the acute attack.

CONCLUSION.

In concluding this address I must, at the risk of repetition, give additional emphasis to several of the most important points by way of a final summary.

1. Contracted pelvis is mostly a legacy of the rickety infant. Much can therefore be done by way of prevention if enlightened attention is paid to the feeding and hygiene of the baby from birth.

2. The education and physical culture of the growing girl must be supervised. This is specially important at the onset of puberty and during adolescence.

3. The young woman should understand her functions, and in her work should be protected from debilitating influences.

4. The young wife, and especially the expectant mother, should receive the further information that is necessary for her guidance in relation to the sexual functions and the preparation for motherhood.

5. As to the complications of pregnancy it does not seem to be generally realized by the busy practitioner out of how trifling ailments overlooked the most serious troubles arise, and how much special obstetrical studies have in recent years contributed to their more scientific treatment. I refer you to what I have already said about pernicious vomiting of pregnancy, which so often develops out of the ordinary digestive disturbances, and eclampsia which results from renal or hepatic disorders which have not been looked for or have been left untreated. In the antepartum haemorrhages, too, it has been clearly shown by statistics that if the condition is properly diagnosed under aseptic precautions and the patient put under the care of a skilled obstetrician at an early stage before she has been carelessly handled, the chances of the mother and child are infinitely better. The same remark applies to the early diagnosis of really difficult cases of contracted pelvis

or marked disproportion between the sizes of the child and the pelvis.

6. With regard to the process of labour I desire to give fresh emphasis to several points.

- (a) Abortion or miscarriage is really a miniature labour and should receive at least the same prophylactic care as ordinary labour. The mother needs to be taught this otherwise and earlier than by the unhappy lesson of a weakening haemorrhage or a septic infection.

- (b) The induction of premature labour has still a place among obstetric operations, but it must be done after careful, and even repeated, examination under an anaesthetic, so that the pregnancy may be allowed to run as near the full term as is consistent with spontaneous delivery. When this is done the results are most satisfactory, as I can testify from a recent series of cases conducted on these lines in the Glasgow Maternity Hospital. It has been a great advantage to Glasgow to have its new maternity hospital with abundance of room, so that apart from simply providing for labour when it comes on, patients may receive prematernity treatment, and may be admitted, as now frequently happens, for the proper investigation and treatment of complications arising during pregnancy. This has proved itself a great boon, alike to the practitioner and to the patient, and not the least important of the cases that need such consideration are the patients who can thus be saved from operative procedure later on by the induction of premature labour under favourable conditions.

- (c) When we come to consider prophylaxis in relation to full-time labour it is difficult to select points for emphasis, and I shall confine my attention to difficult labour in relation to the use of the forceps and to the scope of modern operations.

The forceps should be considered a surgical instrument, and its use a surgical operation. As a consequence the sterilization of instruments and the disinfection of all parts of operator, nurse, and patient, that are liable to be touched, should be thorough, and this asepsis should be maintained. In this way there is some hope of avoiding the septic infection that so frequently results from handling. The forceps should never be used without distinct indications on the part of the mother or child of the need for it, and delay in the labour is very rarely a reason in itself. The use of the forceps should always be preceded by a careful measurement of the pelvic cavity, so far, at least, as to gauge the relation of the child's head to the pelvic brim. One of the painful experiences of an obstetrician in consulting and hospital practice is to get cases submitted to him after prolonged use of forceps or repeated attempts at their application that would never have been tried in this way if an intelligent examination had been made, and to him is left without choice the melancholy duty of breaking up the child when one of the newer operations might have saved it and been even less dangerous to the mother.

No address on prophylaxis would be complete without reference to these newer operations—vaginal section, Caesarean section, and the widening of the pelvis by symphysiotomy or pubiotomy.

Vaginal section has not been found to be useful in complications at full time, although it may be sometimes advisable to incise a rigid cervix to save irregular laceration. Its place is rather in the earlier months of pregnancy, where late abortion or miscarriage has to be completed or pregnancy terminated for some other reason.

The range of pubiotomy or symphysiotomy is so limited, and the risk of injury to important structures is so great, that I have grown very critical of any suggestion to adopt the operation. Though I have performed both operations, I cannot express any distinct preference between them.

Caesarean section has for a long time been a tremendous boon in cases of extreme contraction of the pelvis. In these modern days its scope has been greatly extended, and it is now available as an operation of choice for eclampsia, for placenta praevia, and for transverse presentations in contracted pelvis where decapitation or embryotomy of a living child would be the only alternative.

The new modifications of the operation by the extra-peritoneal method are at present on their trial, but this variation seems to me to be likely to take its own place among the operations.

I am tempted here to add to the address as published what was not sufficiently emphasized in it when delivered. The importance of the study of clinical obstetrics has been almost ignored till recently in the arrangement of the medical curriculum for the student, and it is little short of a scandal that he has been in the past, and is still sometimes, allowed to go out to practise without having taken a training in practical midwifery beyond an often perfunctory attendance on a few cases.

Since the whole art of obstetrics is concerned with, and dependent on, the exercise of the principles of prophylaxis, I have of necessity omitted many points that I might have discussed, but I hope that I have gathered together such as are sufficient to impress the mind with the need for vigilance, with the fact that much has yet to be accomplished, and with the greatness of the ideal to be reached by the true practitioner of our art.

An Address

ON

THE TREATMENT OF HYPERTENSION BASED UPON THE CONSIDERATION OF THE CAUSE.*

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INTRODUCTION.

HYPERTENSION, by which is meant an increase of the blood pressure within the arterial system, is no new topic. It was studied most assiduously by Bright and his followers at Guy's Hospital. Interest in its study has been kept up in this country mainly through the efforts of Sir Clifford Allbutt, Dr. Oliver, and Dr. Leonard Hill. Progress was slow because, before a searching study could be made of the subject clinically, it was necessary to devise some means by which its detection could be accurately effected at the bedside. Despite the fact that many clinicians believed they could accurately gauge its existence by means of the finger, suspicion was aroused when it was found that a constant accompaniment of hypertension, namely, cardiac hypertrophy, was found to exist although hypertension was overlooked. The centre of activity in the development of instruments of precision moved from our country to Italy, and we owe to the genius of Riva Rocci the introduction of his sphygmomanometer, by means of which the detection of hypertension was rendered certain. Modifications of his original instrument have been effected, and it is possible for any practitioner now to estimate the presence and degree of hypertension with an exactitude which approaches that given by the thermometer of the temperature of the body. The picture of Dr. C. J. Martin's model of a sphygmomanometer is familiar to us in the advertisement pages of our medical journals, so that it is reasonable to assume that the usefulness of such observation is being appreciated by our profession. No doubt it is a bulky instrument, but it is equally true that there is no pocket substitute which can be trusted to read the degree of arterial tension with as great a degree of accuracy.

THE MODE OF USE OF THE INSTRUMENT.

Single observations must not be trusted, for to establish the existence of permanent hypertension at least three or four observations should be made, if possible daily; if this is not practicable, then on as many occasions as possible at longer intervals. If night and morning observations can be made, so much the better, and the plotting out of the readings on a chart will give a graphic representation of the condition (see Charts A and C, representing normal pressure and hypertension). The pressure may be taken in any position of the body, but, for the sake of comparison with other observations, it is well to take the reading when the patient is recumbent. The patient should,

if nervous, be assured of the harmlessness of the proceeding, for excitement causes a rise of tension for a moment or two. Most readings are taken by compression of the brachial artery, and the return of the pulse at the wrist provides the moment at which the pressure (systolic) should be read off. If there is dropsy of the arm, observations are valueless; fortunately the very conditions in which the instrument is of most use are just those in which dropsy of the upper extremities is exceptional. The limits of normal pressure have been fairly well established; but, owing to the fact that it has been conclusively shown that stiffness of vessels (arterio-sclerosis), which so often accompanies hypertension, causes an error in the readings, it is accepted by most workers that a pressure of 150 mm. of mercury or more, maintained for at least a fortnight, satisfies the observer that pathological arterial hypertension is present; the figures for children are much lower, but it may be said that more use will be found for the sphygmomanometer in adult life than in children; out of observations on about 400 children admitted to University College Hospital during the last four years, not more than one or two showed pathological hypertension; whereas amongst the adults scarcely a week goes by but a case is admitted which gives a pressure chart indicative of this condition.

THE CLINICAL ASSOCIATIONS OF HYPERTENSION.

Hypertension of a maintained course is met with in the cases of what is known as essential cardiac hypertrophy—that is, hypertrophy which exists independently of valvular lesions—and may be found to be associated clinically with no other pathological sign but tortuosity of the accessible arteries such as the brachial, hence the diagnosis of hypertension dependent upon arterio-sclerosis. In other cases, with or without clinical signs of cardiac hypertrophy and tortuous arteries, there may be albuminuria, and casts may be found in the urine. There is little hesitation then in diagnosing "renal" hypertension, and it is generally admitted that the form of renal disease most commonly associated with the hypertension is sclerosis of the kidney, either the granular or regularly contracted kidney, or the irregularly contracted or scarred kidney, which by some is known as the arterio-sclerotic or infarcted or scarred kidney. It is a familiar experience that the only clinical accompaniment may be retinitis, and it has been the practice to affix the term "albumin-urica" if albuminuria exist; if it does not exist, it is reasonably anticipated that sooner or later albumen will appear in the urine. Not a few cases of hypertension are found associated only with "asthmatic signs," and if the heart shows signs of hypertrophy such asthma is said to be "cardiac," if albumen is present "renal," and if these signs and others which connote pathological conditions which are capable of producing asthma are non-existent, the diagnosis of primary or bronchial asthma is made. If the hypertension is accompanied by the existence of tophi, or pains in the big toe, or if the patient is a painter or addicted to alcohol, then gouty, plumbic, or alcoholic hypertension may be the diagnosis. In a certain proportion of the cases of exophthalmic goitre high tension is observed not for a few, but, as in the above cases, for many days. Not a few cases present evidence of hypertension and of dropsy, or of monoplegia or hemiplegia, or of coma or of convulsions, and even of cirrhosis of the liver, and finally nothing but hypertension may be found. It is alleged that hypertension is an accompaniment of age, and is a purely degenerative phenomenon. Quite apart from the difficulty of understanding how involutionary changes could cause hypertension, the statement is not true, for octogenarians, and even centenarians, may have no hypertension and yet it may be present in quite young people.

This list of the clinical associations is long and varied enough, but it is possible to add to the number. Enough, however, has been said to show an extremely perplexing problem when the question is asked, How can a solution be found which shall clear up the connexion, if any, between raised arterial tension and such extremely varied associations?

THEORIES OF THE CAUSATION OF HYPERTENSION.

It has been said that their name is "legion," but of this large number a certain list of alleged causes must be

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