An Address

ON

THE TEACHING OF OBSTETRICS.

DELIVERED TO THE EDINBURGH OBSTETRICAL SOCIETY

BY

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[FOLLOWING some introductory remarks, Professor Watson continued as follows:]

I propose in this address to direct your attention to what may be accomplished in the future, to inquire whether we are laying the proper foundations for advance, and whether we are embodying in our teaching the advances already made in such a way as to make them available to the graduates of our medical schools.

A calm review of present conditions is always helpful. Most of us are so busily engaged in the daily round of practice and teaching that little time is allowed for reflection. Things we have done in the past we are inclined to continue to do out of mere habit, or because of a certain mental laziness which makes the effort of change seem too great. Tradition has its drawbacks as well as its advantages. Conservatism is to be commended when it makes us hold on to the things which are of proved value, but it must be condemned if it renders us incapable of appreciating and making full use of the newer ideas which emerge with time. This leads up to the questions I am going to put and to attempt to answer. Has our teaching of obstetrics and gynaecology kept pace with the advances made in these subjects in the last twenty years? Does our teaching equip the young graduate for the work he is expected to do when he leaves the medical school? Is the training of our midwives and nurses carried on in such a way as to give the maximum of benefit to the community and to themselves?

The advances made in obstetrics in the last thirty years have been mainly in two directions: in the perfecting of the technique, including a much better understanding of the indications for, and limitations of, the various operative procedures; and in the recognition of the importance of ante-natal examination and supervision. We have travelled so far along these two lines that, theoretically, we should already be seeing the results in a reduced maternal mortality throughout the country. That reduction, unfortunately, is not yet evident, and it is one of my purposes to-night to try to arrive at the reasons for this disappointing result.

I am not going to weary you with statistics. These have been cited over and over again in numerous publications, and have been investigated by different commissions which have been set the task of inquiring into them. All these tables, for England and Wales, for Scotland, and for most other countries, tell the same tale of a maternal mortality of from 4 to 6 per 1,000, more or less constant for the past twenty or thirty years. "The general death rate has been reduced by one-third; the infant mortality rate has been halved since the beginning of the century, yet the maternal mortality rate is little lower than it was twenty years ago."¹ Whilst this statement is justified by the statistics available we must not take them too literally. I think there can be no question that there has been a reduction in maternal mortality in the hands of individual practitioners and in our maternity hospitals. The individual practitioner carrying on an obstetrical practice according to modern ideals has better results than he would have had thirty years ago, carrying out in the same conscientious way the ideals of that time. Notification of deaths due to puerperal causes is more complete to-day than it has ever been, so that a larger proportion of such deaths are tabulated than was formerly the case. Notwithstanding those corrections, we must still regard the figures as too high. And, apart from mortality, can any of us say that morbidity due to childbirth is any less in its incidence than it was? The numbers of cases awaiting admission to our gynaecological wards for operative treatment supply the answer. Why is it that in this one field of medicine there is so little to show in the way of improved results? The answer must be that, for

some reason or reasons, we, as a profession, are not putting our theories into practice. This failure on our part is due to several causes. One of these, undoubtedly, is the inadequate training of our students; but, whilst I shall devote most of my time to a consideration of means for improving this, we must not forget that other factors play a part. A large share of the responsibility rests on the general community. It must supply the funds for the improvement of medical education, for the erection and maintenance of larger and better maternity hospitals, for the provision of ante-natal care, and for the supply of proper equipment for the conduct of labour in the houses of the poor. The economic problem is one which we must leave to our statesmen to solve. Until it is solved no great advance is possible. Meantime, it is for us to form public opinion by stating the case and suggesting remedies.

Textbooks and Systematic Lectures.

Let us, then, first consider the training of our students, for on this depends advance in all other directions. I need say little about theoretical teaching. I am still a believer in systematic lectures. From these the student ought to obtain the foundation on which to build his clinical experience. These lectures have formed in the past a very distinctive and valuable method of teaching in our Scottish universities. To-day they still have their place, but in a modified form. Twenty or thirty years ago there were very few textbooks, and these were not always available to the student. Each subject could be more or less completely covered in one hundred lectures, and the student's notes came to constitute his textbook. Now that has all changed. Many good textbooks are available in all subjects. It is no longer possible to cover the whole of any one of the major subjects in a course of one hundred lectures. Some modification of the method is thus necessary.

If an adequate understanding of the subject is to be got, if time and energy are to be conserved for the teaching and learning of the practical and clinical sides, more and more use must be made of reading for the acquisition of the groundwork by the student. The lectures, therefore, should not be a mere reiteration of textbook articles, but should reflect the individual experience of the lecturer. If they do not do so they fail of their purpose. They should deal with broad general principles and be freely illustrated by clinical pictures. They should be supplementary to, but not a substitute for, a textbook. Their chief object should be to give the student a proper perspective of the subject, and to direct him in his reading and in his clinical work. In midwifery these objects can be easily attained in fifty lectures, while from fifteen to twenty ought to suffice for gynaecology. During this course the student ought to have access to the museum and practical room of the department, where he can acquire a first-hand knowledge of pathology and make use of models, manikins, and instruments. This is the scheme which we are now following in the University of Edinburgh.

Clinical Instruction.

After such an introduction the student is in a position to acquire clinical knowledge. Hitherto the teaching of clinical midwifery has been very incomplete. It is not so very long since the attendance at clinics in a maternity hospital was first insisted on. All that the student was called upon to do was to undertake so many cases of labour under the supervision of a hospital or practitioner. He very often had never seen a case conducted in the hospital, and when he went out to attend the patient in her own home he had a totally inadequate equipment for the carrying out of a proper antiseptic or aseptic technique. All that required to be changed. It is now necessary for every student to attend clinics in the maternity hospital in addition to conducting cases himself. Our problem to-day is to ensure that the teaching he receives in those clinics and in the hospital is the best he can possibly get. Teaching has been handicapped in the past because a proper allocation of time for it in the medical curriculum was not made. Any odd hour in the day was taken for the purpose, and the student was only in the hospital during the hour of the clinic, when it so very often happened that no cases were available for demonstration. Such a state of matters could

not be allowed to continue. Clinical midwifery must be taught in the same way as clinical medicine or clinical surgery. The student must come in direct contact with the cases, and he must be given opportunities for examining patients and forming his own judgement upon them. This can only be attained by having the student in more or less constant attendance at the maternity hospital over a certain definite period. He must be free from other classes so that he may attend at the hospital at any time during day or night when work is going on. He must for a definite time live, as it were, in the atmosphere of obstetrics. An isolated clinic once or twice a week, or even once a day, over a short period of time is not sufficient. The University of Edinburgh has adopted the plan of requiring of every student that he devote one term of ten weeks in his final year to the study of clinical obstetrics, clinical gynaecology, and diseases of children. Clinical gynaecology and pediatrics occupy, on an average, not more than one hour a day each, leaving the rest of the twenty-four hours for intensive work in clinical midwifery. During this time, in addition to set clinics conducted daily in the maternity, the student must attend a series of demonstrations in the practical room at the University. At those meetings obstetrical and gynaecological subjects are discussed by the groups of students under the supervision and direction of one of the assistants. They have an opportunity of working with models and instruments, and there is available a representative teaching collection of specimens in the Obstetrical and Gynaecological Museum. Groups of students are detailed each day to be on duty at the Maternity Hospital. During those days they have the opportunity of seeing all the work during the twenty-four hours.

The student's interest is deepened, and the value of the teaching to him is increased, by insisting that short notes be kept of the various clinics he receives, the reading he does, and the operations he witnesses. Those notebooks are inspected by the clinician at the end of the term, and are awarded a mark in the final summing up of the student's work. At the end of the term the student is examined clinically and orally. The mark he obtains in this examination, together with that given by the clinician for the character of his notes and his general work in the wards, is added to the mark awarded in the written and oral examinations for his degree. His final standing is determined on the aggregate of marks. Such, in brief outline, is the method of clinical and practical teaching now being carried on in the University of Edinburgh. It is not by any means a perfect system, and we are handicapped in various ways in the carrying of it out, especially by the large numbers of students with which we have to deal, and by the inadequacy of the teaching accommodation in our Maternity Hospital. It would be an enormous benefit to the students if small groups could, for a time, actually live in the hospital or in a hostel in connexion with it, and so be able to take a more active part in the work going on. In the planning of any new maternity hospital in a teaching centre this must not be lost sight of.

Ante-natal Work.

A little more must be said about the character of the teaching in clinical obstetrics. That teaching ought to be directed, to a very large extent, to enabling the student to acquire a knowledge of ante-natal conditions and of what may be called preventive midwifery. For these purposes the ante-natal clinic should be the principal place of instruction. There is no want of clinical material there, but the great difficulty in most schools is want of space and proper equipment. If, and when, we get a new maternity hospital in Edinburgh, we must see that the ante-natal department is large and is planned and equipped in such a way that large numbers of patients can be dealt with quickly. The system in vogue at the Tarnier Hospital in Paris, under the direction of Professor Brindeau, seems to me an ideal one. A large ward is used for this part of the work. It contains about twenty beds or examining couches, each separated from the other by a simple screen. When the out-patient arrives she undresses, puts on a dressing gown, and is placed on the examining couch. To each patient two students are assigned. The student takes the history, makes a general examination, carries out

abdominal palpation, measures the pelvis, and makes a diagnosis of the period of pregnancy, presentation, position, and engagement or non-engagement of the presenting part. His findings are checked by the clinical assistants, several of whom are always present. At a set hour the chief of the clinic passes along, discusses the patients with the students, and thoroughly investigates any abnormalities. In this way large numbers of patients can be dealt with in a very short time. No patient is overexamined, and yet a very adequate training is given to the students. I need not mention the tremendous advantage to the patient herself in that she has not to wait long hours in the clinic. Until we get some such arrangement we cannot possibly give our students the training in ante-natal work which they ought to have, and we shall not get all the patients to attend who should.

The teaching of abdominal palpation is, to my mind, one of the most important things in obstetrics. If we could send out all students thoroughly trained in this method of diagnosing presentation and position, and capable of forming an estimate of the relative size of presenting part to pelvis, we should be doing a great work. In the lecture room and at clinics we impress upon them the importance of this examination. It is necessary, however, that they have many opportunities of carrying out the actual examination themselves. The systematic use of pelvimetry ought also to be thoroughly taught. There is a very general feeling among the older practitioners that the taking of pelvic measurements is difficult. We must disabuse our students of this idea, and we must see to it that everyone who goes into practice possesses a pelvimeter and knows how to use it. A great part of the teaching in the maternity hospital should thus be devoted to clinics and practical instruction on the pregnant woman. No student can have too much of that.

On a more thorough training of our students along these lines lies our hope of reducing puerperal morbidity and mortality from obstructed labour and from untimely and unnecessary interference with normal labour, from the toxæmias of pregnancy, and from the hæmorrhages. The necessity for ante-natal care and supervision is coming to be recognized by a large part of the community. Its universal adoption can only come through the effort and example of the whole body of medical practitioners thoroughly trained in its details.

Before leaving the subject of ante-natal teaching let me also emphasize the necessity for instructing students in post-natal conditions. As ante-natal care is preventive midwifery, so post-natal care is preventive gynaecology. A properly organized post-natal clinic should be an integral part of every maternity hospital. It requires no additional space or equipment, as that set apart for the ante-natal clinic can be used for it. In such a clinic the student should be instructed in the prevention and treatment of the various disabilities which may follow parturition. The importance of this is recognized by all of us, and yet, in most medical schools, instruction in it is sadly deficient. One of the principal reasons for this is again the want of proper accommodation.

The teaching in the hospital itself must be conducted as cases allow. One of the very important things is to teach a proper system of aseptic or antiseptic technique, and to that end we must make our hospital technique as rigid as it can possibly be made. I have heard it stated that it is no use trying to teach a rigid aseptic or antiseptic technique in midwifery, as it is never possible to carry it out in the patient's own home. Such an argument is most pernicious. I believe that a large proportion of the deaths from sepsis in childbirth can be traced to this fallacy. It has been said over and over again that labour cannot be conducted aseptically—that it is not possible to apply the same principles to the conduct of a labour as to the performance of, say, an abdominal operation. I absolutely dissent from this view. Take, for instance, the matter of preparation of the patient for labour. It is the commonest thing to hear it said of a case which has become septic that every possible precaution had been taken, and yet we find that the vulvar region had not been shaved. What would we think of a surgeon who did the most minor operation on a hair-bearing area without a preliminary shaving of the

part? It is very extraordinary how in this one piece of aseptic technique obstetrics should have lagged so far behind general surgery. As a compromise, clipping of the hair is pretty extensively carried out, but that is a very poor substitute. We are not justified in speaking of auto-infection from organisms in the vagina in any case in which this simple surgical precaution has not been taken. As an argument against it, it has been advanced that the patients object. I have yet to meet the woman who, when the necessity for it was explained to her, objected to being shaved. The difficulty of the procedure has been cited. With any form of safety razor it is just as easy to shave as to clip, and there is as little likelihood of causing injury to the patient. I feel perfectly certain that if this simple procedure were universally adopted throughout the country the incidence of puerperal sepsis would be materially lessened. It ensures greater safety to the patient, not only during labour but in the puerperium. It renders the nursing very much easier, and minimizes the danger of the access of organisms to the genital tract in the first few days following labour—a danger which, I believe, has not been sufficiently recognized. No vaginal examination of a patient in labour should be made before shaving is done and the vulvar region thoroughly cleansed with some efficient antiseptic. The dorsal position is the one which ought to be adopted for this examination, as only in this position can the labia be thoroughly separated and the fingers introduced directly into the vaginal cavity. Another point in aseptic technique very often neglected is the proper emptying of the lower bowel during the course of labour. In a first labour lasting for twenty hours or longer the initial enema is not sufficient: that enema ought to be repeated every four hours during the course of the labour. Only in this way can we be sure that the lower bowel is emptied of faecal matter and that there will be no escape when the head comes down on to the pelvic floor.

The Conduct of Labour.

During the actual process of delivery in the hospital the same rigidity of technique should be carried out as in the surgical operating room. The complete field surrounding the patient should be sterile. But it is on the carrying out of the minor details that emphasis should be laid. The students at the delivery ought to be asked to keep their eyes open for any breach of technique. This is one of the best ways in which to develop in them what may be called the "aseptic conscience," and it is only when an individual possesses such a conscience that his technique will approach anything like perfection.

After such a training in the hospital we must ensure that, when the student attends his cases in the district, he is supplied with a proper equipment so that he can conduct the case with the same care as in the hospital. The hospital should supply him with sterile nailbrush, gown, and gloves, sterile towels and swabs, and two small sterile basins. All of these can be packed in bundles with stout cotton covers, and carried in a bag, together with the simple instruments—such as scissors, artery forceps, ligatures, mucus tube, needles, and antiseptics—required for the ordinary case. The instruments can be sterilized in the hospital, wrapped in a sterile towel and covering, and so be ready for immediate use. Instruments can be kept for a considerable time in this way without detriment. He should not attend the case except along with a nurse, who is responsible for the preliminary preparation of the patient, administration of enemas, etc. To his first cases he should be accompanied by the extern resident surgeon, who sees that all detail is properly attended to. If the student begins his obstetrical work in this way he will attain to a higher degree of surgical technique in his subsequent obstetric practice than has been the rule hitherto. All of this adds considerably to the expenses of the hospital, but it is necessary expenditure. Such a method is carried out in many of the hospitals in the United States and Canada, and in some in this country. Until it becomes universal in all the training of the student will be inadequate, and we cannot look for any great improvement in our mortality and morbidity so far as these are due to sepsis.

If we really face the facts I think we must admit that very often the conduct of labour in the ordinary house

falls far short of the surgical ideal. The enormous reduction in the mortality from surgical operations, and the greatly increased scope of operative procedures, are due to three principal factors—rigid asepsis, prevention of all unnecessary trauma to the tissues, and avoidance of shock. These are the three things that are of importance in labour, the neglect of which leads to most of the maternal deaths.

With regard to asepsis, I have already gone into some detail so far as the training of the student is concerned. How is the equipment I have mentioned to be provided for the doctor confining the working woman in her own home? At the present rate of remuneration for midwifery cases in general working-class practice it is impossible for the doctor or midwife to provide such equipment for each case. One of the recommendations made to the Scottish Board of Health by the Scottish Departmental Committee on Puerperal Morbidity and Mortality is: "That local authorities be empowered to furnish on loan sterile outfit and equipment at a reasonable charge, which should be remitted in necessitous cases." This recommendation, if given effect to, will go a long way to the solving of the problem. The cost to local authorities would be small, for such outfits could be used over and over again after resterilization. Several surgical firms and nursing homes already supply this equipment, but their charges are beyond the means of the working-class patient. Here again let me emphasize that the thing needed above all is attention to detail in the use of whatever equipment is provided. It is no use providing a sterile field if the hands, whether bare or gloved, are soiled by contact with non-sterile objects and then brought into contact with the patient's genitals. Soiling of the hands is very often unavoidable when the doctor is single-handed or has inadequate assistance. It is necessary that he have by him a reliable antiseptic solution in which they may be disinfected. I am in thorough agreement with Donald and others who deplore the use of weak solutions of lysol to the exclusion of more powerful agents such as perchloride and biniodide of mercury. One of the greatest advantages in the use of gloves in midwifery practice is that the gloved hand can be more thoroughly disinfected during the course of the labour, as a much stronger solution can be used than would be tolerated by the bare hand.

It goes without saying that the fewer examinations made on the parturient woman the less the danger of sepsis. Rectal examination has been advocated instead of vaginal, but even rectal examination is not free from danger in these cases, where potentially pathogenic organisms are present in the vagina, for in the examination the vaginal wall is pushed up through the cervix and the organisms may thus be directly introduced into the uterine cavity. With the acquisition of greater skill in, and the appreciation of the value of, abdominal palpation, internal examinations of all sorts will become fewer and fewer. Abdominal examination at the beginning of labour reveals the fixation of the head and the exact position of the child. As the second stage progresses descent can be followed until the head is no longer palpable. Very soon after this the pelvic floor begins to bulge, and the progress can be followed visually. The ideal way in which to conduct a labour is to make no internal examination at all, or to make only one just after rupture of the membranes to exclude such an accident as prolapse of the cord. If the patient's pelvis has been measured and a vaginal examination made in the later months of pregnancy, and if the head is presenting and fixed at the beginning of the labour, there should be no necessity to do more. To make vaginal or rectal examinations simply to satisfy curiosity as to how things are progressing is not justifiable. If we train students and midwives in this way their training can be carried out with a minimum of discomfort and risk to the patients. Such abdominal examinations can be made by several pupils on the same patient, and there should no longer be the necessity of insisting that only one pupil can be officially trained on each patient.

Under supervision a small group of students, or of pupil midwives, can learn infinitely more by thus following cases of labour in hospital than each could possibly do by attending a large number in their own homes. Far too much stress has been laid on the individual attendance on the outdoor case. To send a student to confine a woman in a poor house, without the assistance of a nurse, is the very

worst training possible for him. Both should be present, and, in so far as the regulations laid down by the General Medical Council and the Central Midwives Board regarding the number of cases to be attended are concerned, that case should count for both. So long as domestic midwifery is practised students and midwives must be instructed by attendance on patients in their own homes, but that should constitute a minor, not a major, part of their training.

The avoidance of unnecessary trauma and shock may be considered next. It must be part of our teaching that all forms of forcible delivery are attended by both. Potentially pathogenic organisms, which would never become active in healthy tissues, may rapidly acquire virulence in bruised or devitalized tissues. We all know the high incidence of sepsis in the "failed forceps" case. We must teach that such operations as high forceps and version are of the nature of major operations, and must not be undertaken except under such conditions as would be deemed necessary for a surgical procedure of like severity. In this matter the public requires educating. It is often a difficult thing for a practitioner to persuade a patient and her friends that removal to hospital or nursing home is in her best interests. That difficulty will, I am sure, become less and less as doctors see their patients more and more frequently throughout their pregnancies, and so gain their confidence.

When we come to consider forceps application in general we reach the crux of the matter so far as midwifery practice as at present conducted is concerned. Obstetrics takes up more time in proportion to the monetary return than any other part of the work of a general practitioner. He cannot overtake all his work and give adequate time to his midwifery cases—hence the tendency to hurry delivery. It seems to me that the solution is to be found in the closer co-operation of the doctor and midwife. Such co-operation should include the ante-natal examination of every patient by the doctor, the measurement of the pelvis, the routine examination of the urine, and, two weeks before term, the determination of presentation and position, and the relative size of head to pelvis. Under normal conditions attendance at the labour would be undertaken by the midwife, who has the assurance that, on the development of the slightest abnormality, the services of the doctor can be obtained. The number of needless forceps deliveries would in this way be reduced, and the forceful delivery before full dilatation of the os and engagement of the head a thing unknown.

In such co-operation also lies the hope of a reduction in the number of women suffering from neglected birth injuries. The midwife attending a case on her own responsibility hesitates to inform the patient of the occurrence of a tear and the necessity for its repair, unless it is an extensive one. That tendency would be minimized by her closer association with the doctor. In this matter of the recognition and repair of pelvic floor injuries there is need for more detailed teaching of students. It must be demonstrated to them that the absence of external tearing is not proof that an internal tear, involving the postero-lateral vaginal wall and levator ani, is not present; that such a tear can only be detected by careful separation of the labia and digital examination, and that its repair is essential if future disability is to be prevented. The proper method of repair must be demonstrated to them in hospital over and over again. They must be taught that, whilst every precaution must be taken to prevent lacerations, these are in many cases unavoidable, and that it is no reflection on their skill if they sometimes occur. A wider recognition of this fact by doctors and midwives would result in fewer of these cases being neglected. One of the findings of the Scottish Departmental Committee on Puerperal Morbidity and Mortality, based on evidence submitted, is that the co-operation of midwife and doctor, in the manner above stated, is a thing to be encouraged in every way.

Training of Midwives.

Whilst I have spoken mostly on the training and teaching of the student, the same principles apply generally to the training of the midwife. Both can and ought to be taught in the same hospital, but they must be in such proportions that a proper training can be given to each. In the large hospitals connected with our medical schools the training of

students ought to be the first consideration. In many of these hospitals the number of midwives trained is so great as seriously to diminish the clinical material available for students. From the point of view of the hospital this condition of affairs is justified by the necessity of having a sufficient number of pupil midwives for the nursing of the patients. That difficulty would be overcome if obstetrical nursing were made part of the general nursing curriculum in every training school. By co-operation between the general hospital and the maternity hospital every nurse could pass through the latter, not training as a midwife, but as an obstetrical nurse. I should like to see the time come soon when no nurse will be considered fully trained until she has had such experience. The lack of it is a very serious handicap to those of our nurses who may wish to practise their profession in our dominions. In Canada, for instance, a nurse with full training in a general hospital here, but with no experience in obstetrical nursing, cannot be registered and is not recognized. At the present time a great many of our general nurses train as midwives, not because they have any intention of practising as such, but simply because it is the only way in which they can acquire a knowledge of obstetrical nursing. The clinical material used by them would be much better utilized in providing more patients for our students and bona-fide midwives.

The Maternity and the General Hospital.

The importance of the linking up of the maternity hospital with the general hospital is being recognized throughout the world. After a temporary tendency to the separation of obstetrics from gynaecology, these two subjects have again come to be regarded as essentially complementary to each other. The one cannot be fully understood without the other, and the practice of both should be in the same hands. In Germany the Frauenklinik has been a feature in the teaching schools for many years. Very often, however, it was too much of a separate self-contained unit. In this country gynaecology has advanced and taken its place alongside general surgery, largely because the gynaecological department has been a part of the general medical and surgical hospital. The status of obstetrics in its relationship to the other branches of medical teaching and practice has been very materially raised in the last fifteen or twenty years. Its importance, in relation to the general health of the community, is being more fully recognized every day. To my mind there is no one single change which will do more to put it and maintain it in its rightful place than the establishment in every general hospital, and certainly in every teaching hospital, of a fully equipped maternity department. The obstetrician would then have the advantage of close contact and frequent consultation with the workers in all other clinical departments, and there would also be available for him all the laboratory facilities for investigation and research which are so essential to further advance. Such a problem as the toxæmias of pregnancy cannot be solved except by the co-operation of clinical and scientific workers. Such co-operation has been extremely difficult in the past owing to the isolated position of our maternity hospitals and the impossibility of providing them with proper laboratory equipment and workers.

In Edinburgh the first maternity beds were established in the old infirmary. Now, when we are faced with the necessity of providing a larger and more modern maternity hospital, I hope that no step will be taken until the advisability and possibility of the closest possible association of that new hospital with the Royal Infirmary has been most thoroughly explored. There may be minor difficulties to be faced. It is to be hoped that these will not be allowed to overshadow the larger question. Edinburgh has a great opportunity now of taking a lead in this matter, and I trust that she will not lightly let it pass.

I have been able, in the time at my disposal, to mention only a few of the problems which confront us. It may be thought that I have spoken at undue length on the solution of some of them. I have done so because I believe that the great need at present is to emphasize the necessity for a more detailed and careful practical application of the principles which we all recognize and accept. In this lies our hope for the future.

REFERENCE.

¹ *Maternal Mortality.* Ministry of Health publication.