into compartment *A* and over it the shutter. By pulling upon the band just beyond one end of the mounting and then turning the stretched end into the concavity of the mounting and holding it there, the corresponding end of the compartment will be fully exposed so that shoving the label and shutter into it becomes a very simple matter. The wristlet is now ready for the baby and is applied by simply stretching the band until it passes over the baby's hand and the wristlet is in place. The metal tape is next applied as above described and the seal attached. The wristlet should be gotten ready during the labor and put on before the baby leaves the delivery room.

4700 FIFTH AVENUE.

(*For discussion, see p.* 85.)

TEACHING UNDERGRADUATE OBSTETRICS*

BY A. M. MENDENHALL, M.D., INDIANAPOLIS, IND.

DURING the last twenty years there have been a few valuable contributions to the practice and teaching of obstetrics, but no progress has been made toward reducing the total number of maternal deaths due to childbirth. Only a casual glance over the records of vital statistics in the registration areas of the United States is necessary to see clearly there has been, on the contrary, an increase in the maternal death rate.

In order that this may be proved beyond doubt, we must go back at least twenty years and note the gradual increase and not be misled by going back but three or four years and, thereby, fail to consider the fact that the years 1918 and 1919 saw a very great increase which, in reality, was largely due to influenza.

In a recent article by J. O. Polak[1] it is stated that "from 1902 to 1919 there was noted an increase to approximately three times as many deaths from sepsis, four times as many deaths from eclampsia, and twice as many deaths from other obstetric causes, besides the hundreds that die annually from indirect results of labor, as from injuries and consequent operations for repair, from nephritis originating during pregnancy, and from endocarditis aggravated by repeated labors."

By careful analysis of the records we find that, in 1916, there were approximately 16,000 deaths due to childbirth and, in 1918, 23,000, this marked increase being largely due to influenza. Nevertheless the one outstanding fact remains, that approximately 20,000 women die annually in the United States as a result of pregnancy and labor. Out of this number of deaths, approximately 28 per cent are due to sepsis alone,[2] a fact that seems but a sad reflection upon our care of the puer-

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peral patient. Also, about 20 per cent of these deaths are due to toxemia of pregnancy, although it is well known that proper prenatal care should very greatly reduce these figures.

The number of infants lost as a direct or indirect sequela to improper obstetrical care, is appalling in the extreme. If we add to this the great morbidity rates for mothers and infants, for which we have no satisfactory statistics yet very logical deductive evidence, it at once becomes apparent that we are falling short of our duty.

In other branches of medicine, almost without exception, there has been marked progress in the last two decades; but in obstetrics we have but little to which we may point with pride. And when our attention is called to these facts it seems well to pause long enough to try to find the reason.

The writer is becoming more and more convinced that one of the fundamental reasons is that there are some defects in our methods of teaching obstetrics.

We will agree in advance with all those who feel that the laity must become better educated to the fact that the process of childbearing is not a normal physiological event, and that every primipara who gives birth to a full term child has, at least, some pathologic lesion, and that this may be, and frequently is, quite serious if not fatal. We realize that if the laity could be made to thoroughly understand these facts, a great obstacle would be eliminated and much progress could be made; but this would by no means answer the whole question. And before we can hope for even a small minority of the laity to understand this, we must be sure that their instructors, the physicians themselves, are properly impressed with these facts. Rarely does the obstetrician pass a day when he does not see or hear of some practitioner who still feels that obstetrics requires but little skill and care. Hence our first and greatest defect in teaching obstetrics in the past has been that we have failed to impress our students with the seriousness of the case, when they are conducting the care of a woman through the period of pregnancy, labor, and the puerperium.

This is in part due to the fact the heads of our teaching institutions have been and still are unwilling to place the department of obstetrics on its proper level with the departments of surgery and medicine. They themselves have not been properly impressed with the importance of obstetrics and do not regard it as a definite and independent specialty and are, therefore, unwilling to give this department its proper ratio of time and equipment.

Many educators feel that we are rapidly approaching the time when the busy obstetrician, as well as other clinicians, must have compensation commensurate to the services he renders his school, else the service may become too largely delegated to assistants and more infe-

rior teachers. Whether the head of the department of obstetrics should be a full time professor is a question which is confronting us at the present and, if this offers a real solution for the better teaching of obstetrics, it is deserving of careful consideration. But it is with conditions as they exist at present that I desire to search for weaknesses and offer remedies.

In this attempt I have sent out a questionnaire to twelve of our leading representative teaching institutions in the country with the view of determining, as nearly as possible, how the departments of obstetrics are being conducted.

The first two questions are as follows: "In what year of the medical course is obstetric teaching begun?" "Of what does the first course consist?"

The answers to these questions are quite uniform, showing that a general didactic course in embryology, and the physiology of pregnancy, labor, and the puerperium is started in the third year. In a few instances we find that didactic obstetrics is introduced in the second year. Unless the student has completed his courses in anatomy and physiology, as well as having had some training in physical diagnosis, it is very doubtful whether he is ready for didactic obstetrics; and, since these elementary and fundamental subjects are, in most instances, not completed until the end of the second year it would seem that obstetric teaching is best introduced in the third year.

The next four questions were submitted with the idea of ascertaining the relative importance given to didactic, clinical, and manikin courses, and the average length of time devoted to each of these divisions. The replies showed that 86 hours were given to didactic obstetrics, 81 hours to clinical obstetrics and 31 hours to manikin practice. There were no wide variations in these answers except that one school has as many as 90 hours of manikin practice, and another as few as 8 hours. It is doubtful whether 8 hours is more than one-fourth sufficient time for the student to have in manikin practice. If a proper demonstration is given, and then the practice on the manikin is properly supervised, there is little doubt but that 30 hours can be most profitably utilized in this method of teaching. One of the most important fundamentals in the study of obstetrics is a perfect understanding of palpation, corroborated by an actual view of the various points considered in presentation and position, and a familiarity with the various manipulations to be acquired in prolonged work over the manikin. The average student has great difficulty in memorizing from lecture notes or textbooks the many points which can be made very practical and easy for him to remember, by a properly conducted manikin course. Less than twenty-five or thirty hours spent in this work will certainly leave much to be learned.

The next question proposed was "When, in the obstetric course, is the manikin practice started?"

There was but little uniformity in the answers received, but there seemed to be very excellent reasons why this course should be delayed until late in the senior year, after the student has completed, or practically completed, the didactic lectures in obstetrics. In other words, after he has had a thorough course in the theory of obstetrics, the manikin instruction will be a supplementary, practical application of his theoretical knowledge; it will serve to emphasize by sight and touch those facts which have been presented didactically.

The next three questions were closely related and will be discussed together. They are: "On an average, how many deliveries does each student see in a hospital?" "Are these deliveries conducted by members of the staff or by internes?" "In how many hospital deliveries does each student actively assist or personally officiate?"

These questions brought out the fact, that on an average, about fifteen hospital deliveries are witnessed by each student; but some schools fall far below this average and, the most lamentable fact is that these deliveries, unless abnormal, are almost invariably conducted by internes. The average interne is but very little more skilled than the student and has, as a rule, received his training in the same imperfect way, and falls very short of the proper amount of knowledge and skill to be posing as an instructor. In no instance, probably, is the truth of the old adage so well seen as here,—"He who is teaching all he knows is teaching very poorly." In other words, the student ought to see a number of normal as well as abnormal deliveries, in a well conducted maternity, by some one who understands thoroughly the art and science of obstetrics and who has an intimate speaking knowledge of the mechanism of normal labor and the ability to demonstrate the conduct of such a delivery. When a recent graduate goes into practice, most of his cases will probably be the so-called normal labors, and it is in regard to the conduct of such cases as this that he should have been most carefully and painstakingly educated. When the chief of the obstetric department does not take sufficient interest in these cases to make sure that his students are properly instructed on this most vital part of the course, he is not only neglecting an opportunity to do a vast amount of good in a comparatively short period of time, but is falling decidedly short of his duty. It contributes strongly to a real weakness in our teaching the subject of obstetrics. In some of our maternities where there is on duty a resident obstetrician, who presumably, and usually does have, an obstetrical knowledge far in excess of the average interne, it may be right and proper to allow him to act as demonstrator in normal deliveries; but this must be left to the decision of the chief of the department. When

we have educated the profession and the laity to a greater appreciation of hospitalization of obstetrical cases, and when our teaching institutions own, or control, much larger maternities than at present, we will be better able to permit students more frequently to assist or officiate in the delivery, under skilled supervision, of at least a few hospital cases, although the answer to this question shows an average of but two deliveries. Three schools reported that they make no attempt to let the student assist in labor cases.

The next four questions bear upon antepartum and postpartum care and were as follows: "How many antepartum cases are examined by each student?" "Is there a regular antepartum clinic conducted and is a member of the staff present at dispensary hours?" "Does each student have ample opportunity to see hospital postpartum care?" "Does each student have ample opportunity to see the hospital care of the newborn baby, and of premature babies?"

The answers to these questions were very gratifying. They showed that an average of sixteen complete antepartum examinations are made by each student, that every school conducts a regular antepartum clinic, and that a member of the obstetrical staff, or a resident obstetrician, is always present at the dispensary hour.

With this part of the obstetrical course so well provided for, the writer has no comment, other than to say that in obstetrics, as in other branches of medicine, diagnosis is of transcendent importance and that a well conducted large antepartum service for each student cannot fail to greatly enhance his knowledge of obstetrical diagnosis; and that prolonged service in this department will go very far toward impressing him with the great importance of prenatal care and thorough antepartum examinations, measurements, and records.

As to postpartum hospital care, it seems that all schools are availing themselves of ward work and bedside instructions to the extent of their capacity; all agree that the student should see and know as much as possible about the puerperium.

The next three questions bear upon abnormalities and are as follows: "How many forceps deliveries are observed by each student?" "Does each student assist in at least one forceps delivery?" "Does each student, under staff supervision, perform or assist in performing at least one second degree perineorrhaphy?"

The replies to these questions show that an attempt is made for all students to witness a few forceps deliveries, but very little opportunity is given for assistance. A number of students are graduated without ever having assisted at a forceps delivery or a perineorrhaphy. Whether or not this should be left until the interneship period, brings up three very important questions. First, whether right or wrong, we are confronted with the fact that there are still many graduates who

go direct into practice without having served an interneship. Secondly, whether the physician in general practice should be considered competent to apply forceps may be questioned; but he is doing it and, undoubtedly, will continue to do it for a long time to come, and it certainly seems that his first experience should not be in the home of the patient and without competent supervision and assistance. Thirdly, granting that he will serve an interneship, is it right and proper that his first personal experience with the forceps should not be supervised even though it be under hospital conditions? Not long since, I saw this idea put into practice with a really very unique result. The left blade of the forceps was skillfully applied, but as the right blade was inserted it was so rotated and manipulated that it found its way to the same side of the pelvis as the left blade. Without supervision, it may have been difficult for this newly appointed interne to have discovered his error and to have properly corrected it. So long as our graduates continue to go out into practice with the mistaken conviction that they are competent to do forceps deliveries, we believe there should be a marked increase in their opportunity to obtain more training under supervision; and, certainly, no man should practice obstetrics who is not competent to repair a second degree laceration of the perineum. I do not believe he will attain this competency in any way whatsoever except by personal assistance under skilled supervision.

The eighteenth question in the questionnaire was upon the subject of outdoor obstetrics and is subdivided as follows: "(a) How long is each student on outdoor obstetric service? (b) How many cases does he deliver there? (c) To what extent is he followed up and supervised by members of the obstetrical staff? (d) Does a member of the staff see many of the outdoor cases during labor or puerperium? (e) About what per cent of the cases are thus visited?"

The average length of time spent on outdoor obstetrics was found to be eighteen days, and the average number of cases delivered was fifteen.

In one of our leading institutions the answer, as to whether a member of the staff sees many of these cases, was negative. This I know to be a frank confession, and I cannot look upon it except as a very sad commentary on pedagogical methods, as well as from a standpoint of the patient's interest.

This naturally leads to a discussion of outdoor obstetrics in general. What is to be gained by it and what are the pitfalls? It is refreshing to learn that one of our best schools has no outdoor deliveries. This school has a thoroughly supervised prenatal clinic. It is one of the schools which gives ninety hours to manikin practice, but does not feel that the outdoor deliveries can be sufficiently super-

vised to be worth the time and effort on the part of the student, at least if a reasonable maternity service is available. There are but two points to be gained by this so-called tenement obstetrics; the one is confidence and self-reliance, the other is an opportunity to see and examine a few women in labor. Self-reliance is desirable and should be cultivated, but it is very doubtful whether it cannot be better and more safely acquired otherwise. Confidence, in a degree is desirable, but with it comes two dangerous pitfalls. One is that the student attends a few so-called normal labors and Nature is good enough to permit the patients to survive, and the result is that the student develops very early a superabundance of confidence and begins to look upon labor as too nearly a normal physiologic process. Then, too, unless he is most thoroughly supervised and followed up, his many errors are not pointed out to him and he goes ahead fully persuaded he has been entirely right. The technic followed in most outdoor obstetric departments is crude at the best, yet the student is quite sure to decide it is good enough. If we are going to contribute our part toward reducing puerperal sepsis, we must persistently teach the most rigid labor technic, as we cannot expect the student when he goes into practice to follow a better technic than he has been taught. In fact it will usually be very much inferior. Therefore, if we permit the impressions to make headway in his mind which are, ordinarily, obtained in his outdoor obstetric work in college, they will be very likely to become permanently implanted there.

The last two questions were as follows: "How many beds have you available for obstetric teaching? Are these beds entirely under control of the school?"

It was found that an average of 46 beds was available for obstetric teaching and these were, generally, under control of the school. Hirst maintains that the school should assign more beds to obstetric teaching than to either medicine or surgery, because the average instructive capacity in each case is limited to one or two students. In this same article Hirst[3] advocates that a school having 400 students should have 100 beds available for the teaching of obstetrics, although it is to be remembered that he is a strong advocate of a combined department of obstetrics and gynecology and these figures are given on that basis. The controversy as to whether these two subjects should be combined for teaching purposes will not be discussed in this paper. The one outstanding fact is that any school pretending to educate students in obstetrics should have 50 to 100 beds available for this purpose alone, and these should be absolutely under the school's control, and not under the control of any private or city institution. In this connection I cannot do better than quote from a recent address by Polak[4]: "In order to turn out men who are even qualified to attend a primip-

ara in labor, there must be greater clinical facilities for instruction of our students. Millions are expended every year for research and laboratories but almost nothing is given to the establishment and maintenance of properly equipped maternity hospitals. Why, if it is necessary for the American College of Surgeons to require an apprenticeship in surgery before a man can be recognized as capable of doing a surgical operation, is it not just as necessary that the man who is to deliver a woman should have sufficient training to insure a satisfactory recovery and a live baby?''

The writer would ask further: Why teach a man to practice obstetric operations in the homes of the patients and condemn him for doing an appendectomy in the same place?

CONCLUSIONS

1. A greater effort should be made to impress the student that obstetrics is a major division of the medical curriculum, and that few, if any, primiparas are ever delivered of full-sized infants and left in as perfect condition as before delivery.

2. Then, when the student goes into obstetric practice, he will carry this impression with him to the laity and do his part toward educating the public as to the importance of proper obstetric care.

3. More emphasis should be laid upon the proper management of so-called normal labor cases, and not so much of the student's time taken up in trying to teach him the various kinds of cesarean sections and other obstetric operations which should only be performed by the skilled obstetrician.

4. So-called outdoor obstetrics is, at its best, of little real value to the student, and it would be better to abandon it entirely, than to continue this sort of teaching without very thorough and continuous supervision by the teaching staff.

5. Since diagnosis in obstetrics, as in all other branches of medicine, is the real foundation for proper care and treatment, it is well to utilize every possible opportunity to teach this branch most thoroughly, and that the student's ability in this line be developed by prolonged manikin practice, by large numbers of antepartum examinations, and by wide clinical experience.

6. Teaching by internes, or by those who have but very little more knowledge, is sure to create a wrong impression as to the importance of the subject, and to fall very far short, directly and indirectly, of the result desired.

7. One of the most important ways in which we can soon obtain better results in teaching obstetrics, is to educate the laity and our hospital managers to a realization that a large and well-equipped

maternity is the best place to teach and practice obstetrics; and that this will at once contribute strongly toward a reduction in the fetal and maternal death rates in the community in which it is established, as well as in the communities where the students later go to practice.

REFERENCES

(1) Jour. Am. Med. Assn., lxxvi, No. 26, 1809. (2) Am. Jour. Hyg., March, 1921, i, 197. (3) Am. Jour. Obst. and Gyn., Nov., 1920, i, 128. (4) Jour. Am. Med. Assn., lxxvi, No. 26, 1810.

2369 Southeastern Avenue. (*For discussion, see p. 86.*)

A METHOD OF DELIVERY IN NORMAL CASES*

By Magnus A. Tate, M.D., F.A.C.S., Cincinnati, O.

THE average duration of a normal case of labor varies from sixteen to twenty hours in the primipara and from ten to sixteen hours in the multipara. If by aiding Nature's efforts, we can materially cut the time without harm to mother or child and make the labor less painful, we are benefiting womankind.

All obstetricians are familiar with the uncertain nagging pains accompanying the often drawn out first, and the intense suffering incident to the second stage of labor.

You are also familiar with the frequent statement of some women: "I have never been well since the birth of my baby," and we know that this is due, not alone to unrepaired lacerations, but more frequently to the long drawn out first stage of labor, followed by an agonizing second stage, which leads to physical exhaustion and, in turn, is often followed by a peculiar syndrome of the neuroses. This is manifestly too true when we encounter those cases of badly managed malpositions in elderly primipara with a slight narrowing of pelvic diameters, who are allowed to drag through a harrowing labor; as well as in those cases of hysterical and frightened primipara and neglected dry labors. Such cases you see as consultants, or as staff members of our charitable hospitals.

Many are the remedies advocated to alleviate the pains of labor. We know that most of them have been discarded with the exception of the various anesthetics, morphia and chloral.

Advancement in the obstetric art is not so much in the selection of some method of delivery, as in the adoption of prenatal care and the observance of rigid asepsis.

We follow out methods of delivery as given to us by our forefathers, because, mechanically, their deductions were usually correct.

Skill is paramount to success, and the advent of asepsis has given

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