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A CRITICISM OF CERTAIN TENDENCIES IN AMERICAN OBSTETRICS.*

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IN selecting a topic upon which to address you, it seemed to me that I might fulfill an important educational function by considering certain tendencies in American Obstetrics, which I believe will lead to great abuse unless they are combatted and checked.

You will of course understand that I do not come before you as an obstructionist, nor as one who opposes progress. Since beginning my teaching career nearly thirty years ago, one of my most important duties has been to follow critically every advance suggested in obstetrics, whatever its character, for the purpose of determining upon how solid a foundation it rests, and whether its adoption should be recommended to students.

Possibly, some may suggest that I am naturally too conservative, and tend to react unfavorably to innovations of any sort. I do not believe so, as I have attempted to be open to conviction on the one hand and to be susceptible to the demonstration of error on the other. Indeed, whenever I have been constrained to form a conclusion unfavorable to any innovation, I invariably cross-examine myself in order to be sure that I have done full justice to the arguments advanced by the other side. In this connection I constantly recall, as a horrible example, the reaction of Meigs and Hodge to the two fundamental discoveries of their day — namely, the demonstration of the infectious nature of childbed fever and the employment of anaesthesia in obstetrics, and I pray that I may not prove as blind as they and designate some important discovery or innovation as "the jejune and fizenless vaporings of a sophomore orator," as did Meigs when referring to Holmes' great essay.

On the other hand, I have no desire to go down into medical history as one possessed by the *furor operativus*, as was the case with Osiander, who you may recall was professor of obstetrics in Göttingen from 1792 to 1822. He is remembered chiefly from the fact that he misinterpreted the true conception of obstetrics, which he designated as the art of delivery (Entbindungskunst), and as a result applied forceps more frequently than any of his contemporaries, apparently sparing only such patients as were delivered spontaneously before he could operate. That this is not an exaggeration, is shown by Siebold's statement that 46 per cent. of Osiander's patients were delivered artificially.

After these preliminary remarks, I may state that the tendencies which I am about to criticise are operative in character, and are likely to convince the oncoming obstetrician that labor is not a physiological function, which in the great majority of instances terminates spontaneously with satisfactory results to the mother and child, but is rather a pathological process which calls for the intervention of art.

With this in mind, I shall very briefly discuss the following topics: (a) the employment of version as a routine method of delivery, (b) socalled prophylactic forceps, (c) cutting and reconstructing the perineum in every primipara, (d) the induction of labor at a fixed date, and (e) the abuse of Cæsarean section. In conclusion I shall outline in a few words my conception of ideal obstetrics, and consider certain factors which militate against its development in this country.

(a) For the past few years the imagination of many obstetricians has been stirred by the extraordinary career of Potter of Buffalo, who has developed extraordinary facility in the performance of version and extraction, and who teaches that every woman should be delivered by that means at the end of the first stage whenever feasible. As I understand it, his practice is based upon the desire to spare the patient the discomfort of the second stage of labor, as well as upon the contention that the results obtained are better than, or at least as good as, when labor is conducted by more orthodox means.

Such claims must be regarded as revolutionary; for if correct, they indicate that other obstetricians have failed to realize their responsibilities, are in urgent need of instruction, and should go to Buffalo to learn the funda-

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mental principles of the practice of their art. This seems improbable, but at the same time there is a remote possibility that Potter is correct and the rest of the medical world wrong.

So important a question can not be solved by didactic and ex cathedra assertions and can be settled only by analyzing his results and by considering what would be the effect upon the women of the country were his practice generally adopted. If his results are actually superior to those obtained by others, it must be admitted that the practice of obstetrics is in urgent need of revision, and that it is the duty of obstetrical teachers to convert their lying-in wards into version institutes.

What are the facts? In his earlier articles Potter made only general statements concerning the advantages of his practice, but failed to give figures which permitted accurate statistical deductions. In November 1920, however, he reported to the Philadelphia Obstetrical Society the results obtained during the year ending August 31st, 1920. During that period he attended 1,113 patients, 12 of whom were delivered spontaneously before his arrival, while the remaining 1,101 were delivered by operative means, including 920 versions and 80 Cæsarean sections. While in the absence of definite statements, it may be inferred that there was no maternal mortality, he failed to state how many women were infected, nor did he give any information as to the condition of the genitalia at the end of the puerperal period.

On the other hand, he adduced accurate figures concerning the foetal mortality, and stated that 41 children were born dead, while 34 others succumbed during the two weeks following delivery—a mortality of 6.7 per cent. In analyzing his figures, it should be remembered that his clientele is composed almost exclusively of private patients, that he delivered all but 12 of them personally, and that he must be regarded as a most expert obstetrical operator.

Can such results be regarded as justifying his practice? I do not think so, and the reason for my belief is that relatively much better results have been obtained in my service at the Johns Hopkins Hospital, where the clientele consists entirely of ward patients, one half of whom are colored, many of whom are admitted as emergencies after maltreatment by outside physicians or midwives, and most of whom are delivered by the resident staff, whose oldest member rarely has more than four years experience. Accurate figures to date are not available, but for the first 10,000 deliveries our foetal mortality was 7 per cent.—a figure almost identical with Potter's. On its face, this is scarcely a flattering comparison, for Potter's private patients were delivered by an admitted expert, while most of our ward and emergency patients were delivered by young men still serving their apprenticeship.

Moreover, the comparison becomes still less favorable when certain other facts are taken into consideration. In the first place, our mortality covers not only the children born dead at full time delivery or dying within the first two weeks, but includes the deaths of all premature children from the period of viability onward. In the second place, careful investigation has shown that 34 per cent of our foetal deaths are attributable to syphilis, which is in great part due to the prevalence of that disease in the colored race. As syphilis is comparatively rare in white ward patients, it is fair to assume that it is encountered still less frequently in Potter's private patients, so that for practical purposes it may be eliminated as a cause of foetal death in his material. Consequently, it seems permissible to deduct the syphilitic deaths when comparing our results, and if this is done our mortality becomes reduced to less than 5 per cent, as compared with Potter's 6.7 per cent. Furthermore, when the emergency character of our material is taken into consideration, and it is recalled that each year a number of patients are admitted with the child already dead as the result of outside attempts at delivery, or following serious obstetrical complications, it seems safe to assume that our foetal mortality is at least one third less than Potter's and that the difference must be regarded as the index of the added danger of version.

If my argument is correct, it effectually disposes of Potter's claims; for, if the results obtained by an admitted expert are only two thirds as good as those obtained by the varying personnel of a teaching hospital, it is appalling to think of the mortality which must inevitably obtain were his teachings generally adopted. In any discussion of obstetrical problems it should always be remembered that the prime object of pregnancy and labor is the birth of a normal child which will have a reasonable prospect of reaching maturity, and that the unnecessary loss of a single child constitutes an indefensible economic and biological waste.

While thus protesting against the extension of Potter's teaching, I nevertheless feel that his activity has served a useful purpose in two directions. In the first place, it has compelled us to stop and take stock and determine whether we are doing our best by the patients committed to our charge, and in the second place it has redirected attention to the advantages of version as an operative procedure, which in this country were in a fair way of being forgotten. In the absence of mechanical disproportion and under suitable conditions I

have always contended that version is the ideal procedure whenever prompt delivery is indicated before the head has become deeply engaged, and, consequently, I welcome any movement which forcibly impresses its merits upon the attention of the profession. At the same time, I hold that its routine employment can only be productive of harm by increasing the maternal and foetal mortality, as well as by giving the profession erroneous ideas concerning the significance of labor.

(b) At the 1920 meeting of the American Gynecological Society, De Lee described what he designated as the prophylactic forceps operation, and advocated as soon as the head had passed the cervix in primiparous women that the pelvic floor should be widely incised, delivery effected by forceps, and the wound carefully repaired after removing the placenta manually.

He claimed that the procedure had given ideal results in his hands, and, while not advocating its employment by the average physician, he earnestly recommended its trial to expert obstetricians. He justified the procedure upon two grounds; first, to shorten the duration of labor and to save suffering, which he believes is increasingly poorly borne by the modern woman, and second to replace the laceration and overstretching, which follows spontaneous delivery, or even an ordinary forceps operation, by a clean cut incision which can be accurately repaired.

In other words, he goes to the same extreme as Potter, but instead of version, he advocates converting every primiparous labor into an operative procedure which can be carried out only by an expert surrounded by the safeguards of a well equipped hospital. The proposal did not elicit a favorable response, and called forth considerable criticism. I have had no experience with it, but while I am prepared to admit that in his hands it may do no harm, I am confident that if it became widely adopted the last state of many women would be much worse than the first.

What interested me particularly was his statement that the modern woman stands pain with so much less fortitude than her mother and grandmother that the obstetrician is compelled to reckon with it and to resort to dubious means of shortening labor to meet the changed conditions. This has not been my experience, as I find that the objection to child bearing on the part of most modern women is not so much the pain it entails, as the general derangement of life and the financial sacrifices incident to raising a family. Moreover, I was impressed by De Lee's misconception of the significance of labor, when he stated that "It always strikes physicians as well as laymen as bizarre, to call labor an abnormal function, a disease, and yet it is a decidedly pathologic process." While I have the greatest admiration for his many accomplishments, I cannot understand this point of view and consider that it can be productive only of harm; for if a gifted obstetrical teacher inculcates his pupils with the idea that every labor is pathological he inevitably opens the door to every sort of abuse, for if students become convinced that labor is ordinarily not a physiological function, they will be tempted to relieve the pathologic process by every variety of interference.

(c) In 1918 Pomeroy of Brooklyn propounded to the American Gynecological Society the question—"Shall we cut and reconstruct the perineum for every primipara? He then advocated, and has since practiced, making a deep median incision through the perineum, frequently extending through the sphincter muscle, as soon as the head begins to crown, and repairing it accurately as soon as the child is born. He claims that his procedure prevents the occurrence of deep and irregular perineal tears, and that the repair is so effectual as to restore the vaginal outlet to a nulliparous condition, and even occasionally to convert the young mother into a *"virgo intacta."*

Any one with rudimentary obstetrical experience must admit that such a procedure is sometimes indicated, and offers definite advantages over lateral episiotomy in that the median incision is easier to repair. But to contend that it should be done routinely in every primipara seems to me to be a *reductio ad absurdum,* more particularly as most women do not long remain primiparae.

Experience teaches that the duration of the second stage of labor averages only about one half as long in labors subsequent to the first, as the result of the resistance of the outlet having been permanently overcome to some extent. What happens in the second labor in women whose perineums have been satisfactorily reconstructed? Naturally, they must have the prolonged second stage of the average primipara. Shall they then be cut and reconstructed a second time? I understand that Pomeroy and his school do not do so, but rely upon a spontaneous tear occurring through the old cicatrix, which can then be repaired. This strikes me as illogical, for if cutting were necessary at the first labor, it would seem to me to be equally necessary subsequently, so that all that the original procedure does is to defer the laceration from the first to the second labor.

In my experience, conservative conduct of the second stage, with an occasional episiotomy or median incision, followed by accurate repair gives very satisfactory results. During the past two years about two thirds of all of our

patients have returned to the service one year after delivery for an objective examination for the purpose of enabling us to gather accurate statistics concerning the effect of child-bearing upon the local and general condition of a large series of women. Generally speaking, the condition of the pelvic floor and vaginal outlet has been surprisingly satisfactory, and in fact so nearly approaches the ideal that I have become convinced that the routine and careful primary repair of perineal tears gives ultimate results which can scarcely be improved upon, and renders unnecessary such prophylactic procedures as Pomeroy recommends.

(d) In certain quarters during the past few years the practice has developed of assuring the patient early in pregnancy that she will be delivered upon a definite date, and, if labor does not set in spontaneously on the day fixed, to induce it artificially. Doubtless, such a practice contributes materially to the convenience of the obstetrician, and frequently saves the patient days and sometimes weeks of waiting, at a time when the continuance of pregnancy is particularly irksome, so that it must be regarded as a great boon provided it does not add to the danger of the mother nor decrease the chances for the child.

With over-weening confidence in the perfection of their aseptic technique many obstetricians have adopted the practice with a good conscience and claim that they are satisfied with its results. On the other hand, I have always opposed it in the belief that it definitely increases the chance of infection, as I have been unable to rid myself of the idea that the introduction of the rubber ballon frequently entails a break in technique, and adds materially to the danger to the mother. For this reason, I have advised against its employment except in the presence of a justifiable indication, but recently I have had occasion to convince myself that my fears were not theoretical.

During the past year I have removed the uterus from two patients upon whom fruitless attempts had been made to induce labor at term. In one a bag was introduced on account of placenta praevia and removed at the end of twenty-four hours when it had failed to bring about dilatation. Shortly afterwards intrapartum infection developed, and as the child was dead the unopened uterus was removed. In the other patient, who had a moderately contracted pelvis and was suffering from a repeated attack of nephritic toxaemia, bougies were introduced for the purpose of terminating the pregnancy which had already gone beyond term. As they did not bring about uterine contractions they were removed at the end of 24 hours. The patient showed no signs of infection and was left alone for five days, at the expiration of which the uterus was amputated supravaginally after Cæsarean section. The two uteri were subjected to microscopic examination. As was anticipated the first presented the characteristic lesions of intrapartum infection, but I was greatly surprised to find that in the second the decidua was acutely inflamed, notwithstanding the absence of clinical symptoms.

To my mind these experiences afford irrefutable evidence of the possibility of infection by the introduction of a bag or of bougies. In both patients the indication for interference was sharply marked and fortunately the end result was satisfactory. You can, however, readily appreciate what would be the state of mind of a conscientious obstetrician had a similar infection led to death after labor had been induced solely to suit the convenience of the patient and her medical attendant.

Similar objections can be made against the too frequent induction of labor for the socalled over-ripe child, as is so strongly advocated by Reed. While no one advocates more strongly than I the termination of a pregnancy which has gone beyond its calculated end, and has resulted in a child above the average in size; and, while nothing demonstrates obstetrical ignorance more forcibly than to watch a child of a woman with a normal pelvis grow so large as to give rise to dystocia by its mere size, it is highly important to emphasize that the indication for interference is not afforded merely by the number of weeks which have elapsed since the last mentrual period, but must be based upon a careful evaluation of the size of the child by repeated and careful palpation. In many instances this is one of the most difficult determinations in practical obstetrics, and is frequently far from accurate. Moreover, it is very humiliating to induce labor for an overripe child, and to find after birth that it falls below the average in size. Such an experience, however, is trifling when compared with the occurrence of serious infection, when the obstetrician must reproach himself with having placed his patient in serious jeopardy as the result of his own ignorance and misplaced confidence in the perfection of his aseptic technique.

(e) Five years ago I had become so impressed with the tendency on the part of many obstetricians and surgeons to resort to Cæsarean section unnecessarily that I wrote a paper entitled: The Abuse of Cæsarean Section —in which I urged greater conservation. This apparently bore little fruit, as the operation continues to be done with constantly increasing frequency.

One of the most striking illustrations is afforded by the report of Potter's work for 1920, which shows that he had performed 80

Cæsarean sections in 1,113 labors—or one in every fourteenth patient. Had the same ratio obtained in my material of approximately 22,000 cases, it would have meant 1,600 operations, and yet we did only 213 up to the end of 1921.

How can this discrepancy be accounted for? Of course it may be urged that we have been unusually conservative, and I must admit that such was the case during the early years of our service. For the last ten years, however, Cæsarean section has been performed whenever it appeared indicated; and possibly the sharpest contrast may be obtained by comparing our figures for the year 1921 with those of Potter. During this period we performed 30 Cæsareans in 1,158 labors—an incidence of one to thirty-nine, as compared with Potter's one to fourteen—in other words only one-third as many.

When it is recalled that over one-half of our material is composed of blacks in whom contracted pelves occur five times more frequently than in whites (40 and 8 per cent respectively) and that Potter's material consists almost entirely of private patients, in whom contracted pelves occur even less frequently than in our white ward patients, it becomes apparent that only a small proportion of his operations could have been necessitated by pelvic abnormalities, and consequently the great majority must have been done for non-pelvic indications—which is the point I wish to emphasize. You will of course understand that I have no desire to criticise Potter personally, and I mention him solely for the reason that his work is of recent date and lends itself admirably to comparison.

What do such figures mean? The only permissible inference is that with relatively the largest contracted pelvis material in the country we have done comparatively few operations for pelvic abnormalities, and still fewer for non-pelvic indications; while Potter with relatively few abnormal pelves has done what appears to be an excessive number of operations for non-pelvic indications, and, accordingly, he may be considered as an exemplar of those who are widening the indications for the operation.

Why is Cæsarean section being abused? For several reasons: 1—that its mortality is considered trifling; 2—that it apparently offers the easiest way out of many emergencies; 3—that it is erroneously considered as the treatment par excellence for such complications as eclampsia and placenta praevia; 4—that it is being demanded by a certain number of thoughtless patients; and 5—that its frequent performance is believed to add materially to the reputation of the operator.

Time will not permit me to consider all these points in detail, but I shall say a few words in regard to several of them. In the first place, the mortality of Cæsarean section is much higher than is generally believed, and is low only when it is elective and done either at an appointed time before labor or within a few hours after its onset, upon women who have not recently been examined vaginally. On the other hand, the mortality is excessive when done late in labor, and very high when the patient is exhausted or has previously been subjected to fruitless attempts at delivery. That a low mortality is possible is shown by the fact that in our last 160 operations only one death from infection occurred—a mortality of six-tenths of one per cent.

Last year Eardley Holland made an exhaustive statistical study of 4,197 Cæsareans done in Great Britain from 1911 to 1920 inclusive, and drew conclusions which abundantly confirm those of Routh and Reynolds for the previous decade.

Upon analyzing the operations for contracted pelvis according to the time at which they were done, he found the following mortality:

Before labor	mortality	1.4%
Early in labor	"	1.8%
Late in labor	"	9.4%
After attempts at delivery...	"	26.5%

In other words, he clearly showed that satisfactory results were obtained only in the first two groups, while the operations performed late in labor had a high, and those following attempts at delivery had a murderous mortality.

Newell has made a valuable contribution by showing that in many localities the mortality is excessive, and that in some instances it is appalling instead of trifling. Thus, in four of the smaller cities about the periphery of Boston, the mortality varied between ten and one hundred per cent—a striking demonstration that unless the operation is performed at the proper time upon uninfected and unexhausted women, and with a suitable technique, its results are almost as bad as in the pre-aseptic era.

The belief that Cæsarean section offers the easiest way out of many emergencies is frequently more apparent than real. Many serious emergencies do not become manifest until the time for an elective section has long since passed, so that, if the uterus is not removed following the operation, the chances for the development of a fatal infection become considerable, with the result that the mother may be sacrified in the attempt to save the child. This may well happen when a section is done for a neglected transverse presentation or for prolapse of the cord occurring late in labor.

Within recent years the field of Cæsarean section has been expanded so as to include eclampsia and placenta prævia, and such indications are decidedly on the increase.

As the result of my experience, more particularly since we have become acquainted with the merits of free venesection and the administration of large doses of morphia, Cæsarean section is rarely indicated in the treatment of eclampsia.

This is borne out by the figures of Holland, who in 190 cases treated by section, reported a mortality of 32 per cent, which is not encouraging. Of course it must be admitted that many operations were done upon seriously ill women in whom a high mortality must be anticipated. But even after taking such mitigating circumstances into consideration, his figures indicate that the operation saves comparatively few women, and in general could well be dispensed with. For years, with an occasional section, our mortality was approximately 20 per cent, which has been decreased by one-half during the past ten years since we have relied chiefly upon venesection and morphia and have resorted to delivery only when it can be effected conservatively.

Somewhat the same argumentation applies to placenta prævia. While it must be admitted that in certain rare cases with a rigid cervix Cæsarean section may be the operation of choice, its frequent employment betrays ignorance of what competent obstetricians may accomplish without it. Naturally, it may be safer and easier for a general surgeon to treat the complication by section rather than by purely obstetrical means, but the evidence available indicates that in skilled hands the latter give better results.

Thus, in the last 37 cases of placenta prævia in our service treated by the bag there was only a single death (Thompson). On the other hand, Holland found that the mortality following 139 Cæsarean sections was 11.5 per cent. When this is compared to the 2.5 and 3.7 per cent reported by Bar and Essen-Möller, respectively, there would appear to be but little question as to which method gives better results in skilled hands.

Moreover, in considering the justifiability of Cæsarean section for other than pelvic indications another very important point is frequently overlooked—and that is the behavior of the scar in subsequent pregnancies. While the investigations of Gamble in our service have shown that the properly sutured and uninfected Cæsarean incision heals by muscular rather than by fibrous union, and therefore constitutes less of a menace than is generally believed, it must nevertheless be admitted that it sometimes forms a locus *minoris resistentiæ* and ruptures during a subsequent pregnancy or labor.

To many this danger is so real that the dictum—once a Cæsarean, always a Cæsarean—has obtained wide acceptance, and is endorsed by so competent an authority as Newell. If this be the case, it means that the performance of a section places the woman in a position of reproductive inferiority and tends to limit seriously the number of children which she may subsequently bear. Consequently, for this reason alone the performance of Cæsarean section for non-pelvic indications should be restricted to the narrowest possible limits. In my estimation, the excellence of an obstetrician should be gauged not by the great number of Cæsareans which he performs, but rather by those which he does not do. I am fond of telling my students that any carpenter with a little training can do a section, but that the highest grade of obstetrical intelligence is required to predict in a given case of moderate pelvic contraction that the child can be born spontaneously.

I have made this protest against indiscriminate operating for the reason that I consider that it is having a baneful influence upon the young men who are going into obstetrics, and is tending to make them technicians rather than sound practitioners, who are imbued with a knowledge of the wonderful resources of Nature, and who are prepared to watch her processes and to interfere only upon sharply marked and justifiable indications. What is needed in this country are not so much men who are keen to operate whenever possible, as those who are so intimately acquainted with the capabilities of Nature that they can assure their patients that they are as well prepared for childbearing as were their mothers and grandmothers, and that with the aid of anaesthesia and aseptic technique, they should come through it much better than they. The oncoming obstetrician should be immensely interested in all of the problems of preventive medicine—particularly those included under so-called prenatal care, and should be acutely concerned in attempting to find the solution of some of the problems concerning which we are so profoundly ignorant—for example;—the cause of menstruation and of dysmenorrhœa; the cause of labor; the factors which control the growth of the child in utero; the cause and mode of prevention of toxæmia and eclampsia; the problems of sterility and the etiology of abortion, as well as many other problems which could readily be mentioned.

The solution of such problems requires scientific training of the highest order and years of patient work, and I take it that those who become interested in them will find them much more attractive than devising ways of converting what should ordinarily be a physiological process into a pathological one to be terminated artificially.

Do not misunderstand me. I hold very strongly that anyone who assumes the responsibility for the care of a patient during pregnancy and labor should be a thoroughly competent practitioner, who commands all the technical resources of his art and is prepared to utilize them to the best advantage of his patient. But at the same

time, he should regard himself as much more than a technician, and should face the problems of obstetrics in such a manner that he will usually consider the necessity for terminating labor artificially as a confession of bankruptcy on the part of Nature, and will pride himself not so much upon his ability to aid her, as upon the possibility of being able sometime in the future to make such aid less frequently necessary.

In other words, I consider the excessive operative tendencies of the present time as a result of, as well as an arraignment of our system of obstetrical education. Time will not permit me to develop this aspect of the subject, but all of us realize that in the past, the opportunities offered in this country for the scientific study of obstetrics have been entirely inadequate, but I hope that in the near future we shall see springing up in connection with various universities adequately equipped and endowed Woman's Clinics, which will be headed by broadly trained scientific obstetricians, whose aim will be to train not man-midwives nor mere operative technicians, but men who appreciate the real significance of obstetrics and who realize that it means much more than the art of delivery.

REFERENCES.

Bar: Traitement chirg. des hémorrhagies de la grossesse, etc. *Archives mens. d'obst. et de gyn.*, 1912, pp. 162-76.

DeLee: The Prophylactic Forceps Operation. *Trans. Am. Gyn. Soc.*, 1920, vol. xlv., pp. 66-77.

Essen-Möller: Quelques remarques sur le traitement du placenta praevia. *Acta gyn. Scand.*, 1921, vol i, pp. 1-9.

Gamble: A Clinical and Anatomical Study of 51 Cases of Repeated Cæsarean Sections. *Johns Hopkins Bulletin*, 1922, vol. xxxiii, pp. 93-106.

Holland: The Results of a Collective Investigation into Cæsarean Sections Performed in Great Britain and Ireland from the Year 1911 to 1920 Inclusive. *J. Obst. & Gyn. Brit. Emp.*, 1921, vol. xxviii, Nos. 3 and 4.

Newell: The Present Status of Cæsarean Section. *J. Am. Med. Assn.*, 1917, lxviii, 604-608.

Newell: Cæsarean Section, 1921. D. Appleton & Co.

Pomeroy: Shall We Cut and and Reconstruct the Perineum for Every Primipara. *Trans. Am. Gyn. Soc.*, 1918, vol. xliii, pp. 201-07.

Potter: Version. *Amer. J. Obst. & Gyn.*, 1921, vol. i, pp. 560-73.

Reynolds: Constitutional Ill-equipment of the Patient as a Factor in Determining the Performance of Cæsarean Section. *J. Am. Med. Assn.*, 1907, vol. xlix, pp. 1329-33.

Routh: On Cæsarean Section in the United Kingdom. *J. Obst. & Gyn. Brit. Emp.*, 1911, vol. xix, pp. 1-233.

Reed: The Induction of Labor at Term. *Trans. Am. Gyn. Soc.*, 1920, vol. xlv, pp. 40-55.

Siebold: Geschichte der Geburtshilfe, 1841, vol. ii.

Thompson: The Treatment of Placenta Praevia, together with the Anatomical Description of Two Specimens. *Johns Hopkins Hosp. Bull.*, 1921, vol. xxxii, pp. 228-33.

Williams: The Abuse of Cæsarean Section. *Surg. Gyn. & Obst.*, 1917, vol. xxv, pp. 194-201.

Williams: A Critical Analysis of 21 Years' Experience with Cæsarean Section. *Johns Hopkins Hospital Bulletin*, 1921, vol. xxxii, pp. 173-184.