

TOPICS FOR RESEARCH IN THE DOMAIN OF OBSTETRICS AND GYNECOLOGY

THE following report was prepared by a committee appointed by the American Gynecological Society and presented to the Society at its annual meeting, June, 1920. The members of this committee were Dr. A. H. Curtis, of Chicago, who wrote the section devoted to gynecology, and Dr. Geo. W. Kosmak, of New York, who considered the obstetrical topics suitable for study and research. The report is herewith presented to the medical profession for its consideration.

I. GYNECOLOGY

It devolves upon me to introduce this subject and to briefly discuss certain phases as seen from the gynecological aspect. I wish to emphasize that the remarks about to be addressed to you are not a voluntary contribution, but represent the efforts of a committee; that this committee is enjoined to candidly express its views, and that we who submit this report do not in any way claim that our opinions are faultless. Nor do we wish to have our personal records sharply scrutinized by those who wonder why we fail to practice all that we preach.

The time for specialization in the various branches of medicine is at hand; no argument is needed to establish this fact. In our own specialty the tide of progress may tend to isolate the practice of obstetrics, or may produce other changes not thought of at the present time. Be that as it may, endless argument will probably influence very little the scope of our future activity. In any event, it appears better for us to limit discussion of this subject, and to concentrate more effectually upon promotion of the work in hand. Those who are productive will learn to adapt themselves to such changes as occur, and will continue to find a wide range of usefulness.

One keynote to a solution of our problems, I believe, is to be found in unselfishness. Each of us (and I refer especially to those who control college or hospital opportunities) should feel it his duty to provide laboratory facilities for those who wish to work, should give to this department the inspiration of direct personal contact, and should be responsible for moderate financial assistance or see that this is forthcoming. I would especially emphasize that those young men who desire to conduct a combined clinical-laboratory study are entitled to enough clinical material to enable them to carry on this investigation.

Slemons very aptly states that this Society needs to create an atmosphere appreciative of efforts along investigation lines. In this connection, a fundamental prerequisite in the selection of members for the Society, and in the election of our officers, should be productiveness in the furtherance of obstetrics and gynecology; this may be through personal achievement or through opportunities offered and stimulation given to younger men. As an excellent example of one who is helpful to others, I would mention Dr. Billings, who, in sharing his practice, in donation of funds, in visits to the laboratories, in public commendation of scientific work, has contributed so much to our profession. Valuable constructive work has been achieved by our own

members, but individual mention at the present time would smack too much of flattery and would lead us far afield. I would not belittle the pure clinician, but he who fails to contribute his bit in an endeavor to assist medical progress has no proper place in a Society which professes to lead all who feel interest in gynecology and obstetrics.

Passing on to special problems, the so-called "referat" system may be considered. If resumed by the Society it would appear advantageous to assign each topic at least two or, preferably, three years in advance. As suggested by Dr. Gellhorn, an attractive plan would be to select one comprehensive subject, alternately gynecologic and obstetric, the report to be entrusted to two or more men, who should contribute a complete review of the literature, to which they may add their own views and observations. At the time of this report other members of the society should present the greatest number of papers on the same subject, the latter to be strictly limited to personal investigations and studies.

Those who recommend competitive prizes to stimulate research are somewhat qualified in their enthusiasms. A limited experience makes me believe that rewards so given arouse only spasmodic efforts and would accomplish little for us. As a counter-suggestion I would advocate that this Society bestow each year three or more non-competitive prizes to those who publish the best original American contributions to gynecology and obstetrics.

With some misgivings I suggest that we might also consider the publication each year of an honor roll, these names to appear in one or more leading journals, and to comprise a list of those who, during the year, have, in our opinion, made notable contribution of any sort whatsoever to the advancement of obstetrics and gynecology.

Many of us, at previous meetings, have obtained much benefit from papers contributed by men interested in the fundamental sciences. Our enthusiasm should receive a decided impetus from two or three well selected yearly presentations of this sort. Such papers should have a direct relationship to obstetrics or gynecology; otherwise, there is little likelihood that they will inspire us with new ideas for further work.

There is, at present, a great dearth of opportunities for young men who wish to become gynecologists, and it is to this that I particularly wish to direct attention. Within a brief period, four capable applicants, who have already completed a general internship and who are apparently willing to do their utmost to obtain proper training, have applied to us for help. There are at present very meager facilities for aiding such men. This, to my mind, is one of the most vital of problems which confront us, and one which promises to yield if properly attacked; on its solution depends the caliber of our future members.

I would suggest the appointment of a committee entrusted with the task of advising this Society how we can best make openings for desirable candidates who wish to pursue the specialty of obstetrics, gynecology, or both; this committee to be supplied with funds for travel and other expenses of investigation. Their duties would possibly involve conferences not only with our members, but with hospital authorities, with others who control the selection of residents, assistants and laboratory volunteers, and with organizations interested in improvement of hospital standards. When provision has been made for even a limited number of places where young men may apply for work, where they may be free from financial worries, and where, in the course of four or five years, they may develop a proper scientific spirit and a groundwork of technical skill, we need then have no anxiety about the welfare of this Society, or about the future specialty of obstetrics and diseases of women.

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II. OBSTETRICS

In preparing the portion of the report dealing with obstetric topics suitable for original research and investigation, the undersigned felt constrained to include not merely questions of technical interest, which may still demand further study and can possibly be designated as "unsolved," but also those matters of a wider import in which not only the profession but the laity may manifest a justifiable interest. In some instances the purely technical and the broader phases of a problem may, of course, be dependent each upon the other, and in other cases the coöperation of other specialist branches may be demanded.

The first part of the report is concerned with the purely technical phases of obstetrics, the second with questions of a more general interest. I have found it possible to present only a comparatively small number of topics—there are many more unsolved problems and it is this admitted fact which should make of obstetrics a science rather than an art. When a specialty of medicine or other profession has reached the stage of satisfied completion, then its life is gone. The elements of uncertainty and mystery are the factors which stimulate the desire and interest to solve those problems of which a few are herewith presented.

The Biologic Diagnosis of Pregnancy.—The attempt to diagnose pregnancy where the physical findings do not give the necessary information culminated in the attempts of Abderhalden to establish this on a biologic basis. A great deal of dissatisfaction has arisen with this method because of its complex character and apparent lack of specificity. A nonmechanical procedure by means of which we can diagnose pregnancy in its earlier months, is still desired. A review by Bar and Ecalle (*Archives Mens. d'Obstetrique et de Gynecologie*, July, 1919, 8, No. 7) of the various tests employed for this purpose, including the deviation of complement test, the Abderhalden, the intradermal reactions, the changes in the antitryptic power of the serum, and the activating power of cobra venom, prompted the conclusion that the clinical benefit derived from these researches is very mediocre and out of proportion to the efforts made. The results show, however, that the work already done is of importance because, as Bar and Ecalle state, a better understanding has thus been obtained of the mechanism of the rapid adaption of the maternal organism to the development of the fetus, the symbiosis of mother and fetus and its anomalies. The subject, therefore, is of intense interest not only from the practical but the theoretical standpoint and worthy of further attention.

The Causes of the Onset of Labor.—Very little experimental work has been done to determine the causes which bring about labor and why they vary in their degree of manifestation. The theoretical explanations previously advanced to account for the same have largely been lacking in physical proofs. It is rather important to devote some attention to this matter, as our methods of inducing labor may be largely reformed by the results of such investigation. The exhibition of oxytocic substances on the one hand, and mechanical appliances such as bougies, gauze packs, and bags, on the other, may perhaps be largely done away with by the discovery of the immediate cause of labor. Although successful in most instances their employment is not strictly physiological.

The Influence of the Nutrition of the Mother upon the Size of the Fetus.—This subject has undergone radical changes of opinion in the last decade and a recent study by Ehrenfest seems to show that the size of the fetus cannot be distinctly influenced by dietetic measures applied to the mother. It may be generally assumed that a healthy mother predicates the birth of a healthy and normally developed child but a better knowledge of the process would seem important if we are to influence in any way the size of the child with relation to the maternal passages. Studies on fetal metabolism based on animal experiments have not been completely interpreted and require further elucidation in their relation to the human subject.

Sterility.—More thought must be given to the explanation of certain obscure questions relating to this condition. Our knowledge of the mechanical factors is quite well developed but there are any number of cases apparently free from defects in which impregnation does not take place notwithstanding the presence of a normal spermatic fluid. The fact that women who have been sterile with one husband and become impregnated after a second marriage, demonstrates that some physiologic agreement, as it were, must exist between the vaginal secretions and the spermatic fluid. The question of a possible disturbance in this physiologic relationship is still to be worked out and methods for correcting the same developed. Whether artificial impregnation will overcome such faults is a matter that has not been tested sufficiently to warrant satisfactory conclusions but if it is determined to employ the same, some method ought to be devised by which the biological relationship between the two sexes can be tested. The futility of plastic operations in many cases has not been sufficiently impressed upon the profession and they are still done in large numbers. Undoubtedly there are cases in which mechanical procedures may with advantage be employed but the indications for the same should be subjected to further study. The effect of endocrine gland feeding in certain cases of sterility must be submitted to definite experimental trials by those not overcome by mere enthusiasm for these therapeutic measures without sufficient basis in fact.

The Causes of Abortion.—In determining the causes of abortion, aside from those of a traumatic character, syphilis has been assumed to be the common factor. Undoubted instances have been described of infections by other organisms, including the streptococcus, pneumococcus, bacillus influenza, etc., and the accident also has been ascribed to the presence of the bacillus abortus of Bangs, but no extended series of observations in the human subject are at hand in which comparative studies have been made of these etiologic factors.

The Occurrence of Pregnancy after Radium Applications for Uterine Bleeding.—The increasing employment of radium to check hemorrhage in nonmalignant cases has not been employed for a sufficient length of time to determine what influence this may have on a possible future pregnancy. The question of whether the influence of radium on the ovaries in addition to inhibiting the menstrual flow, also interferes with the production of ova is an important topic for further study; likewise whether such pregnancies if they do occur, are normal, and whether the resulting fetus shows any evidences of maldevelopment.

The Etiology of Eclampsia.—This topic is one of constant interest and although the results of treatment based on the supposition that we are dealing with a pure toxemia have been quite remarkable, there is still need of further research in this field. It is possible that our ideas as to this complication of pregnancy must be revised and that we cannot consider the various toxic manifestations as due to one source. Whether so-called pregnancy toxemia is a purely metabolic disturbance or dependent on other causes still remains uncertain. It is not definitely established whether the toxemias of the early months of pregnancy associated with hyperemesis are the same as those of the later months. Whether the theory developed by J. C. Hirst that a subsidence of certain ovarian functions connected with the development of the corpus luteum of pregnancy is at fault, or whether we are dealing with a defect in the adaptation of the growing fetus to the maternal organism, are questions still to be solved. As for the toxemias of the latter months of pregnancy further researches in metabolism are essential. Urinary changes have been pretty thoroughly studied but the chemistry of the blood in this condition is a fruitful field for investigation.

The infectious nature of the toxemias of pregnancy has often been referred to; likewise the possible effect of certain climatic changes. An interesting study

would include a comparison of the incidence of eclampsia with barometric and other atmospheric disturbances as determined by official weather bureau charts. Likewise the occurrence of pregnancy toxemia in groups in certain localities. There is not on hand any extended and related series of observations on this subject.

Although prophylactic measures have undoubtedly reduced the incidence of eclampsia, it is still an occurrence of alarming frequency. Until the etiology of this condition can be placed on a more satisfactory basis the treatment of the same must remain more or less empirical. The pendulum seems to have swung in recent years to conservative methods but a sufficient number of cases have not been treated by this means to warrant the presentation of collected statistics based on the experiences of a considerable number of institutions and observers. Reduction in the protein intake has been considered an essential factor in the diet of toxemic states but the recent work of Epstein and others on edema is rather disturbing to our accepted views. This writer describes cases associated with parenchymatous nephritis in which a hydremia occurs accompanied by a diminished amount of protein in the blood. The latter is assumed to be due to the loss of this material through the urine and Epstein therefore advises the liberal feeding of protein as the most effective way of managing such cases. As edema in pregnancy, aside from the undoubted mechanical causes, is usually assumed to be an accompaniment of disturbed renal function, it is possible that our views regarding the prophylactic feeding of these patients must be reformed.

The Physiology and Pathology of the Placenta.—The opinion has gained ground that the placenta is a specialized and highly organized gland which not only governs the gaseous interchange between the mother and fetus but also has a metabolic function which may be compared to that exercised by the bowel. It is also assumed that the placenta develops an "internal secretion" which has been found to have well-marked oxytocic powers. Whether any practical use can be made of this knowledge is still a matter for further study.

Infection of the placenta during pregnancy has been demonstrated by Slemons, who found in some instances an acute exudative infiltration and likewise demonstrated bacteria in the act of penetrating the placental vessels. He believes that the bacteria enter the placenta by way of the amniotic membranes and fluid but hematogenous infection likewise occurs. Such infection may lead to the death of the fetus shortly before birth and possibly accounts for many stillbirths. In his opinion placental bacteremia is outranked only by syphilis and birth injuries. It is also probable that the incidence of placental bacteremia and intrapartum fever is identical. In view of these facts a more careful routine study of the placenta seems to be demanded, especially in cases of prolonged labor, with rupture of the membranes and also in cases of fetal death. Further research may therefore profitably be undertaken along these lines and likewise the possible effect of infection on the production of monsters—such examinations to include the bacteriology and histology of this organ, which can readily enough be done in any well organized laboratory.

Puerperal Sepsis.—Statistics show that puerperal sepsis still claims an enormous number of victims. It is hardly necessary here to present such statistics in detail. Prophylaxis has accomplished wonders but we are still confronted with the large mortality and morbidity of this most serious complication. Conservative treatment is now widely acknowledged, dependence being placed on the recuperative powers of the patient. Noninterference is very generally insisted upon, but in the face of a general invasion of the maternal organism which cannot be controlled, we must look for some more radical means of cure. The injection of sera, vaccines, antitoxic substances, chemical germicides, etc., have been taken up in turn, only to be largely abandoned as unsuitable. But the war against puerperal fever must be kept up and there

are certain factors in the etiology that still need elucidation. It is possible that examinations of the vaginal secretions as a routine measure may lead to prophylactic suggestions. We are quite thoroughly informed of the bacteriology of the genital tract after infection takes place, but considerable uncertainty still exists regarding the same in the antepartum stage.

Statistics of Cesarean Section.—The indications calling for the performance of cesarean section and the advantages associated with the various types of operation may be accepted as quite firmly established, but there are certain questions that are not yet satisfactorily determined. Whether cesarean section is preferable to induction of premature labor, pubiotomy, high forceps, version, or other alternative procedures depends to a large degree on the ability of the individual operator and the environment, but we are still in need of studies based on a large series of cases from which the comparative morbidity and mortality of cesarean section with other operative methods of delivery can be determined. The occurrence of sterility after cesarean section is also a question that demands investigation.

Syphilis in Pregnancy.—With the discovery of the etiology of this disease and certain newer conceptions of treatment, our responsibilities may be said to have increased. Recognition of this disease was formerly based on clinical symptoms and in view of the inability to locate primary lesions in the female genital tract, the diagnosis was often unsatisfactory. Now that the Wassermann test has been accepted as a conclusive means of diagnosis, is it not advisable to make a routine serological examination in every case of pregnancy even where no suspicious symptoms are present? The treatment of syphilis is now definitely established and we have an undoubted means for successfully combating the disease. Its ravages are nevertheless still to be regarded as extensive and in order to eliminate the scourge shall we resort to more radical measures? Would it not be possible to regard a routine Wassermann test in every case of pregnancy in the nature of a prophylactic measure? Heroic steps have been taken to eradicate small-pox and without much question vaccination against this pestilent disease is generally adopted all over the world. Gonorrhoeal ophthalmia is combated by a routine instillation into the eyes of every newborn child and in some instances a failure to do so is considered an offense punishable by fine or imprisonment. The recent development in the prophylaxis of diphtheria by inoculation in infants may likewise be cited. It has been claimed that at least 40 per cent of women infected with syphilis present no objective symptoms, nor are they aware of their condition. It is characteristic of the disease that both primary and secondary lesions disappear without treatment. This accounts for the wide-spread character of the disease and its innocent propagation. Asylums for the insane and feeble-minded would probably be less crowded if this etiologic factor in the production of their inmates could be eliminated. Hereditary syphilis is without question one of the most important factors in the production of a large train of chronic diseases and as obstetricians we must consider ourselves responsible to a certain degree. As already noted, syphilis is a disease that can be successfully treated and if the numerous suspected cases can be diagnosed and treatment administered, much good will result.

The recent splendid work of J. Whitridge Williams and other investigators, should stimulate the study of material from other large hospitals and an attempt made by the collection of statistics from the entire country, to place our knowledge of the incidence of syphilis in pregnancy on a definite basis. It is possible that the proportion of infected women is overestimated but if a study of a series of consecutive cases shows positive Wassermann reactions in 4 or 5 per cent, it is probable that the distribution is as extensive as is usually assumed. If a diagnosis is made before delivery an opportunity is often afforded for successful treatment. It is necessary, how-

ever, to follow up these cases and by subsequent examinations to determine whether the infection has been eliminated. It may be safely claimed that a more extensive study of this subject covering a large number of cases in widely distributed centers of population will do much to reduce the incidence of the disease in general and at no time can this be more successfully worked out than during the period of pregnancy.

Having considered briefly certain purely technical phases of our subject, attention may be directed to a few of a more general interest.

Reduction of the Birth Rate.—It has been grudgingly admitted but it is nevertheless true, that the birth rate of many civilized countries is undergoing a steady decline. Some governments have taken note of this fact and appointed special investigating commissions. Thus England has at work a National Birth Rate Commission, which is about to present a report in which a very broad point of view had been developed with the conclusion that it is necessary to take note of the development and education of young people for worthy parenthood. Thus consideration is given to various methods of education, particularly in physiology and hygiene, to the influences and conditions which favor or retard physical and mental development of adolescence, and the extent to which worthy ideals of citizenship of parenthood should be inculcated by education in its widest sense. Consideration of other matters includes the influence of industrial occupations on the birth rate, the housing problems, schemes for the endowment of motherhood and other factors.

In France, the "National Alliance for Increasing the Birth Rate" has already studied this question along similar lines and has recently even recommended a scheme of State allowance for large families. It appears that conditions in this country are approaching a similar state and that while we have not made as complete a study of the subject, the opinion is gaining ground that we are surely approaching a decline in the birth rate. Is it not appropriate for us as obstetricians and gynecologists to take note of these matters and to bring them to the notice of the proper authorities as a part of the larger interest which our profession should manifest towards the public welfare. This might take the form of a memorial presented to Congress for the appointment of a National Commission to study the subject. Facts and figures will undoubtedly be developed by the recent national census, which can be employed for the purpose.

It would appear appropriate for this Association to take some note of the agitation which is spreading throughout the country for *the development of better maternity care, not only in our large and crowded centers of population but in the rural districts.* The coöperation between this Society and the Federal and State Bureaux which have thus far given their attention to the subject might be coördinated. This is a topic that might well be taken up by a National Department of Health when this is once established and a Secretary to preside over its functions made a member of the Cabinet. The American Medical Association at its last session voted to memorialize Congress on this subject and this Society might well appoint a committee of coöperation when the actual study of some of the problems has been started.

The *teaching of obstetrics* has received increasing attention in recent years—a clear demonstration of the importance of this branch of medicine. The assumption that childbirth was a normal process long served to restrict the development of obstetrics and labeled it as an art rather than as a science. This view has fortunately undergone a change but further reformation in the teaching of obstetrics is necessary to emphasize its importance in the eyes of the profession as well as the laity. Would it not be one function of this Society as the senior organization in the United States of specialists in this branch of medicine to assert its interest in the subject by the appointment of a committee on obstetric education? This body might with perfect right give attention to this important matter and after due deliberation present to the

Society for further discussion and amendment a plan of at least minimum requirements for medical schools in this branch of medicine.

The somewhat cursory presentation of obstetric questions suitable for further research or study which is herewith presented is, of necessity, incomplete. In gathering the material for the same the writer has been impressed with the need of doing something more than merely making an announcement of such problems that might be adopted as a formal report by the Society and then filed away in its archives. It would seem more important and valuable if the organization placed itself in a position to forward original investigation and research. How this may be accomplished must perhaps be left to further deliberations, but the suggestion may be advanced that in place of the temporary committee which has presented this report, a more permanent body be established. This committee should be appointed by the President of the Society and serve at his pleasure and that of his successors. Announcement of its purpose and readiness to cooperate in original research should be published. The possibility of discovering and developing research material would be of mutual benefit to the worker and to our organization, particularly as the latter would then be in a position to assist in the development of its future membership. Whether competitive essays, or some more modernized and practical scheme of publication were developed as the result of these methods, remains for the Society itself to decide.

This thought brings to mind the question whether the American Gynecological Society is to continue as a select, private organization for the personal benefit of its limited membership, or whether by developing an importance based on its progressive growth and influence, it can become a factor for good in the country at large, both among the medical profession and the laity. This may seem like a revolutionary thought, but the various elements in our community life are becoming knitted together very much more closely in these latter days and it becomes necessary for organizations such as ours to take a broader view of their responsibilities. For we have such responsibilities, because our membership is made up of leaders,—leaders whose words and influence must extend beyond their strictly private functions or professional capacities.

We might well make use of the results of such original research in our annual meetings. For example, it has been suggested that a topic for study and discussion be announced one, two, or possibly three years in advance. The arrangements can be placed in the hands of a special committee of two or three, under the direction of the Council, who by correspondence and publication can announce the topic and select from the material submitted that which is considered suitable for presentation. This should be open to nonmembers, who may then be invited to present their theses.

It is with the hope of bringing about such changes that the undersigned respectfully submits the above report.

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