PRIMARY STERILITY

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THE subject of sterility in women has greatly absorbed the interests of investigators and clinicians in recent years. The numerous contributions to the subject are to me an indication that our present knowledge of the subject is incomplete, that the methods heretofore employed in the treatment of sterility have failed to accomplish the desired results, and that we are still groping in the dark as to the true etiology of primary sterility in most cases.

During the past two years I carefully followed the more important publications on the subject and I believe that I have a fair knowledge as to what has been written concerning all the phases of sterility. Keen interest is displayed everywhere to find something which will help to cure that group of our patients, who consider themselves the most "cursed" members of society.

There are at present two definite groups of investigators: First. those who concern themselves with the male aspect of sterility as it relates to the virility of the spermatozoa. Careful studies have been made of the spermatozoa, as to their mode of travel to the interior of the uterus and the length of time they survive there, and the effects of the cervical and vaginal secretions upon their motility and viability.

These investigations are interesting from an academic standpoint but clinically they did not help us very much in our treatment of sterility. It was thought at one time that if spermatozoa were deposited high up in the uterine cavity, they would be in a more fit condition to impregnate. Artificial insemination, therefore, became one of the methods in the treatment of sterility. Occasionally success was reported. However, further experience taught us that this treatment was absolutely ineffective and that not infrequently it proved dangerous, because it spread infection in the genital tract.

The study of the influence of diet upon the development of the spermatozoa seemed for the time being to be very interesting. Observations were made on the effects of diet, restricted as to its quality and limited as to its quantity, upon the development and natural life of the spermatozoa. Subsequent investigations did not confirm some of the earlier observations, and it is now generally conceded that diet has no influence upon the development of the spermatozoa.

I believe that our knowledge of the life history of the spermatozoon

in its relation to impregnation and conception is very meagre. Once well-formed spermatozoa are found in the secretion of the male we must assume that he is capable of impregnating a woman, the mate in many instances may not necessarily have to be his wife.

The second group of investigators, or those interested in the female aspect of sterility, have had a more fruitful field for their theories, as to etiology and treatment. In no other branch of medicine were patients subjected to such unreasonable treatment as some women suffering from sterility.

The mechanical theory of sterility still has a strong hold on the profession. The result is that it is but a rare exception to find a woman who is sterile for any length of time who was not dilated and curetted one or more times. I need not point out what such procedures lead to, especially in women who have had a subacute or chronic infection in or about the pelvis. Very often the complications were such that no amount of surgical interference would cure the patient completely.

When surgical procedures in general became less hazardous to the patients simple dilatation was quickly replaced by methods which had for their purpose the permanent enlargement of the cervical canal. Accordingly, stem pessaries and tents of various sizes and shapes were invented and inserted into the cervix, and kept there from two to twelve weeks. It is surprising that even recently articles were published which gave the number of patients who were cured by such treatment.

Evidently the results of these simple procedures in the treatment of sterility did not prove very successful, for many cutting operations upon the cervix were invented. Some chose for their points of attack the posterior lip, others the anterior lip, and still others the lateral walls. More recently, however, operations have been devised which practically necessitate the removal of the greater portion of the cervical tissue, and the cervix, or what is left of it, is reconstructed according to the fancies of the individual operator.

I believe that the time has come when we should recount our experiences and seriously ask ourselves the question, whether these operations have ever cured any of our patients, or are we deluding ourselves by the occasional good result which apparently follows some of these procedures?

My experience may differ from that of many others but I am sure, now more than ever, that operations upon the cervix for the cure of primary sterility are absolutely useless, and that in a great number of cases they do more harm than good. I never saw a cervical canal which was too small for a spermatozoon to pass through. Once the

clotted particles of menstrual blood pass through the cervix the canal is roomy enough for the spermatozoa to travel up into the uterus.

I am convinced that the mechanical theory of sterility is purely a myth, and in practice it does not exist. The fallacy of this theory I was able to demonstrate since we instituted at Lebanon Hospital the routine examination for patency of the fallopian tubes in well selected cases, who suffer from sterility. I found that we succeeded in introducing a No. 6 Holzman cannula into the uterus in 213 patients of a total of 215 that were examined. Who will maintain that obstruction in the uterine canal existed in these patients, or that their sterility was due to some organic mechanical occlusion in the cervix?

During the last decade the study of the functions and secretions of the ductless glands has developed new conceptions of the physiology of the human body. Many mooted points have been clarified by the steady increase of our knowledge of the glands of internal secretion. Our conception of disturbed bodily function has been greatly changed. For a brief period of time it seemed that the entire foundation of the science of medicine would be shattered. The few fundamental principles which took so many years to develop were in danger of being destroyed.

It was at this time that sober reflection and honest effort to seek after the truth fortunately predominated, so that a proper equilibrium was maintained. Unfortunately some strayed afar, and, instead of critically examining the facts presented by the various investigators, were carried away by a wave of so-called "endocrinology." They practically commercialized the meagre knowledge in their possession and exploited it upon a credulous public. The attitude and behavior of some of these gentlemen were such that it almost bordered on divination. They conducted themselves as if they were really inspired by some superhuman power and that the rest were merely ordinary mortals.

It was but natural that such hysterical speculations should soon creep into the domain of gynecology. In this branch of medicine endocrinology became almost a cult. Miraculous cures, secret and otherwise, were held out to suffering womanhood. The woman who suffers from sterility from time immemorial has been an easy prey for all sorts of exploitations. Various combinations of organic extracts were concocted and prescribed for patients with the positive assurance that they would be absolutely cured.

I do not want to appear pessimistic, neither do I wish to offer criticism destructive in character, it is contrary to my natural inclinations. I probably would not draw conclusions about organotherapy were they based upon my own experience only. I might have thought that it was not given to me to understand the delicate and intricate

problems associated with endocrinology. I am prompted to arrive at these conclusions because of the careful observations I made on patients who were treated by some of our foremost self-styled endocrinologic gynecologists. I know that these patients were not cured by them, and that not only did they remain sterile, but also that their menstrual disturbances were not improved for any extended period of time.

During the past five years I used practically every standard preparation of the various organic extracts in hospital and private practice. I was especially interested to learn what effect they had on patients who suffered from primary sterility. I must confess my firm conviction that the organic extracts, as they are at present prepared, play no rôle whatsoever in the treatment of sterility.

During the twelve months preceding September 1 of this year 192 women consulted me for primary sterility. Most of these patients had consulted other specialists before they came to see me. The majority had had some operative interference, either by their family physician or by a specialist. The operations varied; some were dilated, others had one of the cutting operations on the cervix, a few were subjected to abdominal operations in order to correct uterine displacements or to repair diseased fallopian tubes; all of them received various combinations of organic extracts as an adjuvant to the operative measures. The results were equally unfavorable with all the methods of treatment. All but twelve patients never became pregnant, and the probabilities are that they will remain sterile, unless a new therapeutic agent will be discovered which truly will help these patients.

The average age of the patients in this series was twenty-eight and one-half years; the average period of time of marriage was six and one-half years; the shortest period was nine months, the longest seventeen years. Twenty-two per cent of the patients suffered from irregular menstruation, the intervals ranging from two to nine months. One patient stopped at the age of twenty and one-half years; she began to menstruate at sixteen years of age and menstruated very irregularly during that time. One patient began to menstruate at fourteen years of age and stopped at the age of twenty-three years. One patient ceased to menstruate as soon as she married, at the age of twenty-four years. She came to see me three years later.

Fourteen per cent of the patients suffered from dysmenorrhea. Many were compelled to remain in bed during their menstrual flow. Four per cent suffered from scanty menstruation and only spotted or stained for one or two days. One patient suffered from menorrhagia. Eighty-six patients of this series were examined for patency of the fallopian tubes. In 58, or 68.8 per cent, the fallopian tubes

were found to be open. In 27, or 32.2 per cent, the tubes were apparently closed. The percentage of patent fallopian tubes in this series of cases is somewhat higher than in our previous series. This may be accounted for by the fact that we probably have a better understanding of the technic of this procedure.

Transuterine insufflation of the peritoneal cavity with oxygen or carbon-dioxide gas, as developed by Rubin, is a very valuable aid in the diagnosis of sterility. We have no other method of examination which so clearly demonstrates the patency of the fallopian tubes. Once the patency is positively established the patient will no longer be subjected to exploratory operations on the mere suspicion that the tubes might be closed, as was the practice heretofore in a great number of cases.

This method of examination should be utilized in every case in which the cause of sterility is of doubtful origin. It is especially useful in those who have had one fallopian tube removed because of infection or extrauterine pregnancy.

Complications can be avoided if the patients are carefully selected. It should never be used in the presence of acute or subacute infections, or when the patient complains of pain in the pelvic region. We employed this method of examination 215 times during the past twenty months without any untoward complications; two patients developed acute pelvic infections, which subsided under palliative treatment.

The therapeutic value of this procedure must for the present be left in abeyance, although five of the patients did not menstruate after this examination, and subsequently were found to be pregnant. We believe that the entrance of gas into the tubes, under pressure, will expel mucous plugs from them and also straighten out any kinking which might have taken place along their course.

We now utilize transuterine insufflation during abdominal operations. In that way we are able to establish positively the patency of the tubes with the least amount of traumatism to their mucous membranes. We also employ it in patients who have had plastic operations on the fallopian tubes. It can be very readily performed during convalescence of the patient from the operation. The passage of gas under pressure through the tubes may prevent the formation of adhesions around the distal openings, and therefore closure of the tubes is less likely to occur.

A careful study of my patients clearly demonstrates that the percentage of sterile patients who are amenable to treatment is very small. The experienced gynecologist usually has no difficulty in properly interpreting the physical findings of the patient, especially when it is supplemented by a thorough history, the prognosis and

treatment can be established in nearly all the cases with a fair degree of accuracy.

As a general rule, women who suffer from primary sterility can be separated into three distinct groups. Exceptions undoubtedly occur. (1) Patients with congenital defects, which vary in degree from the total absence to the milder forms of malformation of the genital organs. Such women are incomplete physical beings and are beyond the help of all known therapeutic measures. (2) Women who apparently do not have physical defects of the genital organs, but suffer from disturbance of function of these organs. Usually it is shown by the changes which take place in their menstrual cycle. A great number of these patients suffer from dysmenorrhea, and do not have their periods at proper intervals; their flow is lessened or scanty. In these patients the sterility very often is temporary in character. Sooner or later some readjustment takes place and pregnancy ensues.

It is in this class of patients that we often ascribe to the treatment the successful outcome of the case. A great number of these patients would have become pregnant if they had not been treated; some might have required minor corrections as to their mode of sexual life; others would have had to have neutralized a highly acid vaginal secretion; and a few might even have had to change climate. That pregnancy finally takes place in a certain percentage of these cases, when not treated, I proved conclusively in a previous paper. (3) To this group belong all patients who are sterile because of mechanical obstruction of the tubes, which is caused by infection acquired during the marital state, or induced by inflammatory reactions of the genital organs which occurred during an infectious or contagious disease in infancy or childhood. Not infrequently closure of the tubes can be traced to an extension of the process of specific vulvovaginitis in young children.

Fortunately we have now a method by which we can definitely ascertain whether the tubes are open or closed. It is surprising to find the number of young women whose tubes are closed and who have no immediate history of infection of the genital tract.

Plastic operations on the tubes in these patients heretofore did not cure many. Pregnancy ensued in less than 15 per cent; the others remained permanently sterile. Partial resection of one or both tubes will often rob the women of any possible chance for future pregnancy, as the postoperative reaction in the pelvis after such an operation is, not infrequently, very severe and causes great damage to the genital organs.

I am fully aware that a great many will not agree with the views I have presented in this paper. I have made an honest effort to study my patients very carefully and I am stating the experiences from my

own practice and also from patients who have been treated by many of the leading gynecologists of this city.

I am certain that we must discard our present methods of treatment of sterility because they have been erroneously conceived. The sooner we older men in the field of gynecology admit defeat the sooner will the younger generation of specialists wake up to the fact that upon them rests the responsibility of the solution of a problem which will bring salvation to so many ill-fated women.

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DISCUSSION

DR. ROBERT T. MORRIS, New York City.—Dr. Rongy brought out the fact that a narrow internal os or an obstruction of that sort is of very little consequence, so far as the passage of spermatozoa is concerned. After opening the cervix by dilatation there have been, however, a number of pregnancies reported, and such results cannot be put aside. The results to my mind mean this. You change temporarily in some cases the character of the secretions. For instance, in some instances of sterility, you find a highly acid secretion, and dilatation or insertion of the stem may change the relative acidity, thereby favoring pregnancy.

Dr. Rongy did not tell us what he did in the case in which he had excluded everything and finally found closed tubes. In one case I found the tubes closed congenitally and short circuited one closed tube by grafting the ampulla up into the cornu. I had so little faith because of the delicacy of the structures in this case that I only did it on one side. This patient has since had two children, one of them very defective.

Dr. Rongy did not tell us what to do in the gonorrheal cases. He speaks of permanent sterility. That is not so. Usually, if you incise a clubbed tube, with nothing normal left in sight, plugged, ragged, bleeding, and split it lengthwise to the cornu, leave it wide open, and go in at the end of three months later, you will find fimbriae that you had not expected. You can make these patients have an open tube. If the tube is closed by scar tissue, split it, leave it wide open, and when you go in at the end of two or three months, three-fourths of the tube may be quite round and patent. If such patients are given gonococcus vaccines for six months or a year, after saving the tubes, they are likely to overcome the sterility. I would not call these "permanent sterility cases."

DR. JAMES N. WEST, New York City.—I would say that the usual classification of sterility is primary and secondary. Primary sterility is a condition of azoospermatism, that is, the subject has not secreted the proper germ, in the female, the ovum, in the male the spermatozoon, an entirely different thing from the chief subject of this discussion. It would seem that the paper and most of the discussion refer to secondary sterility. Primary sterility is not present if the patient is capable of secreting an ovum, but all sterility which is due to tumors, displacements, lacerations, or other mechanical causes, is secondary. As a matter of fact, I can say to Dr. Rongy that I think I have cured several cases of long standing sterility by amputation of the cervix, at about one-third of an inch below the internal os, this operation allowing the uterus to straighten itself out, the canal remaining open to the spermatozoon.

In regard to chemotaxis which exists, affinity between living fluids, it is beautifully and delicately arranged by nature. The vagina has a natural acid secretion which when mild stimulates the action of spermatozoa, whereas in the uterus the secretion is alkaline. A mildly alkaline solution favors the life of spermatozoa,

so that if we have an endometritis and an excessive alkaline secretion we may destroy the spermatozoon before it has had time to come in contact with the ovum. If in the vagina there is an excessively acid secretion, it may overstimulate and destroy the activity of the spermatozoa. Normally a woman is balanced.

I have seen a case in which a couple were married a number of years and no conception took place. Trouble occurred and a divorce obtained. These people married, and each one had children afterward. This suggests the possibility of some biologic law which effects sterility in some cases.

DR. CHARLES L. BONIFIELD, CINCINNATI, OHIO.—I cannot quite agree with some of Dr. Rongy's conclusions. In the first place, I do not believe that sterility has not been cured by dilating the cervix and curetting the uterus. It happens too often to be a mere coincidence. How does it act? Dr. West has said what I wanted to say. It is this: It is not that the pin hole os is too small for the spermatozoa to get through; of course not, but the cervical canal is too small for the uterus to drain its own secretions, and as a consequence of that lack of drainage endometritis develops, and that is the cause of the sterility. A woman begins to menstruate at the age of 16 or 17, without much difficulty, although a little scanty at the time. She may have been menstruating for three years and then she gets an intense dysmenorrhea. What does it mean? It means the cervical canal is bent, and the mucous membrane becomes swollen, the secretions of the uterus do not get out, she develops endometritis, and that is the cause of the dysmenorrhea. Another fact to be borne in mind is that oftentimes by dilatation and gentle curettage we can stimulate the uterus to function better. I well remember a case, a Sister of Charity. Sterility had nothing to do with the case, but this woman was under my care for fifteen years, and she would get so that she could scarcely menstruate at all. Menstruation was very painful. I would dilate the cervix, pack the uterus with gauze, and put her through a miniature labor, and for three years she would menstruate freely; then I would perform the operation again. I did this until she developed a fibroid, then I removed the uterus.

DR. H. WELLINGTON YATES, DETROIT, MICHIGAN.—It may be possible that at some future time we will be able to type patients before they are married. However, it seems to me that it does not depend so much upon a crooked path of the canal as it does upon endometritis, so-called, or upon endocervicitis. I do not believe endometritis exists as such very long. Endocervicitis is a different thing, inasmuch as the compound type of glands do not rid themselves of the discharge, which is definitely the inhibiting factor.

I was interested to know how Dr. Morris had effected a cure of these cases by splitting these tubes from their ampullar end toward the uterus. I think it is the experience of many men that the closure is not at the ampullar end, but very often in the isthmus or at the proximal end of the uterus, or in that proximity, and merely splitting the tube up to that surface will not suffice in perhaps more than 50 per cent of the cases.

I was interested also in a remark by the essayist, if I understood him correctly, namely, he had passed a tube in 200 cases from the ampullar end of the tube down to the uterus. All the cases we have had in our service of late would admit but a small probe, for about two or three centimeters from the uterine end there is a kink which was normal to the tube and did not admit a probe under normal conditions.

DR. GORDON K. DICKINSON, JERSEY CITY, NEW JERSEY.—The Fellows have been talking about the womb, and forgotten the woman. In some foreign countries the males are males, and the females are females, but wherever there is civilization, there is a betwixt and between type which I call the physiological hermaph-

rodite, and this is quite common. They begin to menstruate late and reach the menopause early. They never do anything, that primitive women ought to, and they do not have babies right. Very often it is not until late in life they get their first child.

I operated on a woman, not long ago, in the fifties, who had had her changes, and she had a myoma with the first baby, so these cases are misleading. I think some of these women know they are in that condition because of some defect of the internal secretions. We used to say there is something the matter with the nervous system. If they have sick headaches, we feel that there is something the matter with the internal secretion. There is something not in the books. One of the most potent secretions we have is the ejaculation in the woman's vagina. Everybody knows the vagina is a fine absorbing organ. Many a woman is killed by a 1-1000 douche of bichloride. I feel quite positive there is considerable absorption of the highly vitalized secretion through the vagina. Every one knows that a woman changes after marriage. You can always tell an old maid from a married woman. That may account for the fact that in time comes along a child. It does look as if there is something in the type business, because I have read and known of people, as the doctor said, having babies later from a second wife or second husband. But there is one thing concerning which I want to go on record, namely, the way women become pregnant against pretty tough circumstances. You may remember I read a paper before this Association a few years ago on "Fundal Resection of the Uterus." I took out a piece to put at the top of the uterus on each side, the lines meeting just above the internal os. I cauterized the cervical stoma, also the tubal, and brought them together. There were three or four centimeters of raw muscle tissue brought flap to flap. I have done that in a number of cases and have had two pregnancies, one quite recently, four years after the operation. The other came on inside of twelve months after the operation, so that there is something I think in what you may call the type business, but there is also something in the intense energy, the dynamic energy of the woman and the man.

DR. JAMES E. DAVIS, Detroit, Michigan.—May I call attention to a small percentage of cases that are due to delayed or arrested development of the oviduct. You will all recall that the oviduct, when undeveloped, has a number of fairly definite kinks or waves in its course. In a certain percentage of cases this anatomical condition is carried over into adult life. When that is the case, the circular muscle layer is thick, not only at the proximal end, but practically throughout the entire length of the tube. The normal disproportion between the circular layer and the longitudinal layer does not develop. This should obtain toward the distal end in order to insure the normal function of propulsion.

What Dr. Morris has said relative to the ability of the oviduct to recover after gonorrheal infection is very true. The ability to recover is wonderful. I called attention to this remarkable repair in a former paper. After a rather extensive microscopic examination of a large number of oviducts, I was able to observe the repair process in the different stages, and it seems simply wonderful how frequently the tube can repair. Only after streptococcic infections is this ability to repair frequently and seriously impaired.

DR. DAVID W. TOVEY, New York City.—There is no doubt the endocrines help to make a woman who has irregular menses, regular. There is no doubt, furthermore, if we can get a woman who has been irregular, and can get the menses regular, by stimulation of the ovaries, she will sometimes become pregnant. I believe in the case Dr. Dickinson spoke of, where the woman became pregnant late in life, it was due to the development of the uterus by the stimulation from the ovarian secretion.

I thought years ago that endometritis, had come to be known as a rare disease. Some years ago at the Johns Hopkins Hospital they took scrapings from all uteri

that were removed, or curetted, they were examined by the pathologist, and it was found that endometritis was very rare. I think in those cases that become pregnant that are dilated and curetted, it is the dilatation that helps. Curettage is only harmful, especially if done thoroughly. It should never be done except for retained secundines, or for diagnosis.

DR. STEPHEN E. TRACY, PHILADELPHIA, PENNSYLVANIA.—We know so little about this subject that every recognized fact should be brought out. A certain number of women with a deep vagina do not conceive. After intercourse the fluid runs out and never reaches the cervix. A certain percentage of these patients will become pregnant if they have intercourse in the knee-chest position soon after the menstrual period. There is a class of women who do not have intercourse before eight to fourteen days after the menstrual period and they do not conceive. Many of them will prompty become pregnant when they have intercourse soon after the menstrual period. Some women do not conceive because of improper method of coition. When a patient comes complaining of sterility, a most careful detailed history, including the sexual habits, should be taken. Before any operation is undertaken on these women in the absence of pelvic pathology or anatomical abnormalities, the husband should be examined. There are thousands of these women subjected to unnecessary and useless operations.

DR. WILLIAM PFEIFFER, BROOKLYN, NEW YORK.—I wish to make an urgent plea for conservation of the tubes. Curtis has shown definitely that the gonorrheal tube, if infection is not accompanied by the streptococcus or staphylococcus, sterilizes itself quickly. The streptococcus may remain latent in the tube for two or three years.

I delivered a woman this spring who had had a tuboovarian abscess removed from the right side, the left tube did not then appear to be in good condition and I was tempted to remove it, but bearing in mind her desire for maternity, I left it. The woman subsequently developed quite an enlargement of the left tube and I advised its removal, which was refused. It was a gonorrheal tube which healed in a mysterious way. Conservation of tubes is to be practiced except in the presence of abscess.

DR. WILLIAM M. BROWN, ROCHESTER, NEW YORK.—I would like to raise the question of the possibility of local tuberculosis being often an unrecognized source of occlusion of the tubes.

DR. HUGO O. PANTZER, INDIANAPOLIS, INDIANA.—I would like to ask the essayist how he reconciles the diversity of opinion in regard to sterility. Spencer in the initial chapter of his book says there is a kernel of truth in every system of philosophy. That applies here. There is a kernel of truth in the different theories expounded in regard to sterility, and I think we have reason in the individual case to differentiate and then apply the remedy.

DR. RONGY, (closing).—In a paper on sterility, which is shortly to be published, I have covered almost every phase of the discussion that has taken place here, including the "donor law," as mentioned by Dr. Heyd. We have taken a series of sterile women and their husbands and have typed them, and we also took a series of patients from the obstetrical ward and their husbands and typed them. We found that there exists practically no difference in the blood groupings in those women who are sterile and the women who have borne children.

With regard to the testing of the vaginal and cervical secretions, that has been carefully studied by my associate, Dr. S. S. Rosenfeld.

As to the statement, made by Dr. Morris, that we can expect good results in 15 per cent of the cases who have had plastic operations performed on the fallopian tubes, I will admit that this high percentage of good results may be true of the

patients operated upon by Dr. Morris or equally good surgeons. But, if one watches some of the plastic operations, which are performed on the fallopian tubes for the cure of sterility by some of the surgeons in New York, he will not at all be surprised why the results after such operations in the hands of the average surgeon are not so good.

Dr. Bonifield convicted himself when he said he curetted a woman for dysmenorrhea, and that the same patient later developed a tumor of the uterus.

DR. BONIFIELD.—The dysmenorrhea was not due to endometritis.

DR. RONGY.—In that particular case, surely, it was not the endometritis that caused the dysmenorrhea. When a woman has dysmenorrhea and later develops a fibroid, it shows there is something wrong with her constitutionally. The dysmenorrhea is usually of ovarian origin, and in your case, Dr. Bonifield, her dysmenorrhea was undoubtedly of ovarian origin, caused by the fibroid.

Dr. West raised the question whether there is such a thing as primary sterility in women. I feel that primary sterility may be due either to the male or female. Regarding his statement as to the amputation of the cervix, I remember very well about 15 years ago, when it was the custom to amputate the cervix for the cure of primary sterility. I also remember a number of these patients, who became pregnant and aborted.

When I spoke about inserting a cannula through the cervix into the uterus, I had reference to a Holzman cannula, and I maintain that when one can pass a No. 6 Holzman cannula through the cervix with comparative ease, an obstruction in the uterine canal does not exist in these patients and the patient is not suffering from mechanical obstruction in any part of the uterine canal, which would cause her to be sterile.

I think Dr. Dickinson touched on a very important point in the use of contraceptors. All of us have had patients, who have prevented pregnancy for a number of years and when they wanted to become pregnant they could not. The changes produced in the vaginal mucous membranes by these contraceptive medicines, whether it is bichloride, resorcin, or quinine, were such that it interfered with the proper function of the vaginal mucous membranes; very often these patients come to us for advice, and tell us that they have stopped the use of contraceptives and still do not become pregnant. I am sure this is due to the changes produced by the various chemical substances, which these contraceptive agents are composed of.

Dr. Tracy mentioned a case of a couple, the husband being a Columbia and Harvard graduate, who did not know the proper way to have sexual intercourse. To my mind this is a reflection on the education given at these universities, and it really needs no further comment. Regarding intercourse in the knee-chest position, I pointed that out in an article I had published in 1911.

As to the sexual history of the patient, I think that must be thoroughly studied, for very often a great amount of knowledge may be derived from a real analysis of the sexual history.

I do not agree with Dr. Tovey. I never saw a patient benefited by any of the organic extracts for any length of time. They may improve temporarily, but the menstrual disturbances usually recur, no matter how much of the organic extracts we might have given them.

There can be no question but that tuberculosis of the tubes plays a great rôle in the etiology of sterility. Only the other day I operated on a patient; I found the tubes patent, but very much thickened. Sectioning of the removed part of the tube disclosed that the woman suffered from genital tuberculosis. Tuberculosis of the genital organs is more frequent than most of us surmise.