

Williams in his first paper has been definitely proved, and the last report, based on several thousand cases, shows that about thirteen per cent. of American women have contracted pelvises. This being the case, the necessity for routine pelvimetry is obvious.

The measurements taken should be the distance between the iliac spines, the distance between the iliac crests, the distance between the trochanters, and the external conjugate or Baudelocque's diameter, and they should measure 26 cm., 29 cm., 31 cm., and 19.5-21 cm. respectively (Hirst). Of course these measurements are subject to a certain amount of variation, but the figures given are those for a woman of average muscular development. The first three are best made with the patient lying on her back, by means of a Martin's pelvimeter. The instrument is opened and its limbs are held between the finger and the thumb of either hand. The anatomical points mentioned are found and the distances between them read off the scale of the instrument. In measuring the interspinal diameter care should be taken to apply the points of the instrument to the outer edge of the bony spine. The Baudelocque diameter is measured with the patient lying on the side, one limb of the pelvimeter being applied to the most prominent portion of the symphysis pubis, while the other is applied to the depression below the spine of the last lumbar vertebra. In a symmetrically developed woman these measurements are all that is necessary, but if the history of examination indicate the existence of one of the rarer or asymmetrical forms of deformity special measurements for the classes of pelvis under consideration should be taken (see article on *Pelvis, Deformed*).

Vaginal Examination. In the latter part of pregnancy, when the diagnosis of the condition by abdominal examination offers no uncertainty, vaginal examination is not necessary unless indicated by the probability of a pelvic deformity. The indication will be found in the measurement of the Baudelocque diameter, which serves to indicate the probability or improbability of pelvic contraction. Hirst (*loc. cit.*) says: "An external conjugate of 16 cm. or under means certainly an antero-posteriorly contracted pelvis; between 16 and 19 cm. the pelvis will be contracted in more than half the cases; between 19 and 21.5 cm. there will be but ten per cent. contracted pelvis, and above 21.5 cm. it is almost certain that the conjugate diameter of the pelvic inlet is not contracted at all." It is thus seen that when this measurement is above 19 cm. there is little or no necessity of subjecting the patient to the embarrassment and increased risk of an infection of a vaginal examination.

When the examination is made, with the single exception of the condition of the cervix uteri and engagement of the presenting part, there is little of importance except a thorough exploration of the bony pelvis. The examination, when made in the last month of pregnancy, should be done with the strictest antiseptic precautions, for one can never tell how soon labor may set in. The following points should be noted: condition of external genitalia and perineum, size of the vagina, character of vaginal secretion, position and condition of cervix uteri and presenting part. Bony pelvis: Inclination of pubic rami, width of interpubic angle (this should normally be a right angle with 45° on either side of the median vertical); condition of the ischial tuberosities; position and size of ischial spines, which can be felt by allowing the tip of the examining finger to travel from the anterior surface of the sacrum laterally along the sacro-sciatic ligament until the tip of the spine is reached; anterior surface of the sacrum, which should normally be concave from above downward, and concave from side to side; it should be palpable in the normal pelvis only in its lower third; palpability of the promontory of the sacrum and the measurement of the distance from this point to the lower margin of the symphysis pubis. This is the conjugata diagonalis and in the normal pelvis measures from 12.5 to 13 cm. The measurement is made by placing the tip of the middle finger on the promontory, and, with the index finger of the other hand, the point where the lower

margin of the symphysis impinges on the hand already in the vagina is marked, and the measurement made by means of the pelvimeter from this point to the tip of the middle finger. The final step in the examination is the examination of the coccyx, which can be felt between the tip of the first finger in the vagina and the thumb upon the perineum behind the anus. Its size and mobility can thus be tested.

After having completed the examination the physician will be asked by the patient or some of her friends for a prediction as to the probable course of the labor, and in giving an opinion on this subject he must not forget that obstetrics is the branch of medicine in which emergencies are most frequent, and that a case with normal indications at the outset may present grave complications before it is over. If certain points be borne in mind a fair amount of accuracy can be obtained. If it is a primipara that is under consideration the factors that suggest a normal labor are her age, which should be between twenty-one and twenty-six, an occipito-iliac presentation of the child, a normal pelvis, and the absence of an intercurrent disease; if a multipara, to these factors we must add a normal history in previous confinements. In the presence of these conditions one can be justified in predicting a labor free from grave complications.

(d) *Preparations for Confinement.*—The preparations for confinement by the patient will vary in their extent according to her financial ability. If she is in moderate circumstances, she will probably expect her attending physician to supply everything that is needed except baby-clothes. If, on the other hand, she is in better circumstances, she will not object to having in the house at the time of her labor whatever her physician may direct. If the doctor is going to carry his own supply, very few directions need be given his patients. It is always well, however, to impress upon her mind the importance of having plenty of hot water, and, if he is going to use the permanganate-oxalic method of cleaning his hands, three or four basins will be necessary. If, on the other hand, the patient feels that she wants to have in the house the necessary drugs, supplies, and so forth, the physician can give her a list of such articles some time during the last month of her pregnancy.

The author has found it very convenient to have the articles in question put up in a compact case by one of the local druggists. The patient is then simply directed to buy a "confinement outfit," which contains the following articles: two pounds absorbent cotton; one pair leggings; one hand brush; two cards safety pins, assorted; one-ounce tube vaseline; four-ounce jar green soap; one bottle blue antiseptic tablets, S. & D.; one-half pound boric acid; eight ounces alcohol; one-quarter ounce ergotole; 100 gm. chloroform, Squibb's; eight ounces oxalic acid; four ounces potassium permanganate; six nurses' record sheets.

If the pregnancy is a first one she will need in addition to the above the following list, which is not included in the first, for the reason that women who have had more than one child usually have these articles in the house.

Additional articles should be on hand as follows: one piece rubber sheeting, one by two yards; one Eureka bed pan; three small agate basins; one fountain syringe, two quarts; twenty-five yards absorbent gauze; two pounds absorbent cotton; two cotton bats.

She or her nurse is instructed not to touch the drugs, but to make with the gauze and cotton a number of vulval and bed pads, the former being about nine by three inches, of which she should have several dozen wrapped in packages of one dozen each and sterilized, and the latter (the bed pad) a large square of cotton covered by gauze, say three by four feet, upon which she is to lie in the first few hours following delivery. In addition to this, she is to sterilize at least one-half a dozen napkins or towels for use at the time of labor. If the patient or a nurse has access to a regular steam sterilizer, the dressings can be sterilized in this; if this is not feasible, however, it can be done by wrapping the dressings neatly in towels, and baking them in an oven until the outer

covering becomes scorched. The nurse should also be instructed to have two pitchers of boiled water prepared and covered as soon as labor begins.

Many obstetricians are in the habit of giving their patients printed instructions during pregnancy. The following have been of use to the author:

DIRECTIONS FOR PATIENTS DURING PREGNANCY.

- (a) Take as much outdoor exercise as possible, but guard against overtiring yourself.
- (b) See that the bowels are moved daily.
- (c) On the first day of each month send me an eight-ounce bottle of mixed (night and morning) urine; and for the two months preceding the expected date of confinement, send it on the first and fifteenth days of the month.
- (d) From the sixth month onward, bathe the nipples night and morning with the following solution: four ounces of alcohol and water, half ounce borax.
- (e) Six weeks before the expected date of confinement buy a "Confinement Outfit" from Hynson, Westcott & Co., Charles and Franklin streets, Baltimore. In this is included everything which will be needed by the nurse and myself except baby's clothes. At the same time procure a piece of rubber sheeting one by two yards, a bed pan, three small round agate basins, a two-quart fountain syringe, fifteen yards of gauze or cheese cloth and two packages of absorbent cotton.
- (f) Send for nurse as soon as labor pains commence, and let her use her judgment in sending for me, unless some emergency arises.
- (g) Notify me at once if any of the following symptoms be observed at any time during pregnancy:
 1. Scanty urine.
 2. Persistent headache.
 3. Disturbance of vision.
 4. Swelling of feet or face.
 5. Loss of blood.
 6. Persistent constipation.
 7. And also when you feel that anything is not as it should be.
- (h) I shall call to see you about six weeks before the expected date of confinement, to measure your pelvis and give you any desired advice.
- (i) Send your nurse to see me as soon after she is engaged as may be convenient.

And these to the obstetrical nurse.

DIRECTIONS FOR OBSTETRICAL NURSE.

Preparations before Labor.

- (a) "Confinement Outfit," and the other articles called for in "Directions for Patients," which include everything you or I shall need except baby-clothes.
- (b) Prepare a sufficient number of sterile bed and vulval pads.
- (c) A week before the expected date of confinement prepare four packages for me, two containing six towels or diapers each; one containing a sheet, and another containing a pound of cotton. These dressings should be pinned on towels or old muslin, sterilized by baking one-half hour in an oven, and not opened by any one except myself.

At Time of Labor.

- (a) As soon as labor pains begin, notify me by telephone or message, state in the message exactly the state of affairs that exists, do not say "come at once," unless in case of emergency; in this way, if it is not necessary for me to see the patient at once, I can make my plans accordingly.
- (b) At commencement of labor prepare two large pitchers full of boiled water, covering them with a clean towel.

(c) When labor has definitely set in, give the patient a warm bath and a soap suds enema.

(d) Make up the bed on the right side.

(e) Procure a piece of oilcloth or an old rug to protect the carpet.

(f) Don't give vaginal douches of any kind.

(g) Don't examine patient vaginally under any circumstances.

(h) Prepare the patient for vaginal examination by placing her upon a Kelly rubber pad, and then wash the genitalia thoroughly with soap and hot water, using cotton pledgets instead of a wash cloth. Wash from above downward (toward the anus). Cut the pubic hairs if necessary, then bathe the vulva with a 1 to 1,000 bichloride solution, afterward covering it with a folded towel soaked in the same solution.

(i) Before vaginal examination prepare patient so that I can see what I am doing without unnecessary exposure. This is best done by drawing up the gown and covering the legs and thighs with a loose sheet. When the birth of the child appears imminent, roll the night gown up above the patient's hips and pin in position, then put on the obstetrical leggings.

After Labor.

- (a) As soon as labor is over, cleanse the genitalia with cotton pledgets and water, and then bathe with bichloride solution, after which apply a sterilized vulval pad and place the patient upon a sterilized bed pad.
- (b) Don't use an abdominal binder until after the tenth day, unless otherwise directed.
- (c) Change vulval pads as often as necessary, washing the genitalia each time with a 1 to 4,000 bichloride solution.

THE MANAGEMENT OF LABOR.—(a) *The Obstetric Call* should be answered at once no matter what the engagements or obligations of the physician may be. If at the theatre or some social function at a time when a case of labor is expected he should always leave directions how he can be found, and should respond to them at once. At times this may be very inconvenient, but nevertheless the practice should be followed rigidly. If he is in attendance upon another case of labor, it is perfectly permissible for him to leave that case if her condition be not such as to demand his actual presence, and after having seen the second case he can return to the first. In this way it is easily possible to manage two cases at the same time, but there should always be a substitute within reach. According to the opinion of the author, the patient first beginning labor has the right of priority, and if the substitute has to be called, he should be sent only to the second case. Others believe, and it is doubtful which is the better position to maintain, that the duties of the obstetrician are with the woman who is more seriously ill, and the substitute should be left with the easier case.

(b) *The Obstetric Armamentarium.* The average obstetrical valise which is sold by instrument makers is entirely too small to carry sufficient material for properly managing a case of labor. It little matters as to the shape of such a receptacle, so long as it is large enough. Valises have been devised by Edgar of New York, Williams of Baltimore, and the author, which present distinct advantages over the little hand satchel that has been so long in use. The valises of Edgar and the author are practically identical in their general plan of construction which is as follows: Two porcelain trays, one deep and one shallow, are so constructed that the deep one fits into the shallow. The space within the trays is used for packing bottles, dressings, and instruments, and the entire nest of trays is covered by a leather carrying case. That of the author is essentially the same as the one just described, but, being made for the permanganate-oxalic technique, it contains two smaller basins which fit into the large one. The

method of using either of these valises is obvious. When the operator arrives at a case he unpacks his various trays and uses them to make his antiseptic solutions in, and for sterilizing his hands. The trays are so large that they permit the entire forearm to be soaked, and can be used also for boiling instruments, or bathing an asphyxiated child. Where suitable basins are not available such an armamentarium is indispensable, but if the patient has previously been instructed to have the necessary basins, the outfit of Williams is probably the best. This consists of a small hand trunk with the proper compartments and straps for carrying bottles. Its most important adjunct is a small metal box of sufficient size to hold comfortably a pair of obstetric forceps. When the valise is packed this box contains all the instruments, and if necessity arises to use them the box is placed directly upon the stove and the contents will soon come to a boil. In the unused space can be packed the dressings, etc.

The obstetric valise should contain the following articles. Drugs: oxalic acid, permanganate of potash, bichloride tablets, ergotole, chloroform, hypodermic syringe and tablets. Instruments: a pair of obstetric forceps (best, Tarnier's axis traction), Braun's cranioclast, Smalley scissors, pelvimeter, perineal instruments consisting of a needle holder, dissecting forceps, two pair of artery clamps, a pair of scissors, needles, and silkworm gut ligatures, a nail brush. Dressings: wrapped in separate bundles and sterilized, vulval pads, gauze sponges, two or three roller bandages, to pack the uterus in case of hemorrhage, half a dozen sterilized towels, gauze wipes for eyes and mouth, and bobbin for cord ligature.

(c) *Obstetric Antisepsis.*—This is the most important subject of the present paper, and had best be considered under three headings: namely, the nurse, the physician, and the patient.

1. *The Nurse.* At the present time the profession is much better supplied with obstetric nurses than twenty years ago, and almost every patient can have at the time of her confinement one to nurse her who has had a regular training in some well-appointed lying-in hospital. She should be a woman who has been well trained in the principles of antisepsis and asepsis, should not have recently been in contact with an infectious case of any kind, and should possess the natural discretion which will render her capable of getting along with the members of her patient's family and the servants. Most trained nurses have been taught how to make the vaginal examination of a woman in labor at the hospital from which they receive their training. In private practice, however, it is well to allow them to do this only under exceptional circumstances. If the physician in charge is going to take the entire responsibility of the case, it is far better that he, and only he, subject the patient to the risk of infection. The passage of the catheter is another danger that should be entrusted to the nurse only after the physician has thoroughly investigated her technique in such a procedure.

When one is dealing with an untrained nurse, it is best to allow her no more technical privileges than if she were a member of the laity. In the experience of the author such women know nothing of antiseptic technique, and the faith that a few of them have in a little bichloride solution makes them excessively dangerous in the lying-in room. These women should never be allowed to examine vaginally and never under any circumstances to pass the catheter.

2. *The Physician.* The personal and surgical cleanliness of the obstetrician is by far the most important factor of technique. From the personal side he should bear in mind that he comes in contact with sensitive women at a time when any little caprices they may have are exaggerated. His clothing should be neat and his linen always clean. His technical cleanliness is, of course, important in that it diminishes the risk of infection. The physician in general practice should use the greatest care thoroughly to disinfect his hands and his clothes after having them in contact with a septic case of any kind. If he does not feel certain that he has gone through the

proper precautions, it is far better that he should send a substitute to the obstetrical case. The general care of his hands would require special attention and they should as far as possible be kept free from small wounds, abrasions and scratches, for it is in these situations that germs may thrive, to be transmitted to his patient during a vaginal examination. Haegier (Basel, 1900, ref. *Centralblatt für Chirurgie*, 1900, No. 46) and Bloodgood (*Progressive Medicine*, 1901, December) both agree in this danger of slight wounds on the hand. The latter claims that a prolific source of infection is the caking of blood around the interstices of a finger nail, and that since he has worn rubber gloves, his hands have been in a better condition. Williams ("Jewett's Obstetrics," second edition) calls attention to the danger afforded by infected wounds, bone felons, or a pustulous eczema on the hands of the obstetrician. Contact with septic material of any kind, not only in other patients, but upon the person of the physician himself, should be strictly avoided. In this connection it is only necessary to recall the case of Dr. Rutter, of Philadelphia (Williams, *loc. cit.*), who was followed wherever he went by an epidemic of puerperal fever, while his brother practitioners were practically free from it. It appeared later that the source of infection was a purulent ozæna from which he infected his hand every time he blew his nose. It is now known beyond any question of doubt that infection of all kinds is produced by contact; hence the old theory that sewer gas plays an important part in its production can be abandoned. Garrigues ("American Text-book of Obstetrics," first edition) in a recent article advocates this theory and attributes an epidemic occurring in the New York Maternity Hospital to guano which had been sprinkled over the ground, and a second one in the New York Infant Asylum to the presence of a dead rat in the cellar. We cannot agree with him, however, in believing the possibility of air infection.

The actual disinfection of the hands was originated in 1847 by Semmelweis (Wien und Leipzig, 1861), who was struck with the frightfully high mortality of women delivered in lying-in hospitals. Thinking this might be due to the contamination of the hands of the assistants by handling pathological material, he compelled them to bathe their hands in a solution of chloride of lime, and was rewarded in seeing the mortality immediately drop. It was not, however, until Lister had introduced his antiseptic method into surgery, until Stadtfeldt, of Copenhagen (cited by Williams, *loc. cit.*), had advocated the use of bichloride of mercury in obstetrics, and until Pasteur (*loc. cit.*) had found streptococci in the tissues of women dead of puerperal fever, that obstetricians in general began to disinfect their hands.

The methods of disinfection at present in use are as follows: That of Fürbringer, by which it is claimed the hands can be made sterile more rapidly than by any other method. His method, as quoted by Jewett, is as follows:

- (1) Clean the nails dry.
- (2) Scrub the hands and forearms for not less than three minutes with a hand brush with soap and water as hot as it can be borne; especial care must be taken in brushing the nails and finger tips, and the water should be changed two or three times.
- (3) Scrub well with alcohol (not below eighty per cent.) and, before it evaporates.
- (4) Immerse for three minutes in a hot solution of mercuric iodide or chloride (1 to 2,000 to 1 to 500) or in a three-per-cent. solution of carbolic acid.

A fallacy has been discovered in this method by Menge and Krönig, who show that the organisms are not destroyed but simply made to adhere more closely to the hands, and Senger (*Centralblatt für Chirurgie*, 1899, No. 27) has proven that alcohol and carbolic acid form an inert chemical combination. Senger has found the following method of value, which is based upon not only the actual germicidal properties of the mixture, but also upon its chemical combination, the importance of which was advocated by Krönig and Paul (*Zeitschrift für Hygiene und Infektionskrankheiten*, Bd. 25, 1897). It is—

(1) After thoroughly scrubbing the hands as heretofore described they are immersed for two minutes in a solution of hydrochloric acid of from two- to five per-cent. strength.

(2) This is followed by immersion in one-half- to two-per-cent. solution of permanganate of potash for one minute.

(3) A solution of sulphurous acid is used to remove the discoloration.

The virulence of this combination is due to nascent chlorine, nascent oxygen, and nascent sulphuric acid, which, the authors (Krönig and Paul) claim, are much more effective in this state. Bloodgood (*loc. cit.*) is unable to state whether this combination is better than permanganate of potash and oxalic acid, and says that his results with the latter method have been such that a change does not seem necessary. In this the author entirely agrees with him. But the method of Krönig and Paul is based on such excellent laboratory work that it cannot be overlooked.

The permanganate of potash and oxalic acid method, which was originated by Halsted and later described by Kelly (*American Journal of Obstetrics*, 1891, xxiv., No. 12) (it has been wrongly referred to as that of Welch [Jewett, "American Text-book of Obstetrics," first edition]), is the one used extensively in this country and the one with which the author has had most excellent results both in hospital and in private practice. It is as follows:

(1) The hands are thoroughly scrubbed with hot water and green soap for from three to five minutes, the water being changed several times.

(2) The hands are immersed in a warm solution of potassium permanganate until they attain a mahogany brown color.

(3) They are then decolorized in a hot saturated solution of oxalic acid.

(4) Soak the hands and forearms for at least two minutes in a 1 to 1,000 solution of bichloride.

All observers agree that the most important step in any of the above methods is the mechanical scrubbing, but most of them agree with Haegier (*loc. cit.*) in the opinion that chemical disinfection cannot be dispensed with.

Rubber Gloves. According to Bloodgood (*Progressive Medicine*, December, 1899), rubber gloves were first used by Halsted in 1889. If properly employed they practically solve the question of hand disinfection for the reason that they can be absolutely sterilized by boiling. Their use in general surgery has been shown by Bloodgood to diminish the frequency of wound suppuration markedly. Up to the present time gloves have not been used extensively in obstetrics. Williams advised them, but claims that they interfere considerably with the sense of touch. Moran, of Washington (*American Journal of Obstetrics*, February, 1902), has made a comparative study of the results obtained by the use and non-use of rubber gloves in the management of obstetric cases. His results undoubtedly show a slight decrease in the morbidity, as is seen by the following figures: from July 1st, 1899, to September 30th, 1900—318 cases were treated of which 180 were examined during or after labor, and 138 were not examined. Of those that were examined 40 (22 per cent.) had a rise of temperature of above 100° F., and of those not examined 26 (19 per cent.) one above normal. In this series of cases gloves were not used. From October 1st, 1900, to May 30th, 1901, 237 cases were treated with rubber gloves. Of those examined, of which there were 197 cases, 43 (or 20.7 per cent.) had a rise of temperature, and of those not examined, 40, 7 (or 17.5 per cent.) had this rise. If these results are compared it is seen that without gloves the morbidity was 22 per cent. and 19 per cent. for the examined and not examined cases respectively, while with gloves this morbidity was 20.7 per cent. and 17.5 per cent. Although these figures show only two or three per cent. morbidity in favor of gloves, yet this author shows clearly that this small difference is due partly to the fact that many general diseases increase the morbidity. His results as to actual infections definitely prove that this complication is decidedly less frequent when gloves are

VOL. V.—25

used and even less so when the patients are not examined. In the opinion of the author it is exceedingly difficult, if not impossible, to do some of the major obstetric operations, namely, high forceps and version, if gloves be worn. It is his practice to wear gloves only in dirty cases, thus keeping his hands always clean.

To summarize the question of hand disinfection, it is well to note that except by the careful use of rubber gloves which have recently been boiled, it is impossible to sterilize the hands from a bacteriological standpoint. For practical purposes, however, the method of Krönig and Paul, or that of Halsted, will be found sufficient. And if it be remembered that, as the hand cannot be absolutely sterilized, any unnecessary manipulation or examination subjects the patient to a certain risk of infection, the operator, by avoiding this, will do all that is in his power.

3. *The Patient.* The question of proper antisepsis on the part of the patient is just as important as that of the physician, and the entire field of operation, namely, the vulva and the inner surface of the thigh, should undergo a rigid disinfection. It should be remembered, however, that this disinfection can never be as complete as that of the surgeon's hands; these parts, therefore, should not be touched during the operation with a disinfected hand any more than is absolutely necessary. In hospital practice the vulva can and should be shaved, for in the average hospital patient it is almost impossible to render the pubic hair sterile. It would be best if this same technique could be used in private practice, but to this the average woman will not submit. Warren (*American Journal of Obstetrics*, January, 1902) says that the chief objection to it is the discomfort that follows when the hair begins to grow out again, nor does Bowen (*American Journal of Obstetrics*, December, 1901) advise it, but both of these operators think it best that the pubic hair should be clipped short with scissors. The necessity of thoroughly cleansing the vulva has been emphasized by the excellent laboratory work of Williams (*American Journal of Obstetrics*, 1898). He was struck with the discrepancy that existed in the various opinions as to the bacterial flora of the vaginal secretion, and, thinking that the differences in results were due to differences in technique in the methods of obtaining the secretion, he made a comparative study in the several methods as follows: In a series of cases he made cultures from the vaginal secretion (a) by means of Menge's tube, (b) using a glass speculum and obtaining the secretion directly by means of a platinum loop, and (c) taking cultures directly from the inner surface of the labia and vestibule. From each case were the above three cultures made, and the results showed that by means of the Menge tube no pathogenic organisms were found in the secretion, while when the speculum was used such organisms were found quite frequently, and they corresponded identically to the organisms found in the cultures made from the external genitalia, showing conclusively that even by the careful introduction of the cylindrical glass speculum it was almost impossible to avoid introducing germs from without.

As regards the actual method of disinfection little need be said in addition to what has gone before. After clipping the pubic hair short the vulva and inner surface of the thigh are thoroughly washed with warm water and green soap. This is to be followed by copious irrigation with bichloride solution, and then a pledget of gauze wet with the same solution is to be allowed to lie over the vulva until the examination is made.

The ante-partum douche is at present little used, and it seems superfluous to say much about it. However, a few words in regard to the rationale of its abandonment will not be out of place. Up to 1892 there were two beliefs as to the bacterial flora of the vaginal secretion. Certain authorities, on the one hand, claimed that the secretion was invariably free from pathogenic microorganisms, and, according to them, the ante-partum douche was superfluous. On the other hand, another school of observers claimed that pathogenic bacteria were present in a certain percentage (from 4 to 27 per cent.) in the vaginal