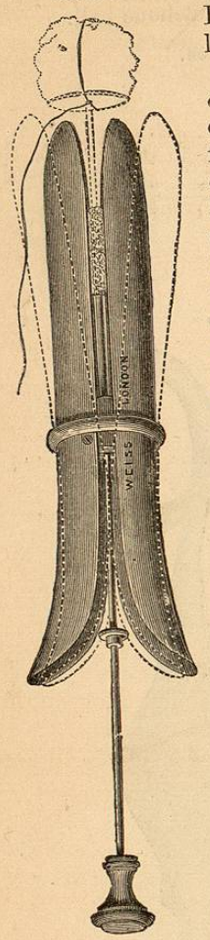
Fig. 54.



Barnes's Speculum to Facilitate Application of Medicated Cotton-Wool in the Vagina (R. B.). (Half size.)

own use than that known as Higginson's. (Fig. 53.) It should be furnished with a vaginal tube four inches long.

Barnes's Speculum for Introduction of Cotton-wool charged with remedies into the Vagina.—The best way of introducing pledgets of cotton-wool charged with fluids or powders into the vagina is by help of the ordinary speculum. But this requires skilled assistance. To enable the patient herself to carry out this treatment, I have devised the speculum figured (Fig. 54). It is made of vulcanite, a material not injuriously acted upon by the materials most frequently used. It consists of two blades, moving on a pivot about the middle, and a piston. The blades above the pivot are made to diverge by a spring inside; this divergence causes the blades below the pivot to come together, forming a hollow cylinder in which the pledget of wool is placed. The blades inclosing the pledget are further kept in contact by a strong elastic ring outside. When charged, the patient, by simply opening the vulva, can pass the instrument into the vagina, directing the point backwards as far as necessary; then by compressing the external diverging blades, the internal ones are opened, and by pushing on the piston or rod, the pledget is deposited in the vagina. The speculum is then withdrawn by leaving off the compression upon the external blades. The action of this instrument will be better understood by an illustration. It was suggested to me by the ingenuity of a lady whom I had advised to introduce pledgets of wool soaked in solution of bromine. She made use of a glove-stretcher to separate the labia vulvæ, and then slipped in the pledget with her fingers. My speculum is like a glove-stretcher, with the blades hollowed to protect the pledget while passing, and a piston to thrust it out into the vagina.

The pledget of wool is tied round with a bit of string. This string hangs outside the vulva, and by means of it the pledget is easily withdrawn. No pledget should be worn longer than five or six hours.

CHAPTER V.

THE DIAGNOSIS OF DISEASES OF THE PELVIC ORGANS. THE TOUCH—THE SOUND—THE SPECULUM.

The general knowledge we have now acquired of the value of subjective symptoms and of the instruments of diagnosis, will enable us to pursue with greater advantage those means which bring out the objective signs, and thus to gain all the possible elements of a complete diagnostic conclusion.

One guiding rule should be impressed upon the mind of the young practitioner, when he has a case of presumed disease of the pelvic organs under investigation. Do not concentrate all attention upon this one region of the body. Remember that the fault may be in distant parts; that disease in other organs may complicate disease in the pelvic organs. Do not, in short, fall into the deplorable snare of becoming a specialist. Do not imitate the error of those physicians who, whilst repudiating the idea of being specialists, and who, when in the presence of a case marked by disorder of the nervous system, of the heart, lungs, or abdominal viscera, carefully explore the state of the organs contained in the skull, chest, and abdomen, yet scrupulously avoid exploring the not less important organs contained in the pelvis; and that even although the symptoms point to disorder in this region.

The great clinical rule should be: Interrogate all the functions; examine every organ. In this way only can we acquire a well-founded confidence that important disease is not overlooked; in this way only can we rightly estimate the relations of symptoms to disease, and the reactions of disease upon distant organs, and frame a rational plan of treatment.

A work whose intention it is to illustrate the pathology of the pelvic organs, must necessarily observe the limits of the design. The art of diagnosis, therefore, as applied to the pelvic organs, demands the most elaborate description. But in tracing this with almost exclusive care, as it must be done in a work *ad hoc*, it must not be supposed that general pathology or general diagnosis can ever be pretermitted in actual practice.

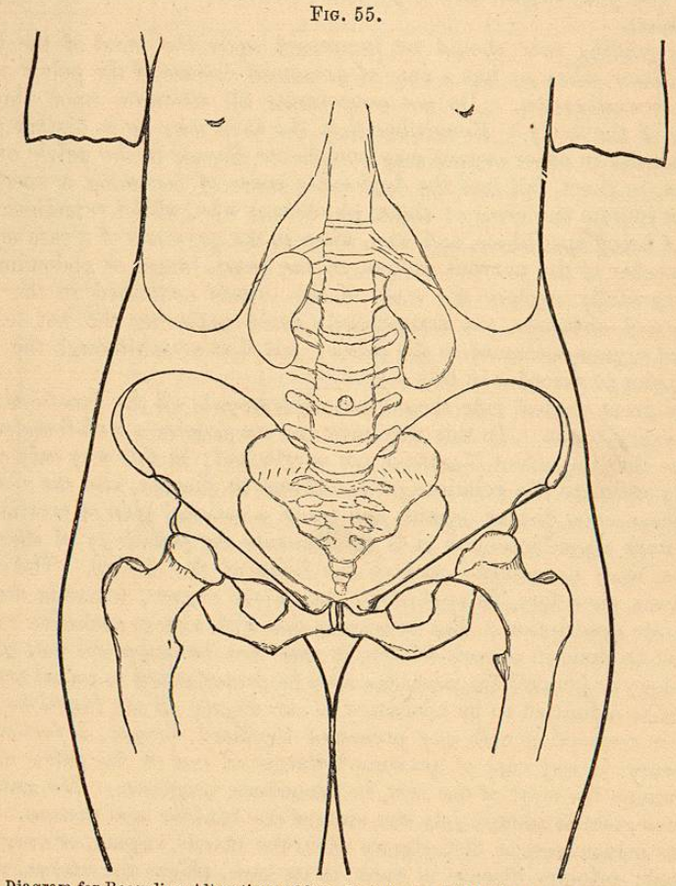
If it be admitted to be necessary to investigate all the functions of the body in connection with any presumed localized disease, *à fortiori* it is necessary, in any case of presumed disease of one of the pelvic viscera, to examine the state of the rest, its immediate neighbors. We must then never neglect to inquire into the state of the bladder and rectum. These organs seldom escape disturbance when the uterus, vagina, or ovaries are affected; primary disease in them, in its turn, affects the uterus, vagina, and ovaries; and not seldom, symptoms seemingly indicative of disease in the uterus or vagina are really due to disease in the bladder or rectum.

The order of clinical proceeding, then, may be laid down as follows:—

If a patient complain of distress referred to the pelvic organs, or dis-

order of their functions, note *first* the subjective symptoms; 2, interrogate the functions of the nervous, circulating, respiratory, and nutritive organs; 3, elicit the history of the patient as to her general health, and the antecedents and course of her disorders; 4, if the indications point to disease in the chest or abdomen, subject the organs contained in these cavities to physical exploration by sight, palpation, percussion, measurement, auscultation, etc.; 5, subject to physical examination, by the methods hereafter described, the state of the pelvic organs, observing at the time, or reserving for chemical and microscopical analysis, the nature of the local secretions, or of solid substances expelled; 6, when all necessary information has been obtained, compare the symptoms and facts in their individual, relative, and aggregate significance, so as to work out the diagnosis which shall determine treatment.

Fig. 55.

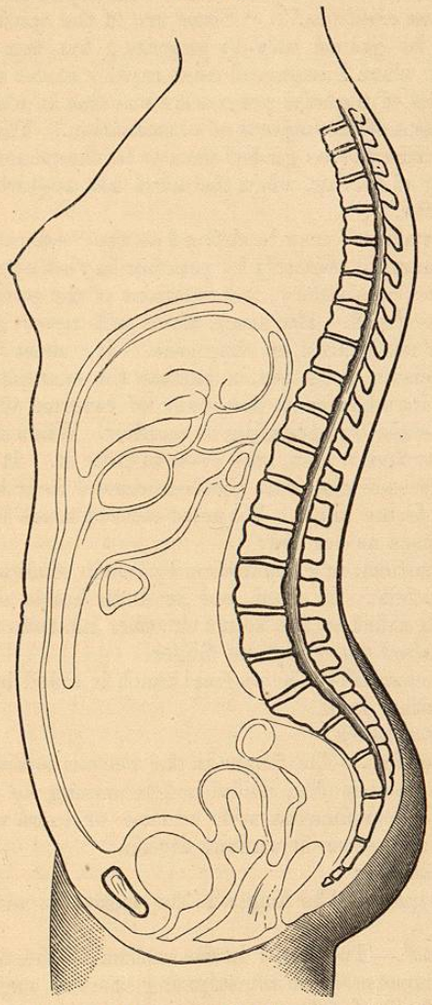


Skeleton Diagram for Recording Alterations of Size, Position, and Relations of Pelvic and Abdominal Organs.

In taking down a case, it is well to follow the order indicated above; and since "word-painting" can hardly be so graphic as actual drawing,

it will be found of great service to attach to the notes diagrammatic memoranda of the position, shape, size, and other conditions of the organs under observation. These become extremely valuable as standards of comparison during the future progress of the case, and by furnishing more intelligible records for other persons. To record these observations,

Fig. 56.



Skeleton Diagram for Recording Alterations of Size, Position, and Relations of Abdominal and Pelvic Organs.

outline or skeleton diagrams like those represented in Figs. 55, 56, will be extremely convenient. The idea of these will be found in the grandest memoir on the diagnosis of abdominal tumors ever published, that of Dr. Bright, in Guy's Hospital Reports.

The physical exploration of the pelvic organs is conducted chiefly by the *touch*. The touch is applied either *directly by the hand*, or *mediately through instruments*. The touch is sometimes aided by *sight*, facilitated or not by the *speculum* or other contrivances for bringing concealed parts into view. The touch is also sometimes aided by the sense of *smell*.

The touch takes precedence in importance and in order of application of all other methods. We may therefore usefully recall what Gooch said about the "*tactus eruditus*." "Some are of the opinion that this art is a blind tact, to be gained only by practice; but this is not true; the period of my life when I improved most rapidly in the art of deciding by examination cases of doubtful pregnancy was that in which I gained clear and orderly notions of the objects of examination. The faculty of observation requires rather to be guided than to be sharpened; the finger soon gains the faculty of feeling, when the mind has acquired the knowledge of what to feel for."

The "tactus eruditus" may be defined as the "educated touch." How is the finger educated? Greatly by practice in *feeling* the various conditions of form, size, consistency, and relations of the parts upon which this sense is to be exercised. But touch alone will never give perfection to the finger as an instrument of diagnosis. We must be content, if we would attain precision in its use, to imitate the example of children who, in their earliest introduction to the study of external objects, correct the evidence of one sense by appealing to another. When they see a strange object they try to feel it also, and even to taste it. It is by this tentative method of cross-testing that children extend their knowledge of Nature. We must do the same. We must correct touch by sight, and even call the other senses to our aid.

Manual examination, or examination by touch, embraces the following modes of exploration: In some, one or both hands only are used; in some, the hand is aided by the sound or other instrument.

1. *Simple vaginal touch*, by one finger.
2. *Abdomino-vaginal*.—The vaginal touch is aided by abdominal palpation with the other hand.
3. *Simple rectal touch*.
4. *Recto-abdominal*.—The finger in the rectum is aided by abdominal palpation. This mode is often useful in determining the size and relations of the uterus, the complication with uterine or extra-uterine tumors, or the existence of the uterus in vaginal atresia.
5. *Recto-vaginal*.
6. *Urethro-vaginal*.—The finger in the vagina is aided by the sound in the urethra.
7. *Uretho-rectal*.—The finger in the rectum is aided by the sound in the urethra; indispensable in investigating cases of vaginal atresia.
8. *Simple abdominal palpation and percussion*.
9. *Uterine exploration by the sound*.
10. *Utero-abdominal*.—The sound *in utero* is aided by abdominal palpation.
11. *Utero-rectal*.—The sound in the uterus is aided by rectal touch.
12. *Examination by speculum*.—Here the sight is the main source of information.

13. *Examination of the secretions, discharges, or substances expelled*.

Before instituting intra-pelvic exploration it is desirable to ascertain the state of the abdomen. The patient in dorsal decubitus is examined by palpation and percussion to determine the presence or absence of abdominal tumors or of pelvic tumors rising into the abdomen. This subject will be found carefully discussed under the diagnosis of ovarian tumors.

THE MODE OF MAKING A DIGITAL EXAMINATION.

Examination by the hand should always precede the use of instruments. Because,—1st. In many cases the information gained by the hands is sufficient; 2d. The information gained by the hand commonly tells us how best to use other diagnostic instruments; 3d. In some cases, notably in cancer, in which sufficient information can be gained by the hands, instruments may do positive harm.

The patient is placed either in the lateral or dorsal decubitus. Each position has its advantages. In making a first exploration for diagnosis, it is most convenient to place her first on her left side, the knees drawn up, the head and shoulders directed obliquely across the couch, on a level, or nearly so, with the nates, and the nates brought near the edge of the couch. This affords perfect facility for digital touch, also for the sound, and often for the speculum. If the patient lies on her left side, the surgeon will find it best to use his left hand, for then his right hand is conveniently disposed for palpation above the pubes, and to examine in concert with the finger of the left hand in the vagina. If he can only touch with his right finger, he must cross his left hand awkwardly over his right to get at the abdomen. It would be better in this case to place the patient on her right side, when things will be disposed conveniently for the right-handed surgeon. But the obstetric surgeon, like his ophthalmic brother, ought to be ambidexter, and should sedulously cultivate the equal use of both hands.

Supposing the patient to lie on her left side, the usual obstetric position, the surgeon having anointed his left index with cold cream, olive oil, glycerine, vaseline, or soap, arranges the bed-clothes or dress with his right hand. To lessen risk of infection, it is well to use carbolized oil. The radial edge of the left hand is then directed between the nates, and determines the relation of the parts by feeling the lower end of the sacrum and coccyx and anus; the finger then passing along the raphe of the perineum, comes necessarily to the edge of this structure at the posterior commissure of the labia, and therefore falls surely between the labia; the pulp of the finger is made to enter at this spot, and its further progress is made by pressing the back of the finger against the distensible perineum and onwards, following the curve of the sacrum. The reasons for this mode of proceeding are to save the patient the annoyance of touching the sensitive structures at the pubes, and to get at once between the labia, which it is not always easy to do, if the finger be directed more forwards. It is also much more easy in this way to follow the curve of the vagina. To reach the os uteri, which often lies high up under the promontory of the sacrum, it is commonly necessary to press

* By 1 tow and palmar surf. of finger pressed back * after you can turn it.

the perineum well back. The os uteri is found, then, by making the finger feel its way all along the posterior wall of the vagina to its roof, until the cervix is reached. It first takes note of the size, shape, firmness, and character of surface as to its smoothness or roughness of the vaginal-portion of the cervix; of the character of the os externum as to patency or closure, of its form, whether a fissure or round. Having made these observations, the finger next takes note of the condition of the supra-vaginal portion of the neck and of the body of the uterus.

Feeling all round the vaginal portion, pressing the finger lightly into the fundus of the vagina, in some portion of the circumference, the resistance due to the solid cervix or body will be felt. Following this, the cervix is traced by continuity into the body. If the uterus is in normal position, its body is felt in front of the cervix through the upper and anterior wall of the vagina. Three other points may now be studied: the bulk, the sensitiveness, and mobility of the uterus. The bulk is estimated by poising the cervix uteri on the tip of the finger, whilst the hand is pressed in above the symphysis pubis, until the solid body of the fundus uteri is felt. Thus, the uterus is caught in its extreme length between the two hands, and allowance being made for the thickness of the abdominal wall, a fair idea is obtained of its length and bulk. The necessary pressure will determine the sensitiveness of the uterus; and the poising of it on the finger, alternating with depression on the fundus, brings out the degree of mobility.

If the uterus is in reclination, the solid resistance of cervix and body is felt through the vaginal roof behind the os. Again, by combined abdominal palpation, the body is caught between the two hands, not in its long axis, for the fundus lies under the sacral promontory, but across its body. The diagnosis is verified by bringing the examining finger in front of the cervix; and then when abdominal palpation is resorted to, the hands approaching each other, find no intervening body, *i. e.*, no uterus between them.

The finger next explores, by aid of abdominal palpation, the lateral regions of the pelvis. In this way, if there is deposit in the broad ligament, distension of the Fallopian tubes, or enlarged or prolapsed ovary, the abnormal condition may be made out.

THE DIGITAL RECTAL TOUCH.

The lateral position of the patient is still the best for the examination by the rectum. The forefinger, lubricated, is passed into the rectum, and exploring as it goes the anterior wall, the uterus is felt through it. Commonly, the vaginal-portion is easily made out. If the uterus is strongly anteverted, so that the os is thrown backwards, this part will project into the rectum. This position will account for the pain sometimes suffered at stool, when the cervix uteri is inflamed and enlarged. One of the greatest advantages, however, gained by rectal touch, is the greater reach it gives one over the body of the uterus; and the greater area brought under exploration. The finger not only reaches much higher, but may be made to sweep right and left in the lax rectal pouch, getting well behind the broad ligaments, feeling the ovaries, and examining the state

of Douglas's pouch. If the uterus be retroverted or retroflected, the finger may usually reach the very fundus, and thus take a very accurate estimate of its bulk, form, position, and sensitiveness. The ovaries, again, which lie a little behind the uterus, may, in some of their abnormal conditions, often be explored with precision by the rectum. In the case of some uterine tumors and retro-uterine effusions, as hæmatocele, or peri-uterine effusions, examination by rectum supplements vaginal touch, giving often even more valuable results. Combined with abdominal palpation, rectal touch determines with great accuracy the bulk of the uterus. It can often be commanded more completely in this way than by vaginal touch. In some cases it is justifiable, under anæsthesia, to pass the whole hand into the rectum.

EXAMINATION BY THE BLADDER.

It is possible and sometimes desirable to explore the bladder by the finger in the urethra. This canal in the female is short and very distensible. It may be dilated very quickly by Weiss's urethral dilator. But in the majority of instances, mediate exploration by the catheter or uterine sound supplies the information that is sought.

The exploration of the abdomen by palpation and percussion is, of course, best conducted with the patient in the dorsal decubitus; and this position is also often the best for the combined vaginal touch and abdominal palpation. The uterus in this decubitus is more easily grasped and pressed down into the pelvic cavity into contact with the finger in the vagina.

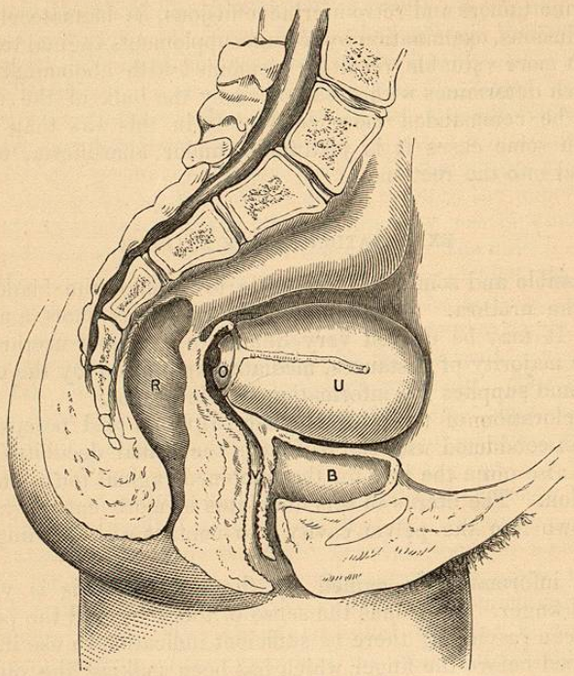
Further information is gained by the *sound*. This is virtually a lengthened finger. It extends the sense of touch beyond the point which the finger can reach. If there be sufficient indication to use it, it should be introduced before the finger which has been making the observations already described is withdrawn, as it is desirable to avoid the necessity of having to repeat the vaginal touch.

Before taking up the sound, one precaution is imperative. Be satisfied that the patient is not pregnant. We may acquire reasonable assurance of this negative if, by combined vaginal touch and abdominal palpation, we find the uterus not exceeding the normal bulk, and the os uteri hard and small. If, on the other hand, we feel the os uteri soft, tilted far back under the promontory of the sacrum; if we feel "anterior vaginal roof-stretching," and the bulk of the uterus increased, the presumption of pregnancy is great. Then, do not take up the sound. Another rule is useful. Never use the sound unless you have trustworthy evidence that the patient has fairly menstruated within the preceding fortnight; or that the suspension is not due to pregnancy.

As this rule in practice is exceedingly important, I introduce a special illustration in order to draw attention to the physical signs which afford presumption of early pregnancy. (Fig. 57.) The suspicion of pregnancy, however, does not necessarily exclude the speculum. And this instrument may be the means of clearing up the doubt. The deep violet color of the vaginal-portion and vagina, and the thick creamy discharge, added to the increased bulk and anterior vaginal-roof stretching, con-

stitute a strong body of evidence rendering the diagnosis of pregnancy almost certain. It is also generally improper to use the sound if there is evidence of metritis, or extreme tenderness on touching.

Fig. 57.



Designed to illustrate Diagnosis of Early Pregnancy (R. B.).

B, Bladder. R, Rectum. U, Gravid uterus in anteversion. O, Os uteri tilted up, and stretching the anterior vaginal wall from O to V, making this part tense and elastic.

THE MODE OF USING THE UTERINE SOUND.

The patient still lies on her left side. The examining finger on the os uteri serves as a guide. The sound, held with its concavity forward, is carried along close to the examining finger to the os, into which it is introduced. When it has passed an inch or so, an obstruction is commonly met; this is the isthmus, or os uteri internum. At this point the direction of the cervico-uterine canal changes; and a corresponding change must be given to the direction of the point of the sound. When the axis of the uterus is normal, the canal curves gently forwards, so that by carrying the handle of the sound lightly backwards the point will follow this curve. In giving the direction to the sound we are guided by the information gained by the digital touch. The body of the uterus has been felt in front of the cervix. As the point of the sound passes on, the finger on the os uteri takes note of the extent to which it passes, and when it feels the elbow or projection which marks off two and a half inches from the point, on a level with the os externum, a sense of resistance is communicated to the touch. The point has reached the fundus of the uterus, usually the most sensitive part, and the patient will commonly complain of pain unless the utmost gentleness is used. The introduction of the uterine sound resembles the introduction of the vesical sound or catheter in the male urethra. It requires the like delicacy of touch; the instrument is made to feel its way rather than to be propelled by force. When the sound has touched the fundus, by imparting light movement to the handle backwards and forwards, we ascertain more clearly the mobility of the organ, its relation to neighboring parts, and especially if the form or bulk of the uterus is altered by fibroid or other tumor in its walls or outside. Whilst the sound is *in sitû* supporting the uterus, the hand outside depressed above the pubes readily feels the fundus, and this pressure is communicated through the sound to the hand which holds it. By this combined manipulation also a closer idea is formed of the size, form, mobility, and relations of the organ.

The variations in the mode of using the sound required by different morbid conditions will be described in the appropriate places. It will be sufficient to add in this place a brief description of the mode of using it in retroversion or retroflexion of the uterus. If there be retroflexion, the finger feels behind the vaginal portion the angle of flexion and then the body of the uterus. To get the sound into the down-bent body, its curve must be increased, and when the point has reached the os internum, the curve must be reversed, that is, the concavity must be turned backwards to follow the curve of the uterus. The manœuvre by which this is accomplished resembles the *tour de maître*, by which the male sound is made to enter the bladder after reaching the pubic arch. The point remains nearly stationary, merely turning on its axis, as the handle is made to describe a large radius. Unless this be neatly done, the point is apt to slip out of the cervix, and by describing a large radius to cause pain. The principle of this manœuvre is made manifest by the following experiment. Lay the sound on a sheet of paper, and trace its outline on the paper (Fig. 58). Then keeping the point fixed by a finger, give a semi-rotation to the handle so as to reverse the concavity of the curved end. It will be seen that the uterine end simply turns upon its axis without changing its position. The sweep of the handle is done with the minimum of force; it is almost made to turn by its own weight. When reversed, the point of the sound is made to pass the isthmus by a double consentaneous manœuvre; the guiding finger runs up the posterior wall of the cervix, and lifts up the body of the uterus, straightening it a little so as to bring the extreme curve of the uterus more into agree-

Fig. 58.

Showing the Reversal of the Sound in Utero.

B corresponds to the os externum uteri. The handle extended from C describes a large radius in reversal. B is a fixed point during the semi-rotation of the instrument, and the end A performs a very small curve in the uterine cavity. If A B be straight, it will simply rotate, and A *a* will coincide. (R. B.)