

ment with that of the sound; at the same time the handle of the sound is carried forward under the arch of the pubes, so as to make the point take the direction of the uterine canal. When the sound has passed as far as its elbow, it will commonly have reached the fundus. The next object is to ascertain the mobility of the fundus, and to restore it to its natural place. To do this the concavity of the sound must be again reversed; and again the same manœuvre must be practised as before passing the os internum. The handle is made to describe a still larger radius from before backwards, so as to make the point and the intra-uterine end rotate upon their axis. The effect of this will be to lift up the fundus a little. To bring it forward to its proper position of moderate anteversion, the handle is carried backwards, with a circular sweep upwards, at the same time that the finger on the fundus uteri depresses this part in the opposite course, thus clearing the projecting promontory by passing by its left side, into the iliac region. Having done this, the handle is carried more directly back, and the point going forward, takes the fundus uteri into its normal anteversion. This manœuvre is *bi-polar reposition*. The sound in utero makes one body or lever with it; and we act upon both poles. We can now feel the fundus supported on the sound by abdominal palpation above the pubes. Sometimes, after clearing the os externum, the knob is arrested before it has reached the os internum. The reason of this will be understood by looking at the structure of the cervical canal. The knob is liable to get caught in one of the crypts or furrows formed between the ridges of the arbor vitæ. This hitching is likely to happen when the knob is too small; a larger one will ride over the pits. But even with a well-chosen sound the accident may happen if the patient has long suffered from chronic cervical leucorrhœa. Then the mucous membrane is hyperæmic, swollen, flabby, and the folds of the arbor vitæ rise and overlap, so that the point of the sound is easily caught, as it were, in a pocket.

Some remarkable *accidents* prove the necessity of exerting the utmost care and delicacy of touch in using the sound. The point of the instrument has actually perforated the fundus of the uterus. Two cases were observed by Schroeder. In both the sound went without force six inches deep, and its knob was felt through the thin abdominal walls. Both were puerperal women. No bleeding, pain, or other bad symptom followed. Professor E. Martin relates a case<sup>1</sup> in which the perforation was verified by autopsy. Mr. Lawson Tait relates<sup>2</sup> that Sir James Simpson was well aware of this accident, and regarded it as of no consequence. Matthews Duncan suggests that the sound may have run along an unduly patent Fallopian tube. Hoening denies that it is possible. It requires more distinct proof than Dr. Duncan has given. Even feeling the point of the sound with great distinctness through the abdominal wall is not positive proof that it has passed through the uterus. The intervening uterine wall and other structures may be so thin as easily to lead into error. In some of the cases in which the sound thus perforated the uterus, notably in the two puerperal cases of Schroeder, it is probable that the uterine

<sup>1</sup> Neigungen und Beugungen der Gebärmutter.

<sup>2</sup> Lancet, 1871.

tissue was abnormally soft. However this may be, it must be borne in mind that the sound roughly used may wound the uterus, and even perforate it. I am unable to look upon the accident as of little importance. The most careful and judicious use of the sound is sometimes attended and followed by intense pain. Metritis has occurred; and this even when there was no reason to infer that the wall had been perforated. That fatal accidents have occurred from the use of the sound can hardly be doubtful. I repeat, then, the injunction to avoid anything like force in introducing the sound. It is a question of skill, not of strength. If there be any obstacle to the progress of the instrument, it must be either evaded } or turned, or the attempt to pass it should be given up.

Some physicians are in so great dread of accidents from the uterine sound, that they condemn it altogether. This is unreasonable. The surgeon does not abandon the male sound or catheter because inexpert people make false passages.

Occasionally the sound is used through the speculum; but as a rule this is a mistake. When this is done, we sacrifice the aid which the finger gives in guiding the sound, and facilitating its passage into the body of the uterus by tilting up the body so as to lessen any abnormal curve or angulation. And when the uterus is much bent, it is impossible to make the sound follow the flexion without imparting a corresponding, perhaps painful, inclination to the speculum. Moreover, when the sound is passed through the speculum, we lose much of the information which the sense of touch imparts.

One use, however, the sound possesses in conjunction with the speculum. It serves to depress out of the field of vision projecting folds of vagina, to bring the os uteri more fairly into the axis of the speculum, and by passing the point a little way into the os, and pressing upon one or other lip, we may expose a considerable surface of the cervical canal.

#### MODE OF USING THE SPECULUM.

Before using the speculum, we have to consider the *means of illumination*. Daylight is preferable, and the line of light should be horizontal or at a slight angle above the horizon; the foot of the couch or bed, therefore, should be opposite a window. If a Fergusson's silvered speculum be used, even a dull light will commonly be sufficiently reflected and focussed to give a good view at the field. But even well-polished metal valvular specula are not so well calculated for success when the light is bad. When the valves are expanded they diverge, and reflection and focussing are almost lost. My "crescent-speculum" is, however, excellent for light. When we have to depend upon artificial light, a short bit of wax-candle is all-sufficient. But I have had made a small candle-lamp with a reflector which serves to focus the light into the speculum, and at the same time to screen the eyes of the observer.

*The Tubular Speculum.*—As a general rule the dorsal position is the best; but it is a necessary condition that the bed or couch upon which the patient reclines be firm in the centre, so as to obviate sinking of the nates in a hollow. To maintain the nates at a proper elevation for the admission of a good stream of light, striking horizontally from an oppo-

Howard  
does not  
agree to  
this

site window, or at most at an angle of  $45^\circ$  from the horizon, it is also essential to keep the shoulders and head of the patient only slightly raised above the level of the nates. A proper position of the patient saves her from unnecessary annoyance, and makes all the difference between success and failure to the surgeon in carrying out the examination.

The surgeon, standing or kneeling at the side holding the speculum lubricated and warmed in one hand, explores with the index of the other hand to determine the exact position of the cervix uteri, the object being to get this part in the centre of the field of the speculum. Having settled this point, he draws the finger back to the vulva, and brings up another finger to hold open the labia; the speculum, guided by these fingers, is then passed into the vulva by getting the end well over the perineal border first; then, before pushing the instrument onwards, its end is pressed backwards so as to depress the perineum. This manœuvre carries the instrument away from the pubic arch, where it might cause pain by jamming the soft parts against the bones, and directs it towards the hollow of the sacrum in the direction of the axis of the pelvis. The further direction of the instrument is governed by the idea which was gained of the position of the os uteri by the exploring finger. When fully introduced, if the os should not be found in the field, the instrument must be withdrawn a little way, and the end shifted so as to bring the cervix within the field.

Sometimes it is difficult to catch the os uteri in the field of the speculum. This may be due to the bladder being empty, when the body of the uterus will come forward, whilst the os will be raised backwards. When thus directed, the uterine neck may be almost impossible to seize if the speculum cause any pain, for then the muscles of the abdomen contracting, lower the body of the uterus still more, exaggerate the inclination of its axis, and fix it in its exceptional position.

The os in view, note is taken of the aspect of the part, and of the character of the discharge. The surface is often bathed with secretion so that it cannot be well seen, and the secretion, moreover, would interfere with the application of remedies. This is removed by a small pledget of cotton-wool carried by the speculum-forceps.

When visiting a patient at her own home it is often most convenient to examine in the lateral position. The bed or the source of light may render a satisfactory examination in a dorsal decubitus impossible. The patient then is placed on her left side on the right side of the bed, the nates being drawn well up to the edge, the knees slightly drawn up, and the head and shoulders bent forward towards the middle of the bed and laid low, so as to keep the nates high. Unless all this be done, great difficulty will be experienced in getting a direct line of light, as well as in introducing the speculum. The patient in position, exploration is made with the left index, and the speculum is inserted with the same precaution as in the dorsal position. An advantage attending the lateral position is, that artificial light is more easily made to serve where sufficient daylight cannot be had.

*The Introduction of Sims's Speculum.*—The facility of introduction of Sims's speculum is one of its recommendations (Fig. 41). The patient lying in the semi-prone position on her left side, the right leg is

made to cross in front of the left; this brings the vulva well within manipulation, and makes it the highest point of the vaginal canal. The effect of this is, that by placing the uterus at a lower level, the intestines fall away from the roof of the pelvis, and the uterus tends to gravitate with them. Then when the speculum is *in situ*, the cervix uteri is drawn forward out of the hollow of the sacrum in front of the speculum, and the line of light being at a slight angle above the horizon, flows well down to the cervix at the bottom. This direction is also the most convenient for therapeutical manipulation.

The mode of passing the instrument is easy. The exploring finger determines the position of the cervix uteri, and the capacity of the vagina and vulva. The larger or smaller blade is selected accordingly, and then holding open the vulva with one or two fingers, the end of the blade is slipped in as near the perineum as possible, first with the width of the spoon in a line with the vulvar fissure, and then, as soon as the end has fairly entered, the instrument is rotated so as to bring the back of the spoon against the perineum; the guiding finger in the vagina then, aided by gentle pressure on the handle by the other hand, carries the point of the blade along the posterior wall of the vagina to its place behind the cervix. When *in situ*, in order to bring the cervix into view it is necessary to hold back the instrument firmly against the perineum, which being distensible and yielding permits the curved vagina to become straight, and thus the cervix to be seen. Sometimes when the vagina is large and lax, the anterior wall will bulge up against the speculum, and however much the perineum may be retracted, the cervix cannot be seen, until either by the finger, the handle of the sound, or a retractor made like a tongue-depressor, the anterior wall of the vagina is pressed up against the pubes. Sims further recommends the use of a fine hook (see Fig. 47) to seize the vaginal portion, to pull it up into sight, and to fix during the application of remedies to the surface or to the anterior of the uterine cavities. This hook causes little pain, and the flow of a few drops of blood. But although very convenient in some cases, it may be dispensed with as an habitual aid in examination and treatment.

*Introduction of the Author's "Crescent-Speculum."*—The passage of the first blade is made exactly in the same way as Sims's speculum. The patient lying in the semi-prone position on her left side, the surgeon takes the larger blade (Fig. 42) in his left hand, whilst one finger of the right hand introduced through the vulva feels for the os uteri; this finger serving for a guide, the end of the blade is slipped in over the perineum in close approximation to the finger, and carried along it so as to get behind the os uteri. If this direction is followed, there will be no hitch against a fold of the vagina. When the blade has passed in, the handle is held well back so as to depress the perineum. The right knee is then raised so as to enable the surgeon to introduce the second blade, which being a degree smaller than the first, fits into it as in a groove. The uterine end is adapted inside the blade of No. 1, held firmly with the left hand, and is then made to slide down in No. 1 until the handles of the two blades are on the same level. Then the two handles being brought forward, the two blades work as bent levers, upon the angle of junction of handle and blade, which serves as a hinge or fulcrum; the uterine

ends thus diverge like two valves, stretching the roof of the vagina, and giving an excellent view of the vaginal portion.

The withdrawal of the instrument is very simple. The two blades are removed separately, the anterior one first. The gentlest traction in a curved sweep following the curve of the blade will bring the instrument out, the contraction of the vagina helping to expel it.

## CHAPTER VI.

### THE PATHOLOGY OF THE OVARIES.—THE HISTORY OF MENSTRUATION AND ITS DISORDERS.

THE relation of the ovary to the function of menstruation has been referred to when describing the anatomy of this organ. A few further observations upon this subject are necessary to serve as an introduction to the study of the disorders of menstruation, and of the organic diseases of the ovary.

The most important laws in this application to pathology are illustrated in the following facts:—

The *catamenia*, the name given by Aristotle to the monthly discharge from the uterus, indicates the periodicity of menstruation. In all languages, and throughout all ages, names indicating this periodicity have been adopted. The “menses,” “menstruation,” “les mois,” “les règles,” are examples.

But this character of periodicity, so striking, was not traced to its true cause or connection until the present century. It was scarcely suspected, certainly not demonstrated, that the periodical monthly flow was dependent upon another periodical act, the ripening of ova. Dr. Power, a man of singular sagacity, seems to have been the first to seize upon this great fundamental fact. In 1821 he distinctly enunciated the theory. Girdwood, in 1826, brought new observations in proof. It was, however, warmly disputed in this country, especially by Dr. Robert Lee, whose authority probably retarded its general acceptance, so that it was not until Négrier,<sup>1</sup> in 1831, working as it appears independently, proved by adequate researches and anatomical preparations, that the outward and visible periodical discharge of menstruation was the expression, the consequence of an internal and hidden, but superior function. Gendrin, Paterson, Raciborski, Bischoff, and others followed with fresh proofs which are generally held to have established the theory. The preparations of Coste, preserved in the College of France, show the following

<sup>1</sup> Recueil de faits pour servir à l'Histoire des Ovaires. Angers, 1858.

points: A Graafian vesicle, the ripening of which always coincides with the turgescence of the genital organs, pursues the course of its development during the various phases of menstruation; and, according as the circumstances are more or less favorable, it may burst at the commencement, or towards the end, or at any moment of this periodical discharge. In a woman who died on the first day of the appearance of the menses, the ovarian vesicle was manifestly ruptured. In another, who died four or five days after the cessation of the menses, the right ovary presented a vesicle still intact, but so distended that the slightest pressure made it burst. Lastly, in a young virgin, who died fifteen days after menstruation, there was no recent trace of a yellow body, and it could not be doubted that the Graafian vesicle had been arrested in its development. The subjects of these observations had all died a violent death in the midst of health.

Thus, we may conclude that at each menstruation a Graafian vesicle assumes a marked preponderance over the rest, arrives spontaneously at maturity, and, generally, bursts at an indeterminate moment of this period, in order to expel the ovum it contains. But, nevertheless, in certain cases this vesicle may also remain stationary, or be totally absorbed. The double phenomenon is analogous to what is observed in other mammifera, during the rut.

Røderer<sup>1</sup> observed that the ovaries grew towards the epoch of commencing menstrual life, and became atrophied at the menopause. He distinctly found that the atrophy of the ovaries was more marked and more closely associated with the cessation of menstruation than was the atrophy of the uterus.

If the ovaries are absent or ill-developed, girls do not menstruate, the breasts are flaccid or defective in development; the characters of womanhood do not become manifest. This may be said to be experimentally proved by the celebrated case of Pott. A girl, aged 23, of good constitution, went to Bartholomew's Hospital, in consequence of two tumors situated in the groins, which had for several months caused her so much pain that she could not attend to her work. She was healthy, and menstruated regularly. The tumors were soft, uneven, easily movable, and lay externally to the tendinous apertures of the inferior abdominal wall. Pott determined to remove them. After dividing the skin, a thin membranous sac was found, in which a body was inclosed that was taken to be the ovary. It was removed, and the same operation was repeated on the other side. From this time forth she never menstruated, her breasts fell away, and the muscular system became developed as in man. Since ovariectomy has been so widely practised several cases have been observed in which both ovaries have been removed. In some of these menstruation has continued to recur. Still it may be affirmed as a general law that when the ovaries are extirpated or become atrophied, menstruation does not reappear. Raciborski says the menses may be a little postponed, but that this does not always prevent the follicles from pursuing their regular course, and from accomplishing dehiscence. He has seen on ovaries of young girls one or two cicatrices, although they had never

<sup>1</sup> Icones Uteri Humani, 1779.