Obstetrics: The Science and the Art - Part I. Anatomy of the Parts Concerned In Reproduction; Chapter IV. The External Organs

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CHAPTER IV.

THE EXTERNAL ORGANS.

The word Pudenda expresses the idea of those parts of the reproductive apparatus that appear upon the outer surface of the pelvis. The expression mons, or mons veneris, refers to the elevation or fleshy prominence lying upon the ossa pubis, which, because they project to the front, are called shear bone or shear bones. The mons becomes still more prominent than it would be from the mere advance of the horizontal or body-portion of the pubis, in consequence of a quantity of adipose substance that lies below the skin there, and which, together with a quantity of hair that covers the whole surface, has caused it to receive in ancient times the appellation of mons. The skin and cellular tissue found in this region, the great abundance of hair-follicles and numerous sebaceous glands disposed there, render the mons subject to attacks of diseases of various kinds, such as abscess, folliculitis, &c., and it might well be supposed that furuncular inflammation affecting so dense and resisting a texture must give rise to very severe pain. I must say, however, that during a practice of little short of half a century, and a large clientage among sick women, I have never been called to treat any abscess or other inflammation of the mons; whence I suppose the cases to be rare.

The symphysis of the pubis is about one inch and a half or perhaps in general rather more in length, and it is only the upper portion of the symphysseal aspect of the bone that is covered or concealed by the lower portion of the mons veneris; the lower two-thirds of the bone being invested with tissues that are covered with mucous membrane lying inside of the vulva or genital fissure. The skin or derm therefore that covers the mons passes downwards on either side of the symphysis leaving the genital fissure or sulcus bordered on the right and left by the labia majora, or greater lips of the pudenda. These labia are covered with ordinary cutis on their exterior surfaces, but are lined with mucous membrane on their inner aspects; passing downwards and backwards, they are at length lost or disappear in the
perineum. As in the human lip, the outer skin gradually and insensibily changes into mucous membrane, the line of demarcation between them being undiscoverable. Like the mons, the dermal surface of the labia major is covered with hairs and supplied with numerous sebaceous glandules. They have a store of adipose cells, though a less copious one than the mons above them. The areolar tissue lying betwixt the dermal and mucous surfaces of the labia is very loose and distensible, and yields quite readily to an injecting or lacerating force. Hence it happens that women attacked with dropsy, or those who are much infiltrated with œdema gravidarum, are commonly found to complain of great distension, and sometimes of very painful hardness of these labia. They are found, on occasions, to swell to the size of a stout man's arm, and now and then are observed to be so firm and solid that they feel excessively hard and will not yield except to long-continued pressure.

The student who reads this paragraph ought to understand that when a pregnant woman has her legs distended enormously with the serum of an œdema gravidæ, she is very likely, at the same time, to have œdema labii majoris, which she will not complain of on account of her delicacy of sentiment. It is truly a matter of slight concern provided the œdema be slight; but not so when the legs are swollen so as to look more like an elephant's limb than like a woman's ankle. I advise him under such circumstances to inquire about it, and if she admits that she is very much swollen and has some pain in the part, to insist upon examining by touch. If a woman having both the labia very much swollen, should fall into labor, it is to be expected that the powerful efforts of the womb will push the child's head against the distended labia, and, by repeated efforts of the pressure, squeeze the serum out of the areolar cells or meshes, until at last they yield enough to let the child be born. I may even inform the student that this good success is to be generally looked for, though not always. Such a state of the woman's health is not always the most favorable to an easy parturition, and it now and then happens that he may be called upon to expedite the birth by using his forceps; in which case the student may find the most serious embarrassments in his operation. To lock the forceps upon the child's head, the part just above the junctura or lock must be pushed back towards the axis of the lower strait; but how can he push the junctura backwards against a perineum that has become by this infiltration as hard as a board? The infiltration of the labia does always affect the perineum more or less, and I assure the student that I have been completely foiled in my attempts to adjust the forceps by this very cause. I remember par-
particularly the case of a poor Irish woman thus affected, in whom neither Dr. Dewees nor I could succeed in applying the instrument, and in which by that great teacher's advice I was led to deliver the dead child by embryulcia. These remarks I now make for the purpose of persuading the midwifery Student to consider what ought to be done in cases of labial cedema of pregnancy, and advising him to insist upon his privilege to examine the patient, and, if proper, to let the serum escape by means of punctures in the labium. Such an operation gives very little pain, and is not followed by any evil consequence. It ought not to be omitted where the part is greatly distended, and somewhat painful. It is better to do it before the patient falls in labor, though it is very well to perform it even while she is so, provided the swelling should in any considerable degree seem to oppose the delivery, which it sometimes is known to do. If a sharp-pointed lancet held betwixt the finger and the thumb is allowed to project about one sixteenth of an inch, and the swollen labium is turned well outwards, the point may, by several rapid blows, be struck through the mucous membrane into the areolar tissue of the labium, whereupon the serum immediately begins to exude from the punctures, and continues to flow out until the part is quite collapsed and softened again. The youngest beginner in practice need not hesitate to take this step.

**Labial Thrombus** is an accident that happens mostly to women in labor, though women in other circumstances might be affected with it. During the great distension and strain to which the genitals are exposed in parturition, a branch of the ischiatic or pudic artery may be ruptured, whereupon a rapid extravasation takes place, and the blood is forced into the meshes of the cellular tela of the labium, or even lacerates it and occasions great cavities to be formed that are filled with fluid or with clotted blood. When a labium thus becomes injured during the process of childbirth it is not always discovered by the complaints of the woman, who is generally incapable of discriminating between one kind of pain and another in the superabounding sources of agony with which she is surrounded. The discovery is, for the most part, made by the medical attendant, while touching for the diagnosis or prognosis. If, indeed, a woman goes into labor without having any abnormality of the labia, and becomes affected with considerable and very tense swelling of one of them, the *prima facie* inference should be that thrombus of the labium has occurred, and it should at once be investigated.

When the bloodvessel gives way in the labium the extravasation is
not always of necessity very great, but sometimes a great many ounces are driven hastily and with great injection-force among the loose internal textures of the part, which become black and swollen to the size of a man's arm. If the extravasation should continue, there is reason to apprehend that not the labium only, but the areolar tissue inside of the pelvis, might become infiltrated, so as to dissect the internal structures to a dangerous extent. Any such risk as this can be obviated only by permitting the hemorrhage to have a free outlet by opening the labium by a free incision. It is very reasonable to make such an aperture, were it but to let out the fluid blood or serum and allow of the coagula to be turned out with a finger passed into the cavities. Hence, when an incision is made, it ought to be large enough to admit of the introduction of the finger. I have turned out many ounces of coagulated and fluid blood and serum by such an incision, and the evacuation has allowed the distended lip to collapse immediately. A child could not be born in such circumstances without rupturing the swollen labium, and adding greatly to the mischief.

I do not suppose that all the cases of thrombus are due to laceration of a pudic or ischiatic artery; it is very probable that those instances in particular, that occur during or subsequently to deliveries with forceps are caused by rupture of one of the bulbs of the vestibule, to be hereafter described. The bulbs are excessively vascular, and so much exposed to injury by the blades of the instrument that one has more occasion for surprise at their exemption than at their injury in the operation.

Thrombus of the labium is, for the most part, discovered after the conclusion of the labor and not before, because most of the accidents of rupture do take place while the child is passing through the external organs. I conclude, also, that post-partum thrombus is a less serious matter than that which happens before the head comes to press the external parts strongly outwards. But, in either case, the blood should have an outlet by means of the incision, which should be made on the mucous and not on the external aspect of the labium. I wish here to be understood as advising the incision only in such instances as may, without question, require it. In very slight degrees of extravasation the removal of the infiltration may be safely left to the absorptive powers of the parts.

Abscess of the Labium, like abscess in any other part, may be treated by antiphlogistic methods, provided suppuration has not taken place already. I believe that physicians will very rarely have anything else to do in labial abscess beyond the exhibition of emollient
cataplasms or fomentations, to be followed by the discharge of the pus by means of the lancet or bistoury. Few women can be found who have moral courage enough to allow them to expose such a cause of alarm and distress in the early stages. Their modesty leads them to conceal their pain until it becomes insupportable, and then it is too late to expect that any measures whatever shall be able to effect a cure by resolution. The only thing then to be done, is to soothe the pain by emollient and opiated dressings, and to discharge the pus as soon as its fluctuation is made manifest. The incision is to be made on the mucous surface, and not on the outer aspect.

There is great liability to make a mistake in the diagnosis of these labial abscesses, which ought not to be confounded with a disease of the excretory duct of a Duverney’s gland. But, as this is not the proper place to speak at length on that case, I shall postpone any further consideration of it to a future page.

The superior angle of the vulva is its anterior commissure, and the lower or posterior one its posterior commissure. The symphysis is one and a half inches long at least, and yet the posterior commissure is to be found about on the level of the arch of the pubis, not below that level; so that, when a child’s head or trunk is coming out under the arch and is distending the vulva to the utmost, this posterior commissure is thrust away from the arch to a distance equal to the diameter of the plane of the distending head, which is generally not less than ten, and sometimes fourteen inches in circumference. To obtain this degree of dilatation, the labia must become greatly strained and elongated, so that they sometimes break short off near the lower end, whereupon the child is instantly and violently ejected. The proper way to eschew so considerable a misfortune, is to support the perineum, and oppose the escape, while exhorting the woman to desist from all voluntary efforts to drive the child from her womb.

The Nymphæ, which are called labia minora and labia interna, lesser lips and inner lips, are seen to be two folds of the inner mucous membrane, like two flaps or valves. Near to, but a quarter of an inch below the superior commissure, the nymphæ meet, and after covering the clitoris like a hood, whence the part is called prepucce of the clitoris, they descend, each in an outward direction to about three-fourths of the whole length of the labium, where they are lost in the general plane of the surfaces. They are excessively vascular bodies, and are by some persons supposed to be erectile, which I do not admit to be true. They have been supposed to have the office of furnishing material for the ampliation of the orifice when undergoing the distension
usual in childbirth, an idea which is as unfounded as the former one. I have, on many occasions, touched the ridge of the nymphæ when the head was passing out, and found it firm and undeployed. Probably the real function or office of the nymphæ is to draw the glans of the clitoris downwards, and force it into strong contact with the dorsum penis in coitus, which, by increasing the friction of the glans or tentigo, must greatly increase the sexual feeling or orgasm of the congress. Such orgasm, probably, is one of the indispensable agents of fecundation, since without it the oviducts or Fallopian tubes would lie flaccid and relaxed within the pelvis; whereas, when highly wrought up by the sexual orgasm, they are known to erect themselves, and apply their fimbriae or inluvies to the ovaries for receiving any ova that may chance to be ready to enter their orifices.

**Vestibule.**—As the nymphæ divaricate in descending along the inner aspects of the labia, they leave a triangular space, terminated below by the crown of the arch just beneath the meatus urinæ or orifice of the urethra. It is the duty of the Student to study this vestibulum upon the subject, and to learn that it is to serve as his director in the operation of catheterism. It has a sort of raphe or raised line in the middle. If the index finger of the left hand is first applied to the crown of the arch, and then slid upwards, it will separate the nymphæ and go up near to the top of the triangle. If the pulp of the finger is now slowly moved downwards again towards the crown of the arch, it will feel the little dimple made by the urethra's orifice, and then the point of the catheter may be immediately introduced into the urinary passage without vexing the woman with vain oft-repeated trials, and without being obliged to call for lamp or candle, as I have witnessed, to the mortification and humbling of the patient, and the great scandal of medical skill and proficiency.

**Cohesion of the Labia.**—In young children, it not unfrequently happens that the inner face of the labia pudendorum becomes irritated, which produces an adhesive inflammation, uniting the surfaces that are in mutual contact. The inevitable evacuation of the bladder will, of course, always prevent a union of the whole extent of the labia. In all the instances of this kind that have fallen under my notice, I have found it sufficient to separate the cohering surfaces by forcing them apart with the fore and middle fingers of the left hand, while, with the end of a probe, drawn down directly upon the line of union, the adhesions are readily destroyed, and that without occasioning the least bleeding. The scalpel has never been required. In performing
this operation in a good light, it will be seen that the union of the surfaces has taken place by the mutual interlocking of very delicate villi, much in the same way as the placenta and cotyledon of the sheep or cow are interlocked: the villi that are pulled apart in this process are exceedingly delicate. I have been struck with this resemblance on several occasions. I have no doubt, however, that a case might occur, in which, by long neglect, the union should acquire so great a degree of solidity as to yield only to the knife.

When the labia shall have been separated, in these instances of cohesion, they may be carefully kept from coming in contact by a pledget covered with cerate, as the adhesive tendency is renewed by the very violence which is required to obviate the consequences of a preceding irritation.

M. Colombat, in his Treatise on the Diseases of Females, advises us to touch one, not both, of the recently separated surfaces, with a nitrate-of-silver pencil, in order to produce on that surface a state of vital action different from that existing on the uncauterized surface; which he supposes must effectually obviate the tendency to cohesion. His idea is, that, to adhere, both surfaces must possess the same adhesive temper. For my part, I have found it, in all instances, sufficient to direct the nurse to draw the point of the little finger, dipped in oil, strongly downwards, from the anterior to the posterior commissure. Such a process, daily repeated, effectually sets aside all possibility of re-establishing the cohesion of the labia.

The Fourchette.—The dermal portion of the labia is partly lost in the perineum, and in part becomes fused or connected with its opposite fellow, and where the inner dermal edges of the two labia unite, there is a sort of edge or frænum, resembling the inner edge of a crescent, the horns of which are turned upwards like a fork, whence the part is termed furcilla, little fork, or, to use a now technical English word taken from the French, the fourchette. Inside of this fourchette, or furcilla, is a sort of depression pit, or cavity, which is concealed until the fourchette is pulled forwards and depressed. This is the fossa navicularis, or boat-shaped pit, behind which, at a greater depth within the orifice, is the front surface of the virginal valve, membrane, or fold, known as the hymen, the mark and sign of chastity and virgin purity, as is supposed by most people.

The Hymen is merely a crescent shaped duplicature of the mucous membrane of the orificium vaginae which varies much in different individuals. In some women, like a new moon with sharp and
THE EXTERNAL ORGANS.

curved horns it half surrounds the orifice, being hidden within and only visible when the labia have been separated or pressed open. In some, the horns ascend but a little way, in others they go across the opening above until they almost meet, and in others they do meet, and thus make a circular diaphragm or plane with a hole near its top, or even exactly in its centre. In some girls it constitutes a complete diaphragm without any the least aperture, and I saw one woman in whom the opening was not larger than a common bristle, and wholly undiscoverable except while she was menstruating. In that state she forced the mensual blood through the little orifice where I saw it like a fine dark point, certainly not bigger than the diameter of a bristle. This woman had been several years married. I cut open the diaphragm for her, and so removed the cause of her reproach of barrenness, for after her return to her own distant State she recovered from the operation, and becoming pregnant, had the happiness to be a mother, a thing that all women naturally long to become, or ought to.

It is by no means the rarest of occurrences for girls to be affected with such malformation of the hymen as to be quite shut up, the hymen forming itself into a complete diaphragm like a small tambourine. In this case, nothing wrong is suspected until the age of puberty, when the poor child is observed not to change as usual with girls of her age. The health now begins to fail. Pain in the belly, constipation, and uneasy urination come on, and she grows pale and weakly. Being affected with complete atresia of the orifice, which is shut up by this unnatural hymen, she is all this time swallowing physic, and undergoing a system of dieting, and is treated medically by the process of guessing at her ailments instead of by a method founded upon a physical diagnostication. The existence of this obturating membrane has nothing to do with her power to menstruate, and she does menstruate regularly, but the sanguineous discharge, unable to escape from its prison, accumulates within the now distended walls of the vagina, and when that becomes too much filled to hold any more, the accumulation goes on within the womb's cavity. The uterus enlarges more and more with each successive menstruation, and now from the evident growth of the lower belly, the poor girl is very likely to be suspected of indiscretion. It is a dreadful thing to accuse a sick virgin of the greatest woman's shame, when her pregnancy exists only in the imagination of her ignorant accusers. At length resort is had to the only possible method of diagnosis, and it is found that she labors under atresia from imperforate hymen. The womb will be discovered by placing the hand on the lower belly where its fundus is found rising upwards above the plane of the super-
rior strait; the hymen is found to make a convex tumor at the orifice, and if the index finger is passed upwards along the canal of the rectum, the vagina is discovered to be distended with a mass that fluctuates under the touch. Now that the truth is made known, there is nothing left but to open the hymen by means of a bistoury, taking care before making the incision, to empty the bladder by means of the catheter, and while using the lancet or bistoury to have one finger within the bowel so as to make sure of doing no injury.

As soon as the cavity is opened, the accumulated products of all her antecedent menstruations begins to gush forth in color and consistence resembling molasses or thin currant jelly. If the womb should have been much distended by the collection, that organ immediately tends to contractions, that are felt in the same manner as women's after-pains.

It would be but a prudent precaution, before doing this operation, simple as it is, to announce not only its indispensability, but the no little risk that waits upon it, for it does sometimes happen that the abnormal state of the womb forces it into a state of inflammation subsequently to the operation; and such inflammation may very readily assume the characteristics of mortal metro-peritonitis. I have done this operation for several different persons, and have had cause of serious concern during a few days subsequent to the drawing off of the long retained products, on account of a following inflammatory disposition in the woman.

I ought to add a word concerning the Hymen as a sign of virginity. It is torn in the sexual act, and if the debris of the crescent should be examined soon after the rupture, one might feel no hesitation in speaking as to the facts. Still, the question recurs, and we are compelled to say whether or no it is always ruptured if it does exist, and next, whether it does always exist in the virgin. Now, I am entirely convinced that it is not always ruptured in the sexual congress, and I do further know that it may escape destruction even in the acts of parturition, for I have attended in all her confinements (and she has several children) a woman in this city, whose hymen is still perfect, and which never was torn, even in her labors. If this statement is to be relied upon, then it ought to prove that a sexual union may have been perfected in a woman in whom the hymen still remains whole. Further, I have had a very extensive medical practice during many years, in the course of which I have had occasions in numerous instances to examine unmarried women, and the result of my great experience is to convince me that there are thousands of perfectly pure, chaste, and not to be suspected unmarried women in whom no
vestige of the hymen is to be found. It seems to me a very singular thing that physicians and others should insist on the necessity of a hymen as a test of virginity, though it is well known that in great numbers of young people the mucous fold or valvule is so thin and delicate that it would be likely to yield if a finger were strongly pressed against it, that in some it is a deep, and in others a low duplication, in some an eighth of an inch thick, and in other some not thicker than a sheet of paper, and yet with all these differences, the profession everywhere will insist on its permanence, whereas, the truth is that little children of the age of two years are very apt to rupture it in scratching the parts, as most of them are prone to do on account of some irritation there.

If a woman have a hymen whose crescent-edge is at the top of the vagina, and not thicker nor stronger than letter paper, it is clear to see and say that she has never been violated, while in another virgin, whose fold is low, and thick and strong, its persistence affords no proof whatever that she has not been impure; therefore, courts and juries, who sometimes decide on these questions, ought to know that these sayings are true, that they may avoid the risk of committing the greatest injustice by their ignorance and presumption. The question in all such cases ought to be, is the hymen present or absent? is it frail or strong? could it or could it not resist the violence of a coitus? The question is not the naked one as to whether the hymen is or is not in existence in the case.

Finally, vaginal examinations are to be made only under a conviction of their absolute necessity, especially in the cases of unmarried women. Madame de la Marche, in her *Instruction familière et utile aux Sages-femmes pour bien pratiquer les Accouchemens, etc.*, p. 5, insists that such examinations should never be made except in consultations, lest the midwife, finding the patient without a hymen, she should be accused of having ruptured the membrane with her hand, and the good lady concludes: “*Enfin ce seroit un grand malheur, si celle etoit pucelle, de la Toucher.*”

The Clitoris is a small body composed of two corpora cavernosa and a corpus spongiosum, and is, in many respects, so much like the male organ of generation that it might well be regarded as a miniature production of the same kind. In the male organ the two corpora cavernosa are attached by their crura to the pubis, and receive, in a groove that runs along the middle of their under surface, the corpus spongiosum, which, commencing in the bulb, proceeds to the extremity of the penis where it terminates in the glans penis. In the woman, in
like manner, each corpus cavernosum arises from a ramus pubis; and when the two have converged and become united, they rise upwards along the face of the pubis for a short space, and then turn downwards at an acute angle, being buried all the while beneath the mucous membrane investing the parts below the superior commissure. The outer extremity of the conjoined corpora cavernosa is crowned with a glans composed of a true corpus spongiosum, as in the male apparatus. This glans has also a true bulb, or rather two bulbs, which, instead of lying on or near to the cavernous body, are found on each side of the arch of the pubis, below the crown, and covered with the constrictor cunni muscle, so that, instead of existing in the form of a bulb of the urethra, as in the other sex, they constitute the two bulbs of the vestibule; the only real difference between them in male and female being their place or location.

In men, when the bulb of the urethra is strongly compressed by its muscles, which contract under the sexual excitement with a sort of tenesmic force, the blood in the vessels of the bulbs is forced forwards along the whole length of the corpus spongiosum urethrae, and compelled to fill up and greatly distend the glans penis, which is only then in a state of perfect erection when the glans has become completely filled with its capillary circulation. This being effected, the sexual excitement attains a high stage, which is supposed to coincide with a certain tension of the nerves contained within the genitalia.

Now, in the gentler sex, the bulbs of the vestibule are the analogues of the bulb of the urethra, and they are in like manner compressed by their proper muscle, the constrictor cunni, which, by its tenesmic contraction, drives the blood forward from these bulbs and forces it along the pars intermedia into the glans of the clitoris, which being filled and intensely distended and excited, arouses the whole erotic force of the subject. The pars intermedia runs upwards under the clitoris, and continues by its numerous channels to force more and more blood into the glans of the clitoris until the nervous tension and orgasm become complete. When this excitation of the external organ has reached its height, the oviducts, commonly called the tubes of Fallopius, participate in the excitement; they become erected, and, as their tissue fills, they are compelled by their attachments, which serve as a sort of mesentery, to adapt their fimbriated extremities to the surfaces of the ovaries; and if perchance an ovum is ready to fall, or is already fallen, it is ingurgitated and swallowed by the tube or oviduct, and so transported into the womb’s cavity.

I am indebted for the above account of the clitoris to the admirable work of Dr. Kobelt, which was translated from the German by Dr.
H. Kaula, under the title of *De l'Appareil du Sens Génital des deux Sexes*, &c., 1851.

To make it easy for the Student to comprehend the above account, I here give copies of Dr. Kobelt's figures, and in Fig. 34 I present the magnified drawing of the clitoris, representing that body, however, with the crus removed, so that only the body of the organ with its glans is exhibited. Let the Student compare the glans with that of the male organ, and he will see that the structures are very exactly alike, with the exception that there is no canal of an urethra in the female. In fact, the canal of the urethra is lower down; and yet it is true that when the urine does flow, it jets forth between the two bulbs of the vestibule, which seem to surround the urethral orifice. The great dorsal vein and the artery are marked in the drawing—and the copious convolutions of bloodvessels seen passing upwards from below, and which are called pars intermedia, are channels that convey the blood from the bulbs of the vestibule upwards to conduct it into the capillaries of the glans clitoridis just in the same way as the bloodvessels in the corpus spongiosum lead the blood from the bulb of the male outwards to the glans penis at the extremity of the corpora cavernosa.

In Fig. 35 is represented the arch of the pubis and its symphysis, on which is seen the clitoris, bent downwards at an acute angle. Beneath the crown of the arch, and on each crus, is lying a bulb of the vestibule, from each of which, on the right one and the left, is seen mounting upwards the network or plexus of bloodvessels that conduct the blood of the bulbs into the glans of the clitoris. If these bulbs become turgid with blood, and then are subjected to pressure by the constrictor muscle underneath which they lie, the blood is forced by jets through the pars intermedia up into the glans, which being
erected, the erotic life is strongly developed on it, and so communicated to the reproductive system.

Fig. 35.

Fig. 36 is a three-quarter view of the same structure. It particularly illustrates the nature, proportions, and place of the right bulbus vestibuli, with its pars intermedia as connected with the glans of the clitoris.

Dr. Kobelt remarks, that if one examines these textures in a dead body, they do not seem obvious to the research, and that the orificium vaginae is surprisingly dilatable; but, if matter of injection be first thrown in, so as to fill all the vessels of the external genitalia, the bulbs become so filled and distended, that it is difficult even to pass the finger through the os externum, so tightly is it embraced by the distended masses of the bulbs. I trust that the illustrations now set before the Student, will assist him to understand all these points sufficiently to give him clear views of the accidents and disorders to which they are liable.

The question might be asked, why I should have placed these illustrations in my book, since such drawings, to say the least, seem fit to
make the cheek tingle with shame. I am quite conscious that a book of medical practice ought to be written with a decent regard to decency, a thing very difficult to do even in disquisitions on the disorders of the digestive and the renal organs. In this particular department, I take to myself the consolation of reflecting, with Heurnius, that si non erubuit D. O. M. hos creavisse, I may well escape blame if I but properly set forth the nature of these tissues with a view to teach the young beginner in medical practice how to obviate the dangers and inconveniences that sometimes attend on their peculiar nature and situation, and I have been led to cite the above from Dr. Kobelt's most admirable monograph, because I never could account, before I read his work, for certain occurrences that I have met with in practice, but which are now clear enough, both as to their nature and treatment. The cases to which I here refer, are hemorrhages proceeding from rupture of the pars intermedia of the bulbs of the vestibule, and these hemorrhages are so violent and alarming, and even so dangerous, that it is quite necessary for a medical man to be well informed as to their nature and source. I have met with a good number of them, and heard of others in the practice of my friends and acquaintances.

Case.—Mrs. ——, the mother of four children, returned to her home from a ride on horseback. The servant brought a common country chair for her to dismount. The chair terminated in two sharp turned tops. When the lady was ready, she threw herself from the saddle, and as her foot lighted on the edge of the chair, carelessly held by the groom, it turned forwards, and she fell. The sharp turned top of the chair was driven against her riding skirt, and forced her clothing just against the under edge of the arch of the pubis. In a moment she was streaming with blood, and being taken to her apartment, she bled until she fainted, when the hemorrhage was stayed, only to return again with the renewed force of her circulation. Being at a considerable distance from town, I did not see her for some time, and then found her greatly exhausted from loss of blood, and the flowing still going on more or less freely in proportion as she was less or more faint. Her state was truly alarming. I introduced a tampon into the vagina, and distended it as much as I thought fitting, and then applying compresses of lint on the face of the pubis and vulva, I found I had resisting points sufficient to command the outflow, in fact, the method was sufficient, for the hemorrhage was controlled, and the lady recovered. I had a similar case some time ago, in a woman who, sitting on a night-vase, was wounded by a sharp fragment of the vessel which broke under her weight. The hemorrhage was very severe,
and likely to prove fatal. Women are sometimes hurt in this way, with sharp-pointed splinters or sticks, when sitting or falling; and I think that these copious bleedings are more commonly derived from laceration of the bulbs, or of the pars intermedia, than from wounding of parts behind the symphysis; for, although there be bloodvessels within, these outside ones are not only the most exposed, but they furnish the most copious outpourings, and these cases require to be understood in order to be well managed. If I should have a case of the kind to treat, I would make a tamponade for the purpose, causing the vulva to bulge more outwards, or to be as convex as possible, and then I would lay upon the ramus of the pubis and on the face of the symphysis, masses or trusses of scraped lint or raw cotton, which I should confine by a closely drawn T bandage. I have no doubt that such a dressing would suffice instantly to control the most desperate hemorrhage from a broken bulb or a lacerated pars intermedia. I shall not detain the Student to speak of other causes that might give rise to severe bleeding, in these tissues, it is enough to have called his attention to the general facts in which he will find not only the indications of his practice, but my apology for introducing in this work a topic so unacceptable.

I refer the curious in such matters to my American 2d edition of Colombat on Diseases of Females, pages 84 and 85, where numerous citations may be found. At page 85 is the case reported by me, with a drawing of a very singular disorder of this organ.


Dr. Huguier divides the secretory organs of the genitalia into two great classes, vid. the sebaceous and piliferous follicles and the muciparous organs. The muciparous organs are of two sorts, some of them being isolated mucous follicles, found here and there about the orifice of the vagina, or agminated, and gathered into patches; and the others massed together and enveloped in a common covering, and all connected with a single excretory duct. These latter compose two glands to which M. H. applies the title of vulvo-vaginal glands. This gland, which, according to the author, was known to Plazzoni, Duverney, Bartholin, Garengeot, Haller, &c., appears to have eluded the attention of modern teachers, and wholly escaped the researches of authors. It is a conglomerate gland, situated just within the vaginal
orifice, near the lower end of a nympha about one centimetre above the upper face of the hymen, behind the inner face of the ascending ramus of the ischium. In size it is as large as an apricot kernel. It resembles the lachrymal gland more than any other organ. It may be ovoidal, amygdaloid, reniform, triangular, semilunar in shape, or it may even be a plaque of glandules like the glands of Peyer.

The excretory duct of this vulvo-vaginal gland, or Duverney's gland, runs in a direction oblique from below upwards, from behind forwards, and from without inwards. The duct is generally about seven or eight lines, and sometimes eleven or twelve lines long; leaving the outer edge or margin of the gland by several distinct tubes which soon combine into a single duct, and discharges the secretion at the vulva, just behind the hymen or myrtiform caruncle, and never in front of either. A reddish disk or areola surrounds the orifice which cannot be readily found except by pulling the labia outwards and downwards, whereupon one discovers the aperture in the bottom of a small dimple—one on each side of the orifice.

Duverney's gland is the feminine analogue of Cowper's gland in the male, and like other glands is liable to become diseased: when indurated and enlarged it would feel like a hard encysted tumor, which can be extirpated by the surgeon, as the operation has been done by Mr. Huguier.

Like the parotid gland, the gland of Duverney is subject to obstructions of the excretory duct, and the disorder in such case is very like the salivary tumor met with in the stenonian duct. If the excretory tube is an inch in length, and if any cause occurs that closes its outer orifice, atresia of the canal must be the consequence, and the mucous secretion from the gland collecting in the tube causes it to swell or expand and assume at last a globular shape. If examined by the touch, it presents the appearance of a fluctuating abscess or cyst. Such a distended tube must eventually, and indeed soon inflame, and its mucous surface becomes a pyogenic one, so that the tube becomes filled with true pus commingled with juice of the gland. To open this tumor with a lancet seems to be the indication, especially as the surrounding tissues have also become inflamed and very painful; but, this ought not to be done, if it be possible to avoid it, because the discharge of such a sac will not cure the sac which fills again and again, as is so commonly observed to occur by physicians familiar with the disorder.

Taught by the fine memoir of Dr. Huguier, I have adopted his method, and cured the cases by forcing the collected excretions out
through the orifice. I cured one in this way in June, 1856, as I have cured others before it.

By passing one finger into the orifice, and then with the thumb applied outside of the labium, one may, with very gentle and slowly augmented pressure, compel the collected fluid to advance along the obstructed canal to its orifice, whence the whole of the pus and mucus spouts out in a jet or stream until the sac is completely collapsed and emptied. On doing this, the pain is removed, except the excessive distension may have caused a sort of phlegmonous hardness and painfulness to affect the texture of the labium, and even that soon disappears after the cause is properly removed, as above. My advice, then, to the Student is to suspect Duverney's gland or its excretory duct in all those cases in which he shall be complained to of great pain, soreness, hardness, and swelling of the labium. No one need question that common abscess may exist in a labium, and require to be healed as such, but the fact is that most of the complaints of this kind that occur in practice should be suspected as somehow concerned with Duverney's gland.

OF THE VAGINA.

Having now given some account of the external organs of generation, I have to speak of the vagina, which, as it is, according to the French terminology, a vulvo-uterine canal, is partly an external and partly an internal organ of generation.

Previously, however, to passing on to the study of the inward structures, I wish to recall attention to the admirable wood-cut by Baxter (Fig. 18), which is reduced one-half from Kolrausch's plate. I much regretted the necessity of making this reduction, which was not to be avoided, on account of the size of my page.

I cannot think that the modern literature of obstetrics anywhere contains a more admirable and instructive anatomical drawing than the one from which I have taken this reduced copy. It is from the *Zur Anatomie und Physiologie der Beckenorgane*, by D. O. Kolrausch, Leipzig, 1855, 4to., pp. 64. This drawing is from a preparation of the parts of a maiden who, at the age of 24 years, committed suicide by hanging while menstruating. The subject having been dissected, and the specimen reduced to the form seen in the figure, it was placed in a vessel containing alcohol, through which every part of the surface to be examined could be clearly seen, as in our picture. When thus carefully placed in the transparent alcohol, a glass plate was laid over
the vase as a cover, through which every line, fibre, or form could be seen. About two feet high, above the middle of the preparation, was secured a diopter, through which the artist was to look when copying the specimen. A pen dipped in printers' ink softened with oil of turpentine, was used by the artist, who, looking through his diopter, two feet above the preparation, could see through, and draw or copy upon the glass with his pen, every one of these different lines and points, which being finished, the drawing was transferred from the glass to paper, and then engraved. Such is Dr. Kolrausch's history of this beautiful plate, which is of inestimable value to the student of midwifery, as imparting to him an absolute correct ideal of the relative magnitudes, forms, and places of the parts within the pelvis.

A line drawn from the promontory of the sacrum to the top of the pubis represents the place of the plane of the strait, which shuts down beneath it all the pelvic viscera, except that the bladder, when filled with urine to the degree represented, does jut upwards into the belly, as is known to be the case. It may even be distended, so as to rise as high as the navel. I shall have frequently occasion to refer to this plate, as I now do in proceeding to speak of the vagina.

The **Vagina** is a mucous tube that serves as the excretory duct of the uterus. Not only the menstrual products but the mucus and the other fluids separated from the uterus find their exit through this canal, which is formed on a plan that admits of an expansion sufficiently great to give passage to the foetus at term. Being liable to most enormous changes of dimensions, the vagina could not be composed of fibrous tissue, but, as I above said, it is a mucous canal or tube, whose basement texture is a laminated areolar tissue, containing numerous glandules and follicles which yield a sort of slimy liquor that lubricates the whole. Numerous bloodvessels, absorbents and nerves, together with a few muscular fibres scantily dispersed, impart to it its peculiar life qualifications, which appear to me to be passive rather than active, having but little influence upon the general economy, a circumstance in which it greatly differs from the uterus, and some other portions of the reproductive system, very slight affections of which are known to develop the most considerable disturbance of the animal economy, whereas even grave disorders of the vagina do not seem to awaken a decided constitutional irritation.

The lower or outer extremity of the vagina, its **introitus**, is surrounded with a sphincterian muscle that enjoys a community of life and activity with the sphincter of the rectum, and might be considered as a sort of appendix to or prolongation of the great sphinctorial
muscle: by its contractions it keeps the ostium of the vagina strictly closed.

In women who have not had children, the anterior and posterior walls of the vagina generally rest in contact. Hence the transverse diameter of the tube is much greater than its antero-posterior diameter. This contact of surfaces, however, does not exist in emaciated women, or in those who have very little stercoraceous matter left in the rectum. I believe that in most women who have what is called a scaphoid abdomen, the walls of the vagina become orbicular, or balloon-shaped. In these cases while the ostium is tightly closed, a man's fist might lie inside of the canal without touching the walls. I have found the vagina balloon-shaped, in this way, in many different women, both young and old.

The above remark is worthy of the student's consideration, inasmuch as it sets forth the important truth that the upper or uterine extremity of the vagina is excessively yielding or distensible, while the vulvar extremity of it is firmer and more resisting. The clinical application of the doctrine is found in the use of the tampon. Many doctors seem to me to think they have made a tamponade if they but insert a sponge as big as an egg into the vagina, a thing they would not do if they but knew how distensible is the uterine portion of it. To insert such a sponge into the vagina that shall readily assume the shape of a balloon as large as a child's head, is simply a foolish thing; a tampon should be large enough to fill the balloon.

The vagina is two inches and a half long; in the general, it ought to be about three inches long, but not one woman in a thousand has it so long, and not one in ten thousand of those who are mothers.

I was much surprised to find that Dr. Tyler Smith, in his "Course of Lectures on the Theory and Practice of Obstetrics," Lancet, No. 2, vol. i. p. 30, 1856, should think that the "anterior wall of the vagina is about four inches long, the posterior being five or six inches in length." That author must have allowed his pen to slide in making such a statement, for the distance from the crown of the arch to the lower end of the fourth segment of the sacrum is but little more than four inches, even in the dried pelvis. Therefore the author has made a mistake, for there is not room enough in the cavity for so long a vagina, and a womb of two and three-quarter inches. Such a womb would lift its fundus more than four inches above the plane of the strait, which it never does when it is in the normal state, and in pregnancy not until the fifth month.

The authors speak of the anterior and the posterior column of the vagina, and there is some reason to say so, because the substance of
the tube is thicker and firmer in front and behind than on the right and the left sides. This greater thickness is in part due to the corrugated state of the mucous membrane in those precise localities, yet not wholly so, since the columns are observable even in multiparas who have long ago lost all their rugæ or corrugations. The anterior column is thicker than the posterior one. They both grow slender as they ascend, and at the points where the vagina unites with the neck of the womb, the appearance of a column is lost.

I like these words, anterior columna, and posterior columna, because I like to suppose that when the anterior columna becomes shorter than it ought to be, the womb to which it is fastened by one end, while the other end is anchored to the arch of the pubis, must be drawn down toward the pubis, and kept there by the contracted or condensed columna, which holds or ties it there. In some instances this anterior columna becomes so short, or so condensed, that it can only with difficulty be extended again by pushing the womb away from the pubis with the finger; and even when one succeeds in so pushing it away, it is brought back again immediately by the elastic contraction of the condensed vaginal column, so that it renders a permanent cure of the displacement or derivation of the womb a very difficult thing to effect. I have seen it not half an inch long.

Kolrausch's plate, Fig. 18, which is, in my opinion, perfectly dependable, shows the anterior columna to be only one inch and three-quarters long, and the posterior columna only two inches and six-tenths in length instead of five or six inches. I have certainly examined many thousands of women of all ages and in various conditions, and my sense of the case is, that a vagina whose anterior column is two inches and a half long, is long enough, for it lets the os tincæ take its true place in the pelvis.

It is quite necessary for the Student to know not only the anterior columna, but also the two ligaments that are called utero-sacral ligaments, which are nothing more than duplicatures of the peritoneum in every respect similar to the ligamenta lata. They go in a direction backwards and upwards from the uterine extremity of the vagina to the sacrum, into the anterior aspect of which they are inserted, and their office is to hold the end of the vagina up in its proper place. Look at Kolrausch's picture, and conceive of a band or cord proceeding from the posterior lateral surface of the vagina to the second segment of the sacrum. If such a string should be strong and taught, the vagina must keep its place, but if the string were cut, the vagina would drop down, and carry the womb along with it. The same effect would follow upon a relaxation of the band—the vagina must slide
down, carrying its womb along in its fall. Is not falling of the womb, then, the same thing as relaxation of the vagina? What else could it be? It could not be, and it is not anything else.

I have written so fully upon this subject in my Letters on Woman, her Diseases and Remedies, and in my Essay on the Acute and Chronic Diseases of the Neck of the Womb, that I must refer the student to those works for my further views of the disorders of the vagina.

It is proper, however, for me, in this place, to say that as the vagina is the excretory duct of the womb, it is so constituted as to undergo very great changes of its capacity in parturition. The tube may be considered as a cylinder in the non-gravid state, but when the womb is enlarged by the growing ovum, and particularly near the close of a pregnancy, the cervix uteri becomes a cone, and, of course, the upper end of the vagina, which invaginates that cone, must also assume a conoidal form. But when labor is advanced, and the os dilated, the upper end of the vagina must dilate pari passu. It is not every specimen of the vagina that is so distensible as I have represented it generally to be; and when it is really a resisting body, it yields reluctantly to the force of the throes and oftentimes causes the process to be slow and very painful, so that among the numerous causes of slow and protracted labors, we must occasionally find this tube at the bottom of the mischief. It becomes rigid in this way in certain women who have suffered from chronic vaginitis, the effect of which is to give a tendency to a sort of general stricture or narrowing of the whole canal. I have often met with instances in which the organ, even in married women, presented obstruction to the passage of a Recamier speculum up to the os uteri. It is manifest, then, that such a state of the tissues might interfere with the normal developments in a labor. I have published some cases of this stenosis of the vagina in my work on female diseases, and in my treatise on diseases of the cervix. A very good account of such affections is to be found in the work of Spaeth, Chiari, and Braun, already cited, as well as in my Translation of Colombat de l'Isere's Treatise on the Diseases and Special Hygiene of Females. M. Colombat's article is at p. 96, and at 97 is a lengthy account of cases observed and reported by myself.

The Womb.—The uterus is attached to the upper end of the vagina. It is a pear-shaped body, compressed from front to rear, and of various length, which may be from two and a quarter to two and a half inches, rarely three inches—being larger in women who have borne children than in those who have never been impregnated. It is divided into fundus, body, and neck; the fundus being the upper-
most, and the neck the lowermost part of the organ. The vagina is united to the womb in such a way as to permit its neck to project like a nipple a short distance into that tube: in this regard also there is great variety, some women having almost half an inch of the cervix uteri hanging down in the vagina, while in others the connection seems to exist almost at the lower end of the cervix. (See the engraving.)

The cut (Fig. 37) represents the womb B, with the vagina H, laid open, in order to show the neck and mouth of the womb B projecting into the upper end of the vagina. In it are also seen the round ligaments G G; the ovaries E E; the ligament of the right ovary F, and the Fallopian tubes C C, with their fimbriated extremities D.

As the vagina is a curved canal, which proceeds backwards from the vulva, and upwards towards the rectum, it follows that the womb lies nearer to the sacrum than to the pubis. The womb is so situated that its long diameter is parallel to the axis of the superior strait, while the vagina is more nearly parallel to that of the inferior strait; hence, at their junction, they make an obtuse angle of nearly 95°, any deviation from which implies a displacement of the womb.

Let the Student say the breadth of a womb is about an inch and a half; its thickness about one inch; its length two inches and a quarter: this is the mean. I subjoin a drawing that represents the internal organs divided transversely from top to bottom, and showing the front or anterior half. A is the fundus or bottom of the womb, which is the uppermost or highest portion of the organ. B is the triangular cavity
whose outlet is through the canal of the cervix (c), leading down to
the orifice of the womb in the vagina, which orifice is called os tincæ,
or os uteri. At D D are seen the left and right Fallopian tubes laid
open, to expose the narrow passage by which the ova are conducted
from the ovaria F F. E E are the fimbriated extremities of the tubes,
which are also called morsus Diaboli, or Devil's bit: they are the in-
fundibula or ingluvies which take up the ova as they spontaneously
escape from the ovisacs of the ovaries when expelled once a month.
The wing-like expansion on each side of the womb is the broad liga-
ment, and the round ligament is seen through it and in front of it on
either side of the uterus.

Suppose half an inch of the cervix uteri to project into the upper
part of the vagina; then if the whole length be two inches and a
quarter, we shall have one and three-quarter inches of the womb above
the upper end of that canal. Such being the case, the womb would
fall over to the right or left side of the pelvis, were it not restrained
or stayed by what are called its broad ligaments, which, passing from
its sides towards the sides of the pelvis, keep it steady, or prevent it
from assuming an oblique attitude; it would also fall backwards towards
the sacrum, and sometimes become lodged or wedged under the pro-
montory of that bone, were it not restrained from moving in that
direction both by its round ligaments, called by Fallopii its cre-
masters, and also by its connections with the bladder. The utero-
sacral ligaments, which form the lateral walls of Douglas's cul-de-sac,
also maintain the uterus in situ. It cannot fall forwards, for it is sus-
tained by the bas-fond of the bladder, which, by filling with urine,
must, and does always push it backwards again.

Structure and Powers of the Womb.—The substance of which
the womb is composed has not been fully understood. In the unim-
pregnated state, it is dense and gristly to the feel, and cuts very hard;
the cut surface being of a faint pinkish hue and a fibrous appear-
ance; but those fibres are disposed without any apparent regularity or
order. It is supplied with bloodvessels, absorbents, and nerves, which
are very small during the unimpregnated state; but the same vessels
in the gravid womb acquire an enormous size, and are exceedingly
numerous and tortuous; so that, in fact, the ovum, at full term, appears
to be contained within a vast network, or rete vasculosum, united
together by a quantity of muscular fibres and other tissues. The
womb, at the full term, is an exceedingly sanguine organ, being
furnished with torrents of blood from the uterine and spermatic
arteries, the former reaching it from below, and the latter from above, with free insosculations of the several channels of circulation.

As to the interior membrane, or mucous coat of the womb, it is unnecessary to speak here: the cut, exhibiting Mr. Coste's view, will explain the matter with sufficient clearness.

Various attempts have been made to demonstrate the muscular fibres of the womb, and they have been divided into layers, and planes, and fasciculi for that purpose: but the very fact of such difference of opinion is proof enough that the arrangement of them is not yet clearly known. If it were known and demonstrable, there would no longer exist any dissidence concerning it, since whatever is clearly demonstrable, ceases to be a subject of dispute or doubt. This much, at least, is well known; namely, that the contractile fibres of the womb are capable of acting partially, or so as to change the form of one part of the organ, while another part of it acts with less intensity, or not at all. Thus, it occasionally happens that we find the uterus, after delivery, contracted in its middle, as if a string had been passed round it and drawn tightly, causing it to assume the shape of the hour-glass. This state is familiarly denominated an hour-glass contraction. Again, we not unfrequently find the whole organ elongated, and almost of a farcicular form; its fundus being raised high upwards, towards the epigastrium, while the body of it is narrow or slender like an intestine. I feel assured that I have sometimes found it, after delivery, full nine or ten inches in length, and not more than four inches in transverse diameter, estimated by feeling it through the relaxed integuments of the abdomen. These circumstances prove that the uterine fibres which affect the conjugate diameter of the organ may act with force, while those which affect its longitudinal diameter are either in a state of repose, or of very slight action; which leads us, as I think, to the inference, that the longitudinal and horizontal fibres are separate and independent organs or parts of the uterine structure. The annexed cut (Fig. 39), from M. Chaillly's Midwifery, gives a view of an arrangement of muscular fibres which seem to converge upon the tubes and round ligaments. Let the Student conceive of a separate, non-coördinate action in these fascicles of muscles, and he will perceive that such action might greatly embarrass a labor in
which the contraction ought to be consentaneous and co-ordinate for the whole muscular apparatus of the organ.

If this be a just view of the case, it will serve for the explanation of occurrences in labor that would otherwise embarrass us not a little. For example, we find the woman in travail sometimes suffering under the most intense pains, and making the greatest efforts without the smallest profit; and that, too, where we know certainly that the pelvis is of the ampest dimensions. What can be the cause that the child does not advance under such vigorous efforts? We find that the head is positively stationary, notwithstanding the healthiest pelvic conformation, a sufficient dilatation of the uterus, and violent labor pains. We are at once satisfied, and relieved of anxious doubts, when we reflect that the horizontal or transverse fibres are active, and the longitudinal or perpendicular fibres inert. There is a failure of coordination in the movements, and our duty will be clearly seen to consist in endeavors to restore the synergy of contractile effort.

As this circumstance generally results from some excess of a local or constitutional irritation, the former occasioned by tedious or violent labor, rheumatism, officious intermeddling, or the direct stimulation of ergotism; and the latter by a too susceptible nervous system, repletion, mental emotions, or vain efforts of labor long continued: it appears that, in the former case, we ought to resort to the tranquillizing influences of laudanum clysters, cool air and drinks, and abstinence from impertinent handlings; whereas, in the latter, we may apply to the lancet, to a Dover's powder, to portions of morphia, or the black drop or opium, or the bath—after evacuations have been procured from the bowels by emollient and laxative injections; and that we ought to give orders for a full and free ventilation, and the use of suitable drinks.

But if it does sometimes happen that the movement of the horizontal fibres is inordinate, or in excess, it fortunately happens in the vast majority of cases that the powers of the longitudinal fibres are the greatest. The ovum being contained entirely within the uterus, it appears that it can only be expelled by the fundus approaching the os uteri; or, in other words, by the shortening of the womb that results from the contraction of its longitudinal fibres. Let us remember that the womb is attached to the upper end of the vagina, and that the ovum, in passing out from the uterus, must necessarily traverse that canal. It will then appear that the first contraction of the longitudinal fibres will tend to pull the circle of the os uteri open at the same time that the point of the ovum is insinuated into the enlarging orifice. This opening or dilatation of the orifice does not take place without resistance, which is chiefly perceptible, however, in the early stages;
for we find that while the fundus and body of the womb are vigorously condensed during a pain, the cervix also is strongly contracted, but less and less vigorously as the dilatation becomes more considerable; so that, indeed, it is not rare, at length, to perceive the whole circle of the cervix suddenly yield, as if without opposition, to the greater power of the longitudinal fibres. The circle of the os uteri is, as it were, pulled upwards, towards the fundus uteri, by the muscular expulsive powers; and indeed it seems to be stripped over the lower segment of the ovum, over the head, or over whatsoever presenting part. I have known the whole dilatation to take place during a natural sleep.

Some women require only a few pains to complete the dilatation, whereas others suffer hundreds of pains during several successive days, before the circular fibres are conquered by the protracted efforts of their antagonists, the expulsive ones.

From thirty-five to fifty are probably the average number of pains felt by parturient women. If four hours be a mean of the duration of labor, then the woman will be likely to have pains at the rate of one every ten minutes for the first hour—which would be six pains. She would probably have ten pains in the second hour, fifteen in the third hour, and twenty pains in the fourth and last hour of the process—say, in all, about fifty pains.

While the generality of cases are so favorable, there are multitudes of women who have not more than three or four; whereas some of them suffer from the repetition of two hundred contractions, and even a greater number than that.

A considerable experience and trained habits of observation are necessary to enable a practitioner to prognosticate the moment of delivery, making up his judgment from the intensity of the pains of expulsion, as compared with those of opposition or retention. It is certain that no man, be his experience ever so great or his discrimination ever so acute, can with absolute certainty calculate upon the moment when any given labor shall be brought to a conclusion, since no one can absolutely predict what shall be the exact degree or intensity of any muscular effort, which, as it is a vital operation, so it is dependent on causes beyond our foreknowledge or perfect control. Young and inexperienced practitioners ought, therefore, to be very late in announcing their prognostic of the end of labor, as to time.

I have remarked that, as the longitudinal fibres pull the os uteri open, the apex of the ovum is inserted into the aperture: with each succeeding pain additional portions of the ovum pass into the os uteri and through it, until, at last, the fundus having approached very near the cervix, the whole of the ovum becomes excluded from the uterine
The external organs.

The cavity, after which the same longitudinal and horizontal fibres, meeting with no further considerable resistance, act in concert, and thereby reduce the womb down to a very small size. It returns, but slowly, to the non-gravid condition. From fifteen to thirty days are required to effect this reduction. Let it be remembered that the womb is capable of contracting equally upon an ovum at term, and upon an abortion at three weeks.

The planes of the ischia are three and a half inches long. The womb is two and a quarter inches in length: when it occupies its proper place in the pelvis, the top of it is not so high as the top of the ischium; in other words, it is lower than the plane of the strait; but the point or os uteri sinks low down towards the bottom of the pelvis. The womb does not occupy the same place in the pelvis when the bladder is full that it does when that organ is empty; but retreats when the bladder is filling, and comes forward when it becomes empty again; hence the organ is scarcely ever at rest in the same place.

This movableness, and constant change of place, often result in the injury or weakening of its ligaments, particularly its round ligaments, which in some women become so much stretched by an over-fulness of the urinary bladder, that they fail to contract, and so, let the fundus uteri fall downwards into the hollow of the sacrum, until the womb is quite overset, backwards. This makes a case of retroversion of the womb.

When the womb is retroverted, and continues so for months or years, the os remains all the time close to the symphysis pubis; and at last the anterior column of the vagina condenses itself so as to accommodate its length to the actual short distance from the cervix to the symphysis.

If it be reposited, and an attempt be made by means of a common pessary to restrain it from falling over again, the attempt frequently fails and the instrument falls into discredit. The cause of the failure is in fact in the contracted, condensed, elastic anterior column of the vagina, which slowly, but surely, pulls the cervix over the top of the pessary, to bring the os back again close to the symphysis; and then the anterior column having come to a state of rest, as to its contractility, there is room enough to allow the fundus to sink again into the recto-vaginal pouch, or Douglass's cul-de-sac.

In old cases, therefore, the ordinary pessary will not answer; but they are always curable by means of a ring pessary, of proper construction; for, when the posterior segment of such a ring is lodged in the posterior cul-de-sac of the vagina, and the anterior segment behind the symphysis, it is clear the os cannot come forwards again, nor the fundus fall down behind.