phenomena, alcoholic stimulants should be allowed only in the most rigorous moderation, or even absolutely cut off.

DYSMENORRHŒA FROM OBSTRUCTION OF FALLOPIAN TUBES.

Bernutz relates a case which seemed to be of this nature. A lady at twenty-eight enjoyed good health till some months before death; she then had metrorrhagia, and was thought to have a miscarriage. During a time of severe mental trial she was seized suddenly with violent pains in the abdomen, fainting and vomiting. There was then no discharge. She soon sank with symptoms of internal hemorrhage. Much blood was found in the abdomen and pelvis. The left tube presented a tumor the size of a pigeon's egg; on its surface was a small transparent cyst, covered with filaments of the tube. At its junction with the uterus the tube was rendered impervious by a small fibrous tumor.

INFLAMMATORY DYSMENORRHŒA: DYSMENORRHŒA MEMBRANACEA; (ENDOMETRITIS EXFOLIATIVA).

Inflammatory dysmenorrhœa is not common in single women. The clearest examples are those in which dysmenorrhœa follows on suppressed menstruation, as from the sudden shock of cold, injury, or emotion sustained during the flow. Under this circumstance, metritis, or at least intense uterine congestion, is very likely to arise; and an inflamed organ necessarily performs its function, if it be performed, with pain. Not uncommonly in these cases, pelvic peritonitis and oophoritis complicate the metritis; and these conditions in themselves will make menstruation painful. The history of the case, the evidence of primary pelvic inflammation, and of secondary dysmenorrhœa, explain the nature of the affection. In some of these cases there is not only some degree of chronic metritis persisting, but as sequelæ of the peritonitis, adhesions may remain which impede the mobility of the uterus, and even drag it out of place. Local examination confirms the diagnosis supplied by the history.

In these cases the appropriate *treatment* is to apply six to ten leeches to the groin, or two to the cervix uteri; or to scarify the vaginal-portion; to use warm hip-baths containing Vichy salts; to administer salines and sedatives. If the peritonitic complication be severe, it is desirable to give small doses of calomel and opium for two or three days. The rectum should be cleared out by an enema of gruel and olive oil; but all purgatives which disturb parts which ought to be at rest, should be carefully avoided.

Inflammatory dysmenorrhœa is well exemplified, although not perhaps in its purest form, in those cases where metritis, with perimetritis and some degree of fixing of the uterus, spring up, and persist after labor or abortion. In many of these cases there is a clear history of freedom from dysmenorrhœa until after labor; henceforth the menstrual function is performed with pain. The pain comes on with the flow, which is often profuse, lasting for six days or more. The pain is referred to the uterus, whence it radiates to the back. The treatment resolves itself into that of the abnormal condition of the uterus, and surrounding structures. The

further history, then, of this form of dysmenorrhœa will be discussed when describing the conditions of which it is a symptom or consequence.

The *Dysmenorrhœa membranacea* may be classed under the inflammatory kinds. It is often a very obstinate affection. The pathognomonic feature is the discharge of a membrane, sometimes in shreds, sometimes representing a cast of the cavity of the body of the uterus. Denman seems to have anticipated one of the most commonly accepted theories of the dysmenorrhœal membrane. He says:[1] "Having very often observed a substance expelled with the menstrual discharge, which has hitherto escaped notice, and apprehending that the knowledge of this substance may be of use in practice, I feel it incumbent on me to describe it. . . . . I constantly found that one surface had a flocky appearance, and the other a smooth one; that it had in all respects the resemblance of that membrane, which Ruysch had called the villous, of the formation of which Harvey has given a very curious description, which the late Dr. Hunter described with his usual precision, and called the decidua. To put the matter out of doubt, I requested the favor of Dr. Baillie to examine some portions of this membrane, and he agreed with me in thinking it an organized membrane similar in structure to the decidua. As the first cases in which this membrane was discharged were those of women who were married, a doubt arose in my mind whether it was not really a consequence of early conception; but I have lately had the most undoubted proofs that it is sometimes discharged by unmarried women, and may be formed previous to and without connubial communication." A case is graphically related by Morgagni. These membranes have often been regarded as casts formed by exudations of lymph, like those of croup. They are so described by Montgomery, R. Ferguson, Churchill. But Oldham[2] distinctly enunciated the proposition that they were formed under the ovarian stimulus; and that they were formed by the uterine glands—that they were, in short, menstrual decidua.

Oldham's observation was speedily confirmed by others. Professor Simpson[3] described the membrane as resembling the decidua vera. Bernutz cites three cases from Boivin and Dugès, in which casts or cysts were expelled from the uterus, in order to prove that the affection described by Oldham had been previously known in France.

But here, as is constantly happening in the history of medicine, we have an instance of the disposition, at once and absolutely to exclude the hitherto existing theory of a disease, and to replace it as absolutely by the last new theory brought forward. It is too often forgotten that both may be true, as expressing the nature of certain cases; and that neither may be true, as expressing the character of all cases. The new fact, that the membrane expelled is the mucous membrane of the uterine cavity, is undoubtedly true, but I am in a position to affirm from my own observation that the membrane expelled in some cases of dysmenorrhœa consists essentially of fibrin and mucus, and does not contain the elements of mucous membrane.

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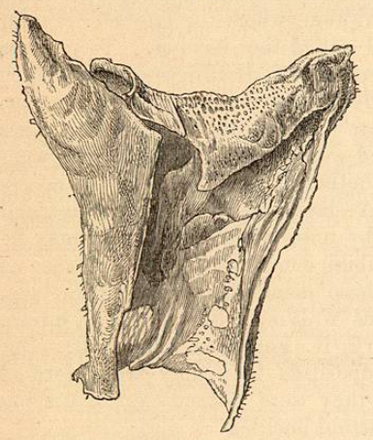
[1] Introduction to the Practice of Midwifery.
[2] London Medical Gazette, April 17th, 1846.
[3] Edinb. Monthly Journ. of Med. Sci., Sept. 1846.

It is important then to bear in mind that the *membranes associated with dysmenorrhœa are not all of one kind.*

The *first kind* may be defined as the exfoliated mucous membrane of the uterus. All the elements of this membrane may be recognized by the microscope. When voided they may be entire, in which case their source and nature are easily recognized. They are then seen as three-cornered bags, somewhat longer in one direction, having an irregular opening at each angle, the opening at the smaller end or space being larger than the two others. This lower opening corresponds with the os internum uteri, the other two with the ostia of the Fallopian tubes. The membranes are rough, ragged on the outer surface, and smooth on the inside. In size they are about an inch and a half long, and a little less in width, that is, generally somewhat in excess of the normal proportions of the cavity of the body of the uterus. Under the microscope, the distinctive element of the uterine mucous membrane, namely the utricular glands, is made manifest. It may be said that the identification of this membrane as mucous membrane was a natural consesequence of the identification of the decidua of pregnancy as mucous membrane. This decidua had already gone through the same phases of theory, that is, it was long looked upon as a simple exudation from the inner uterine surface, analogous to the fibrinous effusions of inflammation or croup, and it was ultimately recognized as the highly developed mucous membrane. The application of this knowledge of the true nature of the *decidua gravida* to the study of the deciduous membrane of dysmenorrhœa, might be directly suggested by the demonstration of Coste that the uterine mucous membrane at the epoch of menstruation assumed a development strictly analogous to that which it assumed on the advent of gestation. This similarity suggested to Virchow the name "*decidua menstrualis*" for the dysmenorrhœal membrane; and this name, although rather indicative of a constant or normal state, than of a pathological one, it is convenient to retain. The decidua menstrualis, then, may be expected to present characters like those of the decidua of early pregnancy. And this similarity is so close that some observers have impugned the existence of the decidua menstrualis, and contend that all membranes presenting the characters of decidua are really the product of conception; that, in short, the so-called dysmenorrhœal membrane is nothing but the issue of an early abortion. This view was distinctly enunciated by Dr. Hausmann,[1] who based his conclusions on

Fig. 70.



(St. Thomas's Museum, G. G. 4, nat. size.)

Uterine Mucous Membrane shed entire, laid open, showing Interior Cavity smooth (R.B.).

At upper part are seen numerous points, the openings of glands; on the outer surface are slight ragged projections.

[1] Monatsschrift für Geburtskunde, 1868.

the examination of specimens furnished by Martin and Virchow. The discharge of the membrane at the menstrual epoch is not, he says, constant; it is often a few days in arrear; the expulsion begins, as a rule, from six to twenty-four hours, sometimes several days, after the beginning of hemorrhage, and always under forcing pains. The several causes of this abortion and of the consequent expulsion of the decidua, are not yet known, but probably the premature destruction of the embryo is the first factor. Hausmann cites, amongst other arguments, a case from Tyler Smith, which, if it be admitted as typical, would indeed furnish strong evidence in favor of the abortion-theory. A woman whilst single was healthy; from the time of marriage to the death of her first husband she passed membranes at irregular intervals; became free whilst a widow; and again discharged these membranes six months after a second marriage.

To accept this theory, that the menstrual decidua is simply an abortion, may be to subject the patient to an impeachment of her character. If the membrane be the result of sexual intercourse, the discharge of one by a single woman, or by one living apart from her husband, must be taken as proof of unchastity. Subsequent observations confirm the statement of Denman that dysmenorrhœal membranes have been observed where the absence of sexual relations was undoubted. Some of the membranes are fibrinous casts or blood-clots which, compressed in the uterine cavity, have lost more or less of the red-globules; and on the surface, especially, have assumed a pale and membranous appearance. Generally, however, these altered blood-masses are more or less solid; that is, they present no cavity, or if there be one, it is filled with blood, fluid or coagulated. These casts or clot-moles are not very uncommon accompaniments of dysmenorrhœa. There is no doubt of their being shed independently of impregnation, or even of sexual connection. But they are certainly more common in women who have had children, and who continue to be subject to sexual connection. The natural monthly shedding of the uterine mucous membrane, instead of taking place, as in the usual way, by disintegration, so that the elements escape gradually as detritus, mingled with the menstrual blood, may be effected by a more rapid and violent process. In this case we shall find distinct shreds, perhaps an entire cast, composed of fibrinous fibrillæ, of fibre-cells, numerous mucous-globules, and epithelium-cells. In the case from which the figure (Fig. 70) is taken, the subject had had children, and suffered severely from menorrhagia and dysmenorrhœa.

It is quite conceivable that the uterine mucous membrane, having undergone an unusually full menstrual development, may be cast off even more completely than in the preceding case. We should then have the typical contested decidua menstrualis. The inner side would exhibit the fine points or holes of the orifices of the utricular glands, and the outer side, the ragged flocculent appearance which is commonly, but not always, seen in early aborted ova. It does not consist of the entire mucous membrane of the uterus. The outer layer of the mucous membrane, with the blind extremities of the uterine glands, remains behind. The decidual membrane contains the normal elements of the mucous membrane, the ciliated epithelium, the glands, the vessels and connective tissue; the vessels and

connective tissue are hypertrophied; the glands are elongated and widened. It being admitted, that the mucous membrane, under simple ovarian menstrual excitation, undergoes a high degree of development not distinguishable from the decidua of early pregnancy, it must also be admitted as possible that the mucous membrane so developed may be cast off. Moreover, that the presence of an ovum in the uterus is not necessary for the development of a membrane having all the characters of the decidua of pregnancy, is proved by the formation of a decidua *in utero* in cases of tubal gestation.

Rokitansky distinctly says, when describing the characters of a membrane submitted to him by Mandl, "The development of the mucous membrane is in excess of its usual menstrual degree. It is not, however, connected with conception." It does, however, occur in women who have had children. Courty relates in full a case of a girl who passed membranes at her periods. On one occasion he extracted one from the os uteri by forceps, through a small speculum carefully manipulated, so as not to break down a virginal hymen. John Williams relates (*Obstetr. Trans.* 1877) several. I myself have seen others. Denman has an interesting remark. "This is not," he says, "the only circumstance in which some women, at each period of menstruation, have symptoms like those which accompany pregnancy or parturition."

Another form of cast appears to consist purely of fibrin. These come in shreds, or in one piece representing the shape of the uterine cavity. Under the microscope, nothing but the fibrillar arrangement of fibrin, interspersed with mucous corpuscles, is seen. Indeed in almost every instance, products of inflammation of catarrhal character will be found. Stenosis of the os externum, which as we have seen is so sure a cause of dysmenorrhœa and of uterine catarrh, is a frequent condition. In some cases of endometritis it would seem either that a layer of fibrin may be effused, or that the mucous secretion, rendered more tenacious by retention and by fibrinous matter, may form a distinct layer on the surface of the mucous membrane. Such a membrane may be independent of impregnation, but being associated with chronic metritis, it is most frequently seen in women subject to sexual connection. At the menstrual epoch the chronic metritis is intensified, and may deserve the name given to it by H. Huchard[1] of "*menstrual metritis*." I have seen it in virgins.

In some cases the *albuminoid secretion from the cervix uteri*, which is especially copious in endocervicitis, may, entangling a lesser proportion of epithelium, produce a tenacious membrane less solid than the preceding, but of a similar character. This may occur in single as well as in married women. The mucous plasma thus condensed, assumes very much the appearance of fibrillæ.

Shreds of membrane, mostly very small, are frequently passed when there is *malignant disease* of the uterus. These are the result of superficial disintegration or necrosis of the diseased structures. They are not likely to be mistaken for dysmenorrhœal membranes. They differ in being mostly minute in size, and in being attended by the turbid, greenish,

[1] Gazette des Hôpitaux, 1870.

watery discharges, characteristic of cancer. I have seen shreds of this kind brought away from the interior of the uterus by the small sponge-probang when the disease affects the cavity.

In some cases I have been satisfied that the unhealthy condition of the uterine mucous membrane leading to the casting of shreds and membranes was due to *syphilitic disease*. Inquiry in this direction by examining the skin and the state of the mucous membranes elsewhere, as well as by weighing the history of the patient, is important. A succession of early abortions or dead children affords highly presumptive evidence.

Raciborski points out[1] that the mucous membrane of dysmenorrhœa may be distinguished from the decidua of early abortion. The dysmenorrhœal membrane is generally in shreds, thin and membranous, triangular, and showing the orifices of the tubes and os internum uteri. It is always expelled at a menstrual epoch. On the other hand, the aborted decidua is generally thicker, blood being extravasated in the substance; in shape it is more ovoid; the tubal orifices are not easily made out; and it is generally passed after a period has been suspended. But these characters are insufficient. The only safe evidence of *decidua gravida* is the recognition of chorion-villi.

Shreds of a membranous appearance may be passed from the *vagina* at inter-menstrual periods, which do not necessarily come from the uterine cavity. Thus the ordinary exfoliation of epithelium which takes place from the os uteri may, under a condition of sub-acute inflammation, be so rapid, that the throwing off of epithelium-cells exceeds the proportion of mucus necessary to maintain fluidity. In such a case there is formed a layer of whitish material which covers the mucous membrane, resembling a diphtheritic membrane. This consists almost entirely of pavement epithelium-cells and mucous globules. I have not seen this in virgins, but the possibility of its occurrence cannot be excluded.

Under peculiar puerperal states also, the vulva, vagina, and perhaps the uterus, may be covered with a diphtheritic membrane, closely resembling that which covers the fauces in diphtheria.

I mention one circumstance, to warn against a possible fallacy. When women suffering from leucorrhœa are using astringent injections, as of zinc or alum, the albuminoid mucus is coagulated by the injection,

FIG. 71.

Exfoliated Mucous Membrane of the Vagina (R. B.). (Cast in St. Thomas's Museum—ad nat.)

[1] Traité de la Menstruation.

and comes away in shreds. The patients say it brings away "bits of flesh or skin."

Dr. Arthur Farre has described[1] cases in which complete casts of the vagina were passed. These were distinguished from uterine membranes by their having the exact form of the vagina, by the absence of the characters of the uterine mucous membrane, and by not being cast under symptoms of dysmenorrhœa. The drawing, Fig. 71, is taken from a specimen of this kind in St. Thomas's Museum.

It should be borne in mind also that the superficial layer of the vaginal mucous membrane is liable to be exfoliated under the application of perchloride of iron. Thus, I possess a very complete cast of the vagina, showing all the rugæ, which was shed after several intra-uterine injections of this styptic to arrest obstinate metrorrhagia. This membrane, like other compressible substances in the vagina, was not expelled, but got rolled up in a ball in the posterior vaginal cul-de-sac, whence it was brought away by the finger. It escaped detection by the speculum. The surface of the vagina and os uteri was pale, and very smooth. A single injection is not likely to cause this exfoliation, unless it be used of nearly concentrated strength.

The disposition to cast membranes must not be regarded from too special a point of view. I have known cases where membranes were shed from the bladder, there being other evidence of cystitis; and from the bowel as well as from the uterus. We must look beyond the uterus for more general causes. And even in the more strictly uterine cases, we cannot overlook the peculiar state of the nervous and vascular systems preceding and attending menstruation. The exalted tension, nervous and vascular, at this time excited into pathological extremes by the obstruction to the menstrual function, becomes an important factor, and gives indications in treatment.

Nor must we in this connection omit reference to the part which the altered constitution of the blood attending menstruation may play. As in pregnancy, the blood is more fibrinous; and under the special complication of dysmenorrhœa, general and local conditions still more approaching to those of pregnancy are induced. It is not therefore surprising that under the combined influence of these conditions mucous casts should be more common.

Dr. Andrew Clark (*Pathological Trans.*, 1858), Dr. Perroud (*Journ. de Méd. de Lyon*, 1864), Mr. Walter Whitehead (*Notes on Mucus Disease*, 1870) have studied the history of membranous exfoliations from the intestine with great care. The membranes formed in the intestine are cast with similar pain, and the expulsion seems critical, followed by some relief. They recur in many cases periodically. They occur most frequently in women. Of one hundred cases, four only occurred in males. This evidence of the liability of the mucous membranes generally to a similar affection, suggests an analogy with the eruptive, or exfoliative affections of the skin, affections which undoubtedly often depend more upon constitutional than upon local conditions. In this connection it is useful to recall attention to the history of the mucous membranes in

[1] Beale's Archives.

scarlatina, typhoid, and other fevers. I have already referred when describing "Leucorrhœa" to the occasional origin of this affection during scarlatina and smallpox.

The Symptoms.—The presence of inflammation as a necessary element has been doubted. But there can be no doubt as to the general presence of congestion and hyperplasia. It may be doubted whether a single case has occurred in which some morbid condition of the uterus has not been developed. There is almost always extreme tenderness of the uterus on touching the vaginal-portion of the body of the organ; and increased bulk of the uterus is discovered by combined intra-vaginal and abdominal palpation. Dyspareunia and sterility are almost constant complications. The tendency to rapid morbid hyperplasia of the uterine mucous membrane seems to unfit this structure for the formation of healthy gravid decidua, while the congestion and irritability of the muscular wall dispose the uterus to premature contraction, and to cast off its contents.

The process of detachment of the morbid mucous membrane is violent, and not the slow result of gradual exfoliation. Exudation of fluid, serum, sometimes blood, takes place between the inner uterine wall and the layer of mucous membrane which is to be thrown off; then spasmodic contractions or colics of the uterus being set up, the detachment and expulsion are completed. Williams found in a case examined after death, the exfoliation beginning from the os uteri internum, and thence extending to the fundus uteri. He confirms the proposition stated above that there is hyperplasia or fibrosis of the uterine wall.

The symptoms are in harmony with this view. Pain, pelvic abdominal and inguinal, precedes the menstrual flow by several days. There is bearing-down pain, with a sense of increased fulness and weight in the rectum, frequently causing tenesmus both of the rectum and of the bladder. Pain in one or other ovarian region, more commonly the left, is very frequent. A painful sensation of gnawing, extending to the umbilicus and epigastric region, has been complained of in several cases. The pain is intensified, assuming an expulsive labor-like character when the flow sets in, and is so continued from twenty-four to forty-eight hours, when the membrane is usually expelled. The pain then abates; but frequently the discharge of blood is profuse, and lasts for some days longer. When this has ceased the patient rallies for a time, to be again cast down by the recurrence of a similar train of events. It is not, however, every menstrual period which is attended by the expulsion of casts. Sometimes a period, marked by less severe pain and less hemorrhage, occurs. Sometimes the membranes are passed on alternate months. It deserves to be carefully observed how far these intermissions correspond with the suspension of sexual intercourse. I have observed several cases in which a succession of casts, of the fibrinous variety, three or four in a series, have been expelled within one menstrual process. Dr. Rigby says oophoritis is not seldom the result or concomitant of this form of dysmenorrhœa; and this association with ovarian stimulation deserves further attention. It is not improbable that in many instances the primary factor is in the ovary. According to the degree of nervous susceptibility and general impairment of health of the individual, various

degrees and forms of hysterical and other nervous derangements will manifest themselves. Pain is not constant. I have notes of one case in which most complete casts were passed regularly for many months, very little or no pain being complained of. When they ceased the uterus was distinctly smaller. The patient recovered.

The *treatment* of dysmenorrhœa membranacea will of course be greatly governed by the view we take of the pathology of the affection. If we conclude that an essential factor is sexual intercourse, especially if involving impregnation, the main treatment is obviously prophylactic. Abstinence, that is, physiological rest for a time, should be dictated. We then gain time and opportunity for treating the morbid conditions of the system and of the generative organs.

The survey we have taken of the affection almost precludes the idea that the menstrual membranes are cast by the healthy uterus. It follows that we must carefully study the physical condition of the uterus, and direct treatment to the removal of the complicating diseases.

What are the best local applications? It is clear that the origin of the membranes being the lining membrane of the cavity of the uterus, our remedies must be applied there. We can only act very slowly indeed, if at all, if we trust to the principle of derivation by limiting the application of remedies to the cervix. It is of the first importance to begin by well dilating the cervix, so as to get free access to the cavity of the uterus. In some cases where the disease has been associated with a narrow os externum, the division of this orifice has been followed by relief. If there is a syphilitic taint I would advise the mercurial vapor-bath, using a bath-speculum to enable the vapor to enter the vagina. To the inner cavity of the uterus we may apply nitrate of silver, iodine, bromine, or sulphate of zinc. The iodide of mercury may be applied in the form of ointment by my instrument. (See Fig. 52, p. 155.) The application should be repeated overy five or six days.

Mandl speaks favorably of chlorate of potash, as this remedy is known to possess a decided influence on the liquefaction, degeneration, and resorption of epithelial growths and pseudo-membranous exudations of the mucous membrane. In the case he narrates, benefit attended the use of this substance. If nitrate of silver be used, it should be reduced by using three-grain sticks, made by fusing together equal proportions of nitrate of silver and nitrate of potash. Fuming nitric acid is sometimes effective. If there be retroversion or retroflexion, as is not uncommon, this must be corrected.

When there is considerable turgidity of the cervix, from congestion or active inflammation, two or three leeches applied to the cervix uteri, or scarifying the vaginal-portion, may be useful.

Constitutional treatment, hygienic, and including the exhibition of remedies by the stomach or skin, is often essential. Digitalis, bromides, salicylic acid, and other agents that lower nervous and vascular tension, should be tried during the stage preceding menstruation.

The severe suffering attending the dysmenorrhœal paroxysms may be mitigated by opium, Hoffmann's anodyne, chloroform, chloral, Indian hemp, bromide of potassium, or ammonia, or other sedatives. The liquor ammoniæ acetatis is valuable by itself, and the best menstruum for opium.

Trousseau recommended turpentine, in twenty-drop doses, continued for three months, and the prolonged use of warm baths. C. Braun prescribed small doses of arsenic, to allay the attendant painful excitement. Hot water injections or hot baths are often useful.

Tonics, as iron, quinine, strychnine, arsenic, and the mineral acids are almost always serviceable, as adjuvants to local treatment.

The bowels require special care, as accumulation in the rectum is a serious aggravation of all uterine affections.

Prognosis.—With all possible care we must be prepared to find these cases rebellious to treatment for a long time; sterility may be regarded as a consequence; for when pregnancy occurs, and is carried on for some months, the disease may be considered to be cured. But it may return after labor.

CHAPTER IX.

THE MENSTRUAL IRREGULARITIES OF THE CLIMACTERIC EPOCH.

In connection with the deviations from healthy menstrution, it is convenient to trace the history of menstruation at the climacteric epoch. This epoch is sometimes called the "menopause," to indicate the cessation of the function of menstruation. There is no fixed uniform period for this event. Some women cease to menstruate at forty; others go on till fifty or even later. In some the transition is, if not abrupt, at any rate well marked; in others the transition is protracted, interrupted by occasional suspensions, or the missing of a period or two. The flow becomes irregular both as to periodicity and quantity. This uncertainty has earned for the climacteric age the expressive term of "the dodging time of life;" often it is called "the change;" "*l'âge de retour;*" and a great deal is implied in these expressions. The transition-period, from active ovario-uterine life to the stage of sexual decrepitude or degeneration, is seldom effected without some disturbance; and in many cases the local and constitutional disorders that attend it are numerous and severe.

Physcians do, indeed, talk of the climacteric in man; but the analogy is more fanciful than real. In the male sex there is no epochal limitation of sexual life. There is nothing to compare with the almost sudden decay of the organs of reproduction which marks the middle age of woman. Whilst these organs are in vigor, the whole economy of woman is subject to them. Ovulation and menstruation, gestation and lactation by turns absorb and govern almost all the energies of her system. The