

with the constrictor muscle of the vagina. It has an excretory duct about $\frac{1}{2}$ -inch long, directed from below upward, and from without inwards, which opens on the surface of the vulvar mucous membrane, in front of the hymen in the retreating angle between this membrane and the wall of the vulva. When the hymen is broken up, the orifice is found in the corresponding angle between the carunculæ myrtiformes and the wall of the vulva. It is often difficult to detect, but is sometimes large enough to admit a probe. The constituent parts of the gland are a fibrous envelop, lobules formed of a great number of granulations, whence issue the excretory canals, arteries, veins, lymphatics, and a few nervous filaments. This gland is the analogue of the glands of Méry and of Cowper in man.

The Secretory Apparatus of the External Genital Organs.—The secretory apparatus of the external genital organs is exclusively constituted—with the exception of the vulvo-vaginal gland—of sebaceous glands in clusters, and of some sudoriparous glands, the last being found only on the external aspect of the labia majora. The sebaceous glands increase in number and diminish in size from the external aspect of the labia majora to the internal aspect of the labia minora. On the border of the labia minora they suddenly cease. There is no trace in the vestibule. The muciparous follicles of the vestibule, meatus and urethra, say C. A. Martin and Leger,¹ described by authors do not exist; they have probably been mistaken for mucous crypts. The sebaceous glands of the labia minora do not exist in the fœtus; they only attain complete development at puberty; after the menopause they undergo atrophy, as well as those of the inner aspect of the labia majora. During pregnancy they acquire a greater size than at any other period.

¹ Arch. Générales de Méd. 1862.

CHAPTER II.

CONDITIONS INDICATING NECESSITY FOR LOCAL EXAMINATION: DISORDER OF FUNCTION—DISTANT AND CONSTITUTIONAL REACTIONS—THE SUBJECTIVE SIGNS OF LOCAL DISEASE INDICATE APPEAL TO OBJECTIVE SIGNS—COMPARISON OF STUDY OF DISEASE OF PELVIC ORGANS WITH THAT OF SKIN AND EYE—DISTURBANCE OF FUNCTIONS OF OVARIES, UTERUS, AND VAGINA—AMENORRHEA, REAL AND OCCULT; MENORRHAGIA; DYSMENORRHEA—ABORTION—DISCHARGES: LEUCORRHEA, MUCOUS, ALBUMINOUS, WATERY, GASEOUS, PURULENT, HEMORRHAGIC, FLESHY, MEMBRANOUS—NERVOUS PHENOMENA: PAIN, LUMBO-DORSAL, INGUINAL, PELVIC, IRRITABLE OVARY, IRRITABLE UTERUS, MASTODYNIA, NEURALGIA, SPINAL IRRITATION, PARAPLEGIA, MENTAL DISORDER, REFLEX NERVOUS PHENOMENA, VOMITING, CONVULSION, EPILEPSY, HYSTERIA—DYSpareunia, VAGINISMUS—STERILITY.

THERE is nothing special in the mode of studying the diseases of women. Just as the ophthalmic surgeon is led to examine the eye because the patient complains of loss or disturbance of its function, or because he feels pain in it, or has some other subjective symptom referred to that organ, so by disturbances of function or some other subjective sign are we led to the discovery of disease of the sexual organs. When the function of an organ is disturbed, the *primâ facie* inference is that the organ itself which constitutes the mechanism by which that function is performed is out of gear. This is not indeed always absolutely true; because an impaired state of the blood, or disordered innervation, or derangement of another organ, may entail the functional disorder which arrests our attention. The genital organs are no exception to this proposition. The functions of the ovaries, uterus, or vagina may be seriously deranged by a state of anæmia or blood-poisoning, by disease of nervous centres, by disease of the heart, lungs, or liver. These functions may be even more seriously affected by mechanical pressure in continuous parts. Still the fact remains that we can hardly appreciate rightly or successfully treat these primary or correlated diseases if we do not take into careful consideration the state of the genital organs themselves. The general or distant affections require to be investigated and treated; but it is not safe to overlook the organs that may be secondarily involved.

It is needless to say that every woman who is ill and seeks advice does not suffer from disorder of the sexual system. She may labor under various constitutional disorders, and under disorders of parts of the body quite independent of the sexual system. On the other hand, general or local disorders may in their course react upon, and induce disorder in, the sexual system. And there are disorders of this special system, commencing in it, and in their turn reacting upon, and inducing disorder in, distant organs or in the general system.

These inter-reactions are exceedingly frequent. Indeed, it may be affirmed that no severe constitutional disorder can long continue in a woman during the predominance of the ovarian function without entailing disturbance in this function. And the converse is also true, that disorder of the sexual organs cannot long continue without entailing constitutional disorder, or injuriously affecting the condition of other organs.

These facts point to the necessity of guarding against the error of fixing our attention too specially upon one particular class of symptoms or upon one organ. Whilst searching out the part which is more especially the seat of diseased action, we must be careful not to overlook possible disease elsewhere, and not to neglect to observe the mutual reactions. The clinical physician, although led by the intuition of experience to seize quickly upon the offending part, will not omit to pass under review the state and working order of the other parts. In this manner most important complications are often brought unexpectedly to light; and in every case some useful indication in treatment is discovered. The late Professor Chomel, a man of admirable skill, sagacity, and judgment, never failed, when a new case of disease came under his care, to interrogate successively every function. Thus, I have seen him in a case of pneumonia, the signs of which at once arrested attention, proceed, nevertheless, to explore the abdomen, the uterus, and the rectum. This may look like carrying out a principle to extremes. Yet who shall say that Chomel, as a clinical teacher or as a physician, was wrong?

It is not, indeed, necessary in ordinary practice, to follow out in rigorous completeness the plan which to the clinical professor may seem desirable. It will, therefore, be useful to ascertain *what are the leading symptoms which, alone or grouped, indicate such disorder of the sexual organs as to call for direct exploration?*

This is the question we have set before us: When a woman presents herself, complaining of certain symptoms, chiefly subjective, some, or perhaps none, referred to the pelvis, how are we to act? Will these subjective symptoms enable us to refer them to their cause, to establish a diagnosis, to give satisfactory indications for treatment? Hardly. We must, therefore, call to our aid the objective signs; we must weigh and determine the significance of these before we can arrive at a conclusion at all precise or trustworthy as to the underlying pathological condition. The whole tendency of modern medicine is to subject every organ which manifests functional disorder to direct physical exploration, in order that it may solve the question presented obscurely by the subjective signs. The sound, the probe, the stethoscope, the laryngoscope, the otoscope, the ophthalmoscope, the various forms of speculum, are only so many contrivances for enabling us to project the senses of touch, sight, and hearing into the internal structures. In the case of the skin, all is at once exposed to direct observation; and, as Alibert remarked, we should be glad to have the same advantage in investigating and treating the diseases of the heart, lungs, liver, kidneys, and nervous centres. Why is it that the study of the pathology of the skin and of the eye is invested with such fascinating interest? Those who devote themselves with the greatest zeal and success to this study affirm that it is because the skin and the eye reveal their condition directly to the senses, and thus furnish not

only positive objective signs which the patient can neither suppress nor misrepresent, but also because by this direct observation of the skin and eye they can read and follow, as on a map or on a telegraphic dial, the working of distant organs and of many affections of the general system. Here, then, we see how the reputed special practitioner, turning to account his special experience, often acquires an insight into general pathology denied to those who neglect the lessons they might read upon the visible organs.

This advantage we possess to a great extent of perfection in the case of the pelvic organs. It is by the proper use of this advantage that so great a degree of precision in knowledge, and of success in treatment of diseases of women, has of late years been attained.

And there is one property in a high degree characteristic of the instruments employed in the investigation of the diseases of women of such singular value that it ought to completely silence the objections at one time so passionately urged against them. It is this: the instruments have a therapeutical as well as a diagnostic application; the speculum, for instance, revealing a lesion, often enables the surgeon at once to apply his remedy. Thus treatment follows upon the track of diagnosis, one sitting and one operation serving for both.

Here then, as in medicine generally, our first indication of the direction in which we have to look for the disease which causes the patient to complain, lies in the disturbance of function. We have therefore to consider what these functions are. The first in importance, because it is continued with occasional interruptions throughout the period of active sexual life, is *menstruation*. The other functions are incidental to married life only; these are *the relation to the other sex, pregnancy, and lactation*.

Most of the diseases which attack the ovaries and uterus, whether primary or secondary, entail some disturbance in the menstrual function. The flow is diminished, or in excess, or its periodicity is deranged. It is attended with pain in the pelvic organs and other nervous phenomena.

We shall discuss the history of amenorrhœa, menorrhagia, and dysmenorrhœa hereafter. Our object now is simply to determine the conditions which suggest local examination. In the great majority of cases of *amenorrhœa* in single women, no local exploration is necessary; but in some cases it becomes imperative: for example, amenorrhœa is sometimes *presumptive* only—that is, the secretion takes place, but owing to some imperfection of structure it is retained in the cavity of the uterus or vagina. This may be called *occult menstruation*. The suffering becomes urgent in the highest degree, and nothing short of an operation which shall liberate the retained secretion will save the patient. Some cases again of suppressed menstruation, leading to effusion of blood behind the uterus, setting up circumscribed peritonitis, and displacing the uterus so as to press upon the bladder, may cause retention of urine. Here again local examination is imperative. This may be said of every case of retention of urine.

Menorrhagia is a relative term; that is, some women lose much more than the average without suffering in health; but whenever the loss continues profuse, obviously entails anæmia and general debility, and persists

in spite of internal remedies, local examination is clearly necessary. We shall often find a sufficient local cause in polypus, tumor, inflammation, congestion, hypertrophy, displacement, or malignant disease, all of which conditions require local treatment.

When we come to study the history of *dysmenorrhœa*, we shall find abundant proof of the almost constant association of this disorder with a mechanical condition of the uterus impeding the easy performance of the function. So long, however, as the distress does not clearly affect the general system, so long as it does not exceed endurable bounds, and if it appears to be moderated by general remedies, it is not necessary to examine; but, in the contrary condition, examination should not be long postponed. To postpone examination is to postpone discovery of the cause and effective treatment. This is more especially imperative in the case of a married woman in whom *dysmenorrhœa* is complicated with "dyspareunia" and sterility. † Abortion, if not primarily depending upon some local disease or displacement of the uterus, is so very likely to be followed by some such condition that an examination should be instituted. If a sanguineous discharge, even periodical, resembling menstruation, goes on during lactation, especially if it be excessive in quantity, and attended by leucorrhœal discharge, it may be almost confidently predicated that there exists some uterine disorder requiring local treatment.

I have used a new word, "*Dyspareunia*." It is incumbent upon every one who coins a new word to explain its meaning and to justify the innovation. Just as the word "*dysmenorrhœa*" has been coined in order to express compendiously the condition of difficult or painful menstruation; just as "*dyspepsia*" is used to signify difficult or painful digestion,—we want a word to express the condition of difficult or painful performance of the sexual function. Such a word would be convenient in many ways. It would enable us to avoid the longer and coarser terms in use, by substituting a single word at once euphonious, expressive, and in harmony with medical language. After consulting Dr. W. H. Stone, I have adopted the word "*dyspareunia*." It is derived from *δυσπάρεινος*, a word used in this sense by Sophocles. However disagreeable the topic may be, it is impossible to escape reference to a function so important. † Dyspareunia in the female is perhaps the most absolute of all the indications of local malformation or disease. It calls the most imperatively for local examination as to its cause. In its milder forms it may make the sufferer's life a course of physical and mental wretchedness; in its severe forms it virtually unsexes her; and in any form it may lead to the most disastrous social calamities.

Taking this condition, *dyspareunia*, as a symptom of disordered function, we shall be astonished, when we proceed to direct examination of the organs concerned, at finding how many those causes may be, and what a wide field of pathological inquiry is associated with it. For example, there may be original defect or malformation; there may be obstructing tumors or growths, inflammation, dislocation or altered form, disordered innervation. In short, almost every disease to which the sexual organs are liable may entail *dyspareunia* for one of its conse-

quences; and in not a few of these diseases disregard of this symptom may entail positive danger.

The existence of *certain discharges*, such as blood, under conditions of quantity and times of occurrence which distinguish it from normal menstruation, mucous, purulent, albuminous, aqueous, fleshy, or membranous, if at all protracted, point clearly to some local disorder as their origin.

Then there are some subjective signs, as *pain*, lumbo-dorsal, iliac, pelvic, or crural, and a sense of bearing down or pressure upon the rectum or bladder, associated with disorder in the function of these organs. These, especially if connected with abnormal discharges and other symptoms, call distinctly for local investigation.

Then we must observe the *constitutional or remote effects* of the foregoing conditions. Disorder of the pelvic organs seldom goes on long without entailing anæmia, disordered digestion, hyperæsthesia, neuralgia, or other manifestations of nervous derangement or prostration. When these conditions are observed in association with marked signs of derangement of function of the pelvic organs, the necessity for exploring the physical state of these is as clear as is that of examining the state of the heart or lungs when these organs perform their function with distress, and the whole system suffers.

Such, then, is a summary view of the conditions, chiefly subjective, which point out to us the desirableness of instituting direct observation of the pelvic organs. This direct observation commonly enables us to analyze the groups of subjective symptoms; to determine the cause and significance of each, separately and collectively. It always brings to our assistance the discovery of other symptoms, entirely objective; and almost always puts it in our power to apply the proper treatment.

The special study of the significance of the several symptoms of pelvic disease, subjective and objective, will be traced in subsequent sections.

We have ranked discharges amongst the most pressing indications for instituting local exploration. In health it may be said that, excepting the monthly discharge of menstruation, there is no escape of fluid from the vagina. It is true that in some women leucorrhœa to a moderate extent precedes and follows the menstrual sanguineous flow; it is also true that in some, leucorrhœa continues throughout the intermenstrual period without in any obvious way entailing local or constitutional distress. Admitting this, the rational and safe rule in practice still is, to examine in all cases where a discharge at all copious escapes from the vagina attended by pain and signs of constitutional impairment. This may be stated as a general proposition without distinction as to the nature of the discharge. But we will now examine what the discharges are, and what is the special significance of each. And, *in limine*, let us agree upon the meaning to attach to two words which we shall frequently have occasion to use. "Secretion" and "excretion" must be accurately applied. Following Continental custom, I shall use the word "secretion" to distinguish the act of separation of the discharge from the free surface of the organs; and the word "excretion" to distinguish the act of voiding from the body altogether. To take an example: the menstrual fluid may be poured out from the mucous surface of the Fallopian tubes and uterus—that is secretion. The escape of the fluid by the vulva is excre-

tion. Excretion is the natural complement of secretion. But the process may stop short at secretion—that is, the secreted fluid may be retained. Thus, if there be occlusion of the genital canal at any point below the os uteri internum, the secreted menstrual fluid will be shut up in the cavity of the uterus and in the Fallopian tubes. There is no excretion, and therefore, apparently, no secretion.

Taking the discharges as they first come under the notice of the clinical observer, that is, after their excretion, they may be roughly classed under the following heads: 1. Sanguineous. 2. Mucous. 3. Purulent. 4. Watery. 5. Membranous. 6. Solid or fleshy. 7. In the case of fistulous openings into the bladder or rectum, urine or feces may escape. 8. Then there are foreign matters, fluid or solid, which find their way into the uterus and vagina from without. Amongst these may be mentioned semen distinguished by spermatozoa. 9. On rare occasions true hydatids have escaped by this route.

If we limited our inquiry to the examination of these discharges when excreted, we should hardly attain to any more precise knowledge than is expressed in the general terms by which we have designated them. We cannot arrive at a certain knowledge of their source, or form a trustworthy estimate of their pathological significance, unless we examine minutely the organs from which they are secreted.

I may state another proposition: most of the diseases of the uterus and vagina are attended by discharges. But it must not be assumed that, when no discharge exists, or is noticed by the patient, there is no disease. Serious disease of the ovaries and uterus may exist for a long time without being attended with any discharge. And still more frequently discharges are overlooked by the patient, but become obvious enough on examination.

Of all the discharges the only one which can be called strictly normal is blood; and this is only normal within certain conditions of circumstance, time, and quantity. Previous histological study will lend the most material aid to direct observation in determining the sources and significance of discharges. We may start from the proposition that, with one or two rare exceptions, all the discharges we have to deal with come from mucous membrane, or at least from organs normally clothed by mucous membrane. The discharges will generally bring with them some of the distinctive elements of the part of the mucous tract from which they are secreted. Hence microscopical examination of a discharge will almost always reveal epithelium-cells which tell their own tale as to the region they come from. In this way we can distinguish uterine mucus from vaginal.

Nearly the whole genital tract secretes mucus. It is only when excessive in quantity, or altered in quality, that the secretion of mucus acquires a pathological significance.

The natural mucous secretions are:—

1. *A whitish mucus from the Fallopian tubes and cavity of the uterus proper.* This probably comes principally from the uterine glands. It has an alkaline reaction. It is distinguished under the microscope by the presence in it of columnar ciliated epithelium-cells. In health this secretion is moderate in quantity, and attracts no attention. But in the con-

dition known as uterine catarrh it is very abundant, sometimes, especially in aged women, accumulating in the uterine cavity, and causing colic pains to expel it. The uterine mucous membrane may also be stimulated to excessive secretion by gonorrhœal infection spreading from the vagina.

FIG. 35.



FIG. 36.



Fig. 35.—Mucous discharge from the healthy cervix uteri, taken from the mucous crypts. The mucous corpuscles are arranged in strings by the viscosity of the plasma in which they are entangled—(after Tyler Smith and Hassall).

Fig. 36.—Mucous corpuscles, epithelial particles, and oil granules from cervical leucorrhœa—(after Tyler Smith and Hassall).

2. *A transparent viscid mucus in the cervix uteri.* This is also alkaline. It consists chiefly of mucous corpuscles, caudate corpuscles, minute oil-globules, and occasionally dentated epithelium, all entangled in a thick tenacious plasma (see Fig. 35). In health this secretion is rarely formed in such excess as to appear externally, but it is almost always found in the cervix filling up the canal. The mucous plug thus formed is washed away at each menstrual flow; it exists generally throughout pregnancy. Its uses are probably to shut off the uterine cavity, so as to protect it from external agencies, and to form a suitable medium for the passage of the spermatozoa. At the beginning of labor this secretion is formed in increased copiousness, and serves to lubricate the passages, and to facilitate their dilatation. In certain morbid conditions the cervical glandular structure also acquires extraordinary activity, and then the proper cervical mucus assumes the character of a *discharge*. It is poured in large quantity into the vagina, so freely, indeed, as to be a serious drain upon the system, and a source of weakness. It constitutes the most frequent form of so-called "whites" or leucorrhœa. If the speculum be used it may be seen issuing from the uterus as a glairy, albuminous fluid, resembling unboiled white of egg. This exaggerated secretion is almost always the consequence of inflammation, more or less acute, of the cervical canal, or of a condition analogous to catarrh of the bronchial or intestinal mucous membrane.

3. A *mucus consisting of plasma*, not viscid, but containing multitudes of *scaly epithelium-cells*. This comes mainly from the external surface of the cervix uteri, labia uteri, and the fundus of the vagina. It is of acid reaction. The proportion of epithelial cells to that of the fluid plasma varies considerably. In some cases the fluid part is so scanty that the secretion adheres to the mucous membrane, covering the os uteri as with flakes, or a layer of opaque yellowish-white friable membranous-looking substance, simulating and suggesting diphtheria. It often adheres in the form of a thick layer upon india-rubber pessaries. Under the microscope this is found to consist almost entirely of scaly epithelium and oil-globules. In other cases, the plasma being a little more abundant, the secretion looks like cream or pus. But in these cases the microscope reveals the same constituents—namely scales of epithelium. These forms of secretion depend upon chronic or subacute inflammation of the mucous membrane—vaginitis, not necessarily accompanied with

FIG. 37.



Epithelium from vaginal leucorrhœa—(after Tyler Smith and Hassall).

abrasion or ulceration. The puriform mucus, more or less opaque and viscid, varying in tinge from creamy-white to yellowish or light green, is often due to gonorrhœal infection, or to suppuration from surfaces denuded of epithelium and granulating. When due to gonorrhœal infection the mucous membrane from os uteri to vulva is swollen, angry-red, and painful, and the meatus urinarius exhibits the same characters. The creamy form of secretion is frequently found during pregnancy on the vaginal portion of the uterus. It is the result of the active throwing off of squamous epithelium due to hyperæmia.

4. The remaining or lower tract of the vagina secretes an *acid mucus*. Under morbid states this sometimes

contains pus-globules, an infusorium, the *Trichomonas vaginalis* of Donné, and a fungus, the *Leptothryx buccalis* of Robin. But the parasites are really mainly due to neglect of cleanliness. Whitehead suggests that the use of the acid of the vaginal mucus is to prevent the coagulation of the catamenial fluid in the vagina. It certainly seems to possess the property of coagulating the alkaline mucus coming from the cervix. I doubt the correctness of Whitehead's theory. It is important that the blood should not coagulate in the uterus, because clots there cause severe pain and congestion, and are apt to keep up hemorrhage; but a clot in the vagina is of little consequence. Pus stops coagulation; so does mucus, provided the proportion of blood is small. I believe it is the normal mucus which maintains fluidity. Whenever the proportion of blood is greatly in excess it is apt to coagulate.

5. There is a *clear viscid secretion from Bartholini's glands*, which is discharged in jets during copulation. It has been seen to escape on irri-

tation, expelled by the action of the muscular fibres in the ducts. It is also poured out freely during labor, serving to lubricate the vulva.

6. The small sebaceous and mucous glands of the vulva and labia majora secrete an *oily mucus*, serving for lubrication. This is sometimes increased in quantity, becoming puriform.

We may here refer very briefly to one or two other points connected with mucous discharges. Donné says when the acidity of the vaginal mucus, or the alkalinity of the uterine secretion, is morbidly exaggerated, the spermatozoa are killed. Hence one explanation of the frequency of sterility when there is inflammatory disease of these parts; and of the occurrence of pregnancy when the disease which gives rise to the morbid secretions is removed. One proof of the alkaline property of the cervical mucus is seen when the cotton, impregnated with tincture of iodine, is passed into the cavity of the cervix: the color is discharged.

THE SIGNIFICANCE OF THE DISCHARGES: LEUCORRHŒA; WATERY DISCHARGES; PURULENT DISCHARGES; BLOOD DISCHARGES; GASEOUS OR AERIFORM DISCHARGES.

The preceding summary of the various mucous discharges will enable us to estimate more accurately the history of *leucorrhœa*.

Although leucorrhœa, or white discharge, is generally a symptom only, and not an essential morbid condition, it is necessary to study its history and significance separately from the morbid conditions which produce it. In a considerable number of cases leucorrhœa may be regarded as a catarrh of the uterine or vaginal mucous membrane analogous to catarrh in other mucous tracts. We accordingly see not infrequently that leucorrhœa is cured or cures itself without topical treatment. I have drawn attention to the fact that the uterine mucous membrane is subject, like other mucous membranes, to epidemic influence. For example, whilst in some this influence would affect the alimentary canal causing diarrhœa; whilst in others, or at other seasons, it would cause bronchitis or pneumonia; in some women it would give rise to uterine catarrh. Not a few women have leucorrhœa whenever the weather is cold. This is explained in some cases by sudden changes of temperature, checking the secretions of the skin; in other cases the direct exposure of the patulous vagina to draughts of cold air, as from using an open privy, has appeared to be the cause. Certainly, I have known this cause to bring on pelvic cellulitis and peritonitis in patients who were predisposed by recent delivery, or the recent performance of operations on the pelvic structures.

In the article "*Leucorrhée*," in the *Dictionnaire des Sciences Médicales*, facts illustrating the occasional *epidemicity* of leucorrhœa are referred to on the authority of the physicians of Breslau, in 1702; of Morgagni, in 1710; of Bassius, in 1730; by Raulin, at Paris, in 1765; and by Leake, in England.

Certain forms of leucorrhœa may be regarded as *physiological*. Amongst these may be classed that excessive secretion of mucus which often attends the hyperæmia of pregnancy. This may not always be so profuse as to escape externally and attract the notice of the subject; but it is rarely absent, and by the speculum it is seen as a white opaque