

friends, until they have learned to understand these recurring outbursts. Despondency to the verge of melancholy, violence to the verge of mania, impulse ungovernable to the verge of monomania, false ideas, distorted judgment to the verge of delusion, and sometimes overstepping the boundary, render the sufferer for a time really irresponsible. Lunatic asylums offer numerous examples of comparative abeyance of the usual manifestations of insanity during the intermenstrual periods, and of their exacerbation when the catamenia return. Not even the best educated women are all free from these mental disorders. Indeed, the more preponderant the nervous element, the greater is the liability to the invasion. Women of coarser mould, who labor with their hands, especially in outdoor occupations, are far less subject to these nervous complications. If they are less frequently observed; if they less frequently drive refined women to acts of flagrant extravagance, it is because education lends strength to the innate sense of decorum, and enables them to control their dangerous thoughts, or to conceal them until they have passed away.

In other cases the ovarian excitation evokes a fit of what is called hysteria. This, too, is sometimes to a great extent kept in subjection by a determined will; but when once this habit has grown, the attack is usually irrepressible. I, as well as other physicians, have observed cases in which a fit of eclampsia has ushered in menstruation. In some of these there existed an hereditary or other predisposition to this form of convulsion; but still the exciting action of ovulation was clear. Sometimes stupor or lethargy is the prominent symptom, but this is more frequent as a result of hysteria or eclampsia. Associated occasionally with hysteria, or independent of it, erotic passion is the prominent symptom. When this occurs, the lapse into insanity is often near. After committing the grossest excesses, which may for a time be attributed to moral depravity, the disorder passes, perhaps suddenly, into unmistakable mania, and seclusion becomes necessary.

In association with this subject, we cannot avoid allusion to masturbation. I must express my opinion that this subject has been invested with an atmosphere of gloom and terror very much darker than cool observation warrants. The history of the countless celibates of both sexes will carry a just conviction to the reflective mind. But, making all due allowance, the fact remains that the practice is, in some instances, the result or the cause of the most deplorable nervous disorders. Experience has shown that the attendant disorder is not necessarily dependent upon the condition of the external genital organs. The vice has been practised when the clitoris was small; it has been continued even after the clitoris has been amputated. It is kept up in some cases, as is the scratching of pruritus, by local inflammation. I have seen the vulva intensely red, the epithelium abraded, even ulcerated. In extreme cases of erotic mania, and even in cases less severe, I believe—the enthusiastic advocates of non-restraint notwithstanding—that resort to the camisole is dictated by the soundest medical and ethical laws.

A remarkable fact amongst the phenomena of menstruation is the effect on *pigmentation*. The complexion is commonly changed; it loses its clearness, becomes dull or sallow, and a dark, even black ring, especially marked in brunettes, is traced around the eyes. This is often so

conspicuous as to reveal to the initiated what is going on. It is similar to the state of pigmentation wrought by pregnancy, and thus affords evidence of the analogy or relation between the two states. Dr. Laycock says excessive pigmentation is brought about by imperfect oxidation of the carbon; that by imperfect elimination of the carbon, in deficient menstruation, diseases of the liver and kidneys are induced; and that these conditions are promoted by the excessive production of carbon from the use of highly carbonized food. But it is certain that the nervous action is intimately concerned. Thus, in a case figured in the *Obstetrical Transactions*, Vol. XVII., there is in each nipple-areola a part where pigmentation is absent, the rest of the areola being intensely pigmented. We cannot conceive that the blood distributed to the pale portion of the areola was different in quality from that which fed the dark portion. We are driven to conclude that the difference was due to nerve-distribution.

## CHAPTER VII.

DISORDERED MENSTRUATION (PARAMENIA, W. FARR).—AMENORRHŒA, CHLOROANÆMIA, PRIMITIVE, SECONDARY; ARRESTED OR SUPPRESSED MENSTRUATION; RETENTION OF MENSES OR OCCULT MENSTRUATION; ATRESIA VULVÆ, VAGINÆ, UTERI.

THE *departures from the ordinary character of healthy menstruation* are conveniently classified under *amenorrhœa*, including the deficiency of the flow; *menorrhagia*, indicating excess; and *dysmenorrhœa*, indicating that the function is performed with difficulty and pain. These terms, like so many others we are obliged to use in medicine, do not represent any definite disease. Under each of them the most widely differing pathological conditions, mechanical and systemic, are grouped. Many different pathological conditions may alike lead to one symptom that shall be more prominent than the rest. That symptom is the first thing that fixes attention, and for which the patient seeks advice. It is the business of the physician to analyze the patient's condition, and to discover, if he can, what are the associated phenomena, and what is the cause of the leading symptom. This is the method we are daily forced to adopt at the bedside. We will, then, take the symptom, *amenorrhœa*, search out the conditions upon which it depends, and study the various forms it presents.

Some authors associate with primitive absence of menstruation those cases in which the menses are retained by closure of the genital canal. Logically and pathologically, it is obviously more rational to consider these cases apart. They will be discussed under "Retention" and

"Atresia." The amenorrhœa here is not real. There is *secretion*, but *excretion* is mechanically hindered; *menstruation is occult*. The most rational division of *amenorrhœa* is into—1. *Primitive*, that is, the flow has never taken place. 2. *Accidental, or secondary*, that is, the function has at some time been established, but has been suppressed.

*Primitive Amenorrhœa*.—The appearance of menstruation may be retarded for one or two years beyond the usual age without any obvious derangement of health. But in a large number of cases, concurrently with non-menstruation, a remarkable condition of the general system is observed, to which the name *chloro-anæmia* or *chlorosis*, vulgò, *green-sickness*, is given. A marked feature of this condition is a great diminution of the red corpuscles of the blood, and a consequent excessive proportion of water. A thin, pale blood, incapable of carrying on efficiently the functions of nutrition, respiration, or circulation, flows languidly in the vessels. Every organ, every tissue feels the want of adequate nourishment and stimulus. The skin and mucous membranes present a peculiar pallor tinged with green. The lips, gums, and tongue look white. The patient is unwilling to make any exertion, and even the most moderate effort is followed by mental and physical prostration, or an outburst of hysteria. She is listless, indolent, drowsy. The taste and appetite are often depraved. The ordinary diet, as meat or fish, is rejected with loathing. The craving is usually for fruit, cucumbers, pickles, vinegar, or things in which sourness predominates. It is more than probable that the craving for these things is the cry of Nature for a supply of elements which the degraded blood is in need of; it should not, therefore, be too absolutely thwarted. In some cases earthy and alkaline substances chiefly excite the morbid appetite. The heart, ill-nourished, acts feebly; it endeavors by increased frequency of beat to make up for the deficiency in quality of the blood it sends into the general system. It is easily excited to hurried action, which assumes the well-known character of palpitation, and which may on pushing exertion, such as ascending stairs or hills, too far, readily lead to fainting. Excessive irritability of the heart under emotion or physical exertion is the characteristic condition. Severe pain, more or less fixed under the heart, is commonly complained of. Headache is very common, and is easily induced by exertion or emotion.

The watery state of the blood, the general laxity of all the tissues, including the walls of the capillaries, and the feeble power of the heart, lead to local stagnations and to effusions of serum into the cellular tissue of depending parts. The feet especially swell, are cold, readily affected by chilblains. The hands also swell; and this would be frequently observed, were it not that they are subject to constant changes from the hanging position. The face gets puffy, bloated, especially so the loose tissue of the eyelids. The muscular system is flabby and feeble, incapable of bearing any strain; and pains in the muscles are easily induced by even moderate exertion.

Depending upon a similar systemic condition we occasionally see those nodules of limited hyperæmia, ecchymosis, and hyperplasia, which are known as *erythema nodosum*. These chiefly appear in the legs, but sometimes also in the arms. They indicate the extreme debility of the

walls of the vessels, and of the surrounding tissues, which in their healthy state contribute so much to the support of the vessels; and may possibly be a form of vicarious menstruation.

The normal flow of blood is not uncommonly replaced by a periodical watery discharge. This must be regarded as a menstruation. The vascular system yields under the ovarian stimulus the best substitute for healthy blood which it can afford. This may be called "*imperfect menstruation*." In these and other cases it is not uncommon to note a persistent leucorrhœa. This form of leucorrhœa is one of those which are not the result of physical lesion justifying local examination. The discharge seems due to relaxation or want of tone in the vessels and mucous membrane. It commonly ceases when healthy menstruation is restored.

In every case in which the deficiency of red globules is marked, a blowing sound, recognized as the anæmic *bruit*, is heard at the base of the heart, and extending along the arterial trunks of the neck. Where this deficiency is extreme there is commonly heard in the vessels of the neck that peculiar and characteristic noise known as the "*bruit-de-diable*," or the German "*Nonnengeräusch*."

This sound gives not only precise diagnostic indication of the malady, but its intensity affords accurate estimate of its progress. In proportion as the quality of the blood improves under treatment the noise diminishes. It appears to be directly associated with the relative absence of the red globules. When these are present in due proportion the sound is no longer heard. I have observed this sound in a marked degree in anæmia associated with menorrhagia; and notably in some cases where there was suspicion of commencing tuberculosis.

In some of these cases of associated chloro-anæmia and amenorrhœa it is not easy to determine which is the primary factor. Is the want of menstruation the cause of the degraded condition of the blood? Or, on the other hand, is the degraded condition of the blood the cause of the amenorrhœa? If we could tell which condition came into existence first, and which followed, the sequence, if constant, would settle the question. But the ovary is beyond direct observation; we are almost limited in our conclusions as to its activity by noting the subordinate phenomena of menstruation.

One fact comes out prominently; the state of chloro-anæmia stands in constant relation to the menstrual function. It seems probable that at the age of puberty, ovulation which ushers in such a striking revolution in the economy, stimulating, almost visibly, development of the whole system, and remarkably of certain organs, takes at least an indirect part in the function of blood-making. Or to put it in another way: that evolution of the system at puberty, that almost sudden bursting into womanhood, cannot be perfectly accomplished, unless the ovaries give the impetus. This is illustrated by the occurrence of relapses. For example, a girl who has quite recovered from one attack of chloro-anæmia, may again fall into exactly the same condition, amenorrhœa attending.

Chlorosis, says Virchow, is distinguished from leukæmia in this: the entire number of the corpuscles is smaller. In leukæmia, colorless corpuscles in some sort take the place of the red ones, and a real diminution in the number of the cellular elements in the blood is not produced. In

chlorosis the elements of both kinds become less numerous, without the occurrence of any disturbance in the numerical relation between the colored and colorless corpuscles. Anatomical observations, he goes on to say, indicate that the foundations of the chlorotic ailment are very early laid; for the aorta and the larger arteries are usually, and the heart and sexual organs frequently, found imperfectly developed.

To originate a new function, to bring to perfection a hitherto unexercised power, makes larger demands on the strength than are required for its continued activity. The feeble phthisical child fails, as the time of womanhood approaches, to menstruate, and the signs of chlorosis gradually manifest themselves.

Numerous instances, however, are observed in which after menstruation has been fairly established for months or even years, chloro-anæmia almost suddenly makes its appearance, and entails suppression of menstruation, partial or complete. In many of these cases emotion plays an important part. Jealousy, disappointment in love, the "spretæ injuria formæ" are often the immediate antecedents. No one who has had a large experience can fail to remember numerous examples of the powerful influence of emotion in altering the quality of the blood.

At the advent of puberty, organs hitherto existing only in a latent or potential condition, almost suddenly come into the foreground, and a new function that dominates the whole system appears, or ought to appear. The perfection of the ovaries entails the evolution of the breasts and uterus, and provokes a rapid development of the whole frame. To a certain extent this general physical development will take place, whether ovulation be perfectly performed or not. But, to carry out the full change in the ovaries, a fair supply of healthy blood is requisite. If the sudden excessive demand for healthy blood requisite for this purpose, and for the attendant general physical growth, be not adequately met, menstruation will be hindered. And the continuing, although impeded, general growth, exhausting the blood supply, quickly induces the marked blood-degeneration which is so characteristic. Things once at this stage, a vicious circle of morbid action and reaction is established.

On the other hand, it is observed that when the quality of the blood has been improved under suitable treatment, menstruation usually returns; and that when a degraded condition of blood is induced by defective nutrition, or subjection to bad sanitary conditions, menstruation is suppressed.

The influence of the ovaries is at times strikingly manifested, as when, under the influence of marriage, ovulation being stimulated, the chloro-anæmia often disappears.

We may, perhaps, best sum up the argument by stating these propositions: 1. That the due action of the ovaries gives an important stimulus to innervation, sanguification, and the general well-being. 2. That the due action of the ovaries, as of other organs, depends upon their being properly nourished by a supply of healthy blood. 3. We cannot always tell which factor is first in default.

It has been happily said that amenorrhœa is a cry of distress indicating something wrong in the organism.

The opposite condition of plethora will sometimes delay menstruation.

Girls suddenly exchanging a poor vegetable diet for one rich in nitrogen, whilst neglecting exercise, are apt to fall into this state.

A very frequent complaint attending amenorrhœa is acute pain under the left breast, in the intercostal spaces, in the sacral region, or in the temples. These pains have often been described as "hysterical;" and the "hysterical knee" of Sir Benjamin Brodie might perhaps be classed under the same head. It is rather a form of neuralgia, induced by the waste of nervous force in wrong directions.

There are *local causes* of primitive amenorrhœa. The most free from doubt are absence, defective development, or disease of the ovaries and uterus. It is not easy to discover defective development of the ovaries; it can at best be inferred from the existence of defective development of the uterus, and the defect of the menstrual functions. But this is far from being constant. A small infantine uterus may be recognized by the touch and measured by the sound. The uterus is sometimes only an inch and a half or two inches long, the cervix or vaginal-portion is very small, the os uteri a small round aperture, and the body may be deflected to one or other side. In these cases there is commonly sexual indifference.

Cystic and malignant diseases of the ovaries are rare at the age of puberty. And in a considerable proportion of those cases which occur at a later period, a portion of the gland, adequate to form ova which run through the normal phases, and escape, evoking the attendant phenomena of menstruation, may for a long time resist the invasion of the disease. This residuum of efficient ovary may easily be overlooked; its possible existence must be borne in mind when we meet with cases in which menstruation has continued concurrently with even extensive ovarian disease.

But it must not be concluded that absence, or imperfect development of the uterus, is a certain exponent of absence, or imperfect development of the ovaries. For proof that the ovaries may be well developed and perform their function, although the uterus may be wanting, I refer to a case observed at St. George's Hospital, and cited at page 182.

When the chloro-anæmia has lasted some little time, a slow chronic feverish state sets in.

The *treatment* of this form of amenorrhœa should be governed partly, at least, by the knowledge of the influence of ovulation. But here, as in almost every case which the physician is called upon to treat, we must treat the symptoms, alleviate the consequences of the disease, as well as attack the cause. The two indications can generally be followed out at the same time. Our first effort, then, should be to improve the condition of the blood, since we can hardly expect the ovaries to assume their function energetically until they are properly nourished.

It is accepted as an axiom in medicine that, the blood being deficient in red globules, iron is the remedy *par excellence*. This is true; but it requires more judgment in administering it than is often shown. Long clinical experience has taught me the general law, that in all states of blood-degradation, whether resulting from mal-nutrition, from wasting diseases, or from hemorrhages, iron is ill tolerated at the beginning. In all extreme anemic states the febrile irritability I have adverted to is liable to be aggravated by iron, if rudely and precipitately "thrown in," as the phrase is. The tongue gets parched and brown, indicating a like

R. Co. Tr. Cinchon 3ii  
 Spts. nymph 3ss  
 Dr. 10drops  
 3hr. ad ay  
 194

state throughout the alimentary canal, inducing constipation, and generally impeding nutrition; violent headache ensues; the pulse rises in frequency. The true indication is, first, to allay vascular irritability, so as to prepare the system to assimilate iron. This is best done by salines, of which I believe the best is the fresh prepared acetate of ammonia, the old *spiritus Mindereri*. If freshly made it is not only more grateful from containing a quantity of carbonic acid, but it is more efficacious. A little nitrate of potash may sometimes be usefully added; and in almost every case the combination of some light tonic, as hop, cinchona, or calumba, will be of service. Ten drops of the tincture of veratrum, and four or five grains of free carbonate of ammonia, often add to the efficacy of the saline. Digitalis is often useful in allaying irritability of the heart. So marked is the benefit often arising from this exhibition of salines, that one cannot resist the conclusion that the *blood is in want of salines* as well as of iron, and that the saline material is the first want. This view is confirmed by what is observed in transfusion. In extreme anæmia revival has followed the injection of saline fluids into the veins.

Co. Misd  
 Ferric  
 dose is 3i  
 3hr. ad ay

When vascular irritability is subdued, when the secreting organs have been brought to a cleaner and healthier state by salines and aperients, iron may be cautiously tried. Nothing surpasses, probably, Griffith's mixture. This also should be freshly made. There is a special virtue in nascent combinations. But it is very nauseous; and modern chemistry has supplied us with other excellent preparations of iron. The citrate of iron and ammonia, which may be given in an effervescent state, if desired, is an excellent medicine; it is generally easily borne. I have long given with great advantage the solution of acetate of iron, or the liquor ferri dialysatus of Squire. These seem easily assimilable, and are, perhaps, the most agreeable of all ferruginous preparations. It is not desirable to give large doses. Iron should rather be regarded as an element of food than as a medicine. The blood wants it; but it must be taken in such a way that the system have time to deal with it like other food-elements, to assimilate it, and convert it into blood. Iron must, therefore, be given for a considerable time; that is, until the return of color to the cheeks and mucous membranes, the vanishing of the *bruit-de-diable* and the anemic souffle, and the establishment of menstruation announce that the system has regained the independent power of carrying on the function of blood-making.

Coindet and Boinet extol the virtue of iodine in amenorrhœa. Trousseau also advises it, saying, however, that it comes in most usefully after iron. Ever since I followed the clinique of this admirable physician I have prescribed iodide of potassium in these cases. But my observation, whilst confirming most distinctly Trousseau's opinion of its efficacy, has led me to prefer giving it before proceeding to the administration of iron. It seems to me to occupy an intermediate place between ordinary salines, which should be given first, and chalybeates. Iodide of potassium may be given in five-grain doses, with or without ammonia and bark, two or three times a day. Bromine is especially valuable as a sedative of the nervous and vascular excitement.

An old popular remedy is saffron. Trousseau extols it. I have tried it extensively, but generally in combination with iodide of potassium, so that I am unable to speak positively of its independent virtues.

The restorative power of iron is often much increased by the addition of small doses of strychnine or ergot. Under these agents the nervous system especially acquires more tone. Sometimes arsenic is of great service. Apiol has been much extolled<sup>1</sup> in doses of fifty centigrammes daily, choosing the natural nisus as the time. "It is," says Dr. Joret, "the stimulant and the moderator of the menstrual function."

The digestive organs display the same sluggishness which oppresses every function. Constipation is frequent, and the peristaltic action of the bowels requires stimulation. Purgatives are generally necessary, and the favorite ones are aloes or rhubarb combined with myrrh or other stimulating adjuvant. Hoffman said he had seen better results from Rufus's pill—the "*pilula de tribus*"—consisting of myrrh, aloes, and saffron, given in repeated small doses, than from any other medicine. The concurrence of experience as to the efficacy of this pill should rescue it from neglect.

2gr  
 of aloes

Concurrently with the use of these medicaments, diet and exercise must be carefully studied. The diet should be generous. Milk is especially useful; but a fair proportion of roast meat, fish, vegetables, and fruit should be taken. Wine, of which claret, Carlowitz, and Rhine wines are the best suited, or beer, should be prescribed in moderate amount.

Exercise, mental and physical, must be graduated to the strength and power of endurance of the patient. In the profound impairment of nutrition which affects every organ, the nervous centres cannot supply the requisite nerve-force, nor are the weak, pale, flabby muscles capable of strong or sustained exertion. Every tissue has to be regenerated. This is a work of time, and during this period care must be taken to make exercise keep pace with, but not exceed, the growing strength.

The aim being to create or to restore the "habit" of periodical menstruation, special care is indicated to favor any molimen that may reveal itself by pain, sense of heat or weight in the pelvic organs, or by nervous or vascular phenomena elsewhere. Perhaps the most precise indication might be obtained from sphygmographic observations. Warm hip-baths—adding enough mustard to act as a slight rubefacient—warm vaginal douche of plain water, or even with the addition of sufficient free ammonia to communicate a soapy feel to the water, may be tried. One or two leeches applied to the anus or inside the thighs have often started the natural uterine secretion. These means act by derivation to the pelvic organs.

As further means of following up this indication Schoenbein and Scanzoni recommend aloetic enemata. Golding Bird and Duchenne advised electricity. This agent has been extensively tried; but I am not aware that it has fulfilled the expectations that were at one time built upon it.

Direct excitation of the uterus has been resorted to. Light application of nitrate of silver to the cervix uteri has undoubtedly been successful. More successful still is the injection of a few drops of liquid ammonia into the uterus. The catheterization of the uterus has been said to be serviceable. The wearing of an ivory or metal stem in the uterus has

<sup>1</sup> Dr. Joret, Bulletin Général de Thérapeutique, 1860.

Re. Ferr sulph. exsiccatis  
alio modo gr. ii  
M. ff. 1 pill. —

also been advised. The most effectual local remedy is probably the galvanic pessary. But there are obvious objections to having recourse to these topical proceedings in single girls, and the cases are not many in which less objectionable means are not effectual.

Probably these direct local excitants or derivants are the only true "emmenagogues." According to the old idea, an emmenagogue is a medicine possessing the property of causing the menses to flow, that is, of inducing a discharge of blood from the uterus. It is not clear that any known medicine possesses this property in a direct or immediate manner. But if we adopt the modern theory that menstruation is a function consisting essentially and primarily in the ripening and discharge of an ovum from the ovary, and secondarily of a discharge of blood from the tubo-uterine mucous membrane, we shall see still further reason to doubt the reality of emmenagogues. It is difficult to imagine how any agent we know of can in any direct or immediate way determine ovulation.

Iron, which enjoys the greatest popular reputation as an emmenagogue, undoubtedly acts by first gradually restoring the quality of the blood, and improving general nutrition. If it occasionally acts promptly, it may be supposed that large doses of iron may produce temporary congestion in the pelvic organs. But I have known the experiment to be repeatedly tried and fail.

So in the amenorrhœa of phthisis, menstruation may sometimes return when, under cod-liver oil, iron, quinine, and suitable hygienic means, the disease is arrested, and a comparatively healthy hæmatisis has been gained. But no one would call cod-liver oil an emmenagogue.

It is interesting to observe that those agents which appear to exert a special influence upon the uterus are precisely those which have the property of checking hemorrhage from that organ; indeed, the bleeding is checked through that very property of causing contraction of the muscular wall. Thus ergot, which possesses the most undoubted power to originate uterine contraction, possesses also the power of checking hemorrhage. It has no obvious action as an emmenagogue. The same observation applies, although in a less degree, to quinine, strychnine, and digitalis. Mr. Cockburn, an eminent surgeon practising in India, tells me that in that country quinine is very apt to cause abortion in women of delicate fibre. Fordyce Barker has given satisfactory evidence of its power as an oxytocic. Patients have told me that a single dose of quinine has stopped the menstrual flow almost immediately. Quinine no doubt acts with greater intensity on subjects whose nerve and muscle irritability is exalted by tropical heat.

Indian hemp again is credited, I believe justly, with oxytocic properties; but its action in checking uterine hemorrhage is even more certain.

To this rule galvanism may appear to be an exception. The powers of galvanism as an oxytocic, and even in originating uterine contraction, Dr. Radford and I proved some years ago. And it is regarded by some as the only direct emmenagogue.

Leroux<sup>1</sup> relates a case in which compression of the femoral arteries

<sup>1</sup> Observations sur les pertes de sang des femmes en couches, 1810.

was tried in order to restore menstruation. Hamilton of Edinburgh, in a case of suspended menstruation, applied compresses on the femorals by tourniquet. In twenty minutes the pulse became more frequent; in thirty minutes the patient felt a sense of weight and fulness in the region of the uterus, and in an hour and a half the menses set in.

Many of the factors which account for primitive amenorrhœa will also induce secondary or accidental amenorrhœa. Thus, defective nutrition, unhealthy occupations in crowded, ill-ventilated rooms, blood-tainting from exposure to sewage-emanations, want of exercise in the open air, which implies privation of the wholesome influences of the sun, will all impede the advent of menstruation. Girls verging on puberty, sent to boarding-school or into business in large town establishments, commonly fail to menstruate, whilst the function often is accomplished on their return to free life in the country. In these cases the blame cannot always be assigned to insufficient food, for girls working in trades in cities often get a more substantial diet than they were previously used to. What is wanting is out-door exercise, and less rigorous strain upon the mind and body.

Cretinism exerts a remarkable influence. Lunier (*Nouveau Dict. de Méd. et de Chir. Pratiques*, 1869) says "that puberty is almost always held back, or is only developed at the age of nineteen or twenty in girls, and later even in men. The cretin remains until puberty what he was in the first childhood, and very often there is nothing to distinguish the boy from the girl."

Dr. Langdon Down tells me "that he is able to say with much certainty that idiocy retards by quite two years the first appearance of the menses. In a large number of cases it is much longer postponed, and sometimes never appears. Necroscopic inspection of idiots reveals, as a rule, want of development in the ovaries as to size. Associated with the non-appearance I have observed considerable increase of adipose tissue."

The causes of arrest of menstruation are numerous. We exclude, of course, the physiological suspension during pregnancy and lactation. When an organ happens to be in a state of physiological activity, it is specially liable to suffer if the system be exposed to any physical or mental shock. Physiological activity implies hyperæmia; under sudden excitation hyperæmia readily passes the physiological boundary, and the function which was in progress is arrested. Hence, exposure to cold and wet during the menstrual flow will frequently check it. It is said that some women wilfully avail themselves of this deleterious influence, in order to escape from the temporary abandonment of their pleasures which menstruation compels. They encounter a very serious danger. It is not to be expected that the effect will stop short just at the point desired. Ovaritis and pelvic peritonitis are very likely to attend this violent suppression, and permanent, even fatal, mischief has resulted. Dr. Whitehead relates a case in which menstruation was suppressed by cold, which ended in fatal peritonitis. There was no effusion of blood. In another case the same physician found all the large sinuses of the brain distended to their utmost limit, gorged with black, firmly-coagulated blood; no extravasation. Menstruation had been suddenly suppressed by intense mental emotion. On the other hand, it must not be concluded that de-

cided organic change in the ovaries necessarily attends the sudden suppression of menstruation. Aran made minute examinations upon this point. His results were mostly negative. The absence of any serious organic lesion is further proved, in many cases, by the return of the menstrual function at no distant date. The arrest of the flow must therefore be regarded, in some cases, as a reflex phenomenon, the peripheral or centric irritation which caused the suppression causing a diversion of nerve-force and of blood in other directions. It is analogous to the suppression of epistaxis under the application of a cold body to the skin. I have lately seen a remarkably well-developed young woman who never menstruated regularly after receiving a blow on the side.

Abrupt suppression is, however, often marked by signs of local distress. Pain and a sense of fulness in the pelvis and groins are felt. If examination be made by touch, the uterus is found to be tender, and some tumefaction of the ovaries may be detected. The vaginal-portion is injected. Constitutional disturbance also reveals the local trouble. The pulse rises.

Uterine and ovarian disease not seldom entails amenorrhœa. Inflammation may suspend it, but advancing degeneration of the ovaries is more likely to lead to complete suppression. That menstruation so often goes on notwithstanding the development of enormous ovarian tumors, is explained by the fact that commonly one ovary is healthy, or that where both are affected, yet some portion of one or both retains so much of its normal structure that the process of ovulation goes on, whilst the "habit" is so strong that even slight ovarian nusus provokes the customary flow from the mucous tract.

Emotion, sudden, or that attending a great change in the mode of life, will often suspend menstruation. Thus it is not uncommon to observe in young women absence of the menses for two or three months after marriage, giving rise to the idea that pregnancy has begun. This is often nothing more than an emotional suspension. So, under the greater emotion of illicit connection, the same thing occurs. Passion, depressing news, domestic calamities, have often caused so great a shock that the menses have been arrested even permanently.

Amenorrhœa frequently follows acute diseases, especially fevers. Thus I have seen girls who had exhibited all the characters of healthy development cease to menstruate for months after recovery from scarlatina or typhoid fever. I have known examples of amenorrhœa dating from simply nursing a scarlatinal patient. Exposure to the poison was sufficient, without the development of the fever. In some, the functions are for a long time irregular, imperfectly performed, and the constitution is manifestly impaired. In particular, the complexion seldom regains its original clearness, growth is checked, and the temper is more uncertain and irregular. Ague may have a similar effect.

In some cases of arrested menstruation I have suspected the existence of disease of the supra-renal capsules. In these the arrest came on at ages between thirty and forty; the complexion underwent the most marked dirty sallow change, freckles and spots becoming almost black; there was great mental depression occurring in fits, and great emaciation.

Associated with amenorrhœa, probably as cause, there may sometimes

be found a general torpor or deficient innervation of the sexual system. This probably implies defective evolution of the ovaries. There is an original or acquired insensibility. There is no sexual feeling. This has sometimes been observed to follow a labor: but in many cases it is original, and is attended by sterility. Attendant upon this ovarian defect, there is commonly imperfect development of the uterus. In amenorrhœa following labor, the suppressed ovarian function is accompanied by superinvolution of the uterus.

*Diagnosis.*—In studying this question we must bear in mind all the conditions associated with amenorrhœa; we must review the history of the patient, and of her present illness. To trace the circumstances under which the absence of menstruation commenced, we must interrogate all the functions, in order to detect disease in organs unconnected with the genital system. The exploration of the chest is especially important, on account of the frequent relation between amenorrhœa and phthisis. And in many cases it is necessary to examine the vagina and uterus to ascertain if there be any physical defect or obstruction to the excretion. This applies to married as well as to single women. The possibility of pregnancy must not be lost sight of. The signs of "Retention" will be discussed hereafter.

*Prophylaxy.*—Many of the causes of amenorrhœa are avoidable. Nevertheless great carelessness, even recklessness, is shown in encountering them. It ought to be needless to insist upon the observance of repose, physiological and physical, at the menstrual periods, the avoidance of exposure to cold or mental disturbance. Adults may be expected to take care of themselves; but young girls verging upon puberty require the watchful care of a mother. Serious mischief often arises from their being taken by surprise at the first appearances. Not being forewarned, in their alarm they may seek to check the bleeding by bathing in cold water, and they are apt to commit other imprudent acts which may suppress the natural flow, and lay the foundation for serious protracted or permanent disease. Many girls, for example, have never menstruated again.

They should be warned then to dress warmly, to avoid excitement, and to keep quiet when the period is approaching and during the flow.

*The course, duration, and consequences* of amenorrhœa vary. Where there is no organic disease, as tuberculosis, and the subject is submitted to proper hygienic and medical treatment, the function is generally restored in a few months. But in those cases where amenorrhœa is complicated with, or dependent upon, disease in the heart, lungs, liver, kidneys, or ovaries, we can look with no confidence to the end of the symptomatic or consecutive disorder. On the other hand, where the defective action of the ovary appears to be inherent or primary, its long continuance often entails such impairment of nutrition and innervation as to give rise to distant organic disease. Where there exists hereditary morbid diathesis, especially tubercular, the evil which might otherwise have remained latent is very likely to be developed.

The influence of protracted amenorrhœa upon the nervous system is almost always prejudicial, and is sometimes deplorable. The leading characteristic is want of power or tone. The general physical condition