proclivity to pour out blood vicariously. I have seen a woman who every month suffered profuse ecchymoses of both eyes, some blood escaping from the surface, and some being effused under the conjunctivæ, to be gradually absorbed, and passing through all the stages of ecchymosis of the eye from direct violence.

Liebreich has figured in his *Ophthalmoscopic Atlas* (Plate VIII., English edition, 1870) an example of *retinal hemorrhage* after suppression of menstruation.

The *skin* is not infrequently the seat of vicarious menstrual hemorrhage. Sometimes the blood appears in the form of petechiæ or small ecchymoses on various parts of the body; sometimes it has been seen to ooze from the surface, forming a true bloody sweat. There seems some analogy between these cases and the bumps of *erythema nodosum*, which are not uncommon on the legs of girls suffering from amenorrhœa.

In some instances the blood is poured out from a *varicose ulcer or other sore*. Dr. Mason relates (*Edin. Med. Journ.*, 1866) a case in which menstruation began at eight, and continued to recur until eleven, then stopped until thirteen. A large abrasion then formed in the right cheek, suppurating in the centre, and inclining to bleed towards the circumference. The menstruation was now irregular. After a time this place healed; blood then oozed from the skin of the face.

Dr. Bassett relates (*Presse Médicale*) a case of periodical discharges of *blood by the nipples*. Menstruation, however, was also present, although scanty. The patient had borne three children. In 1876, I saw a girl, aged thirteen, at St. George's Hospital, who had vicarious menstruation by vomiting, and also oozing of blood from the nipples. Mr. d'Andrade relates a case.[1] The subject was a stout, healthy Parsee lady, aged eighteen. She had menstruated regularly from thirteen to fifteen and a half, when the catamenia became first irregular, then ceased, being replaced by bleeding at the gums and nose, and vomiting of blood. Menstruation returned. No pregnancy. Mr. d'Andrade observed blood to ooze from the healthy skin of the left breast, and of the right forearm. The blood exuded showed red and white globules under the microscope. The skin-hemorrhage recurred every month or two. Subsequently blood oozed from the forehead.

The following case,[2] which occurred in St. George's Hospital, under Dr. John Clarke, is especially instructive in its physiological and pathological bearings: "J. C——, single, aged eighteen, admitted May 30, 1872. Had never seen any catamenial discharge; for three months before admission she had from time to time suffered pain at the lower part of the back and between the shoulders. During these attacks of pain she had bleeding from the nose and gums, which lasted about a week, and then ceased, returning again after the lapse of one month. For two or three weeks before she came into the hospital she had had great irritability of her skin, to relieve which she had recourse to scratching; but this gave rise to immediate bruising of the parts. For four months past she had complained of pain in the left side, accompanied with difficulty

[1] Trans. of Med. and Phys. Soc. of Bombay. Bombay, 1862.
[2] Lancet, 1872.

of breathing, cough, and spitting of blood. She had never had rheumatic fever; but about five years ago she suffered from chorea. On admission she was very anæmic, the lips and conjunctivæ being almost bloodless. She suffered from shortness of breath, and had frequent bleedings from the nose, mouth, and skin. There were hemorrhagic spots on the tongue, inside the lips, and on the gums. Some of the spots on the tongue were as large as half a split pea, and the tip was so covered with ecchymoses that it had the resemblance of a strawberry. The surface of the chest was more or less marked with these hemorrhages, but here some of the spots could be picked off. On the legs and thighs the spots had more the character of purpura. In many places the blood seemed to have actually exuded from the skin. For four or five days she had suffered from epistaxis. On examining the chest, a loud mitral murmur, most marked at the apex, was heard, the heart's action being very irregular and rapid. The lungs were resonant, and air freely entered; but the breathing was rapid and labored even after slight exertion. There was a troublesome cough, and occasionally the patient spat blood. There was no vaginal orifice; the small cavity representing the canal of the vagina ended in a cul-de-sac, and was not deep enough to hold a teaspoonful of fluid. The urethra was in the middle of this cavity. The labia majora were well formed, but small, and there was an ordinary amount of pubic hair. The space between the rectum and the urethra measured about half an inch. On passing the finger into the rectum, no uterus could be discovered; and, when a catheter was introduced into the bladder, it could be distinctly felt through the anterior wall of the rectum. Numerous ecchymoses were present on the inner side of the labia majora.

"The patient continued to improve till June 11th, when the breathing became much embarrassed, and accompanied with severe palpitation, cough, and spitting of blood, death taking place at 3 P.M., consciousness remaining till the last.

"*Autopsy*.—Body well nourished; limbs and trunk covered with ecchymoses. Mammæ fairly well developed, but nipples small. Color of the hair light brown. On opening the thorax the pleuræ were found to be spotted with ecchymoses. The lungs were œdematous, and gorged with blood. The pericardial cavity contained a little light-red fluid, but the walls were dotted with hemorrhagic spots, especially the visceral wall. The endocardium at the upper part of the left ventricle was thickened and opaque. The aortic valves were thick, puckered, and inefficient; the mitral valve thickened, and so contracted that the orifice would only admit the tip of the little finger. The right ventricle and left auricle much hypertrophied. The liver, spleen, and kidneys presented no abnormal appearance. The ovaries were very well developed and congested, and contained a recent false corpus luteum. The uterus was absent (evidently congenitally), only a small nodule of fibrous tissue being found in the folds of peritoneum between the rectum and the bladder."

Here we see exhibited in a striking manner the influence of ovulation upon the system. There being no uterus, the menstrual blood sought outlet in almost every direction, and the function failing, the patient died. The case is valuable, as showing that absence or imperfect de-

velopment of the uterus does not imply defective development of the ovaries.

I have seen other examples of the influence of the general law of vascular tension seeking relief by extraordinary means when normal menstruation fails. Subjects of amenorrhœa, it is known, often have œdema of the legs and face. I have seen œdema recur periodically, that is, vicariously. This is, of course, more likely to be the mode of relief selected when the quality of the blood is deteriorated. But in one case specially noted, there was no anemic sound.

These cases of vicarious menstruation prove how intense is the effort of Nature to seek an outlet for blood. They seem to show that the general tension of the vascular system becomes greater when the outlet by the uterine mucous membrane is not free. This general tension is illustrated by the frequent sensation complained of by sufferers from amenorrhœa and dysmenorrhœa, of "those things flying to the head," evidenced by headache, vertigo, and epistaxis. These phenomena of vascular tension suggest that the rational treatment consists in diminishing tension by purgatives and leeches, or by cupping. It seems in high degree probable that in the struggle of the circulation to find relief from the menstrual tension, the ordinary vicarious safety-valves may sometimes fail; that then the internal organs, as the brain, lung, liver, kidney, spleen, have to bear the strain, and that thus the foundation of structural organic disease may be laid.

Two conditions in the healthy subject *suspend menstruation*—Pregnancy and Lactation. The arrest of menstruation is the most familiar presumptive evidence of pregnancy. The law is, that from the moment of conception menstruation is stopped, and does not return until the child is weaned. Many exceptions, however, occur. When pregnancy occurs, the lining membrane of the uterus, being wanted for the new function of connecting the impregnated ovum with the uterus, undergoes a remarkable change of structure. If it were now to pour out blood, the relation of the ovum to the uterus would be disturbed, and abortion would ensue. In fact, this not seldom does occur. Notwithstanding the general truth of the theory of the Genesial Cycle, so well described by Tyler Smith, which expresses the law of the successive domination of the ovaries, uterus, and breasts in the woman, it is certain that, although during pregnancy and lactation the ovaries are comparatively subdued or quiescent, ovulation occasionally, if not always, goes on. Négrier and Scanzoni have especially insisted that pregnancy does not arrest ovulation. If in the majority of cases we miss the common proof or exponent, menstrual discharge, yet the other signs of ovarian activity are frequently present. There is a monthly molimen or nisus, marked by greater turgidity and accumulation of blood in the pelvic organs. Hence the epochs when the return of the menses is due are those when abortion is most likely to happen. The influence of ovulation is also seen in the later months of gestation, markedly when the placenta grows to the lower or cervical zone of the uterus. In this case hemorrhages are apt to break out at the menstrual epochs; and generally premature labor is more likely to occur at these than at intermediate periods.

But menstrual hemorrhage may occur, especially during the first three

months of *gestation*, without interfering with the relations of the ovum to the uterus. This may be explained in two ways: First, the blood may be poured out from the free surface of the decidua vera lining the inferior zone of the uterus, and even from the free surface of the decidua reflexa. Secondly, it may exude from the congested cervical cavity. This is especially likely to occur when there is ulceration or abrasion of the os or cervix, or inflammatory congestion. During pregnancy, when the uterine mucous membrane is barred against hemorrhagic response to the ovarian excitation, I have seen many instances of hemorrhage from the mucous membrane of the stomach, intestines, nose, lungs, and even the bladder. In these cases the ectopic eruption of blood is not necessarily due to the suspension of the ovarian function or to an altered condition of the uterine mucous membrane. It is rather to be ascribed to the high vascular tension of pregnancy.

Menstruation during lactation is much more frequent than during gestation. Although, normally, the breasts are now in the ascendant, the ovaries are not always dormant. Many women really menstruate throughout lactation, and not infrequently, in spite of suckling, pregnancy occurs. In the majority, perhaps, menstruation is in abeyance for nine, ten, eleven, or twelve months, if suckling is kept up. Some women, hoping to postpone pregnancy, go on suckling for fifteen, eighteen, or even twenty-four months. Only a certain proportion succeed in their object. After nine months the ovarian excitement usually becomes too strong to be subdued by the more languid activity of the breasts; menstruation reappears, the milk dries up, and pregnancy often quickly follows. Where from the child being still-born or other causes, suckling is not undertaken, the first menstruation commonly appears a month after the labor, thus giving evidence of the labor being determined by an ovarian stimulus.

In other suckling women, however, the menstruation is chiefly apparent. Discharges of blood, simulating menstruation, may have the significance of hemorrhage, a subject discussed in a preceding chapter. In very impressionable or nervous women, the mere act of applying the child to the breast will cause a discharge of blood from the uterus, offering one example of the many of the intimate correlation between the ovaries, the uterus, and breasts.

It is convenient here to notice the *influence menstruation exerts upon the milk*. It is generally believed that the milk is injuriously affected; and common observation shows that the suckling is often griped, or has diarrhœa, at the nurse's monthly periods. Raciborski, indeed, says the milk is not sensibly altered in its properties; it simply appears to be less rich in cream. I have, however, observed that colostrum-globules were reproduced at every menstrual epoch. And it must be borne in mind that the activity of the ovaries renders the nurses more susceptible to moral impressions and to emotions. The influence of emotion in disturbing the milk cannot be doubted. In the contention for supremacy the ovary is pretty sure to win. If the woman is exposed to sexual relations, active ovulation and menstruation are very likely to be quickly resumed. Thus, in spite of suckling, impregnation often occurs within two or three months of delivery; and not a few women fall pregnant within six months "without seeing anything between." On the other hand, women who

have become widows before or soon after delivery, and lived a single life afterwards, out of a feeling of concentrated affection, keep up lactation for eighteen months or two years without a return of menstruation. But this, perhaps, they could not have done had the ovaries been subject to the excitement of married life.

As a rule, nursing women continue unfruitful until the activity of the mammary secretion has remitted, this remission being shown by the necessity of adding foreign substances to the infant's food.

We may now attempt to trace the local and constitutional reactions, that is, *the symptoms or concomitants of menstruation*. First, *the local conditions*. There is congestion or hyperæmia of all the genital system; ovaries, uterus, and breasts swell and become turgid. Scanzoni had an opportunity of directly observing this. In a remarkable case of inguinal hernia, the contents of the sac included the uterus and ovaries. He found these organs to swell and become painful to the touch at every menstrual period. Conception took place twice whilst the uterus was in the sac (Beiträge, 1871). I have noted ovarian swelling. Many women are conscious of a sense of fulness, weight, and pain in the region of the ovaries. Then there is the evidence of *post-mortem* inspection of the ovaries of women dying during menstruation, which shows them to be full to the point of bursting with blood. Indeed, when an ovum escapes there is an actual rent in the capsule of the ovary; in some cases, phenomena in a certain sense traumatic, as severe pain, a kind of shock, are present.

The state of the uterus has been partly described. The mucous membrane overgorged, actually allows blood to ooze from its surface. The bulk of the uterus is increased. This may be determined by its greater weight as ascertained by touch, and by examination between the two hands. The vagina also is more vascular and turgid.

The breasts sympathize with the pelvic molimen. They swell visibly, become firmer, sometimes painfully hard. This is especially the case at the age when menstruation is being established. Under the ovarian stimulus the breasts, like the uterus, actually grow; they assume their full development or evolution. So great is the activity thus provoked, that, occasionally, this rapid, almost sudden, action passes the physiological boundary; the glands present nodular masses, extremely tender to pressure; they may even inflame, and I have seen these phlegmons form abscesses in the breasts of virgins, produced apparently under this sole ovarian excitation. This is in strict analogy with the history of the production of phlegmons in the breast after labor. I have, however, suspected, in some cases, that libidinous manipulation of the breasts was concerned. The formation of abscesses is, indeed, rare; but it is not rare to find at puberty nodular painful points in the breasts, which give rise to great anxiety as to their real nature. Howsoever rare and improbable cancer of the breast may be in young girls, it is not always easy to allay the apprehension that it exists. Mere surgical examination is not always enough to establish a decisive diagnosis, affirmative or negative. At any rate, I have known surgeons of great experience at fault in these cases; and it was only on further consultation that, in two instances, I rescued the patients from undergoing needless amputation of

the breast. In considering these cases, then, we must make great allowance for the physiological stimulus, and deliberate well, calling Time, which solves so many problems, into consultation.

These local conditions are usually well marked throughout menstrual life. But the remote or induced phenomena are generally more strongly characterized at the first appearance of the function. The following description, however, whilst it applies more strongly to the first menstrual periods, will serve, with modifications in degree, for the subsequent menstrual history.

The vascular excitement of the genital organs cannot fail to affect other parts of the body and the general system. The nervous centres, especially, feel and respond to the altered condition of the genital system. Here we must recall to our attention the two conditions to which I have already adverted: 1st. The augmented central nervous tension. 2dly. The augmented central and general vascular tension. These conditions explain many of the physiological and pathological phenomena.

In most instances, there are prodromata, forerunning signs, the significance of which is well known to the subject. These, like the signs which occur at later stages, will vary in different individuals. In women whose health is good, whose organs are perfectly adapted to the easy performance of their function, the prodromata are scarcely noticed, and all the phases of menstruation are gone through with little or no local or general disturbance. In such persons a slight sense of fulness in the pelvis, some little perturbation of the circulation, signs suggesting plethora, are speedily followed by the flow which brings complete relief. All sense of trouble passes away with a momentary lassitude, that does not compel to the interruption of ordinary duties. Such persons are often more cheerful and animated at the menstrual periods; their ideas flow more brightly; their emotions are more kindly.

But in many women things do not run so smoothly. The function is performed with more or less difficulty, and is attended by more or less general disturbance. This may arise from one or two, or a combination of the two, circumstances. The subject may be of an excessively impressible temperament, stirred too readily and immoderately by ordinary excitation. Or, secondly, there may be local mechanical, or other hindrances to the fulfilment of the menstrual acts. Or the two conditions may be combined. In either of these cases, not only may the prodromata be severe, but the stage of menstruation itself will be attended with suffering, and, even when the function is fairly completed, distress will not be altogether allayed.

Amongst the prodromata are pain in the pelvis, a sense of fulness, backache, pain especially in one iliac region, and radiating down the thighs. The alimentary canal reveals the impression made upon the ganglionic centre by vomiting and diarrhœa. Lassitude, to the extent of prostration, seizes the patient. The mind is always more or less disturbed. Perception, or at least the faculty of rightly interpreting perceptions, is disordered. Excitement to the point of passing delirium is not uncommon. Irritability of temper, disposition to distort the most ordinary and best meaning acts or words of surrounding persons, afflict the patient, who is conscious of her unreason, and perplex her

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