particular bull, the average period was 288½ days, instead of 280; none of these having gone less than 281 days, and two-fifths of them having exceeded 289 days.

"Although the duration of pregnancy is commonly stated at nine solar months, it would be more correct to fix the period at 40 weeks, or 280 days; which exceeds nine calendar months by from 5 to 7 days, according to the months included. The mode of reckoning customary among women, is to date from the middle of the month after the last appearance of the catamenia; but it is certain that conception is much more likely to take place *soon* after they have ceased to flow, or even just before their access, than in the intervening period; so that, in most instances, it would be most correct to expect labor at forty weeks and a few days after the last recurrence of the menses. This, at least, is the average result of observation, in cases in which the period of conception could be fixed, from peculiar circumstances, with something like certainty; but there can be no doubt that variations of a few days, more or less, are of continual occurrence. The period of quickening may be relied on in some women, in whom it occurs with great regularity in a certain week of pregnancy; but in general there is great latitude as to the time of its occurrence. The usual or average time is probably about the 18th week.

"The question of the *extreme limit* of gestation is one of great importance both to the practitioner and the medical jurist; but it is one which cannot yet be regarded as satisfactorily decided. Many persons, whose experience should give much weight to their opinion, maintain that the regular period of 40 weeks is never extended for more than two or three days; whilst, on the other hand, there are numerous cases on record, which, if testimony is to be believed at all (and in many of these, the character and circumstances of the parties place them above suspicion), furnish ample evidence that gestation may be prolonged for at least three weeks beyond the regular term. The English law fixes no precise limit; and the decisions which have been given in our courts, when questions of this kind have been raised, have been mostly formed upon the collateral circumstances. Very important evidence on this subject is afforded by observations on the lower animals, which are free from those sources of fallacy which attend human testimony. The observations of Tessier, which were continued during a period of forty years, with every precaution against inaccuracy, have furnished a body of results which seems quite decisive. In the cow, the ordinary period of gestation is about the same as in the human female; but out of 577 individuals, no less than 20 calved beyond the 298th day, and of these, some went on to the 321st, making an excess of nearly six weeks. Of 447 mares, whose natural period of gestation is about 335 days, 42 foaled between the 359th and 419th days, the greatest protraction being thus 84 days, or just one-fourth of the usual term. Of 919 sheep, whose natural period is about 151 days, 96 yeaned beyond the 153d day; and of these 7 went on until the 157th day, making an excess of 6 days. Of 161 rabbits, whose natural period is about thirty days, no fewer than 25 littered between the 32d and 35th; the greatest protraction was here one-sixth of the whole period, and the proportion in which there was a manifest prolongation was also nearly one-sixth of the total number of individuals. In the incubation of the common hen, Tessier found that there was not unfrequently a prolongation to the amount of three days, or one-seventh of the whole period. In regard to cows, the observations of Tessier have been confirmed by those of Earl Spencer, who has published a table of the period of gestation as observed in 764 individuals; he considers the average period to be 284 or 285 days; but no fewer than 310 calved after the 285th day; and of these, 3 went on to

the 306th day, and 1 to the 313th. It is curious that among the calves born between the 290th and 300th days, there was a decided preponderance of males—there being 74 to 32 females; whilst all of those born after the 300th day were females. The additional series of observations subsequently made by Earl Spencer, in regard to the constant protraction of the period in 75 cows in calf by a particular bull, has been already noticed. Another series of observations has been published by Mr. C. N. Bement, of Albany, U. S., who has recorded the period of gestation of 62 cows. The longest period was 336 days; the shortest, 213 days. The average period for male calves was 288 days; and for females, 282 days. On the whole, it may be considered, that in regard to the human female, the French law is a very reasonable one; and there is quite sufficient analogical evidence to support the assertions of females of good character, having no motive to deceive, which lead to the conclusion that a protraction of at least four weeks is quite possible, and that a protraction to the extent of six weeks is scarcely to be denied.

"In regard to the *shortest* period at which gestation may terminate, consistently with the viability of the child, there is a still greater degree of uncertainty. Most practitioners are of opinion, that it is next to impossible for a fœtus to live and grow to maturity, which has not nearly completed its seventh month; but it is unquestionable that infants born at a much earlier period have lived for some months, or even to adult age. It is rare in such cases, however, that the date of conception can be fixed with sufficient precision to enable a definite statement to be given. Of the importance of the question, a case which some time since occurred in Scotland affords sufficient proof. A vast amount of contradictory evidence was adduced on this trial; but, on the general rule of accepting positive in preference to negative testimony, it seems that we ought to consider it possible that a child may live for some months, which has been born at the conclusion of 24 weeks of gestation. In the case in question, the Presbytery decided in favor of the legitimacy of an infant born alive within 25 weeks after marriage. A very interesting case is on record, in which the mother (who had borne five children) was confident that her period of gestation was less than 19 weeks; the facts stated respecting the development of the child are necessarily very imperfect, as it was important to avoid exposing his body, in order that his temperature might be kept up; but at the age of three weeks, he was only 13 inches in length, and his weight was no more than 29 oz. At that time, he might be regarded, according to the calculation of the mother, as corresponding with an infant of 22 weeks or 5½ months; but the length and weight were greater than are usual at that period, and he must have been probably born at about the 25th week. It is an interesting feature in this case, that the calorific power of the infant was so low, that artificial heat was constantly needed to sustain it; but that, under the influence of heat of the fire, he evidently became weaker, whilst the warmth of a person in bed rendered him lively and comparatively strong. During the first week, it was extremely difficult to get him to swallow; and it was nearly a month before he could suck. At the time of the report, he was four months old, and his health appeared very good. Another case of very early viability has been more recently put on record by Mr. Dodd: in this, as in the former instance, the determination of the child's age rests chiefly on the opinion of the mother; but there appears no reason for suspecting any fallacy. The child seems to have been born at the 26th or 27th week of gestation; and having been placed under judicious management, it has thriven well. One of the most satisfactory cases on record is that detailed by Dr

Outrepont (Professor of Obstetrics at Wurzburg), and stated by Dr. Christison in his evidence on the case first alluded to. The evidence is as complete as it is possible to be in any case of the kind; being derived not only from the date assigned by the mother to her conception, but also from the structure and history of the child. The gestation could have only lasted 27 weeks, and was very probably less. The length of the child was 13½ inches, and its weight was 24 oz. Its development was altogether slow; and at the age of eleven years, the child seemed no more advanced in body or mind than most other lads of seven years old. In this last point, there is a very striking correspondence with the results of other observations upon premature children, made at an earlier age. A very remarkable case has been since put on record by Dr. Barker of Dumfries, in which the child is affirmed to have been born on the 158th day of gestation, or in the middle of the *twenty-third* week after intercourse. Its size, weight, and grade of development were conformable to the asserted period: for it weighed only 1 lb. and measured 11 inches; it had only rudimentary nails, and scarcely any hair except a little of reddish color on the back of the head; the eyelids were closed, and did not open until the second day; the skin was shriveled. When born it was wrapped up in a box and placed before the fire. The child did not suck properly until after the lapse of a month, and did not walk until she was nineteen months old. Three years and a half afterward, this child was in a thriving state, and very healthy, but of small make; she then weighed 29½ lbs."

The precise period, therefore, when the child can live, if brought into the world, is not determined, any more than the time it may remain in the womb. Some children may be able to live a considerable time before the full period of gestation, and others may not till some time after, there being a great difference in regard to their development.

One may be as fully developed at six as another at seven months. The common opinion is that the child cannot live if born before *seven months*. This, however, is incorrect. Many instances have been known of births at six months, and even earlier, in which the child lived, and became strong and healthy. Van Swieten mentions the case of one Fortunio Liceti, who was born before the sixth month. He was not larger than the hand, but grew to the average size, and lived to be seventy-one years old. Dr. Gunning Bedford mentions a similar case, in his translation of Chailly's *Midwifery*. There are even cases mentioned of children living at five months, but it must be borne in mind that it is seldom possible to determine the exact period. As a general rule, however, the child does not live till after the seventh month, though there undoubtedly have been cases where it has lived before the end of the sixth month. The law adopts the medium period, and declares the child capable of living at *the end of the sixth month*, and not before. There is no reason whatever for supposing that it is less likely to live at eight months than at seven, or that it will not live at all at eight months, as some do.

CHAPTER XXXI.

MENSTRUATION.

It is well known that in all healthy and properly developed females, after a certain age, denominated puberty, there occurs a discharge of blood and mucus from the vagina, at certain regular periods, usually a month distant from each other, and which lasts, as a general rule, from two to four days. This discharge is called the *courses*, or the menstrual or monthly discharge, and it is intimately connected both with female health and with the process of conception. The real cause and nature of this singular phenomenon has always been a matter of dispute among philosophers and physiologists, and it is only in modern times that the truth has been known. Even at the present time, many of the best informed people, including some medical men, are not acquainted with it; and, in consequence of that ignorance, we have all kinds of errors prevalent on the subject.

Some of the most curious and important discoveries in human physiology have been made by observing the lower animals, with whom we can make experiments and observations in a more complete and methodical manner than with our own species, while the general laws which regulate their physical functions are the same with those that regulate ours. It was formerly thought that many organic actions in the human being were totally different to any that took place in the inferior animals, but it is now known that this is an error. There is no physiological action occurring in our own systems that we cannot find the counterpart of in other beings. It is true it may vary some little in the manner of its occurrence, and in unimportant details, but still it is always essentially the same action, and serves the same purposes. Thus it was formerly thought that this very function of menstruation was one peculiar to the human being, and that nothing analogous to it was to be observed in the lower animals, but it is now known that a corresponding phenomenon occurs in nearly all, in some form or other.

To understand how menstruation is produced, we must refer back to what has been stated in regard to *ovulation*, and the functions of the *ovaries*. It is only since a comparatively recent period that the existence of eggs or *ova* in the human female has been satisfactorily proved; but it is now known that they do exist the same in her as in all other females, and that they are uniformly developed according to a regular plan. The ovaries contain the ova or eggs in a rudimentary state, and they begin, at the age of puberty, to ripen or develop, as explained in the article on the Functions of the Ovaries. At the age of puberty, the first egg is ripened and expelled, in the manner already explained, and the same process occurs at every monthly period afterward till what is termed *the change of life*, usually about forty-five years of age, when the last ovum has been expelled, and the ovaries cease their functions. Now this ripening and expulsion of the egg every month is a very curious and important phenomenon, and exercises a powerful and peculiar influence over both body and mind,

making the female essentially different to the male in her physical requirements and capabilities, and also in her nervous sympathies.

It is undoubtedly true that the monthly ripening and expulsion of the egg in the female, and its development into the new being when conception occurs, is *the great and principal business of her organic system*, and that it absorbs more of her nervous power, and more of her physical strength, than any other process she performs. In fact, all other processes, both nervous and nutritive, appear subservient to this, and chiefly intended to carry it on. There is nothing analogous to this *ovulation* in the other sex, and therefore there is nothing to compare it with, and that is the reason why the peculiarities of the female constitution and character are so imperfectly appreciated. In man there is no periodical function that absorbs, as it were, all the rest, and to which they are merely auxiliaries, but each acts independently, and it is only in exceptional cases that any one preponderates over all the others. Thus we sometimes see cases in which, either from organic peculiarity or from weak indulgence, the stomach is so active that *digestion* is the all-absorbing process, and every other function is imperfectly performed in consequence of its preponderating requirements. The person can neither think, nor perform muscular exercise, because he has no vital energy for anything but digestion. In the same manner, others do little else than *think*, through the brain being the over-active organ. Such instances may enable any one to conceive what follows when any one function overpowers, as it were, all the others, and to see how they must necessarily be subservient to it. But it must be remembered that such cases as these are exceptional and unnatural ones, and that they are not of the same character as the peculiar function referred to, though a consideration of them may enable any one to better understand its influence. The monthly formation of the egg in the female is not an exceptional occurrence, nor an unnatural over-excitement, but a legitimate and necessary result of her peculiar organic action, and the consequences of which she cannot therefore escape from. From the age of puberty till the change of life, nature is constantly laboring at this one function, and the female seems to live chiefly for this purpose. This is the true explanation of those peculiarities that are seen in the female character, especially of its excessive sympathy, sensitiveness, and excitability, and also much that is peculiar in female diseases. The incessant action of the ovaries keeps the nervous system in a constant state of irritation, and makes all the organic functions liable to derangement, so that it is impossible for a female to preserve that equanimity of mind and that evenness of temper and disposition which to individuals of the other sex is a comparatively easy matter. The female is, in fact, in a great measure, like a man who is constantly subject to annoyance from those around him, and who is obliged to use constant efforts to keep himself cool. Her situation is indeed, in some respects, even worse, because the cause of her uneasiness is inherent in herself; she cannot escape from it, and knows not what it is, and those around not knowing it either, she meets with but little sympathy and consideration. There are numbers of females who are most unfortunate in this respect, some being subject to distressing depression of spirits, or the most melancholy despondency; while others are irritable, or peevish, or subject to ebullitions of the most frantic gayety; and others, again, constantly change from one mood to another, without any apparent reason for so doing. Ignorant persons attribute these eccentricities to mere caprice or whim, and fancy that females can avoid them if they choose. Sometimes they are blamed or scolded for them, and are thought to be perverse or contrary, and sometimes females even accuse themselves

of being ungrateful and dissatisfied, and in this way increase their distress. If, however, the true nature of their constitution was understood, it would be seen that no blame whatever should be attached to them for these peculiarities, since they cannot be avoided, but, on the contrary, every allowance should be made for their involuntary aberrations, and the fullest sympathy exhibited for the distress which they really endure. The ovaries and the nervous system exert a reciprocal action, so that one can influence the other to a remarkable degree, which is the reason why many female diseases can be so much modified, or even produced, by certain states of the mind and feelings. It is often the case that a female suffering from indisposition is not benefited at all by *medical* treatment, but through some pleasing impression on the *mind* or *feelings*, is relieved immediately. I have often seen females completely prostrated, with scarcely energy or ability enough to breathe, who have been restored almost instantaneously by a word of hope, an expression of sympathy, or a little kind and pleasing attention, especially if it was from some wished-for but unexpected quarter. In such cases, uninformed people are apt to suppose that there has been no real indisposition at all, because the improvement was so rapid, and without *medicine*. A proper understanding of the subject, however, would show them that these apparent caprices are as real as any other forms of disease, and that *moral* or *mental* medicine may be as active as drugs, and often much more beneficial. In short, if the nervous system is kept in a constant state of irritation, and the feelings and sympathies are habitually outraged, it is often impossible to do much good in female indisposition. The conduct of those around the patient is of more consequence than the physician's prescription, by far, and may, according to its propriety or impropriety, either accelerate or impede the cure. There are many men who habitually act in such a way toward their female companions as to both cause them suffering and prevent its removal, and that too without either desiring or intending to do so. They do not act from unkind motives, but their ignorance prevents them from seeing the consequences of their conduct. Conceiving females to be like themselves, and knowing that *they* can shake off the vapors, as they call them, and that *their* nervous systems are not easily irritated, they cannot feel a proper charity toward their sensitive companions. Females, on the other hand, feeling that they are not understood, nor their condition properly appreciated, and having no one to repose confidence in that they think can appreciate them, are apt to become morose, and retiring within themselves conceal their suffering and disquiet from every one around them.

This ignorance respecting the female constitution is, therefore, a serious evil, making them liable to suffer, and causing the other sex to withhold from them that sympathy and charitable consideration so much required, and which would be generally bestowed, if men were better informed as to its necessity and utility.

The ripening and expulsion of the egg is effected by a real *inflammation*, similar to what is seen when a splinter of wood, for instance, is expelled from the flesh by the process of *festering*, and it is this periodical inflammation that causes the sympathetic irritation above described. The inflammation is slight at the beginning of the month, but gradually increases toward the end, when the ovaries are found to be highly congested, and the blood-vessels in them and the uterus are much engorged. About the time when the egg is expelled from the vesicle, the inflammation reaches its height, and to relieve it the vessels pour out a quantity of blood and mucous, in the same way that a discharge occurs after inflammation in other parts. This is the true cause of the menstrual flow. It is a consequence of the action of the ovaries,

and is only seen in those who possess these organs perfect. Females who have no ovaries, or in whom they are torpid, never menstruate.

The importance of a knowledge of these facts, both to the preservation of health and also in medical science, is very great. The medical treatment of deranged or suppressed menstruation has always been chiefly empirical, and seldom of much service, because the *real origin* and nature of the flow itself was unknown. In fact, there is no denying that, instead of doing good in these cases, medical science has led to much evil, and probably has caused more disease than ever it has cured. And yet, when properly understood, these derangements are usually *readily corrected*, and by very *simple means*.

In some young females this discharge occurs suddenly the first time, without any premonitory symptoms whatever, and occasionally it continues to do so at each of the succeeding periods, but more usually it is indicated by certain well-marked signs peculiar to that condition alone. Generally the female experiences considerable excitement just previous to its appearance, with a sensation of fullness in the head, slight fever, and pain in the back and abdomen. In some, these symptoms are much aggravated, so that they suffer severely, even more than at the time of parturition. There are females who are made perfectly delirious with the pain at these times, or so completely prostrated that they have scarcely strength to move. Others are more fortunate, and experience little or no inconvenience at their periods; but these are the exceptions, and there are but few who are not more or less affected, particularly by lowness of spirits or irritability, and on that account considerable allowance should be made for what may appear strange or unusual in their conduct and manner. This is what is usually termed being unwell, and it is generally indicated by certain changes in the countenance, as well as by the signs mentioned above.

In the first twenty-four hours, the discharge is commonly slight, and pale in color, but afterward it becomes more profuse, and like real blood. The time it lasts is about *four days*, but varies considerably. Thus in some it endures a week, or more, and in others only a day, or even but a few hours. Some of these irregularities are natural, and must not be interfered with, but others are accidentally produced, and should be corrected. The discharge subsides into a colorless mucous secretion, commonly termed *Leucorrhœa*, or the whites, which when it remains constant, and too abundant, constitutes a real disease.

The quantity of fluid lost is on an average about *six ounces*, but it varies much in different persons, in some being very abundant and in others very small. I have known females to lose over a quart each time, without any apparent ill effects. To some extent it appears to be affected by climate, being more abundant in tropical countries and less so in cold ones. In some cases it is nearly or quite *colorless*, owing to there being little or no blood mixed with it, and then the individual is apt to suppose she has not menstruated when she really has. It is for this reason that such persons can never correctly estimate the proper time when conception can occur. The real period is not suspected by them to be so, because it is colorless, and then if any *flooding*, or mere discharge of blood from weakness takes place, they think that is the period, and in this way they fail in their reckoning.

It was formerly thought that the menstrual discharge was something peculiar, and that it was possessed of certain deleterious properties, but this is now known to be a fallacy. It is nothing more than real blood mixed with the ordinary mucous secretion of the parts. Its odor is peculiar, and sometimes powerful, owing probably

to its having been retained in the uterine vessels some time before its discharge, and having in consequence undergone some change, or fermentation. And this accounts for its odor being always stronger, and its color darker, when it has been retained longer than usual.

In former times menstruation was attributed to the influence of the *moon*, and it was thought that it only took place when she was at the full, but this is well known not to be the case; there are probably females menstruating every hour of every day in the year. It is true the usual period between the cessation of one discharge and the beginning of another, is generally equal to the time of the moon's revolution around the earth, being twenty-eight days, but they do not otherwise correspond. Indeed, in some there are not more than two or three weeks between, while in others there are five or six, or even more, and yet this may be to *them* perfectly natural and proper. The real cause of menstruation is the ripening and expulsion of the egg, and of course it occurs whenever an egg is developed, whether that be frequently or rarely. It was found from observation that, in *one hundred females*, sixty-eight menstruated every twenty-eight days; twenty-eight every three weeks; and one every second week; while ten were irregular.

The first appearance of the menses varies from about the *twelfth* to the *seventeenth* year, in our country, but it is affected by various circumstances. In the greater number of females it commences from fourteen to fifteen, though it is sometimes delayed till twenty or more, and occasionally is seen at *nine*, or even earlier. I have seen a case myself in a mere infant. Out of *four hundred and fifty* cases observed at the Manchester Lying-in Hospital, England, ten menstruated first at eleven years of age, nineteen at twelve,—fifty-three at thirteen,—eighty-five at fourteen,—ninety-seven at fifteen,—seventy-six at sixteen,—fifty-seven at seventeen,—twenty-six at eighteen,—twenty-three at nineteen,—and four at twenty years.

The time when the menses cease, or the *turn of life* as it is called, that is when every ovum is developed, is usually from forty to forty-five years of age, but like the commencement this is also liable to considerable variation, some females arriving at *the turn* when they are but *thirty*, and others not till they are *fifty*, or even more. Sometimes after it has apparently ceased, at the usual time, it will appear again, for a time or two, many years after, at advanced age. This is probably owing to one or more of the eggs having been left undeveloped in the ovaries at the time of *the turn*, through being imperfect, and their ripening afterward. In such cases *conception* is possible at these after periods, which accounts for those instances of child-bearing in old females, which are occasionally met with, sometimes as far as the *sixtieth* year. Of course conception is possible as long as proper menstruation continues, but never when it ceases, or has not appeared. It is true, that in some cases females have borne children who have apparently never menstruated, but these were undoubtedly cases in which it was simply *colorless*, and *small in quantity*, so that they did not observe it, or else thought it was only the *whites*. The menstruation, in some form, must always occur before pregnancy can ensue, but the excitement and inflammation may be so small, in particular constitutions, that none of the usual indications are observed. It is owing to this that some females, who think they do not menstruate often enough, are deceived, because many periods are apt to be unobserved by them. And on the contrary many others who fancy they have their turns too often are equally deceived; many of the supposed menstruations being mere floodings, or discharges of blood from weakness or over-fullness of the vessel. A mere *show* of

blood therefore is no proof of menstruation, nor is its absence any sign to the contrary.

In one series of observations it was found that in *seventy-seven* females one ceased menstruation, or arrived at the turn of life, at thirty-five years of age,—four at forty,—one at forty-two,—one at forty-three,—three at forty-four,—four at forty-five,—three at forty-seven,—ten at forty-eight,—seven at forty-nine,—twenty-six at fifty,—two at fifty-one,—seven at fifty-two,—two at fifty-three,—two at fifty-four,—one at fifty-seven, two at sixty; and one at *seventy!*

It is commonly supposed that menstruation commences earlier in hot countries than in cold ones, and in consequence of the heat, but it is by no means universally so. Mr. Robertson has shown by his researches that it commences everywhere at about the same average age, and that the early intercourse of the sexes which takes place in the Indies, and other warm countries, is owing more to a depraved state of morals, and to unrestrained intercourse than to any influence of climate. He remarks that the early marriages we see there are "to be attributed not to any peculiar precocity, but to moral and political degradation, exhibited in ill laws and customs, the enslavement more or less of the women, ignorance of letters; and impure or debasing systems of religion." He also thinks that if the same manners and customs prevailed in England, or America, the same effects would be seen, and this is fully borne out in those pitiable instances, occasionally seen in our large towns, of juvenile prostitution. Many of these degraded and brutalized children at eleven or twelve years are as much women, in certain respects, as they ought to have been at seventeen or eighteen, and of course any other children would be the same if exposed to the same influences, unless, as fortunately is often the case, the initiation into vice caused their death.

In cities generally, on the average, menstruation commences earlier than in the country, owing to the more exciting circumstances that surround young persons, and which awaken the sexual instinct precociously. This is particularly the case in those places where morals are bad, and familiar intercourse between the sexes is unrestrained. In the Eastern parts of the old world marriages are often contracted while the female is very young, but it does not follow that she was fitted for it; and in all probability if those very females had been educated like our own they would have been in no respect different. We are told for instance that Mahomet consummated his marriage with one of his wives when she was but *eight years old.* In this, however, we simply see the proof of her degradation and enslavement, and not of her natural precocity. So far as is known also there is no *difference* as to the time of the first menstruation among the different *races* of human beings. Thus, for instance, it is no earlier *under the same circumstances,* in the negress than in the white female.

As a general rule the earlier menstruation commences, and the more frequently it occurs, the earlier it will cease, and to this there are but few exceptions. It is therefore of considerable importance to the future health of the female that this grand event should not be accelerated by any factitious causes, but should be brought on by the slow and unaided process of natural development. Young females should be allowed to remain as *children,* or *girls* at least, much longer than they usually do, and not be forced into *young women* too soon. For every year earlier that they become *young* women they probably become *old* ones *five* years before they otherwise would have been. It is of the utmost importance that young females should have their muscular systems well developed previous to puberty, and that

they should not have their minds and feelings too much excited. Nothing tends to bring on puberty more than a morbid excitement of the feelings and sympathies, such as results from silly romances, and over-wrought love-tales. Excessive study also is very injurious, and the too constant attention to what are called mere accomplishments. These are often pursued to the utter sacrifice of what is useful or beneficial, and result in nothing but premature development of those instincts that had better lie dormant till a later period. In fact, the education of young girls seems too often to have but one object, and that is to *force* them into women as rapidly as possible, to the utter ruin of their health and happiness.

In former times, as we find from the Bible, a woman was thought to be *unclean* while menstruating, and was shunned as something hurtful and deleterious. According to Pliny, the ancient naturalist, it was thought that she would destroy grafts, or bees, and blight corn, make iron rust, and even cause madness in dogs. Nay, he even goes so far as to say that the menstrual fluid, by its odor, will cause fruit to fall from the trees, destroy insects, and cause seeds not to grow. Many barbarous nations at the present day entertain similar notions, and at such times compel females to secrete themselves, and shun society, when they really need the most sympathy and kind companionship. M. Moreau de la Sarthe, in his *Natural History of Women,* tells us that the South Sea Islanders, and the South American Indians, always send their females to separate huts during these periods, and that the Illinois Indians formerly punished any woman with death who failed to give due notice of her being in that condition. According to history we also find that by a decree of the Council of Nice, women were forbidden to enter the church while menstruating. In the laws of the Israelites it is enacted, that "If a man shall lie with a woman having her sickness, and shall uncover her nakedness, he hath discovered her fountain, and she hath uncovered the fountain of her blood, and both of them shall be cut off from among their people."—(See Leviticus, chap. 20, v. 18.)

Such notions it will be seen are now happily to be found chiefly among barbarians, or in the records of a former ignorant age, though there are individuals who entertain them even yet. Indeed at the present time there are persons, especially among the ill-informed in England, who believe that meat will not take the salt if the process be carried on by a female who is menstruating. Others again think that bread will not rise, that beer will sour, and milk curdle, if a female so circumstanced have anything to do with them. It is perhaps scarcely necessary to say that all such notions are as erroneous as they are absurd, and that they are practically disproved every day, by thousands of females who pay no attention to them, and who yet conduct all the above operations as successfully as if nothing of the kind was taking place.

The first appearance of this function is an important event, and should be carefully watched for, so that nothing may be allowed to interfere with it, and also that means may be taken to bring it on if it be too long delayed. Young females ought especially to be timely informed about it, so that they may know how to conduct themselves, and may not be needlessly alarmed, as many are when it first appears. These matters, however, belong more especially to medicine, and will be found fully explained in the chapter on the *Diseases of Woman.*

It is especially important to bear in mind that females are usually more irritable and unsettled at these times, and that full allowance should be made for their being so. In a young person this is more apt to be the case, from the very novelty of her situation. The strange phenomenon that is occurring in her system, the development

of her person, and the new feelings and instincts that are awakened, all exert a powerful influence, which is still further increased by the mystery with which everything relating to these wonderful operations is enshrouded. In the absence of proper information, imagination is busily at work, curiosity is excited, and the mind becomes filled with strange fancies and romantic dreams, which often exert a baneful influence in after life. Proper instruction, at the proper time, with a well-regulated mind and body, would give more correct ideas of her real duties and sexual situation, and prevent much of that sickness and unhappiness of mind which are so commonly seen after marriage.

There are few objects more interesting to the philosopher and philanthropist than a young female at this period of her existence, when the body is assuming its natural beauty of form, and becoming fit for its wondrous functions, and when the expanding mind receives the first faint perception of her real destiny.

To a great extent, the development of the whole physical system depends upon the action of the ovaries, so that if they are absent, or inactive, every other part of the organization remains imperfect. The destruction of them in early life causes a similar imperfection to what follows the removal of the testes in the male, and even at adult age, as already shown, they exert a paramount importance over the other organs. It is apparently the effort that is required to develop them, in fact, that makes the body grow and perfect itself so rapidly at puberty. Every one must have noticed what an astonishing change occurs in a young female at that time. The bust becomes full, the pelvis enlarges, the features change—especially in their expression—the mind takes a different turn, and the manner and conduct become altogether different, denoting the new feelings and instincts that begin to be experienced. In short, the girl is changed into the woman, and is conscious herself of the alteration. All these changes result from the action of the ovaries, and if they are incapable of performing their functions, no such alterations take place, but on the contrary, the system either remains always as it was during girlhood, or develops in an unusual manner, similar to the male for instance. Nature seems to refuse to put forth her energies to perfect the rest of the system if she cannot first perfect the essential organs of generation, and the first menstrual flow, or the ripening of the first egg, is, therefore, the constant and necessary prelude to womanly development.

In reference to marriage, menstruation ought always to precede that event, and generally for a considerable time—twelve months at least—especially if it commences early. It is not always that it continues regularly from the first commencement, but ceases for some months, or even longer, and then commences again.

The proper age for marriage is, of course, variable in different individuals, some being properly developed years earlier than others, and no general rule can, therefore, be given. One necessary condition is the perfect establishment of menstruation, as already stated; and, perhaps, the next most essential requisite is the proper development of the body, especially of the pelvis and genital organs, for if these have not attained to a certain growth before marriage, they may never do so afterward. A neglect of these matters leads often to the most serious and unhappy consequences, from which there is no escape. Nevertheless, there are cases in which marriage may be required to perfect the development of the system, and in which it will always remain imperfect without, but these are very rare, and are usually indicated in an unmistakable manner.

The proper time for marriage is *midway* between two of the ordinary periods, let the space be what it may. I have known instances of young females marrying either at the menstrual period, or so near that nervous agitation, consequent upon the ceremony, has brought it on, and many evils have followed therefrom, to say nothing of the annoyance and distress. This was, of course, the fault of those who had these young persons under their care, and who had neglected to inform themselves upon so essential a point. Immediately after, and immediately before menstruation, are neither so proper as the midway, the organs and the nervous system being at both these times more or less excited and irritable. Marriage just before menstruation has been known to arrest it, so that it never afterward returned.

As a general rule, menstruation does not take place during nursing, though, occasionally, it does so, even commencing as early as the first month after delivery, and continuing on uninterruptedly. The reason why it does not take place at this time generally, is, because the blood and the vital energy which is ordinarily expended in ripening the egg, is needed during nursing, to secrete the milk, and it would exhaust the system too much to carry on both functions at the same time. In those cases where menstruation and nursing do occur simultaneously, it is either because there is a superabundance of vital energy, by which both can be supported, or the ovaries are in a state of chronic irritation, owing to which they act when they ought to be dormant. In the first case, no injury may result from both taking place at the same time, but when there is not a real excess of energy, this double drain nearly always exhausts the strength, and impairs the health. It is not, as some suppose, necessarily improper, or injurious to the child, for nursing to be allowed while the turns continue, unless the health and strength of the mother suffer thereby. If she becomes weak, the milk is often imperfectly formed and watery, so that the child is not perfectly nourished by it, but there is nothing positively hurtful in its nature under such circumstances. It is not necessary therefore to discontinue nursing at such times, unless the mother evidently suffers from the unusual condition.

During pregnancy the menses do not appear, for the same reason, though in some females they are thought to do so. All the energies of the uterus and ovaries are then needed in developing the new being, and the ovaries are necessarily dormant. Besides this, the interior of the womb is covered, immediately after conception, with the membranes surrounding the fœtus, which effectually close the mouth of each Fallopian tube, and of the womb. If either an ovum or the menstrual fluid were to form therefore, it could not pass away, unless these membranes were detached, which would cause abortion.

When a discharge occurs during pregnancy, therefore, it is not a real menstruation, though it may take place regularly at the month, from the *habit* of the system, but it is simply an escape of blood from the vessels of the vagina, or neck of the womb, owing either to their weakness or over-fullness. It is really a *flooding*, therefore, which may do no harm while it is confined to the parts below; but if it extends to the *interior* of the womb, it is nearly sure to cause miscarriage. This is one reason why much sexual excitement is improper during pregnancy, because it is apt to excite the ovaries to form the ova, and thus lead to miscarriage by their expulsion.

After marriage the question is often asked of the physician, whether connection during menstruation is improper? To this it may be answered, that, in some cases, it is both disagreeable and painful, and therefore obviously improper; but, in other