PART VIII.

DIŒCIOUS GENERATION.—THE TWO SEXES DIVIDED.

THE FEMALE EGG AND MALE SPERM.

CONJUNCTION OF THE SEXES.

IMPREGNATION.

CHAPTER XVIII.

THE SEXES DIVIDED, THE MALE ORGANS BEING IN ONE INDIVIDUAL AND THE FEMALE IN ANOTHER.

Diœcious.

When the two sexes are placed in different individuals, the two generative principles, the sperm or semen, and the ovum or egg, are always distinct, and easily distinguished from each other. In all cases they have to be brought together, and then the semen is said to impregnate, or vivify the egg. Sometimes the two are united within the body and sometimes without, and sometimes they develop into the new being within the female body and at other times without. These differences necessitate different organs, and various subsidiary functions, which will be explained as we proceed.

First, however, it will be necessary to more fully describe the two generative principles separately, and we will commence with the ovum, called also the egg or germ.

THE OVARIUM OR OVARY, WITH THE OVUM OR EGG.

The celebrated anatomist, Haller, who was one of the first to thoroughly examine and study the generative organs practically, laid down the rule that every living thing sprang from an *egg*. And in one sense he was perfectly correct. Before his day, anatomists had not gone beyond the egg, as seen in birds and reptiles, and few of them had any idea that other beings, least of all man, originated also from eggs. Haller, however, demonstrated that the germ from which all animals commence, man the same as the rest, is a true egg, identical in all essential particulars with the egg of a bird, and developing in the same way, as will be fully shown farther on. At a later period, when the microscope had enabled anatomists to penetrate deeper into organized structures, they became acquainted with the *cell*, and found that to be the true commencement of everything living. It was then discovered that the egg is only a specialized cell, thrown off from the parent's body at a certain stage of growth, and capable, under proper conditions, of forming a new being.

This discovery went farther than was at first suspected, for it proved that all living beings originate the same; and that the minute *Infusoria*, equally with the mighty elephant, and man, the master of creation, all began and were afterward perfected in exactly the same way.

After the cell came the discovery of unorganized *protoplasm*, and its first separate mobile portions, the *moners;* going still deeper, and making it evident that all living things originate, primarily, not merely in an egg or cell, but in a small speck of protoplasmic jelly. All are, therefore, fundamentally the same.

This will be evident from the explanations of cell life and cell growth already given.

When, however, we come to the higher orders of beings, especially the vertebrates, including man, it is the egg, or fully differentiated cell, with which we practically have to deal. The origin of the egg itself, from the simple cell, and that from protoplasm, may be passed by here, because fully explained elsewhere.

In all beings above the simple ones before described, generation is always effected by the union of two different principles, the egg and the semen. And these, though they differ much, as we see them, are in all probability the same thing, that is, a *cell*, one varied a little one way and the other in another.

In some of the simple beings already referred to, as the mussel and oyster for instance, there is probably but one kind of cell, which is able to develop by itself. In many other beings it is also common for the egg alone to form a new being; and the same thing even occurs, as an exception, in the very highest organisms, even in man; the male semen ocsasionally being dispensed with.

Practically, however, we have in all the higher animals, and especially in man, the two distinct principles, the male semen and the female ovum, and these are always united to form a new being.

In plants, also, it must be borne in mind, the generative process is essentially the same, there being the two principles, male and female, corresponding to those of the animal, and they are united in the same way to form the new organism.

To many people it will sound strange to speak of eggs in connection with the higher animals, and especially with man. The idea of an egg is usually formed from that of a bird, though smaller ones, such as those of insects, are recognized, and they are always seen to be developed externally to the female's body, by the action of heat. It is not generally known that animals which are born alive are also developed from eggs, the same as birds, or insects, man himself not excepted.

The essential parts of the egg are the same in all cases, but when they have to be developed out of the body, as those of birds for instance, it is necessary for them to be protected by a firm covering, and provided with a large stock of nutritious material from which the body of the new being can be formed. Hence the hard shell and the great bulk of the bird's egg. But in the case of those that develop their young within the body, and bring them forth alive, the shell is not needed for protection, and the mother supplies nutriment direct from her own blood. The eggs of all such animals are therefore small, and for a long time were both undiscovered and unsuspected. Nevertheless, every vertebrate animal, to whatever class he may belong, develops from an egg formed in the body of the mother.

Those that bring forth eggs, to be hatched externally by heat, are called *oviparous*, or egg-bearing animals. Those that hatch the eggs within their bodies and bring them forth alive are called *viviparous*, or life-bearing animals.

The human female is, of course, viviparous, bringing forth her young alive, but still it is always developed from an egg, produced in a special organ in her body, called the *ovary*, or *ovarium*.

All eggs are very much alike when divested of accidental accessories, such as shells and nutritious matters, and they are all composed of similar parts, so that a description of any one explains all.

Another thing to be explained is that all females, of every kind, form eggs, and expel them from the body, whether they have intercourse with a male or not. At a certain age, called that of puberty, the human female, for instance, begins to form perfect germs, ovæ, or eggs, in the organ called the ovary, and at regular intervals,

usually of one month, one or more of these eggs are expelled. This takes place, it must be remembered, independent of any sexual intercourse whatever. If intercourse does take place, and the egg be fecundated, it remains within the female's body and develops into a new being, but if no fecundation takes place the egg is expelled, by a natural process. The same thing takes place in the females of all other animals, each kind having its own peculiar laws as to time and manner of formation and expulsion.

In birds this process is seen, and is therefore familiar, but in the case of viviparous animals it is only by anatomical and physiological investigation that it becomes shown. Nevertheless, the laying of eggs is as regular and natural a function in the human female as in a bird, and in both it takes place just the same in those that are virgin as in those that have sexual intercourse. The ovary contains the rudiments of a large number of ovæ, more than enough, in the human being, to produce a perfect one, or more, every month, from twenty to forty years. They come forward in succession, one or more ripening each month, and being either expelled or developed, if fecundated, into new beings.

As a rule, unless the female egg receives the male semen it is abortive, comes to nothing, and is expelled, but sometimes, without receiving this, it will form into a new being more or less perfect, just as any other cell might do.

It is, therefore, necessary to be borne in mind, in reference to the reproduction of the higher animals, that the female principle, the ovum or egg, is regularly produced, like the male semen, whether there ever be sexual intercourse or not. The first production of ripe ovæ, as also that of perfect semen, is always accompanied by great bodily and mental changes, and marks a critical period of life. The production of semen in the male continues to an indefinite period, but the egg ceases to be perfected in the female usually about forty-five years of age, and this marks another critical period. These matters, however, will be more especially referred to farther on.

The egg is essentially a *cell*, but it is modified in structure in the ovary, and takes on certain peculiarities which will be described. All eggs of whatever kind or size, as before stated, are essentially the same in structure and component parts, so that in describing one we describe all.

It will be necessary, however, first to describe the ovary, or organ in which the egg is formed, and which also is essentially the same in all the higher animals.

THE OVARY OR OVARIUM, AND THE OVUM.

In the females of all truly sexual animals there is a special part devoted to the production of those specialized cells called ovæ, germs, or eggs. Even in the imperfect hermaphrodites there is an ovarium, though anything analogous to the male testes is doubtful.

The form of this organ, its mode of action, its appearance and location, vary much in different beings. Usually, in the higher animals, it is located in the pelvis. It is not formed at any particular period of life, but apparently exists, in a rudimentary state, in the embryo itself. It grows gradually with the rest of the system, and becomes capable of producing perfect ovæ at a certain age, in the human female at about fourteen years. In all the mammalia there are two ovaries, one on each side of the body, corresponding with the two testicles of the male, with which, in fact, at an early stage, they are identical. Formerly they were called the female testicles,

and before their true function was known they were supposed to secrete a kind of semen, which united with that of the male, at the time of impregnation. It is now known, however, that they really produce ovæ or eggs, like those of a bird.

In the human female the ovaries are placed one in each groin, and they are both connected with the womb, as will be shown farther on. They are each about the size of an almond nut, light in color, of a soft fleshy consistence, and filled with granular matter. At the age of puberty they are seen to be studded with small vesicles or cells, both in their substance and on the surface, somewhat like pustules. These are called the *Graafian vesicles;* they all contain a small round kernel which is an ovum or egg, at some stage of development. Some of the vesicles are merely rudimentary, others more developed, and others again approaching maturity, but usually one is fully ripened at each month, and is then thrown off. Generally about twenty or thirty are distinctly visible at a time. The formation of the ovae in the female ovary begins at the very earliest period, for we find them regularly produced and thrown off in young children even. But they are not fully developed till puberty. This, it will be seen, is exactly the same process that occurs in a bird, excepting that the eggs of the bird are expelled, and developed, if at all, outside of the body, while in the mammal they are retained within the body and there developed, if fecundated.

Whether the ovary starts with a certain number of rudimentary ovae, ready formed, and gradually develops them all in succession, or whether their formation goes on regularly during the laying season, we do not know. But judging from the analogy of other cell development, it would rather seem that the ovary should be considered as a simple cell at commencement, which continues to propagate itself till its powers of reproduction are exhausted, as we see in simpler organisms.

After the change of life, when the ovary has ceased to produce ovae, it changes in appearance, loses all signs of Graafian vesicles, diminishes in size, and becomes totally inert.

That portion of a plant which produces the seeds is called also the ovarium, and it acts in all essential particulars like the ovarium of an animal. Not being permanent, however, but only formed from season to season, it of course does not change in the same way nor present the same features.

In all cases, both eggs and seeds are regularly produced, whether the female receives any fecundating influence from the male or not. The eggs or seeds are formed just the same but remain unfruitful, if not fecundated. A female bird which has never had intercourse with a male produces eggs the same as one that has, but they cannot be hatched when unfertilized by the male sperm. And it is exactly the same with the human female. Nor is there any difference, so far as can be seen, between the egg of a virgin animal and that of one which has had intercourse with a male, until they are subject to warmth and other favorable conditions, when one will develop into the new being, and the other will not, except, occasionally, to an imperfect stage.

It is the same with all the mammalia likewise, although there are great differences, as to the frequency of the development, and in some of the minor phenomena attending it. Thus, for instance, in the lion and elephant, only one egg is ripened in two or three years, while in most horned cattle one or more are ripened every year, and in the rabbit, quite a large number are ripened several times a year. Each animal, therefore, has its appropriate period, and it is, of course, only at that particular time that it can conceive, because there can be an impregnation only when

the egg is fully developed, and has left the ovary. If no connection occurs with the other sex at that time, or, in other words, not till after the ripened egg has left the body, there can be no conception till another period returns again. Nature, however, has so arranged, in the lower animals, that connection is desired *only at that time,* and then very strongly. In them the maturation of the egg, and its passage into the womb, is always attended with great irritation and inflammation of the whole generative apparatus, which causes the peculiar excitement we term *sexual* or *amorous,* and makes them desire association with the other sex. This is what is called the *Rut,* or *Heat,* or, scientifically, the *Œstrum,* and it is well known that the males and females of the lower animals have no inclination whatever for each other, except at those times, and if connection were to occur between them at any other period, no conception could ensue, because there would be no egg ripened and ready to receive the semen. In the human being we see precisely the same phenomena, with slight variation. Thus the development of the egg in the human female is *monthly,* one coming to perfection, as a general rule, every twenty-eight days, and continuing to do so regularly, from puberty till the turn of life. This is why conception is not confined in our species, to any particular part of the year, as it is in many others, but can occur much more frequently. Even in the human female, however, the same as in every other, there is a time—a certain part of each month—when she *cannot* conceive, and that is after one ripened egg has left the womb, and before the other has reached it. This will, however, be more fully explained in the article on *Conception.*

The monthly ripening of the egg in the human female is attended with similar phenomena to the annual ripening in others, only slightly different in their manifestation. Thus, in the lower animals at the time of *heat,* we have inflammation, and strong sexual excitement, with a discharge from the parts, of a thin, almost colorless fluid, of a peculiar odor. In the human female also, at the time of the monthly ripening, they have considerable inflammation, with a copious discharge of blood and mucus, termed the *menstrual* or *monthly flow,* more fully explained in another article. The sexual desire however is not generally confined to that particular time in our species, though it is frequently much the strongest then, and is always most readily induced.

The manner in which the egg is expelled is very curious, and when understood it explains many of the attendant phenomena. If we examine the ovary, at about three weeks previous to one of the monthly periods, none of the Graafian vesicles, or their contained ova, appear very different from the others, but, in about a week later, one of them is seen to be somewhat enlarged, and is more prominent upon the surface. This enlargement continues to be more manifest as the period is approached, till it assumes the form of a pustule, or pimple, with a prominent point in the center, indicating that it is ready to burst; and eventually it does burst, and the little egg escapes through the torn opening. This is called *ovulation,* or the laying of the egg, and is analogous to the expulsion of the egg from the body of the bird, but in the human being it is then passed into the womb, to remain there for a time.

The manner in which the egg is transmitted to the womb is very curious, and can be understood fully only by referring to the parts. Each of the two ovaries are connected with the womb by a short, firm cord, or ligament, down which there is a passage. Immediately above each ovary is an organ, called "*The Fallopian Tube,*"

which is much longer than the ovarian ligament, and is in shape like a trumpet, the large end, which is loose, being close by the ovaries, while the other end is connected with the womb. The open end of this tube by the ovary, is as large as a half dime, and is divided into a number of little finger-like prolongations, called its Fimbriæ. From this wide opening a small passage extends, down the interior of the tube, into the womb, between which and the ovary a communication is thus established.

At the time when the egg is expelled from the vesicle, in the manner already explained, the open end of the tube is directed over that part of the ovary where it lies, and the finger-like ends, or Fimbriæ, cling round the egg, and pick it up. By these means, it is taken into the commencement of the tube, which then contracts behind it, and thus, by continued successive contractions, it is passed onwards till it reaches the womb.

The egg usually escapes from the ovary just about the time when the flow ceases, though occasionally not till two or three days after, and it is then from two to six days in passing down the tube. It never, therefore, reaches the womb till the flow is fully over, and most frequently it does so about the *second* day after, but sometimes not till the fourth or fifth day. When it reaches the womb, it is prevented from passing immediately out, by a peculiar thin membrane, or skin, called the *Decidua*, which is formed during the latter part of the flow, and which lines the whole interior cavity. As the egg passes out of the *Uterine* end of the tube, it pushes on this thin membrane, and makes a kind of nest or depression, in which it lies. While this membrane remains, therefore, the egg is necessarily retained in the womb, and can be impregnated; but in a certain period, varying in different persons, the membrane looses, and passes out of the body, taking the egg along with it, after which, of course, there can be no conception till another period comes round, because there is no ripe egg in the womb to be impregnated. From which it follows, as before remarked, that *there is only a part of each month in which conception is possible*, and that will be stated farther on, in the article on Conception. If impregnation occurs, the egg, instead of being expelled, attaches itself to the walls of the womb, and remains, to develop into the new being, while the decidua forms one of the fœtal membranes, or envelopes.

In every female, therefore, married or virgin, an egg is formed and thrown off every month, unless conception takes place, and then a new being is produced. During pregnancy and nursing, however, the ripening of the ova is usually suspended, for reasons given in the article on Menstruation; and at the change of life it ceases entirely, because all have been developed.

As a general rule, only one vesicle is ripened each month, but, occasionally, there are two or more, in which case, if all the ovæ are impregnated, there may be twins or triplets, as the case may be. Probably, also, the ovaries act alternately, generally one one month, and the other the next; but this is not always the case, for one will sometimes lie dormant for a length of time, or even be destroyed altogether, and yet the other will act perfectly regular alone. Each vesicle usually contains but one ovum, though sometimes two are seen within, and even more. Twins, therefore, or other numbers may result either from several vesicles bursting, with an ovum in each, or from one vesicle containing several ovæ. Probably, in those remarkable instances where we have four or five at a birth, both these unusual occurrences take place. In the lower animals, as many vesicles burst as they have young, unless some of the

vesicles contain more than one ovum, which is sometimes the case, and then the number of the young is greater.

The ovaries are among the very first organs formed, the rudiments of them being found in the bodies of little girls two or three years old, and more or less distinctly even before birth. They are also plainly distinguishable in the minutest beings—in the Infusoria for instance, though they require to be magnified thousands of times before they become visible. In many of the smaller animals, however, the ovary is larger than all the rest of the body, at particular times. The body of the Queen Bee, for instance, is much enlarged when filled with ripe eggs, and in some female ants, the ovary attains such an enormous size, that the head and trunk are almost lost sight of. The number of eggs found in the ovaries of some beings, is almost incredible. Thus in a female sturgeon there has been counted *Ten Millions*, and in all probability, many species form even more than this number. In most insects the depositing of the egg is the last act they perform; it is not done till they attain the perfect stage, and then, when the reproduction of their young is provided for, they die. In the more perfect beings, however, the ovulation is repeated many times.

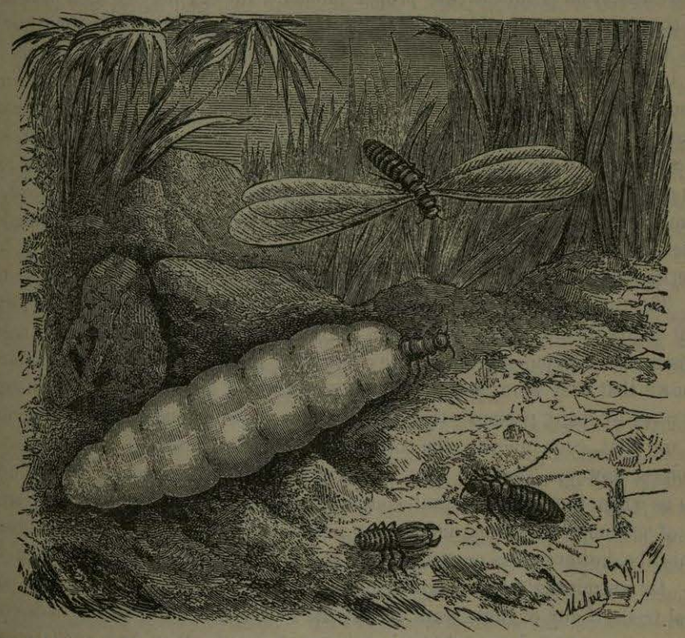


FIGURE 51.—*The Female Ant, when distended with Eggs*, showing the enormous increase in size. The Male is shown with wings, the Soldier Ant with mandibles. The other is a common Working Ant.

The immediate cause of the expulsion of the egg from the ovary is very curious, and shows that there is a peculiar vital action in these parts which accumulates its force at periodic intervals. On examining the Graafian vesicles, they are found to be surrounded by several distinct membranes, or layers, *between* the two inner ones of which the egg is placed, at the bottom of the vesicle; the innermost of all the membranes containing the whitish fluid, formerly mentioned. The outer membrane

of the two inner ones is traversed by a number of minute blood-vessels, which ordinarily are barely seen, but about three weeks before each period, some of them are seen to be much enlarged and engorged with blood. This engorgement continues to increase, till eventually some of the blood-vessels break, and the blood is thus exuded between the two membranes, and, of course, *under the egg*, which is lifted up by it, and as the effusion of blood continues, and the quantity increases, it is eventually forced up to the *top* of the vesicle, against which it presses. The white fluid is in the meantime all absorbed, and its place occupied by the effused blood, which, by its constant increase, causes the enlargement of the vesicle, and its ultimate rupture, when the egg escapes. This secretion of blood in the interior of the Graafian vesicle is precisely analogous to the secretion of the menstrual fluid in the womb, which it always precedes and probably originates.

On examining the ovary just when the egg is expelled, which is usually about the cessation of the flow, there will be found, somewhere on the surface of it, a small space much inflamed, in the center of which will be seen a minute rent, or torn place. This is the spot where the vesicle has broken open and the egg escaped. Sometimes, when the dissection occurs at the proper moment, the egg may be seen between the lips of the rent, or may be found on the surface of the ovary; it is then just large enough to be visible, and appears like a minute globe of bluish-colored starch. The vesicle itself, about the size of a small pea, may be readily opened by enlarging the rent, and will be found filled with dark-colored blood, with the walls somewhat shrunken together. Occasionally, a portion of the blood, in the form of a dark clot, passes out with the egg, and both may be found together. This may be as readily seen in any of the lower animals, about the commencement of the *rut* or *heat*, as in the human being; especially in rabbits or pigs, and better still in larger animals.

After the expulsion of the egg, the empty vesicle gradually shrinks up, by the contraction of its walls, and eventually appears like a mere scar, of a yellowish brown color. This scar is called the *Corpus Luteum*, or yellow body, and it was formerly thought to result only from conception. Until recently, every anatomist regarded the presence of a corpus luteum on the ovary as a proof of previous conception. It was known that they were produced by the expulsion of an egg, but it was thought—as it is now, by many persons—that the egg was expelled *only* when it was impregnated, and that, consequently, the corpus luteum was a proof of conception. It is now known, however, that the eggs are formed just the same when there is no conception as when there is, and that consequently the corpus luteum is only an indication of ordinary ovulation, and is not necessarily connected with impregnation. This mistake, however, was once universal, and had its influence in medical jurisprudence. On examining the bodies of females, for instance, in connection with certain criminal trials, if any of these scars were found on the ovaries, it was at once decided that conception must have taken place, some time or other, and such testimony would have a most important bearing on the case. Suppose there should be a charge of seduction, it might be important to the defendant to prove that the female had not been virtuous, and if medical men testified, from these signs, that she had formerly conceived, that object would be accomplished. In fact, many such cases are on record, and, no doubt, many young women have thus had their characters unjustly aspersed, after death, and many guilty persons have escaped punishment in consequence of this error. This fact may be important for *lawyers* to bear in mind, as well as medical men, more especially as they will find no reference to it in the works

on medical jurisprudence in ordinary use. Haller, the celebrated anatomist, used to dissect animals extensively, and, on asking the dealers to bring him *heifers*, frequently accused them of deceiving him, because he sometimes found corpora lutea upon their ovaries. No matter how strongly the men affirmed that the animal had never known the male, so firmly was he convinced of the truth of his notion that all they could say was disbelieved. In 1808, a Miss Angus died in Liverpool, under circumstances that excited suspicions against her master, and an examination of her body being deemed requisite, the ovaries were seen by many of the most celebrated anatomists in England, the greater part of whom decided that she had been a mother because a perfect corpus luteum was found. Some anatomists even now, who are not practically acquainted with these subjects, conceive that, though a scar may be formed at each month, yet, that the one formed at conception is larger and somewhat different; but this is altogether erroneous, there being no difference whatever in them, let them be formed when they may.

From what has been stated, it follows that a corpus luteum is formed every month, and it might be supposed, therefore, that there would always be just as many as the individual had had menstruations. This, however, is not the case, because they gradually fade away and disappear, so that only three or four are seen at most, and frequently only one. I have seen traces of a larger number under a microscope, however, and, possibly, in some persons, they endure longer than in others. As the turn of life is approached, they become more lasting, probably from the weakened power of the ovaries to absorb them; and, after the change has fully taken place, the whole surface of the organ is often covered by them, and in many old persons, the ovary is one mass of wrinkles, and shrunken very much in size; in fact, it sometimes almost totally disappears. The old physiologists, who thought that a corpus luteum was formed only when a conception occurred, used to say that by counting the number of these scars, they could tell how many children a female had borne. The fallacy of this, however, will be apparent, after the above explanation, and indeed, many of the physiologists had begun to suspect it was not correct themselves, from the fact that sometimes four or five corpora lutea would be found in the ovaries of a young person of *fifteen* or *sixteen*.

In most instances the ova go on developing regularly, those on the surface coming forward first, and those in the center working their way outwards, to succeed them, till all have been ripened, and then the ovaries shrink up and waste away. But, sometimes, one or more of the vesicles and ova will either be buried so deeply, or be so very rudimentary, that they do not attain nearly their full development at the turn of life, and are, consequently, left in the ovary in an imperfect state. In such cases, if the organ remains healthy, these delayed ova may develop many years after, and may even be impregnated. This accounts for those curious instances of old females sometimes menstruating a second time, at sixty or seventy years of age, and also of some of them bearing children when very old, as I knew one at *sixty-two*. In such cases, there have simply been one or more of the eggs left imperfect, at the turn of life, and afterwards developed.

In some persons the ovaries are organically weak, and in others they are diseased, so that they either cannot develop the eggs at all, or else they do so imperfectly. Such persons are always irregular in their menstrual periods, and disposed to flooding, from the debilitated state of the organs. If the ova are not formed at all, they are always barren, of course, and even if they are merely imperfect, conception is not

PLATE IV.

OVARY OF THE HUMAN FEMALE AT DIFFERENT AGES AND PERIODS, SHOWING GRAAFIAN VESICLES AND CORPORA LUTEA.

Figure 1 is the ovary of a girl aged twenty, who died in the hospital at Rouen. The surface is smooth, reddish yellow in color, and with three cicatrices, or scars, showing where eggs have been expelled in former menstruations.

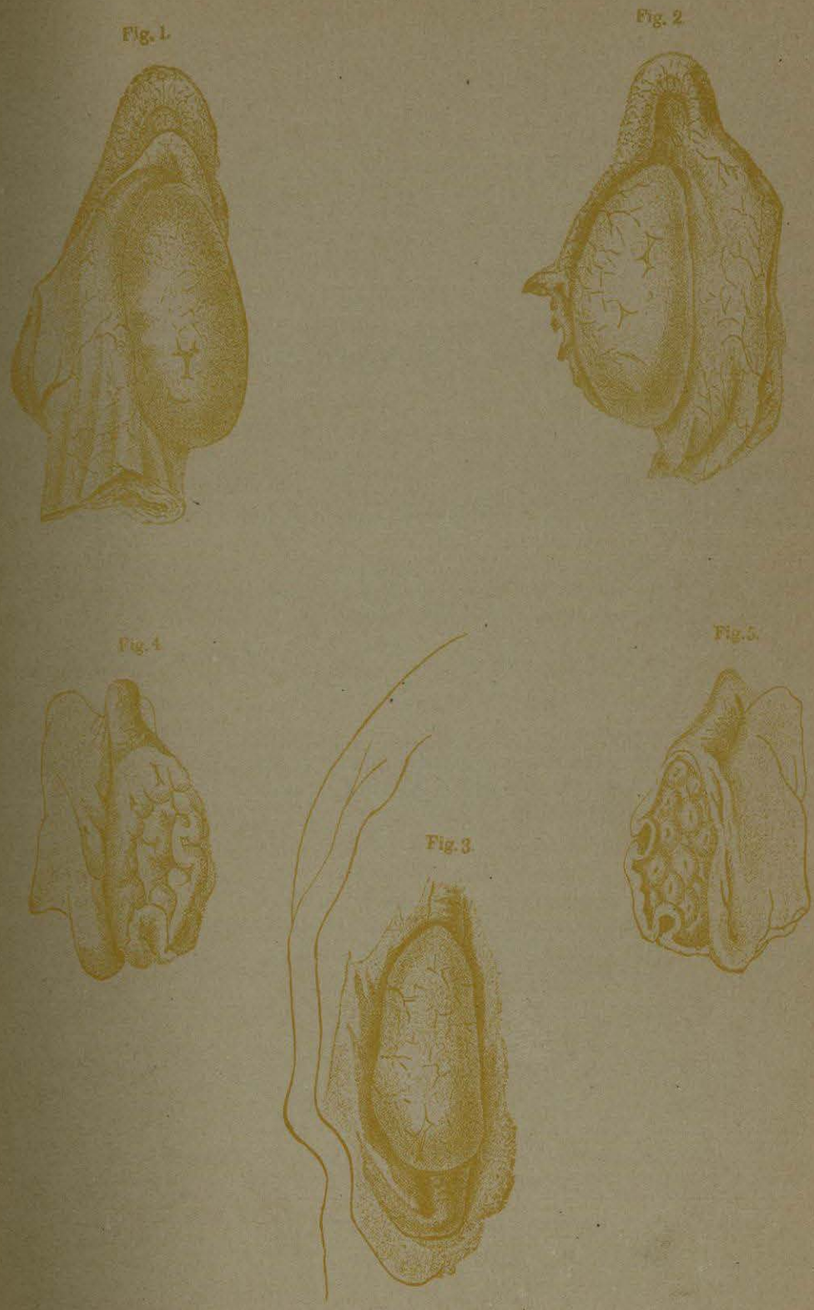
Figure 2 is the other ovary of the same girl. On this are two scars, one quite small, and the other large. (These scars each form a Corpus Luteum.)

Figure 3 is the ovary of a woman who died a few days after confinement. On this may be seen quite a large cicatrice.

Figure 4 is the ovary of a woman of thirty-two years of age. It is seen to be wrinkled all over with the scars of Corpora Lutea, showing where the eggs of former menstruations were discharged.

Figure 5 is the same ovary laid open. This shows the two last Graafian vesicles still open, though the lower one is nearly closed up. The upper of the two is the one from which the last egg was expelled. The body of the ovary is full of vesicles still undeveloped.

PLATE IV.



Ovary of Human Female

likely to occur, because the germ is deficient in vitality. It has been conjectured further, that deformity in the child also may arise from imperfect ova, there being merely vital force enough to allow of impregnation taking place, but not sufficient to insure a perfect development afterwards. I once had a patient who had borne five children, all deformed or imperfect, as I surmised, from diseased and weakened ovaries, who had two others subsequently, quite perfect, after proper means had been used to stimulate and strengthen those organs, and to regulate their action. Those who have ever observed what imperfect *plants* are usually produced from diseased and imperfect *seed*, will readily understand the philosophy of this, and will see the necessity of a healthy condition of the ovaries, to insure both conception and perfect offspring.

It must not be supposed, however, that the state of the ova alone influences the quality of the offspring, or affects the liability to conception, it being equally important that the *male* organs, and the male *principle*, too, should be perfect, as will be shown farther on.

The ripening of the egg in the ovary is, in many respects, analogous to the ripening of a fruit upon a tree. It remains in the vesicle till it has attained a certain size, and exhausted all the nutriment provided, and then leaves it, or is cast off, like a foreign body. This is the reason why eggs cannot be impregnated if they are taken from the ovary, because they are not perfect till they leave it spontaneously, but when found in the uterus and Fallopian tubes, they may be impregnated.

Although, as before explained, neither the female egg nor the male semen can develop into a new human being alone, yet, under certain peculiar circumstances, the egg will occasionally develop into a partial and imperfect likeness of a child itself, without any impregnation. What the conditions are upon which this unusual power depends, are unknown, but such occurrences have, undoubtedly, been observed. Possibly, the power of the ovary may be much exalted during a state of *inflammation*, as the power of other organs frequently is. Thus, for instance, in many cases of inflamed eyes, the power of vision is so preternaturally increased that the patient can see in the *dark*, or, rather, in what is darkness to healthy eyes. In what is commonly termed darkness there are always *some few* rays of light, and the diseased eye can see with those few, though it is blinded by a full light. In the same manner, though the healthy ovary can only develop the germ into the ovum or egg, yet, when inflamed, it may be capable of partially developing it into an organized being. The celebrated Hufeland gives us a remarkable instance of this kind, in which there was found in a girl of thirteen years, the rudiments of an imperfect fœtus very distinct, contained in a sac in one of the ovaries, which was diseased. Some few such cases I have also noticed myself, and it is not at all unusual, under such circumstances, to find detached bones, hair, teeth, and single limbs, as if the ovary had not power enough to organize them together, though it could originate them individually. These occur in undoubted virgins—even in children, and the fact is both interesting and important. There are many circumstances under which such diseased growths might be found, that would seriously affect the individual's reputation, and originate most unjust suspicions.

This shows one use of *sexual excitement*. It is true that this peculiar sensation is not *necessary*, neither to the formation of the ova, nor to conception, but it is also equally true that it may often conduce to both. There is no question but what amative enjoyment stimulates the ovaries very much, and in many cold and torpid systems,