

The heteradelph, or, Double-bodied boy : introduced to the public at Dr. Kahn's museum, 4, Coventry Street, Leicester Square, London a lecture / by Joseph Kahn.

Contributors

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THE HETERADELPH;

OR,

DOUBLE-BODIED BOY,

INTRODUCED TO THE PUBLIC AT

DR. KAHN'S MUSEUM,

4, COVENTRY STREET, LEICESTER SQUARE,

LONDON.

A LECTURE

BY

JOSEPH KAHN, M.D.

LONDON:

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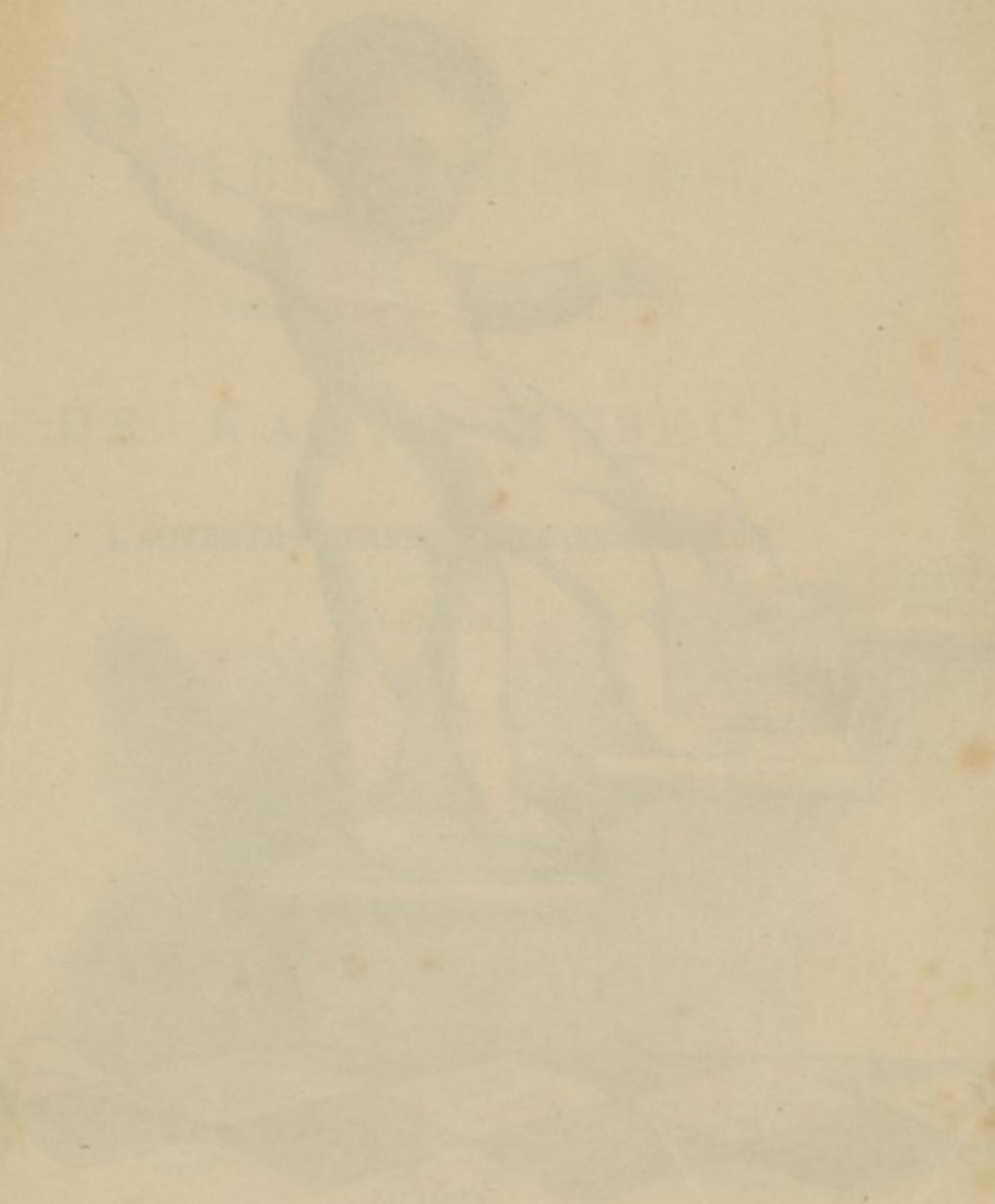
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LECTURE.

GENTLEMEN—

MY object in this Lecture is to draw your attention to one of the most extraordinary phenomena which nature has, in modern times, made us acquainted with. A few years ago we should have spoken of it as a freak of Nature, and called it, in scientific language, a *lusus naturæ*; but modern science has shewn us, that whatever phenomena are presented to our notice in the varied and ever-changing panorama of organic life, they are as much the result of a fixed and immutable law, as the revolving of a planet, the appearance of an eclipse, or the reverberations of a thunder-peal. True, these curiosities may only now and then turn up—to use a homely phrase—just as a comet may appear but once in a dozen centuries; but they are still no less the result of law. To the superficial thinker, and the man who never thinks at all, this may appear strange; and ever and anon the question will be propounded, How can it happen that a phenomenon appearing but once in a hundred years can be the result of a law which is continually in operation? To explain this, then, will be my business in this discourse.

I shall bring before you a child—or rather two children blended most mysteriously together—presenting an appearance which has rarely been witnessed. The one child is perfect in all its parts—well developed, admirable in its proportions,—of the male sex, and in perfect health. Attached to it, however, at the chest, is another child, also male, united most curiously and most mysteriously with its fellow, the lower part of its body perfect in every respect, the arms in a rudimentary condition, and the head entirely absent, one head and neck serving for both. There are, as you will observe, two bodies placed exactly opposite to one another, connected at the sterna, and the viscera of the trunk apparently perfectly distinct. This extraordinary monstrosity was born in this country on the 4th of June 1857. The parents are perfectly healthy, nothing unusual being observed in either. This is their ninth child, all the rest being quite normal. I must beg to be excused mentioning names, the parents having an objection to their's being made public.

The term used by scientific men to describe twins thus united is *synadelphia*, and a classification of them has been attempted by dividing them into three distinct genera.

- I. *Omeadelphia*.—In this case the two individuals are composed of parts perfectly similar to each other.
- II. *Heteradelphia*.—A union of two dissimilar individuals.
- III. *Enadelphia*.—One infant enclosed within another.

Several cases are on record, in medical and scientific journals, illustrating each of these three peculiarities, though very rarely indeed has life been preserved. The case before us is, therefore, all the more remarkable, as the child is in perfect health. The variety to be met with in the first of these divisions is very great. One of the best illustrations which we have seen in modern times is that of the well-known Siamese Twins exhibited in London in 1829. Here were two individuals,—at that time aged 18 years,—both nearly of the same stature,—the intelligence of each different,—having perfectly separate identities,—and yet united by a cartilaginous band externally, and by some more delicate material internally, side by side,—sleeping and waking together,—and performing most of the functions of life at the same time. Other cases have occurred of a similar kind. Buffon and Adelon record examples. Two Hungarian sisters, named Judith and Ellen, united in a similar manner, reached the adult age; and two females, Ritta-Christiana, were exhibited in Paris in 1829. Haller also relates cases. What is very singular in all these cases is, that the sexual organs, though well developed, are single. Union of twins, the point of junction being in other parts of the body, have been frequently observed: for example, they may be united by the back of the head, by the forehead, by the face, breast, abdomen, back, in fact, at almost every part of the external surface of the body.

The second of the divisions, viz. that which I described under the name *Heteradelphia*, is a most interesting one, and it is to that which the child under consideration belongs. The name we owe to Geoffrey St. Hillaire, and it has reference to that peculiar kind of monstrosity in which one infant is fully developed and perfect, and another, or part of another, is found adhering to it, somewhat after the manner of a parasite. Individuals of this character very rarely indeed are born viable, or, if so, generally die very shortly after birth. The reason of this is, probably, that the partially-developed child is so formed that it cannot survive, and its death is speedily followed by the demise of its more perfect companion. In the

case before us, however, there is no reason why the adult state should not be reached. It differs from most others of the kind, in the fact, that the appended infant is perfectly developed, with the exception of the upper extremities, and is much larger than usual. In most cases, that which is termed the parasite is exceedingly small and ill-proportioned, being, in fact, nothing more than a rudimentary appendage to the perfect child. Much more frequently the parasite, even when it possesses all the parts of the perfect child as far as their number is concerned, will be malformed in different parts of its body, having hare-lip, or some other consequence of arrest of development. Very often, too, both bodies are in a rudimentary condition. The most remarkable case on record of a perfect Heteradelph is that of a Chinese, named A-kin, of whom you will observe a model in my collection. This is always referred to as the most wonderful instance of this peculiarity that has occurred, and a long description of it will be found in every work on the subject. But even it is far eclipsed by the case before us, as there the parasite was exceedingly small: in fact, when A-kin was a full-grown man, the appended body was simply that of an infant. The nutrition of the second body appears to depend entirely on the first, and through which it receives its nourishment, and, discharges its excretions.

Monstrosities belonging to the third division are also exceedingly curious (*Enadelphs*). In these we have that very singular phenomenon, which for so many centuries puzzled and perplexed men of science, termed *Fœtus in Fœtu*, that is, one fœtus contained within another. Although the case before us cannot be considered as belonging to this class, yet it is most intimately connected with it, as I shall hereafter have occasion to shew. Indeed, an explanation of the one is necessary to enable us to arrive at any very satisfactory conclusion as to the cause of the other.

Where one fœtus is found included in another, it may exist in various parts of its body; for example, in the stomach (a preparation of a case of this kind is still preserved in the Musée Dupuytren, Paris, and a model of it is in my own Collection, labelled 174a)—in the intestines—in the mediastinum—in the scrotum—in the orbit—and even in the womb. In the latter case, a child would be pregnant at the moment of its birth. How this may occur I shall hereafter explain.

Congenital deformities, that is, deformities produced before birth, have been explained in various ways. The most common idea—that entertained by the masses—is, that they

are due to the mental influence of the female parent. Any powerful impression made upon the mind of the mother during gestation is supposed to be capable of producing an entire change in the physical organization of the fœtus; hence the various tales of markings and malformations in children, ascribed to fright and alarm in the mother. This doctrine, with the uneducated, is carried to a most absurd and ludicrous extent. A woman longing for grapes or strawberries when they are difficult to be obtained runs the risk, if her whims are not attended to, of effecting an injury to her child, which it can never recover from. A female in a state of gestation goes to a menagerie—is frightened at the ferocious appearance of a lion or tiger, and brings forth a child marked in the back or on some other part of the body with a most accurate picture of the animal that caused her so much alarm. Should a rat, or a mouse, or a toad cross her path, the result would be equally pernicious. If she should happen to meet, in her ramblings through the streets of London, with some of those disgusting deformities who endeavour to turn their physical defects to account in an appeal for charity, the chances are a thousand to one that she gives birth to a child with precisely the same defects. A woman, seven months advanced in pregnancy, walks up Oxford Street, and meets a beggar boy destitute of upper extremities. His appearance becomes powerfully impressed upon her mind. She fears her child will be born without arms. The fœtus, determines that her fears shall be realized, cries, "Be gone!" and straight-way its arms are got rid of, and, two months later, it comes into our world armless. A case of this latter kind was even recorded in a medical journal of high repute a short time ago, even medical men being sometimes imposed on by these absurdities. To shew you how impossible it is for any thing of the kind to occur, I have but to remark, that, at seven months, the arms of the fœtus are tolerably well developed, as you will perceive by referring to some of the Preparations in Embryology in my Museum: indeed, they are longer at seven months than they are at the full period of developement, the organism at that time approximating more nearly to the lower animals. Well, then, imagine this child, with its long, well-developed upper extremities, becoming affected by a fright of its mother, and as a consequence, ridding itself of its arms, and leaving stumps, presenting an appearance like that which follows an operation. What becomes of the arms? The child is born without them, but what has been done with them? You never hear of them more. They are per-

fectly annihilated, gone into nonentity, having disappeared like dew before the morning sun. That this cannot occur I need not waste time in attempting to prove, since it will be obvious to the most superficial thinker. The probability is, that the mental impressions of the mother can produce little or no effect upon the fœtus in the uterus at all, at least in the way of changing its physical organization. That a fright sustained by a female in a state of gestation may bring on abortion, no one will doubt; and that it may even cause an arrest of development is possible; but that a beefsteak slapped against a woman's face, or a mouse springing from a shelf and alighting upon her shoulder, or a bunch of grapes pressed upon her neck, can exercise such an influence over the fœtus yet unborn, as to mark its face, shoulders, or neck, with a picture of said beefsteak, mouse, or grapes, is a doctrine which belongs to the days of ignorance and darkness—the days of fairies, ghosts, and vampires—of necromancy and witchcraft—and can have no place in an age where education has made its influence felt. Peculiarities, then, such as the case in question presents, cannot have been the result of the mental impressions of the mother. Their cause is a much more tangible one, lying far deeper, and commencing its operation at a much earlier period. To explain this fully, it will be necessary to say a few words on the subject of embryology, or reproduction, or, as it is more commonly called, conception.

The theories that have been entertained on the subject of generation itself are so numerous, that the mere mention of them would fill a large catalogue. Drelincourt, in the last century, related as many as two hundred and sixty-two of what he terms "groundless hypotheses," which had been previously entertained on the subject of generation; and "nothing is more certain," says Blumembach, "than that Drelincourt's own theory formed the two hundred and sixty-third." Much of the darkness, however, which previously enveloped this subject has been dispelled by modern scientific discoveries. The principal point upon which there is any difference of opinion now, is, as to the share which the two sexes have respectively in the process; by some it being imagined that the *sperm cell* is the all-controlling power, and by others, that it is the *germ cell* that plays the most important part.

Omni vivim ex ovo is a very old adage in zoology, and modern research has certainly done much to confirm it. At the onset, therefore, I may inform you, that the human being springs from an egg, as certainly as the chick which may have been hatched before your eyes, either under the hen or by artificial

warmth ; the difference being, that in the one the incubation takes place in the body, and, in the other, out of it. But then this egg cannot, in the one case any more than in the other, become developed into an embryo, unless an influence has been exercised over it by a fecundating fluid from the male. Hence the terms "sperm cell" and "germ cell," the former being used to designate the part supplied by the male, and the latter that by the female.

The part which the male plays in the reproductive process consists in forming and liberating small fertilizing bodies termed spermatozoa. Thus, in the higher orders of animals, they are developed in the glands called the testes, are afterwards passed to small ducts, to be stored up, and ultimately ejected out of the body. These spermatozoa are regarded as living animals. They are exceedingly minute, measuring, in the seminal fluid of the human being, not more than $\frac{1}{800}$ or $\frac{1}{600}$ of an inch in length, and not more than $\frac{1}{10,000}$ of an inch in the diameter of the head, by far the largest part of the body. The spermatozoa consist of a head or body of a flattened elliptical form, from which is given off a kind of thread-like tail, by which the movements of the organism are effected. They differ very materially in shape and size, according as they are obtained from different animals, but in all cases their organization is the same: they are of the lowest form which animal life is capable of assuming. This is an important point to be borne in mind, as I shall hereafter have to refer to it in connection with the cause of peculiarities such as the extraordinary one before us in question.

The "germ cell" supplied by the female plays also a most important part in the process of reproduction, but, in addition to this, *she* furnishes the materials for the developement of the germ up to that "period at which it can support its own life." In certain parts of the female structure, which I have not time here to explain, there are developed small bodies termed ova, precisely analogous to the eggs of the fowl, and formed, in every respect, in a similar manner." The ovum of the human female is very small, measuring, according to Bischoff, from $\frac{1}{240}$ to $\frac{1}{120}$ of an inch. In the substance of the yelk is contained the small speck called the germinal vesicle. This vesicle is delicately transparent, contains a pellucid fluid, and has a minute opaque spot on one part of its wall, which has taken the name of the germinal spot. This spot it is that plays so important a part in the process of generation.

The fertilizing influence of the male finds its way to the

ovum of the female, situated at this period in what is termed the ovary; or it may meet the ovum in the Fallopian tube as it is passing towards the womb, and consequently impregnation take place there. The germ now becomes developed at the expense of the material by which it is surrounded. What is the precise nature of the influence exercised by the spermatozoa upon the ovulum it is difficult to say; but certain it is, that the bringing the two into contact is the one thing needful in the act of fecundation. The probability is greatly in favour of the theory, that the spermatozoon incorporates itself with the germ cell, and thus becomes developed into the embryo. This theory, long entertained by the late lamented Dr. Martin Barry, was confirmed by him a short time before his death. The single cell gives place to a double one. The latter is again multiplied. Definite parts are soon seen. The embryo makes its appearance. First, it will be seen as a mere elongated mass, the head indicated by a constriction. Then the feet and hands will be observed as small prominences: these elongate so as to give rise to the legs and forearm, and ultimately the thigh and shoulder, the fingers and toes remaining united much longer—up to the third month. The abdomen remains open till the fourth month. This is an important point, and I shall presently refer to it again. The eyes first appear as two black spots. At length the fœtus assumes the human form, still, however, very small. Gradually it grows larger, its parts become more fully and more perfectly developed, and, at the end of forty weeks, it is thrown off, and the womb returns nearly to its original size. Parturition, or labour, terminates the period of gestation, and the being whose existence had been heretofore bound up with its mother now enjoys existence as a separate individual.*

Now this developement of the fœtus out of the single-celled animalculæ must take place in one of two ways. Either the spermatozoon is a *homunculus*, as Spallanzani imagined, possessing all the parts of the fully-developed man, those parts remaining in a rudimentary condition till some peculiar influence is brought to bear upon them, and therefore, constituting the prototype of the human being, representing his peculiarities, his defects, and his perfections—physical of course—or else it is simply a single cell, or a filament, and its union with the germ cell gives rise to the embryo upon some prin-

* For a fuller account of the whole process of the developement of the embryo, *Vide* Dr. Kahn's Atlas of the Formation of the Human Body. Published by Churchill, New Burlington Street, London.

ciple not easily explained, which, having been formed, speedily passes through a great variety of changing shapes—appearing at one time like a fish, at another simulating a reptile, then passing to the lowest form of mammal, becoming more perfect in each, and approaching more nearly to the human each time it puts on a different form. For my own part, I am inclined to the former of these views, though probably both may be true to a certain extent. My experience in Embriology has been very great. I have probably examined more spermatozoa with the microscope than any other man living. I say this, not boastingly, but simply relate it as a matter of fact. I have made it the business of my life to investigate this most interesting and important branch of study, and all my observations incline me to the opinion that the spermatozoon is the prototype of the man. I have seen numerous instances of these animalculæ being deformed in various ways. Indeed, I remember, when I was in Glasgow with my Museum some years ago, Professor Allen Thompson,—a gentleman whose reputation in these matters is world wide—drew my attention to a specimen of a malformed spermatozoon in his valuable Collection of Embriology. I think it had two heads. Now, upon this principle, the peculiar developements, such as the one before us, are easily explained. When the seminal fluid finds its way into the female organs some thousands of these small animalculæ are contained in it. Amongst them there is one, say, with some peculiar malformation: perhaps it has two heads, or it may have two bodies and one head: this individual happens to reach the ovum, and unfortunately—or fortunately, which you please, for it will depend upon the light you view it in—the germ cell becomes impregnated by this monstrosity in miniature. The consequence is, that his peculiarity becomes stamped permanently there, and will remain through all the changes the organism assumes, embryo, child, infant, boy, man, all the same. This, I confess, appears to me the most satisfactory method of explaining these curious phenomena; and not only satisfactory as a theory but supported by hundreds of facts. At least, as I have before stated, my experience is in favour of it.

According to the other theory, the whole must be explained as an arrest of developement, just as when a child is born destitute of arms, and has rudimentary appendages from the shoulders, we see immediately that these extremities are in an embryonic condition; that is, they are in the state in which they were some months before birth, when the whole of the organism was in an equally undeveloped condition. The conclusion, there-

fore, appears obvious, that whilst every other portion of the body had been gradually developed till it reached the perfect condition, the developement of the upper extremities had been arrested. This is the mode of accounting for all cases where there is a deficiency of organs. But then there are other cases in which there is an excess of developement, such as the present case. Here, certainly, there can be no arrest. In this instance, then, and others of a similar kind, it is supposed the developement must have gone on beyond its ordinary limits. I should hesitate to say there is no truth in this theory, but certainly it does not seem of itself sufficient to account for the numerous peculiarities in formation that we are constantly meeting with: still, probably both causes, and many others, may be in operation, producing the great variety of monstrosities which have made their appearance.

At the commencement of this Lecture I noticed three varieties of what are termed duplex monsters. I limited my observations to these peculiarities, as my time was too brief to enter upon a description of the various other kinds of malformation, and, besides, these alone had any bearing upon the case under consideration. I will briefly return to these, and shew how I think they have been caused.

The first division was that of duplex beings whose parts were similar, called *Omeadelphia*, such as the Siamese twins. Now here there must have been two perfectly distinct spermatozoa partially united together. These miniature twins happened to impregnate the ovum, and the result was a double fœtus, or rather two linked together by an indissoluble bond, and their union being therefore as permanent as their existence, notwithstanding the numerous phases they assumed and the changes through which they passed. In all these multifiform transformations, in one point they are *semper idem*, and that is, in the bond which connects them together.

The second division is that to which the present case belongs; viz. *Heteradelphia*. The explanation of this upon my theory is, that the original spermatozoon was malformed in a similar way, having one head attached to two bodies, and that this peculiarity in the minute animalcula became, like the rest, indelibly stamped upon the organism to be developed from it.

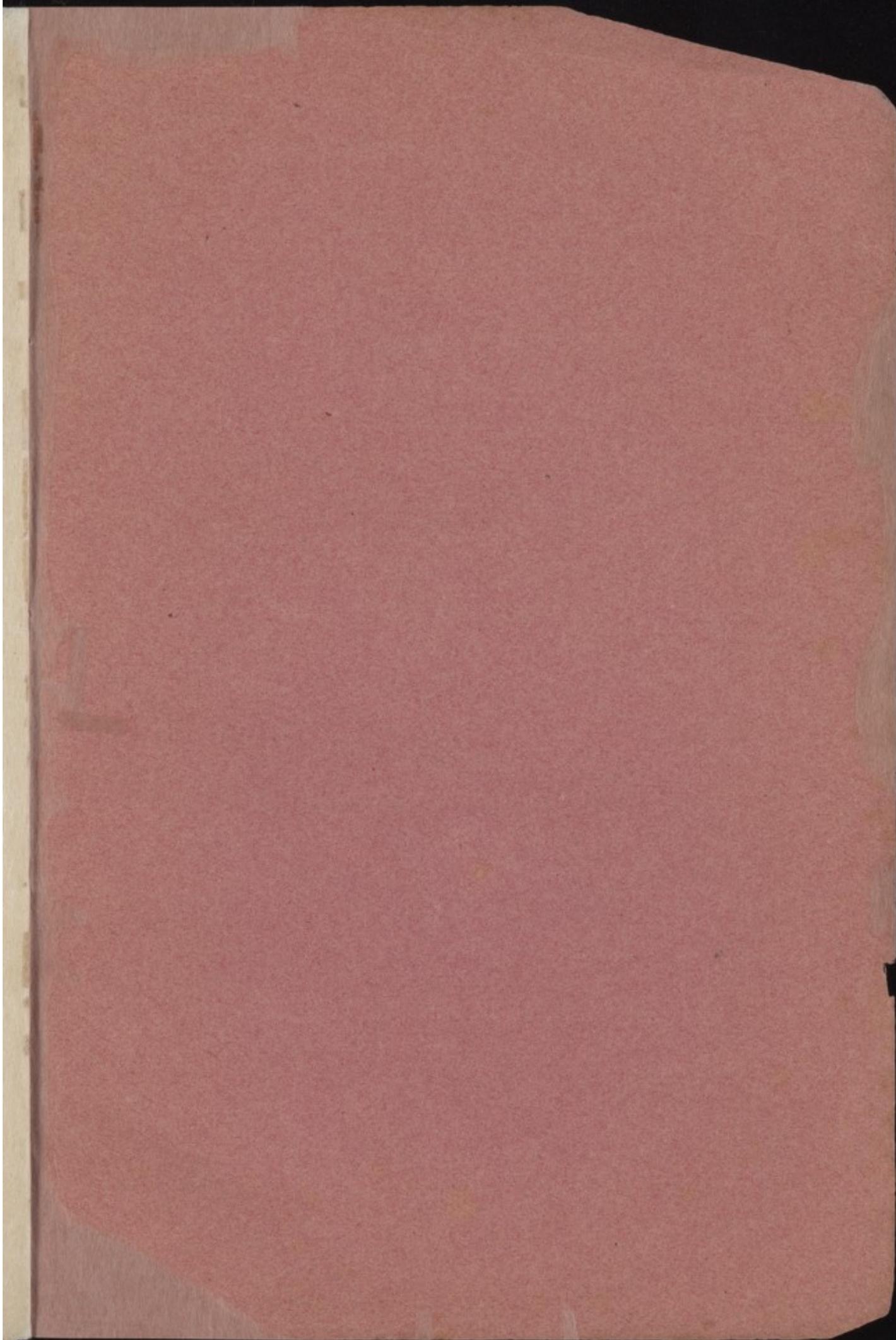
The third division comprises what is termed Fœtus in Fœtu, and is called *Enadelphia*. These are most interesting cases, and are caused by one germ becoming imbedded in another, or what is called the intus-susception of germs. The most common place to find a fœtus in fœtu is in the abdomen, the

reason of which will appear obvious when you remember what I stated, that the abdomen does not close till the fourth month. Suppose an impregnated ovum, in other words, a united sperm cell and germ cell, to find its way into the womb at any time during the earlier stages of gestation, and therefore before the abdomen was closed, it enters the open abdominal cavity, becomes imbedded on its contents, and undergoes developement there. The child is born with a foetus in its inside. The foetus dies, and perhaps remains for some years afterwards. Hence, such cases as that to which I before referred, the boy, a model of whose stomach is in my Museum. The germ may occasionally find its way into other parts of the body of the foetus in the same way, but with greater difficulty. It is stated, that sometimes the germ has found its way into the uterus of a female foetus, in which case, a child would be born in a state of pregnancy. This, however, although perhaps not quite impossible, is extremely improbable, and the cases related of an apocryphal character. The difficulty in the way of its reaching the womb, added to the fact that the uterus is so exceedingly small as to render it all but impossible, must tell very strongly against any case of the kind, unless supported by most unimpeachable testimony and most conclusive evidence.

In conclusion, I would just remark, that all this teaches us what a great and mighty part these small animalculae, the spermatozoa, play in this important process. But they are also important in other respects. Their discovery was the greatest in natural science ever made. They solved a problem in philosophy which for ages had been grappled with in vain. But they did more. They gave us a means of diagnosing some of the most important disorders to which the human body is liable. This, however, is not the time and place to enter upon that subject, momentous as it is. I have treated of it at length in my various works, and to those works, or other Lectures, I must refer you for a fuller description of it. To these interesting little creatures are applicable the words of your great English philosopher, Hobbes; and, quoting them, I will conclude this Lecture.

“The majesty of God appears no less in small things than in great; and as it exceedeth human sense in the immensity of the universe, so also doth it in the smallness of the parts thereof.”





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OR,

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