

but as we have no personal knowledge of its effects, we will not venture to decide upon its merits, though we are not inclined to believe it will ever be substituted for ipecacuanha, an article which, so far as we have been enabled to judge of it from personal observation, is not obnoxious to the aversion of one of the objections that have been urged against tartar emetic. From its repetition as often as was deemed necessary in the severest cases that occurred under our observation, we never had reason to consider it the cause of gastro-enteric irritation, of general exhaustion, or of diarrhœa.

For the first time, in the year 1832, when scarlatina prevailed to a very great extent in this county as an epidemic, I had recourse to ipecacuanha in the way I have already mentioned. Several times previously, however, I had seen this disease, and had always treated it in accordance with the ordinary modes; but my success was anything but satisfactory. Since my main reliance has been on ipecacuanha, the results of my treatment have been so very different, that I now regard the disease as in a great degree divested of its former terrors. My success, if it has not surpassed, has at least equalled that of any other physician of whom I have read or with whom I am acquainted. In the summer and autumn of 1832, when scarlatina was very prevalent in this county, I had under my care sixty-seven cases, all of which, with the exception of one, recovered. The fatal case occurred in a lady about 35 years of age; she had suffered under the disease six days when I saw her for the first time, and she died early on the eighth day. When first seen her situation was considered hopeless. Since the year to which reference has been made, I have seen about the same number of cases, and have been uniformly successful, so that of about one hundred and twenty cases, but one proved fatal. My confidence in ipecacuanha was made known to a number of physicians, several of whom made a faithful trial of it in the way recommended, and although their success was not so complete as that realized by myself, it was sufficiently satisfactory to induce them to rely upon it in future.

DISSERTATION ON GENERATION.

BY B. F. HUGARD, A.B.

[Sustained at his public examination for the degree of Doctor in Medicine, before the Faculty of Medicine of Harvard University, February 8, 1839.]

THE variety of beings that people the world is so great, that the human mind can hardly conceive or imagine their number; and the philosopher who observes the march of nature, cannot help perceiving a creating power, the sole principle of life, constantly engaged in the production of new beings, without appearing to provide for their future existence. Though this latter opinion may be opposed to that of many, were it necessary to give proofs in support of it, perhaps it might not be difficult to find them in the fact that races of animals have existed, became extinct, and were replaced by others that still exist, which probably will disappear in their turn, and make room for new ones.

The Creator, however, in giving life to millions of different species of beings, has not been willing that they should immediately pass from his creating hand into nothingness ; consequently he has given to each one, not only the means of existence, but also those of reproduction ; even more, he has established in each individual, the desire, or rather the want, of contributing to this latter important preserving function.

The means and organs employed in this function are different among the different species of animals, though they all present a very great analogy. In this dissertation I shall only consider those that more intimately belong to mankind.

Like most animals, the human species, in order to reproduce itself, requires the participation of two beings, a male and a female. The act of reproduction may be divided into three parts, or three different periods, viz., fecundation, gestation, and labor or delivery. The two sexes simultaneously co-operate in the first of these functions, the male as fecundating agent, and the female as fecundated ; the two others belong exclusively to the latter. Thus my subject is naturally divided into three parts, which I shall successively consider.

Of Fecundation.—Fecundation is the successful result of the union of a male and a female, by which the dormant rudiments or principles of a new being, secreted by the female, are put into action by the contact of the sperm or fecundating principle secreted by the male, that they may be developed and acquire an independent life.

With regard to the sexual parts of the male, the texture of the corpus cavernosum and corpus spongiosum, which constitute the penis, are composed of an infinite number of branches of arteries, which anastomose in every direction, and their interstices are filled by an infinite number of minute veins, which anastomose also in every direction, thus forming a kind of cellular and porous body. It is not difficult to conceive that such an organ, made up with elastic tubes, must be very flaccid when those tubes are empty, and hard in proportion as they are more or less filled. Besides, this fact is easily ascertained by the injection of the veins or arteries, or of both, which always produce the erection of the dead penis. How that injection takes place in the living penis, and when it is established, how it maintains itself or ceases, remains to be seen.

It is probable, if not ascertained, that the arteries of the corpus cavernosum and corpus spongiosum communicate quite freely by their extremities with the origin of the veins, into which they pour the blood which they contain ; and I am induced to suppose that at the origin of the penis, the arteries, however small they may be, are provided with sphincters, which are submitted to the influence of the nervous system, and that when an exciting cause is present, those sphincters expand, that the arterial blood may pass, and in this manner exert a pressure upon the neighboring veins, the openings of which are thus closed at the very root of that organ, so that the blood which is forced into the arteries, and consequently into the veins, cannot escape as long as the dilatation of the sphincters exists ; but as soon as the exciting cause ceases, the sphincters of the arteries close themselves, the pressure on those vessels, and consequently on the veins, is removed, and the blood imme-

diately returns to the heart. Thus, when the orifices of the arteries are open and those of the veins closed, erection is produced, and continues as long as the parts remain under the same influence and in the same situation—as long as the arterial pressure is not prevented, and the blood is retained in the veins; but as soon as fatigue, caused by the arterial pressure, commences, the sphincters naturally close themselves, the blood escapes from the veins, and the flaccidity of the penis takes place. As to the action of the sphincters of the arteries, it is doubtless submitted, like that of all the muscles, to the influence of the nervous system.

The nature of the fecundating principle, called sperm, or seminal fluid, secreted by the testicles of man, does not seem to be perfectly established. However, according to the observations of modern physiologists, it seems to be composed of a mucous part and organic or organized molecules. Some physiologists think that with these two parts is a third substance, which they call *aura seminalis*, the existence of which is denied by others, but which appears to me to be highly probable.

The mystery in which the act of fecundation is enveloped, has given rise to several theories, which are more or less absurd as they present more or less objections, and as they explain satisfactorily or otherwise the phenomena which excite the interest, the attention, or at least the curiosity, of the observer of nature. Of all these theories, the first, that of the seminalists, who believed the embryo was formed by the mixture of the seminal fluid of the male with a somewhat similar fluid emitted by the female, was replaced by that of the ovists, because the latter discovered, in the female testicles or ovaries, vesicles to which they gave the name of ova, and the organs that contained them were called ovaries. But the difficulty of explaining how these ova could pass into the uterus, caused the system of the seminalists to prevail until Fallopius, of Modena, who lived in the sixteenth century, discovered the tubes since called, from his name, the Fallopian tubes. But in the seventeenth century, Lewenhœck and Harsœker, Dutch physicians, having discovered that living animals were to be found in the seminal fluid, established the system of animalists, which was generally admitted until Lieuherculn, of Berlin, found that what had been taken for animals was, in fact, but organic molecules, contained in the fluid emitted by woman in as large numbers as in that produced by man. The system of the ovists was then re-established, and has been maintained to this day, not without causing, however, many different opinions as to the manner in which the ova are fecundated. All these opinions, sustained and opposed by arguments that are more or less ingenious, without ever being convincing, leave to those who seek information in the experience of others, but the sad alternative of making no choice, or of adopting the system that presents the least objections or difficulties.

However, most physiologists think that fecundation cannot be effected without the contact of the seminal fluid of the male with the ovum in the ovary. Others think that contact is not necessary, and that fecundation is the effect of the sympathy which exists between the ovaries,

the uterus and vagina ; they give, as proofs of this opinion, instances of fecundation where the passage to the uterus was interrupted either by a hymen extremely difficult to tear, or by some adhesion in the vagina. But may we not inquire whether these adhesions in the vagina could not be the result of a local inflammation that had taken place after fecundation ; and whether the hymen, after having been lacerated, could not have been re-united by adhesion by first intention ; and even whether the thickness and hardness of that organ, which is generally very thin and tender, are not proofs that its texture was altered, first by a morbid, and then by a repairing action. Such an adhesion is certainly probable—nay, more, seems to be quite natural, especially when it is considered that the lacerated parts are soon after the laceration naturally put in contact, and even pressed against each other. As for myself I think that it is only by the communication of the sperm with the ovaries that fecundation can take place. What makes me think so is the form and disposition of the appendages of the uterus, and the successful means that are employed by some women who like to enjoy the venereal pleasures without exposing themselves to the disagreeable consequences of conception. But I shall have occasion to re-consider this part of my subject.

Not satisfied with the theories generally received on many points relating to the subject of this dissertation, I have been led to different views, which I shall try to explain. The rudiments or principles of whatever woman is destined to produce, consist of the small vesicles which were called ova, but which hereafter I shall designate by the name of vesicles, and the organs that secrete them I shall call vesicular glands. I prefer these names to those of ova and ovaries, on account of the want of analogy between the objects these are intended to represent and the ova and ovaries of *non-mammalia* animals, to which they were originally given, and to which they should exclusively belong ; for, without entering into other details to show their misapplication in the *mammalia* species, it will be quite sufficient to observe that the ovum, such as it exists in the ovaries of birds and reptiles, when it is fit for fecundation, is generally, as regards its form, of a size in proportion to that of the particular animal to which it belongs, and, according to this principle, that of a woman should be nearly as large as that of an ostrich. I therefore believe that the principle, *omne vivum ex ovo*, is too general, and should be restricted to these, *omne vivum non mammosum ex ovo*, and *omne vivum mammosum ex vesicula*.

There is a point about which most physiologists seem to be quite indifferent, and which appears to me to be of greater importance than many others for which they have spent much time in researches and publications. That point is, whether sexes are mixed in each ovary or vesicular gland, or whether each ovary or vesicular gland contains a particular sex. I know that the received opinion is, that sexes are mixed in each vesicular gland, and that the other opinion is generally considered as the ridiculous offspring of fancy, without being supported by any moral, philosophical, or physical reason. However, if vesicles or ova are secreted by the vesicular glands, of which there is no doubt in my mind, it is evident that the one must secrete the male and

the other the female; for no one will deny that man and woman are different beings; and if they are different beings, however small the difference that characterizes them may be, they cannot proceed from the same principle. To sustain the contrary would be as absurd as to sustain that different effects could be produced by the same cause. Since the principle that produces the male is and must be different from that which produces the female, each requires a particular organ for its secretion, because it would be absurd to suppose that they could be secreted by the same one; as absurd as to suppose that in a state of health the liver can secrete other things than bile, the kidneys other things than urine, the lachrymal glands other things than tears, &c. Since the principles from which the two sexes are formed require different organs for their secretion, it is natural to conclude that one of the vesicular glands is for the secretion of the male, and the other for the female. To destroy this argument, I think that it must be proved either that man and woman are anatomically or physically the same being, or that different beings or effects can be produced by the same principle or cause, or that the same organ, in a state of health, can produce different secretions, which I dare say no rational mind will attempt to do.

But in support of this opinion, many facts could be produced by post-mortem examinations of mothers who had children of either sex or both; also the circumstance that there are many mothers that have given birth to several male children without a single female, and others to many females without a single male. Such instances certainly prove that it was the intention of nature that the sexes should be separated in the vesicular glands; for did they not prove that, they would prove at least that the mixture must have been practised by a very unskilful hand; but *nihil absurdius*.

[To be continued.]

FIBROUS STRUCTURE OF THE RETINA.

To the Editor of the Boston Medical and Surgical Journal.

DEAR SIR,—Having observed in your Journal that a copy of my treatise on the eye could not be found in Boston, I respectfully forward one to your address. It contains several errors, which I shall endeavor to correct in another edition, which may perhaps soon appear.

The fibres in the retina, which have been demonstrated to hundreds, are not imaginary, but may be easily exhibited by immersing the eye of a calf, for a few days, in alcohol, and separating them with a camel's-hair pencil, after the retina is exposed by cutting off the anterior portion of the eye. The demonstration may be facilitated by pouring into the cup thus formed a watery solution of corrosive sublimate. When an alcoholic solution of corrosive sublimate and muriate of ammonia is used, the fibres become matted together, and the entire coat may be pulled off, exposing a layer of globules, which are kept in position by the coat of Jacob. By the same preparation we can also demonstrate that Jacob's coat is double, like the pleura.