could be applied. It was cured by repeated operation with the nævus needle.

I need not adduce more facts. I regard this mode of treatment as the *only* recommendable one. *All others* are, in my opinion, *barbarous*. By the means which I have described we have only to operate *frequently enough*, and to wait *long enough*, and we shall cure every kind of nævus, wherever situated, without hæmorrhagy, without pain, without present danger, and without future disfiguration.

All this is accomplished by exciting adhesive inflammation,—by replacing the erectile tissue of the nævus by the solid tissue of organised lymph.

DISCOVERIES

IN

OVOLOGY AND EMBRYOLOGY,

MADE BY

MR. JOHN MILLER,

MECHANIC, LONDON.

To the Editor of THE LANCET.

SIR:—I throw myself for publication on the liberality of your Journal, which has been so often boasted of as a vehicle for the communication of science. In the year 1827 I attended Dr. Birkbeck's Lectures on Anatomy, at the Mechanics' Institution. I was then following the trade of a plasterer and modeller. Those lectures kindled in my bosom the love of anatomy. I determined to leave my trade, and follow it. I offered my services as a porter to the dissecting-rooms, but could not get employment. Mr. Green of *St. Thomas's Hospital* gave me employment in making casts for his museum, for about twelve months. I then commenced to form a collection of my own. The subject I chose to investigate was embryology, and the connection of the placenta with the uterus. I have examined the uteri of sixteen women who have died undelivered. In 1835 there was no preparation in London to prove the connection of the uterus with the placenta, or the placenta with the uterus, except the preparation marked No. 3535 in the Hunterian Museum. The account of it was drawn up by Mr. Mayo, in the presence of Mr. Stanley and Mr. Owen, and all three concurred in thinking that the preparation established all the points of the structure which are described in it. I would beg the attention of midwifery teachers to that preparation.

The paper on the structure of the uterus and placenta by Dr. Robert Lee, in the "*Phil. Trans.*," drew my attention to another method of injecting, by making two injections to run at one time, the one in the hypogastric arteries and veins, the other in

the arteries of the funis, with different coloured injections, so that it might be seen where each terminated. I have succeeded in this. An artery as large as a crow's quill is seen to pass, filled with injection, from the uterus into the placenta. The large decidual vein round the margin of the placenta was filled with injection. In this vein there are three openings, as large as goose-quills, into the veins of the uterus. These three veins return the whole of the blood from the placenta into the uterus. In the greater number of the uteri that I have examined, I have never seen more than four venous openings, and never less than three.

There is also another set of vessels, called the decidual arteries, and the decidual veins. They go to the uterine layer of the decidua and stop there; so do the veins. They form the short curling vessels of Hunter. Separate portions of this uterus were dissected by Mr. Green, Mr. North, and the late Dr. Hugh Ley, who saw the same appearances. I have the preparation now.

I have also been successful in injecting other uteri. In Magendie's "*Physiology*," p. 509, 1829, he says:—"In animals, among the small vessels which go from the uterus to the placenta, there is not one which has the appearance of a vein." In my collection I have what shows the reverse; the veins and arteries are injected. In London there are twenty teachers of midwifery, and there is not among their collections a preparation to show the connection of the placenta with the uterus. This is teaching physiology! What do the readers of this Journal think of it? Three out of that number have given me every opportunity of examining that subject. I should be ungrateful if I did not give each of them a specimen as soon as possible. Would it be believed that some of the teachers in the hospitals in London, with their favourites, would have examined gravid uteri and yet not let me know of it, although they knew that I was investigating that subject? They have thought, by having money, and being teachers, that they could not be denied a sight of *my* collection when they applied to see it. I asked them "Why I was not at the hospital to see the gravid uterus examined, as well as their favourites?" I told them that I knew the reason. My coat was not fine enough. But the tailor made the coat only, and God made the man. If the chairs of teachers were got by talent only, a poor mechanic, like me, in investigating nature, would know where to go to pursue his studies. The chairs, however, are mostly got by intrigue. Allow me to prove this. The painter is known by his paintings, and the sculptor by his works. Why not the physiologist by his? Have the physiologists nothing to discover? What have the teachers in London done for the last ten years? Have they no preparations to pro-

duce which we never saw before? All is done for money, and not science. There ever will be in this, as in all other callings, some few who, in silence and solitude, and among the most disheartening difficulties, will travel the rugged up-hill path of science, urged by no other stimulus than the love of truth. Allow me to prove this also. Sir A. Cooper can receive no more honours than he already has. Behold him in his old age working every day. His preparations prove what he has done for these last ten years. Go to Mr. Kiernan, and see his splendid collection. It shows what he has done during these last ten years. View Mr. Langstaff's collection; that shows what he has done. His kindness to me I can never forget. Go to Mr. Salmon's collection, that will show what he has done. There is also Mr. King's (of *Guy's Hospital*) collection of preparations of the heart. This I have not seen. I grant that museums have been made during that period, but what discoveries have they got in them? Allow a poor mechanic to tell what he has done.

I have dissected 127 human abortions, from two grains in weight to nine months, showing the vesicula umbilicalis, showing the omphalo-mesenteric arteries and veins injected; also the germinal disc in the human ovum,—I believe the only one known, the preparation at nine months in the series of the omphalo-mesenteric vessels. Their existence at nine months is denied by Velpeau. I have a preparation showing the first formation of the amnion and allantois in the human subject; also in animals, showing the amnion and allantois to be one membrane; so that the fluid in the one is the same as in the other. I have dissected, in a series of animals, the vesicula umbilicalis, with its duct; also the omphalo-mesenteric artery and vein. I have dissected four kangaroos, from two to four months gone, showing that there is no urachus in that animal at that time. I have dissected and prepared the whole series of the chick, at every second day of incubation. These dissections prove the following facts:—

1. The general causes of early abortion.
2. By looking at a placenta, if normal, it will tell where the foetus was first formed.
3. How best to remove the placenta from the uterus, in order to prevent hæmorrhage.
4. The existence of a series of cells in the placenta, like honeycombs.
5. The manner in which the first circulation takes place from the vesicula umbilicalis, and the first blood vessels are formed in the embryo.
6. The second circulation. Do the vessels proceed from the foetus to the placenta, or from the placenta to the foetus?

7. The cause of malformations where no bladder exists.

I could enumerate a few more, but shall soon publish them in my work. Taking them as a series of preparations, I am told that they are unrivalled in Europe. In 1835 they were in part exhibited at *St. George's Hospital*, by Dr. Robert Lee, in his lectures; at *St. Bartholomew's*, by the late Dr. Hugh Ley, and at the *Westminster School of Medicine*, by Mr. North, and since by some other teachers.

I think of placing them in some public institution, so that all persons may have access to them,—perhaps the British Museum. I think this will convince any man that hundreds of mechanics are following occupations which Nature never intended them to pursue.

Dr. Robert Lee introduced me to M. Coste, from Paris, a short time ago. That gentleman obtained a gold medal from the Institute of France, for his researches on embryology. M. Serres is the reporter on the memoir to the Institute. I told M. Coste, in the presence of Dr. Robert Lee, that all he had written on the embryology of animals was incorrect. Dr. Lee had seen my preparations in the sheep and the rabbit, with the vesicula umbilicalis between the amnion and the chorion, twelve months ago, and might have confirmed me in my statement to M. Coste, but he chose to be silent. I told him to call in three Frenchmen, and that I would call in three Englishmen; I requested him then to put the book he has published, on the table, and I would put my preparations there, and then let those six report on the whole. Dr. Lee wished me, instead, to show my preparations to M. Coste, and to trust only to the honour of M. Coste for his admissions. This I refused to do.

At different times I have compared M. Coste's plates with the preparations, before Dr. Ferguson, of King's College, Dr. Ryan, Mr. Kiernan, Mr. Skey, and other gentlemen, and all are convinced that he never dissected out the vesicula umbilicalis, but has figured the allantois for the vesicle. Mr. Owen, the Hunterian Professor, has fallen into the same error, in his papers on the kangaroo, published in the "*Philosophical Transactions*," 1834, and London's "*Magazine of Natural History*," 1837; and he is also wrong in saying that a urachus existed in that animal. What could M. Coste, M. Serres, and Mr. Owen be doing with their eyes? This is the way that errors are propagated. Because they are "great men" it is taken for granted that whatever they say is true, without being called upon to make preparations in proof, and the student seldom thinks of disputing their authority, or that it is necessary to investigate Nature for himself.

The plan I have adopted is the following :—I examine the uterus of animals at eight days after copulation, at fifteen days, and at thirty days, or the calendar month. The cow goes nine calendar months, so does woman; and, as I have found only four normal out of 127 human ova, I shall see what by analogy I can make out from the cow. I am making a foetal preparation of each organ, when formed,—dating also the period when it was completed. There is an ovum of thirty days after copulation, in the mare, in the *Royal Veterinary Museum*. I asked Mr. Sewel to allow me to examine it, but he refused. I told him that I was not to be beaten by this, but that I would beg money to buy an ass, to destroy it thirty days after copulation. I invited him and Mr. Coleman to see my preparations, and what I was doing, but they have never come. Mr. Sewel asked me *where* I got my knowledge? I told him in an attic, for there was the best light for dissecting. I told him that the Universities and Colleges would do nothing for the advancement of science. What have they done at the *Royal Veterinary College* for the last ten years? I told Mr. Sewel that if he would teach physiology in that College, he must learn it from a mechanic. I beg that some one will intercede for me to examine that ovum, or procure for me a similar one, as I have got the ovum of a cow at thirty days. A comparison of the two would be useful. If I was a “great man” I should not be denied, but I am poor,—a pupil of a Mechanic’s Institute, and not of a College. One high in the church told me, to my face, that I had “drunk deep out of Dr. Birkbeck’s cup,”—that “the schoolmaster was abroad,”—that “mechanics were getting too much knowledge.” I pitied his ignorance.

I know that those who have written on this subject do not like to be criticised by a mechanic. I have been treated by some persons worse than a dog already, and for what? For telling the truth; but by the truth I will stand or fall, though some have asserted that I am out of my senses, and that I should be put into a madhouse. Such men I pity,—I persecute them not.

I will now give a description of the smallest human ovum in my series,—the first formation of the human ovum, with the germinal disc, or spot. The ovum weighed four grains, and is five lines in diameter.

Figure 1.—The Exterior of the Ovum.

- a. The chorion membrane.
- b. The floculent chorion.
- c. The germinal disc, three lines in diameter.
- d. The puckering of the disc, in the centre.

Figure 2.—The Interior of the Ovum.

- a. The chorion membrane.
- b. The vesicula umbilicalis, two lines in diameter.
- c. The germ, three lines in diameter.
- d. A vessel from the vesicula, in a direct line to the nearest part of the membrane, at the head of the germ.
- e. The duct from the vesicle into the germ.
- e. A vessel from the vesicula to the inferior part of the membrane, that forms the allantois of the germ.
- f. The membrane that forms the amnion.
- g. The first formation of the urachus.
- h. The membrane that forms the allantois.

The membrane by which the amnion and allantois are formed is only one, as follows :—It is an oval membrane, with the germ at

the end of it (*e*), where the shortest vessel proceeds from the vesicle to the membrane, so that the membrane becomes like the figure ∞ , or the hour-glass figure. The large O is the allantois, and the turning in the centre becomes the urachus, and the fluid in the one is the same as that in the other. I have the preparations showing the opening through the urachus (which can be seen by the naked eye) into the amnion.

As the allantois shoots to the membrane of the chorion, the space being confined, it becomes depressed in the middle, to suit the circle of the ovum with the urachus, alongside of the duct, from the vesicula umbilicalis to the germ.

The interior of the ovum was filled with pellucid gelatin, which is always to be found in the normal ovum. I do not know the date of this ovum, as the woman met with an accident, and aborted in twelve hours. By comparing this ovum with plate 1st, fig. 4, in Velpeau's "Embryology" (which preparation is from Pockel), Velpeau doubts the accuracy of it, and asserts that he (Pockel) must have made it with its long vessel from the vesicle to the allantois. I believe that part to be correct, although a great part of that preparation is abnormal. It is the vessel from the vesicula umbilicus to that part of the membrane which forms the allantois.

In Dr. Barry's translation of Professor Wagner's "Inquiries concerning the Germinal Vessel," in 1835, he states as follows:—"That in the human ovum there is present a germinal spot appears to me probable. What may be its meaning? Does it stand in a certain relation to the embryo?" Also, in his translation of Dr. Valentine's development of the human ovum, he states as follows:—"It appears to be almost certain that the mammalia, before impregnation, possesses no germinal disc, but merely a germinal vessel; the same is the case in the ovum of birds, also, in the early stages of its development within the ovary."

I must confess that this subject still remains defective and dark. Although the brightest names in the pages of science have thought it worthy of their researches, yet their reports contradict each other in many essential points.

The microscopic examinations of most men are made to suit their own imaginations, —a very unpardonable error. Papers which are written without being accompanied by preparations to prove the facts stated, should not be received in any society. I grant that some appearances cannot always be preserved, but six men can always be found to prove the truth of those appearances. There exists, too, much mystery in schools and colleges on this subject. There should be no mystical lore. Knowledge is not mystical; it is only mystified to conceal something that is wrong. I have ova in my

collection from six days and upwards, after conception, and every man that has got eyes can see them as well as I can. I have got a diagram of the human ovum with the germinal disc, made by Mr. Perry, so that every teacher of midwifery may use it until he has one of his own. I have given Mr. Perry permission to make diagrams of it. Through the kindness of Dr. Ure and his son, Mr. Perry and myself had an opportunity of examining the ovum through their powerful lens. At the same time no teacher shall use the diagram without having seen the preparation for himself. I am, Sir, yours, &c.

JOHN MILLER, Mechanic.

ADDRESS

DELIVERED AT THE FIRST MEETING OF THE

MEDICO-BOTANICAL SOCIETY,

FOR THE SESSION OF 1837-38,

By GEO. G. SIGMOND, M.D, F.L.S.,
F.S.A., &c. &c.

Honorary Secretary to the Society.

EARL STANHOPE, President.

MY LORD PRESIDENT AND GENTLEMEN:—I accepted, with very considerable pleasure, the invitation with which I was honoured by your Council, to deliver the annual address at the commencement of a new session. I consider it as a mark of approbation of my anxious endeavours to promote the welfare of this Institution; and I gladly avail myself of the opportunity of congratulating you on the steady advancement of that branch of science which your labours have contributed to enlarge and adorn, and in which I am most deeply interested. It is only since the establishment of this Society, amidst difficulties of no ordinary kind, that the pursuit in which we are engaged has been recognised as essential to the happiness and the well-being of man. It is most gratifying to find that from the seed that was planted in a soil that appeared ungrateful, has arisen a luxuriance of vegetation, and that a rich harvest will yet attend the toil and the vigilance of the husbandman.

It has been most fortunate for us, that those to whom we looked with hope, have realized our fondest expectations; that those to whom we entrusted the rising plant have watched it, till its firm roots have burrowed beneath the soil, and its trunk bears boughs from which the fruit of knowledge may be gathered, till time shall bring to perfection the majestic tree. Under the auspices of our illustrious President, we have been sheltered from some wintry storms: to his zeal, to his assiduity, we