tion would assist in the explanation of the cause why a child should suffer in this way, we might be anxious to obtain it; but we can easily afford to leave the definition for the present, and inquire into the phenomena or the simple symptoms and conditions of these children. At an early age, that is, before two years are completed, it is premature to judge of the intellect of a child; yet there are symptoms which enable one to predict that, with the progress of time, there will not be a corresponding progress in its intellectual development. The important functions performed by the organs of speech, and the evidence of comprehension which we usually expect to be exhibited by the expression and the obedience of a child, are more or less deficient. Sometimes the sense of hearing and the powers of speech are simultaneously affected; in other cases, the appreciation of sound and harmony is above the average, while speech and intelligence, by which I mean a knowledge of the use of things and the influence of example, are absent.

When first these cases came under my observation, it appeared to me to be a more interesting question to determine what anatomical condition could have produced this deficiency in speech than to decide the exact nature of the maternal impression to which it was attributed.

More extensive experience, however, has induced me for the present to confine my observation to the particular effects of purely emotional disturbances during pregnancy upon the child. We lose sight of such cases after the age of six or seven, because the parents have by that time discovered that there is little hope from medical treatment, and, therefore, seek for safe asylums for the children. Without entering into the details of the earliest symptoms of intellectual deficiency arising from maternal impression on this occasion, I still beg to express the hope that at another time I may be permitted to bring a series of cases before you; while, after the attention of the members of this Society has been directed to the investigation in daily practice of the view I have attempted to establish, it is more than probable that some important conclusions may result from a comparison of our opinions upon it.

MATERNAL IMPRESSIONS.*

By JAMES CLAPPERTON, L.R.C.P. Edin., Market Deeping.

THE subject which I have the honour to bring before the notice of the members of this Association to-day is one not only of singular interest in itself, but is specially adapted for discussion by family practitioners. However much metropolitan men may have the advantage of the general bulk of country practitioners in many matters, our position secures for us a claim to be heard on the subject of those peculiar modifications of development in the foetus which depend upon some fright, or other strong impression, made upon the nervous system of the mother, during the early months of pregnancy. Most of us who are engaged in midwifery practice have become more or less familiar with "the mother's mark" commonly met with in the form of discolourations of the integument, and pilous naevi; we are all well acquainted with the "strawberry," "raspberry," or "the mouse", which is so frequently seen. At times, the resemblance to some natural object is very marked; so faithful to nature, indeed, that the "mark" is recognisable by the most cursory glance, so close the simulation of the original object. At other times, a deeper impression is made upon the nerve-centres of the mother, and a distinct modification of the form of the foetus is the result. This would seem often, indeed commonly, to be due to arrest of development, the primitive embryo retaining in its arrested evolution the characteristics of the creature which has occasioned the fright. There is something weirdly interesting in the fact that, when the object of fright is, as it frequently is, a living creature, one of the lower animals, its own configuration should be impressed upon the plastic form of the hapless being undergoing its evolution within the body of the startled or terrified mother.

In a case related by Mr. C. M. Thompson (of Sevenoaks) in the *BRITISH MEDICAL JOURNAL* of April 4th, the object of fright was a toad; and, when the child was born, the attendant, who had naturally been much puzzled with the presentation, found that the child's head and face exactly resembled a toad. From my own experience, I can quite understand how puzzled he might be. Though not a very old practitioner, I have met with four cases, which I shall briefly relate.

CASE I.—Mrs. H., aged 30, a healthy woman, went to the flour-bin; and, when she put her hand into the bin, a mouse ran across her arm. The child was born with a mark on its arm, which now distinctly resembles a mouse.

CASE II.—Mrs. G., aged 25, when pregnant with her third child, went into the straw-yard for some straw; a rat jumped out, and in her fright she put her hand across her throat. The child was born with a mark across the throat, which now resembles a rat in shape and colour. In her next pregnancy, she was frightened by a dog, and placed her hand over the sacrum. The child was born with a mark over the sacrum, which now resembles a dog. I may add, that the idea of selecting the place for the mark, which they deem inevitable, by striking the hand upon some part which is not likely to be seen, is prevalent amongst country people.

CASE III.—Mrs. T., aged 34, who had had several children, was returning from market, when a toad jumped across her path and frightened her; she went on to the full period, feeling as in her other pregnancies, except the dread of something being wrong. I was sent for to attend her, and, on my arrival, found her delivered of a still-born child free from "marks". She was suffering from strong labour-pains. On passing the finger into the os, no presentation could be detected. I introduced my hand, and with difficulty brought down a foot; after a few pains, the poor woman was delivered of a child resembling a toad, which died in a few moments.

CASE IV.—Mrs. H., aged 23, when about three months gone in her second pregnancy, was startled by one of the neighbours running into her house, and saying her pigs were fighting in the yard. She ran out and endeavoured to separate them, but without effect. From then until the sixth month, she was always thinking about the pigs, and expressed to her friends that she feared her child would be disfigured. On rupturing the membranes, a very large quantity of water came away; shortly afterwards, a female child made its descent. Then this specimen which I have the honour to lay before you was born.

Dr. Blundell, in his work on *Midwifery*, page 1012, relates an unusual case which occurred in the practice of Dr. Lee, where the monster was brainless, and was accounted for by the patient in the following manner. During her pregnancy, prompted by curiosity, she watched the doctor while he was engaged in examining the head of her son, who had died of hydrocephalus, and she saw the operation at the moment when the calvarium and brain were removed. A list of scores of interesting cases might be made, if care were only taken to put them on record, by the different medical men scattered through the country, who are interested in this matter; and I shall be most grateful to those gentlemen who shall from time to time publish such cases, or, if they do not choose to do that, if they will only address a private communication to me on the subject. Of course it is needless to say, that I should keep perfect faith with any gentleman who should desire to have his name kept out of the description of the cases he may furnish to me, in subsequent publication of the collected cases. I have received a communication from Dr. R. J. Lee, as to the effects of general fright or emotion upon the development of the foetal viscera, especially of the heart and brain, which opens up a most interesting field of research. Its further discussion must, however, form the subject of some future paper.

There are two points of interest in these curious cases: one a speculative one, and one a very practical one. We will take the speculatively interesting matter first. How do these modifications of development on the part of the child follow the fright given to the mother? By what means is the change brought about? There is no doubt that the starting-point is a "state of expectant attention", to use the language of Carpenter, upon the part of the mother. It is the direction of consciousness to the part, the fixing the attention upon it, either by voluntary action on the part of the mother, who broods over the matter, and so prints the impression on the growing plastic tissues of her child; or by involuntary fixation of attention, by some action of the lower and deeper seated cerebral centres, independently of, and unconnected with, the higher volitional centres. Such persistent attention, voluntary or involuntary, affects the embryo in the womb. How is this influence of nervous impressions upon the organic functions brought about? The most careful examination of the umbilical cord has failed to discover, in the mass of the cord, the sarcode or jelly-like material of which it is composed, any trace of nerve-fibres. Carpenter is of opinion that this effect must be produced upon the maternal blood, and transmitted through it to the foetus, since there is no nervous communication between the parent and the offspring (*Principles of Human Physiology*, sec. 733). Dalton, in his work on *Physiology*, page 629, is of opinion that it is through the placental circulation that those disturbing effects are produced upon the nutrition of the foetus, and the mode in which these effects may be produced is readily understood from what has been said of the anatomy and functions of the placenta. But, with all due deference to such authorities, I may venture to suggest that there may possibly be such a nerve-communication existing in an altogether unexplored direction; I mean in the vaso-motor nerves which

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belong to every artery, and probably to the arteries of the cord. It is quite true that the foetal tufts dip into the placental sinuses, and, as it were, float freely in the tiny wells of maternal blood. But, nevertheless, there may exist some nerve-communication in the structures which hold these foetal tufts down in the placental sinuses. The possibility of such nerve-communication is suggested by the transmission of impressions from the mother's brain to the foetal tissues. We are all aware that such mental impressions have produced very curious results under different circumstances; for instance, the well known case where a mother saw her son's fingers crushed by a falling window, and in half an hour's time her own finger showed changes similar to those in her boy's hand—changes which could only be the result of nervous influence. It would further appear that, whatever be the means of communication, the transmission is much more easily effected in some systems than in others. We know that, in numerous cases, intense anxiety on the part of the mother, a persistent fear that some change in her child will correspond with something that she has seen that has shocked her, has not resulted in any effect. On the other hand, these transmitted effects are occasionally recurrent in the same individual, as stated in the second case I related and in Mr. Thompson's case, where such change occurred a second time in the same woman. In my case, the first was a rat, the second a dog; in Mr. Thompson's, the first was a toad, and the second a tortoise, which left their impress upon the embryo. The systems of these women must have been inordinately susceptible to such impressions. This arrest of development, producing a resemblance to some natural object, some lower form of the vertebrata, is rendered comprehensible by the speculations and observations of Von Baer. Long before the hypothesis of Mr. Darwin had stirred the still waters of our ideas as to progressive development, Von Baer had observed that the human embryo corresponded, at different periods of its existence, to the foetal forms of the vertebrata. At first, the human ovum is undistinguishable from that of a fish, as in the well known ovum of the late Professor Agassiz. It was a vertebrate ovum, and no more could be said. Then it is homologous to that of a reptile, then to that of a bird, and ultimately to that of a mammal.

Such shocks, then, might arrest the development of the embryo, when they occur (as they did in the cases I have related) before quickening. In fact, in all the cases I am acquainted with, the impression was received in the early months of pregnancy. This being the case, it produces such a perversion of tissue-growth as induces a retrograde movement in the foetal lineaments, already assuming the characteristics of humanity, and a reversion to a lower type. Certain it is that these impressions occur some time before quickening, and that a certain amount of development secures the foetus from the effects of any of these modifying causes. Neither are such impressions made upon the nerve-centres of the mother, and communicated to the foetal form, confined to the human mother only. Certainly we have no record of a shock affecting any lower animal when frightened during pregnancy; but a very interesting case is given by Danniell in his *Field Sports*, which bears upon this matter. Danniell had a pointer bitch of pure breed, which he was conveying to a pure sire residing at some distance. We all know how carefully the true sportsman guards against the possibility of any *faux pas* which might militate against the purity of the strain. Consequently, when Danniell, in passing through a village, found the susceptible dogs pressing their attention upon his convoy, and the flirtation with one objectionable cur threatening to become specially serious, he felt no hesitation in shooting the intrusive canine cavalier. No physical intercourse had ever taken place, and the object of his journey was carefully secured. But, to his dismay, all the pups bore the impress of the cur he had sacrificed, and the nerve-centres of the pointer-bitch transmitted to her progeny the image which was indelibly stamped on them and fixed in her memory.

The transmission of these impressions is a matter which deserves more attention than it attracts, and a larger collection of cases and further investigation of the subject may perhaps elucidate the question, and clear up some of its difficulties. But it is now time to leave this section of the subject, and turn our attention to the practically interesting side of the question. This is the relation of such malformations to the diagnosis of the presentation. I can assure you, from my own experience, that the diagnosis of such a malformation, when it forms the presenting portion of the foetus, is a very puzzling matter. No writer on obstetrics with whom I am acquainted has ever described such malformations as we are now considering in relation to their presentation, and the difficulties arising therefrom. Even that brilliantly suggestive man, my obstetrical teacher Sir J. Simpson, did not give us any indications for the recognition of such modified forms; neither, so far as I am aware, have any statistics been collected to show that unusual presentations are more than ordinarily frequent in foetuses so altered, or to demonstrate that such changes in the configuration of the foetal

head, altering its relation to the pubic cavity, modify the position of the foetus, or cause unnatural presentations to be more frequent. Such modified and altered foetuses, when the change is pronounced, never survive. It is fortunate that they do not, as it renders it quite unnecessary to consider the question from the moral side, of the propriety or necessity of inducing their destruction by acts either of commission or omission. Still it is somewhat suggestive that babies so altered, anencephalous or other monsters, always seem conscious of the impropriety of survival in their case, and atone for their shortcomings and indiscretions by early demise. Probably they are not equal to maintaining an individual and separate existence.

CASE OF FRACTURE THROUGH BOTH RAMI OF THE LOWER JAW, TREATED BY EXTERNAL INCISION AND THE WIRE SUTURE.

By THOMAS ANNANDALE, F.R.S.E.,
Surgeon to the Edinburgh Infirmary, and Lecturer on Clinical Surgery.

IN September last, I was asked to meet Dr. Moodie of Stirling in consultation on the case of J. C., aged 18, who had received a severe injury to his face from a railway waggon. A few days previously to my visit, the patient, when following his employment of a clerk on the railway, was knocked down, and the wheel of a waggon passed over the lower part of his face. Great swelling of the whole face followed the injury; and Dr. Moodie, who was called to see him, at once recognised a fracture through both rami of the jaw. Careful means were used to keep the fragments in position, but without success, and I was accordingly asked to see the patient.

An examination determined a fracture on the right side of the lower jaw at the junction of the angle and ramus, and one on the left side through the ramus, immediately above the angle. The body of the bone was uninjured. By a little manipulation and elevation of the body of the bone, the fragments could be brought nearly together; but, when the force was removed, the fragments at once separated, and the body of the jaw fell downwards so as to leave the mouth open and fixed in this position, as the patient had no control over the movements of the bone. There was a small wound on the right side of the cheek anterior to the seat of fracture, which was discharging pus freely. The experience of the treatment which had already been adopted having shown that some special means would be required to keep the fragments together, it was decided that the patient should be brought to town and placed under my care in the infirmary. Accordingly, he was admitted into my wards on September 28th; and, on the following day, I placed him under the influence of chloroform, and proceeded to secure the fragments together by means of the wire suture. Owing to the position of the fractures, it was found impossible to drill the jaw from the inside of the mouth, and I therefore made an external incision about two inches in length over the seat of fracture on the right side, exposed the fragments, and having drilled them, brought them together with strong silver wire. A similar incision was made over the fracture on the left side, and the fragments were drilled and treated as on the right side. The fragments on this side could not be brought accurately together, but they were secured as nearly so as possible. After the operation, there was still a slight tendency for the body of the jaw to become depressed, and in order to counteract this, a piece of soft gutta-percha was introduced between the molars of the upper and lower jaws on the left side, and held in this situation until it took a mould of the parts and became hard. It was then allowed to remain in this position, and a chin-bandage was applied to keep the jaws steady. The suppuration, which had existed before the operation, continued for several weeks, and from time to time small portions of necrosed bone separated, and were removed by the mouth. On November 13th, the wire on the left side being quite loose, was removed; and, on December 5th, that on the right side also became loose, and was removed. Both wires had been twisted on the inner aspect of the jaw at the time of the operation, and consequently both were removed by the mouth. After the removal of the second wire, the suppuration almost ceased, and the patient was dismissed on Dec. 9th. On January 6th, he returned to show himself, and there was then only a small superficial wound on the right side. The movements of the jaw were excellent, and the patient could masticate with ease. When the jaws were closed together, there was a slight lateral displacement of the lower one; but with this exception, and a slight swelling of one cheek, the parts were natural in appearance.

REMARKS.—Fractures of the lower jaw have been occasionally treated by means of the wire suture (see Hamilton on *Fractures and Dislocations*, fourth edition, p. 119), and I have myself used this method