THE

AMERICAN JOURNAL

OF THE

MEDICAL SCIENCES.

ART. I. *On the Means of affording Respiration to Children in Reversed Presentations.* By JACOB BIGELOW, M. D. Professor of Materia Medica in Harvard University.

IT is familiar to obstetric practitioners, and is noticed by most writers on midwifery, that in those cases of labour in which the body of the child is delivered before the head, a considerable degree of danger exists in regard to the life of the child. Rules for the conduct of such cases are laid down by writers, yet it cannot be denied that, in the hands even of skilful practitioners, many children which are alive when the body is expelled, are irrecoverably lost before the head can be extracted. In these cases death takes place because the connexion with the mother is interrupted, by compression of the cord, or detachment of the placenta, before a communication with the atmosphere is effected.

It is the object of the present paper to show, that in many such cases the life of the child may be saved, by forming a communication between the mouth and the atmosphere, previous to the delivery of the head.

After the body is expelled, if the head can be seasonably delivered, either by the recurrence of pains, or by the successful efforts of the practitioner, no difficulty ordinarily occurs. But this desirable state of things cannot always be realized. Too frequently the size of the head, and the resistance of the pelvis or soft parts, renders the delivery difficult and hazardous, and the practitioner in the midst of his efforts, is apprised by a convulsive jerk or spring of the body, that a state of extreme danger exists, and that the time has come at which the child must breathe or will speedily die. If at this period the fingers be introduced, so as to reach the mouth of the child, it

will be perceived that each jerk of the body is attended with a gasp, and convulsive effort at inspiration, performed by the mouth and chest of the child. In this state of things, if air be conveyed to the mouth of the child it will immediately breathe, and the efforts of nature, as will hereafter be shown, may in most cases be safely waited for to assist in expelling the head.

The method to be pursued in conveying air to the mouth, depends upon the situation of the head. If the chin has descended low in the pelvis, so that the mouth rests upon the perinæum or lower part of the sacrum, and can be readily reached by the fingers, the hand of the operator alone is sufficient to give the assistance required. But if the mouth is situated so high in the pelvis as to be reached with difficulty, or if, from the large relative size of the head, there is much compression, the assistance of a tube may be of use. The mode of proceeding which I have found successful in various instances is as follows: as soon as the body and arms are extracted, supposing the face towards the sacrum, an assistant supports the body, carrying it towards the pubis; or the reverse, should the position of the face be to the pubis. The accoucheur should then introduce the hand to which the face looks, till the middle fingers rest upon the mouth of the child. The hand is then to be raised from the throat of the child, making the ends of the fingers a fulcrum, and pushing the perinæum backwards. The air will thus pass upwards as far as the chin of the child. The middle fingers are now to be separated about half an inch from each other, and thus a complete passage will be formed between them, by which the air will reach the mouth of the child. If the child be in a healthy state up to this period, it will immediately breathe and cry, and the delivery of the head may be safely postponed until the natural pains recur. If, from any degree of asphyxia, the child does not immediately breathe, it may often be made to do so by dashing cold water upon the body, or by other stimulating processes. It has even appeared to me practicable to inflate the lungs, in some cases, through an elastic catheter. When the mouth is so high in the pelvis as to be reached with difficulty, or when the compression is so great as to obliterate the cavity between the fingers, a flat tube will be found useful, made of metal, of spiral wire covered with leather, or of elastic gum, and having its largest diameter about half an inch. If the tube be of metal, or of any incompressible material, it should be withdrawn during a pain, to prevent contusion of the soft parts, and immediately replaced, if the pain subsides without expelling the head. Such a tube may be considered as a prolongation of the trachea, and is fully sufficient to sustain life by respiration for

a considerable time. The tube must be guarded and directed by keeping it between the fingers of the inserted hand.

The following are a part of the cases which have occurred to me in practice, affording an opportunity for the trial of this method.

Case I.—A patient was in labour with her second child, August 8th, 1824. The case was one of breech presentation, and without any unusual occurrence the body and arms were delivered in about three hours after my arrival. The position of the head was of the most common kind, with the vertex above the pubis, and the face in the lower part of the hollow of the sacrum. At this time my left hand was passed upward, with a view of depressing the chin, but the child being large, it required some effort to reach the mouth with the fingers. The time consumed in doing this was too great for the safety of the child, and the convulsive spring of the body took place. I was forcibly struck at the same moment by perceiving a gasp of the mouth at the ends of my fingers, and the idea occurred that if a communication could be made to the atmosphere, the child would respire. Attempts were made without success to extract the head by a moderate force, aided by the efforts of the mother and by pressure made by an assistant over the fundus of the womb. At the same time the hand which rested over the mouth and throat was raised a little, and the fingers opened to give passage to the air. The child soon gave another convulsive spring, and at the same moment inspired. The hand being retained in the same position, a slow, but constant respiration continued, accompanied with a low, moaning cry, for eight or ten minutes, when the recurrence of a pain caused the head to be delivered. During the whole of this period before the final pain, the mouth was several inches within the perinæum.

Case II.—This case occurred May 1st, 1826, and was also a breech case. Being a first labour, it was protracted for eighteen hours. After the presentation was ascertained, I had made, in a hasty manner, a tube about five inches long and half an inch wide, slightly flattened, and slightly bent over at its extremity. The case being one of more than common interest, I provided myself likewise with forceps. Although the mother had been in perfect health, yet the body of the child when expelled, was found emaciated and dark coloured, exhibiting marks of feeble life. As much force as it was thought justifiable to use, was employed to extract the head, with no other effect than to bring the mouth within about two inches of the edge of the perinæum. The tube was now introduced and placed in the mouth of the child, but it did not respire. It will be observed that the child had exhibited no convulsive effort, nor any signs of

being alive. An attempt was now made to inflate the lungs, which failed, apparently from want of tightness in the tube, the joining not having been soldered. It nevertheless appeared to me practicable to have inflated the lungs in this situation, with a suitable tube, since the tightness with which the perinæum covers the face would assist in preventing regurgitation of the air. The foregoing attempts having proved unavailing, the forceps were introduced, with the aid of which the head was extracted. The child was resuscitated with great difficulty, and did not breathe spontaneously, until artificial respiration had been kept up, by inflating the lungs through a quill, for more than half an hour. It was two hours before the respiration became so perfect that the child could be left to itself. I have no doubt that this child would have respired before the birth of the head, had there been sufficient constitutional vigour to produce the effort.

Case III. *March 29th*, 1827.—This patient had had five children. In her sixth labour the presenting part was found to be the arm. The pelvis being large, and the parts dilatable, no difficulty occurred at the proper time in introducing the hand, rupturing the membranes, and finding the feet, which were brought down and the body delivered. The face turned towards the perinæum, the mouth was easily reached, and the fingers were opened to give passage to the air as before described. No struggle nor attempt at inspiration, however, occurred. A handful of cold water was then dashed upon the body, upon which the child immediately gave a spring and began to cry. The head was not delivered until some minutes afterwards.

Case IV.—In a case of twins, January 29th, 1829, the first child presented the nates, and was born with the face to the sacrum. After the delivery of the body, the fingers were passed up to the mouth of the child, and opened to give passage to the air. As in former cases the child began to cry in a low voice, with slow respiration, the mouth being two or three inches within the perinæum. Feeling secure in regard to the life of the child, I determined in this instance, to use no extractive effort, but to wait for the expulsive action of the uterus. In the mean time I called the attention of the females who were present, to the crying of the child, which continued without interruption, though the head and neck were buried in the pelvis. In a few minutes an expulsive pain threw out the head with very little assistance on my part. The presentation of the second twin was natural.

Case V.—This occurred in the same patient as Case III. In this labour the presenting parts were the breech and left hand. After the birth of the body the face was found so strongly pressed against the

sacrum, as to render it difficult to form a passage for the air. By a gentle extractive force, the head was made to descend lower in the pelvis, and a tube was placed in the mouth. The child in this situation respired, and after a few minutes, with the assistance of a pain, the head was easily extracted.

The foregoing practice is not new, though it appears to have been lost sight of by most of the later writers on midwifery. I am not aware that it is mentioned by SMELLIE, DENMAN, HAMILTON, BURNS, or DEWEES. MERRIMAN alludes to it as a thing which is possible, but does not speak experimentally on the subject. In one of the older writers, however, a practice nearly similar is described, and warmly recommended from the author's experience. In PUGH's Treatise of Midwifery, published in 1754, are the following instructions:—

"The arms being brought down, the head only remains to be extracted, which must be done with as much expedition as possible, as indeed the arms ought to be; for when the child has passed the navel, the circulation between it and the mother is stopped, from the pressure of the umbilical rope. You must then introduce the fingers of your left hand into the vagina, under the child's breast, and put the first and second fingers into the child's mouth pretty far, so far however, that you are able to press down the child's tongue in such a manner that by keeping your hand hollow, and pressing it upon the mother's rectum, the air may have access to the larynx, you will soon perceive the thorax expand, as the air gets into the lungs. Many authors make very little trouble in extracting the head, but without a well formed pelvis, every operator must know there is difficulty and great danger of losing the child by its stay in the passage; but by this method of giving the child air, I have saved great numbers of childrens lives, which otherwise must have died."

"Before I made use of this method, and pressing externally to assist in extracting the head, I found many children were lost in this situation for want of air, which put me upon inventions; as likewise a third, which was a curved flattish pipe, as likewise a flexible one, that I introduced into the child's mouth as near to the larynx as I could, the other end external, which I found answer, but now as I find my fingers generally answer, I seldom make use of it." Page 49–50.

The foregoing practice of Pugh is virtually the same to which I had resorted before meeting with his book. That part of his directions, which relates to introducing the fingers into the child's mouth, and pressing down the tongue, appears superfluous; for if the air is carried as far as the child's lips, it will enter the lungs whenever the child makes a natural effort to inspire, and without this effort, the practice will be unavailing.

I am aware that it is a prevailing opinion, sanctioned by the authority of respectable writers, that when the face is upon the lower

part of the sacrum or upon the perinæum, the head is wholly in the vagina, and that therefore no farther aid is to be expected from the efforts of the uterus in promoting its expulsion. This I take to be an erroneous view of the subject. After the body is expelled from the womb, its remaining contents are the head and the placenta. These constitute a collective mass, upon which the uterus may continue to act, as long as either of them is contained in its cavity. The head, therefore, whether partly in the uterus, or wholly in the vagina, is subject to be acted upon through the placenta, and I have little doubt, that in all common cases, it would sooner or later be expelled by the uterine efforts alone. Of the fact that expulsive pains acting upon the head, do occur in these cases, my own experience does not permit a moment's doubt. The same fact I have also found to be confirmed by the observations of several of my medical brethren. And I think every accoucheur of experience must have remarked, that there are times, when the safe extraction of the head, by external force, is difficult and even impracticable, while at others, under similar circumstances of size and position, it is perfectly easy, owing doubtless to the co-operative efforts of the womb.

That the extraction of the head by external force alone, acting through the neck, is not always an easy, or a safe operation, we may conclude from the cautious manner with which writers speak upon the subject, and from the known fact, that many children die after the body is delivered. It is true that multitudes of successful cases occur, and it is these chiefly which are published, while those of the opposite kind are consigned to oblivion. It appears probable, that the successful cases are those, in which a favourable proportion exists between the head and pelvis, or in which the efforts of the operator are seconded by uterine pains.

The course of proceeding which appears to me most likely to preserve the life of the child in these cases, is as follows. As soon as the body is delivered, the patient being on her back, the body of the child is to be supported by the right hand of the operator, or by an assistant, while the fingers of the left hand are introduced to search for the mouth. A passage for the air to the mouth is to be formed by raising the perinæum from the face, and opening the fingers in the manner already described. If the child inspires, it may be considered safe, and while the respiration continues, no other care is necessary than to support the body in a favourable position, and to keep the passage unobstructed till the pains return. In the meantime, the patient may be encouraged to exert herself at intervals, in voluntary efforts, and at the same time, an assistant should press and rub with

some force upon the fundus of the womb, with a view to excite contraction.* When any expulsive effort occurs, it is to be seconded by the practitioner by extracting, and the head will in general be delivered without violence or danger.

When it happens that the child does not spring, and makes no effort to breathe after air is conveyed to the mouth, attempts should be made to resuscitate it by dashing a handful of cold water on the body, and by rubbing the back and lower extremities, and striking them with the hand. This will be likely to excite inspiration, and the rest of the case may be conducted as before: or an elastic tube may be placed in the mouth or nostril, and an attempt made to inflate the lungs, the perinæum in the meantime being pressed closely to the face. But in general, if the child does not respire soon after the air is conveyed to it, it is owing either to a defect of constitutional vigour or excitability, or to the unfavourable circumstances of the labour, and in this case no time should be lost in extracting the head, by the neck, or by the forceps, according to the rules laid down for these cases by obstetrical writers.

Art. II. *Notice of an Epidemic that prevailed in Savannah, Georgia, during the Summers of* 1826 *and* 1828. By W. C. Daniell, M. D. of Savannah, Georgia.

In the month of August, 1826, a fever made its appearance in Savannah, from which very few escaped. I am inclined to the belief, that this was the same disease with the Dengue, which prevailed so extensively the last season, in Charleston, this place, and elsewhere. It is certainly true that the same consequences did not follow the former, that attended upon the latter. This, however, may, I think, be accounted for, without violating the presumption that the two diseases are identically the same. The severity of the pains which attended upon the fever of 1826, induced the sufferers, who believed the danger proportioned to the degree of suffering they endured, to invoke the early aid of the profession; and the symptoms prompted the physicians to an energetic treatment.

The revulsive and tonic treatment of fever, which has been adopt-

* Pressing and rubbing upon the fundus of the womb has always appeared to me one of the most powerful means of exciting the contraction of that organ in cases of flooding, and of retained placenta.