ART. II.—*Case of Labour requiring for its termination Cephalotomy, and followed by partial sloughing of the vagina and rectum, with reflections.* By HENRY MILLER, M. D. of Harrodsburgh, Kentucky.

ON the 13th April, 1830, I was called to attend Mrs. T. two miles from town, in labour with her first child. I found a Midwife in attendance, who informed me that the lady had been in decided labour for upwards of 24 hours. I discovered her to be a woman of good constitution, sanguine temperament, and had enjoyed uninterrupted good health. She exhibited all the exterior marks of a capacious and well proportioned pelvis—but had defered marriage rather beyond the usual period.

Upon examination, per vaginam, I discovered that a right lateral obliquity of the uterus existed to such a degree as to give to the os uteri sensibly an opposite direction. It was accordingly found towards the left hip, rigid, tense, and unyielding, and but very slightly dilated. There were manifest local irritation and exaltation of temperature, though not much sensitiveness to the touch. The uterine contractions were regular, and apparently energetic.

The bowels having been evacuated by an enema, twenty four ounces of blood were drawn from the arm, *pleno rivo*, and sixty drops of tinct. opii administered. Having other patients to visit, I left the lady in the care of the Midwife, hoping that the remediate means employed would speedily produce such relaxation of the os uteri, as to secure a prompt and happy delivery. In this hope I was, however, disappointed. In twelve hours I was again sent for. I learned, on inquiry, that her pains, had continued regular, and had assumed more decidedly the *bearing down*, or expulsive character. An examination disclosed that the *os uteri* was pretty much in the same condition as at my first visit—its dilatation was but little increased, and its rigidity not at all abated. I made the patient sit up, and bled her from a large orifice until syncope

was induced, and repeated the laudanum in the dose of *eighty drops.* The midwife was directed to apply to the *os uteri* the unguent. stramonii * thrice, at intervals of two hours, and I again left her to attend other cases. Upon my return after the lapse of seven or eight hours, I found no alteration in the case except that the head of the fœtus, which had sometime previously entered the superior strait, had descended still lower—it had reached, indeed, the bottom of the excavation. The os uteri was but little more dilated. I now assisted the dilatation mechanically, in the manner recommended by Burns, and in the space of five or six hours had the satisfaction to succeed in subduing this difficulty. Meanwhile the uterus was exerting the most vigorous expulsive powers, and when the dilated os uteri retreated sufficiently, I had an opportunity of determining more satisfactorily the position of the head, which was found to be the first, or left *occipito-acetabular.* Its *rotatory motion* did not take place; repeated efforts by the hand, were made to impress this movement upon the head, but without success. As the labour

*The application of the unguent. stramonii, to facilitate the dilatation of the os uteri, I directed many years ago in a most troublesome and tedious case of this description. I was led to make trial of it from analogy, derived from its effects on the pupil of the eye. I mentioned the circumstance to my friend Doct. Graham, of this place, shortly after my removal to Harrodsburg, now six years since. The Doctor was pleased with the idea, and urged me to publish it. I did intend to comply with his suggestion, but neglected it. I find on examining a late valuable work on midwifery, by Velpeau, a similar practice is strongly recommended. M. Velpeau states, that the *belladona* ointment, whose effects in this respect are precisely the same with the stramonium, has been proposed by Chaussier and Dr. Conquest, and frequently made use of by Madame Lachapelle at the *Maison d'accouchement* at Paris. M. Velpeau states, that he has used it himself in six cases of labour, with prompt and undeniable effect. The translation of M. Velpeau's book was first published in Philadelphia, in 1831. Of course I could not be indebted to him for the practice; and, in truth, it is entirely original with me. The object of this note, however, is not so much to assert my claim to discovery, as to subserve the interests of humanity, by recommending the practice of the "*gens d'lart,*" which I can do with more confidence, since my observations have been corroborated by a writer, for whose talents I entertain so high an esteem. M. Velpeau directs the ointment he uses to be prepared by triturating one drachm of the extract of belladona with an ounce of lard.—Vid. his Midwifery, p. 359.

progressed, the head became more and more firmly impacted —during the uterine contractions it protruded the vulva, the parietal bones overlapping each other to some distance— œdematous swelling of the head existed. As the uterus seemed to preserve its powers, the case was now left for several hours to the natural efforts, in hopes that the diminution of the head, by increasing overlapping of its bones, would be followed by its expulsion. This hope proved fallacious.

The most severe struggle of some hours duration, produced no other result than a somewhat greater protrusion of the head, during the pains, and increased overlapping of its bones. Although the uterine contractions continued with unimpaired energy, constitutional exhaustion, mental aberration, and other unfavourable symptoms supervened, which demanded efficient interference. Having no obstetrical instruments, a messenger was despatched seven or eight miles to procure them. Doct. Graham was, likewise, called in consultation. Such was now the tumefaction of the integuments of the fœtal head, and so completely was the pelvic excavation filled up by it, we considered it useless to attempt delivery by the forceps—a mode of delivery to which I was at that time inclined to give the preference, but which, if the reasoning I shall presently submit be accurate, would have been dangerous. Cephalotomy being the only remaining resource, safe for the woman, was determined upon. We believed the child to be dead. I accordingly perforated the cranium, and delivered with the crotchet in the usual manner. In the process of extraction I distinctly remarked the rotatory motion and backward flexion of the head on the neck, in the successive changes of relation between the vulva and the perforation made in the head. After the extraction of the head, there was no difficulty in delivering the remainder of the child, by the exertion of moderate traction, in concert with the uterine contractions. In a few minutes after delivery, the finger was passed along the cord to the *os uteri* in search of the placenta, without coming in contact with it. The uterus did not contract so as to be reduced to its usual

dimensions after delivery, although frictions, &c. were used to excite it, but remained rather flaccid in the abdominal cavity.

The patient now lay exanimate, without the power or disposition to move a single muscle, and, as there was no uterine hæmorrhage, it was not judged expedient to make an effort for the immediate delivery of the placenta, by the introduction of the hand into the cavity of the uterus. Some hours were occupied in the cautious administration of cordials and stimulants, and as soon as sufficient animation was restored to the patient, the hand was introduced into the uterus; its contractions were awakened, and deliverance accomplished.

As, after so protracted and difficult a labour, there was every reason to apprehend uterine and peritoneal inflammation, any further use of stimulants was strictly interdicted, and the most abstemious regimen enjoined. In fact, she was put on a diet of simple bread and water, and prohibited from partaking of any other nourishment. On the next day, free alvine evacuations were procured by calomel, succeeded by ol. ricini and sulph. magnesia. The calomel, &c. were repeated daily for three or four days successively. A fold of cloth, frequently wet in warm spts. terebinth. was kept constantly applied to the hypogastrium, and frequent ablutions of the genital organs performed, with decoction of dogwood (Cornus Florida). Retention of urine, from paralysis of the bladder, existed for several days, requiring the daily introduction of the catheter for its relief. To this succeeded incontinence of urine. The measures employed, which were designed as preventives of inflammation, and which have just been detailed, seemed to be crowned with the most gratifying success. Every thing went on well, until the seventh day after delivery, when the patient observed, to her great dismay, that the fœcal discharges were *per vaginam*. I was sent for immediately, and, upon examination, discovered a foramen, at the superior part of the vagina, through which the finger could easily be passed into the rectum, and as often as this was done, fæces and gas escaped by the finger with an audible gurgling.

The period within which inflammation was most to be dreaded, had now passed; the patient had been freely and repeatedly purged; I determined, therefore, to pursue such a course as, according to my judgment, would best conduce to the restoration of the vagina and rectum. A pill of opium was accordingly administered, to procure a quiescent state of the bowels, which was not interrupted for four days,—at which time a small portion of ol. ricini was given, which having operated once, was followed by opium to procure a quiescent condition of the bowels for four days,—when the ol. ricini was repeated, and the opium as before—and after four days the bowels were again moved by castor oil. Thus was a state of repose obtained for the rectum, &c. for *twelve* days, interrupted only by three alvine evacuations. The abstemious regimen already mentioned, was continued during all this period. The discharges procured by the last dose of oil, were *per viam naturalem*, nor were there afterwards any more fæces discharged per vaginam—the recto-vaginal communication was entirely obliterated. The incontinence of urine continued for several weeks, but gradually vanished as the strength returned. To relieve this unpleasant affection, some stimulating diuretics, such as tinct. cantharid., bals. copaiva, uva ursi in conjunction with chalybeates, were directed.

Mrs. T. has since borne a living child of ordinary size, and that after a labour of only a few hours, and without any difficulty.

Reflections.—In retrospecting this very difficult case, the most prominent feature presented by it, which cannot fail to attract the attention of the careful reader, is the extraordinary contraction of the os uteri. It will readily occur to any one that this was the chief barrier to delivery, so long as it existed. But in my opinion, it unhappily exerted a more important and permanent influence over the progress of the labour—an influence which terminated in the immoveable fixation of the fœtal head, in the excavation of the pelvis, in the original position it presented at the abdominal

strait. In other words, I regard this contraction of the os uteri, and fibres of the cervix, embracing the head, as having resisted the rotatory motion of the head, by which the face should be thrown into the hollow of the sacrum, until, from the mechanism of labour, such rotation was rendered impracticable. The demonstration of this position will be the object of the remarks which follow. As an accurate knowledge of the mechanism of natural labour is essential to the comprehension of the demonstration, this shall first be presented, so far as the head is concerned, or at least so far as the object in view requires. I prefer copying the description of any good writer on obstetrics, to such a one as it might be in my power to offer, and shall, therefore, take the liberty of quoting from Capuron. The descriptions of Denman and Burns are, I think, too much divested of technicality to afford precise and satisfactory views; that of Velpeau, on the contrary, is so hyper-technical as to be perplexed, or at least to require rather a painful effort to follow him. It is necessary to premise, that the *occipito-mental* diameter of the fœtal head extends from the chin to the occiput or summit, and measures five inches and a quarter—the *perpendicular* diameter extends from the summit to the base, measuring three inches and a half—the *occipito-frontal* stretches from the middle of the forehead to the occiput, four inches and a quarter—the *transverse* extends across the head, from one parietal protuberance to the other, three inches and a half.

"Previous to the commencement of labour, says M. Capuron, * the occipito-mental diameter is oblique, and the perpendicular diameter is parallel to the axis of the superior strait; while the transverse, and occipito-frontal diameters correspond to the two oblique diameters of the strait. From this disposition it results, that, other things being equal, the head could not, without difficulty, enter the pelvis, if it remained immoveably fixed in this position: for the oblique diameter of the superior strait exceeds, but by a quarter of

* Cours theorique et pratique d'accouchemens, p. 223.

an inch, the occipito-frontal diameter of the head, which corresponds to it. This excess would not be sufficient to prevent friction, from the thickness of the hairy-scalp, the cervix of the uterus, and the soft parts which cover the pelvis. But labour impresses upon the head certain movements, which greatly facilitate its passage; the uterine contractions, directed according to the axis of the fœtus, oblige the occiput to descend, and the chin, which is opposed to it, to mount towards the breast, as in the motion of a sweep, (comme par un mouvement de bascule.) It cannot be doubted that the head does execute this forward flexion, in the commencement of labour; for the touch discovers that the posterior fontanelle is depressed, and insensibly approaches towards the centre of the pelvis, while the anterior fontanelle recedes, and sometimes becomes inaccessible to the finger of the accoucheur.

"While the head is thus flexed upon the breast, its diameters change their relations with those of the pelvis. The occipito-mental diameter becomes parallel to the axis of the superior strait, and the *occipito-frontal* is inclined to this same line: the other two diameters, the perpendicular and transverse, correspond to the two oblique diameters of the superior strait: the head then engages in the pelvic excavation by its occipital extremity, and presents its smallest diameters, which measure three and a half inches, to the greatest of the strait, which measure four inches and a half. Moreover, the left parietal protuberance, which looks to the left posterior part of the pelvis, and receives more directly the force of the uterine contractions, engages first, which facilitates still more the passage of the head. Arrived in the excavation of the pelvis, the head cannot maintain the diagonal situation, which it had at the superior strait, because it now encounters the inclined planes, presented by the sacrum and coccyx, the ischia and perinæum, obstacles which decompose the *entire* impression communicated by the uterus into *two* forces—of which the perpendicular one is neutralised (se brise) while the parallel one causes the head to roll on its

axis, bringing the occiput under the pubis. This rotatory, or pivot motion, which the head performs in virtue of a slight twist of the neck, and which may be estimated at the sixth or eighth of a circle, is confirmed, likewise, by observation; for the finger feels the posterior fontanelle advancing with every pain, from left to right, towards the pubic arch. When the head is upon the point of clearing the inferior strait, the chin is still flexed upon the superior part of the breast, and looks to the sacro-vertebral angle, while the occiput answers to the centre of the vulva,—consequently, the occipito-mental diameter is still parallel to the axis of the inferior strait, and the occipito-frontal diameter is oblique to this axis—of the other two diameters, the transverse passes between the two ischiatic tuberosities, and the perpendicular, between the coccyx and pubes. Thus the two shortest diameters of the head are made to present to the two longest of the inferior strait, which could not have been, had it preserved the diagonal position, which it had at the superior strait."

From an attentive contemplation of the mechanism of natural labour, as relates to the head, thus detailed by one of the masters of the art, it is observable that the design of the rotatory motion of the head is to establish the most favourable relations of its diameters with those of the pelvis, and, it may be added, unless those favourable relations be established, its expulsion will be difficult, or impracticable,—the conformation of the pelvis being natural, and the head of its ordinary dimensions. It is deemed unnecessary to enlarge on this point—it will, without controversy, be admitted. I advance a step further, and observe that the difficulty will be increased, in the direct ratio of the time any obstacle, impeding the establishment of such favourable relations, may have continued to operate. The head enters the excavation, and encounters the inclined planes of its interior surface, but the parallel force of the uterine contractions, tending to impress upon it the direction of those planes, is counteracted by some obstacle—say the resistence of the os and cervix uteri, as in the case under examination. What must

be the consequence? The parallel force will be neutralized—but the uterus does not suspend the exertion of its powers—it plies those powers, indeed, with renewed activity, seemingly on account of the obstacle encountered. The head must consequently be depressed lower and lower into the pelvis, in the diagonal situation in which it entered the superior strait. Nor is this all. In the regular order of the mechanism, when nothing occurs to interrupt the process, when the head has made its rotation and descended to the inferior strait, in the most favourable manner, the expulsive forces of the uterus bear directly upon the chin of the fœtus. From this results the depression of the chin, and the rising of the occiput under the pubes, so essential to the safe exclusion of the head. In the case, under consideration, where unhappily the rotation of the head has been resisted, will not the uterine contractions bear with the same force upon the chin? What must ensue? The head preserving its diagonal situation, the chin is depressed, the occiput mounts up the os innominatum, thus bringing a continually increasing diameter of the head into approximation with a diameter of the inferior strait, already too contracted to admit of the egress of the head.

That such must be the fact will appear evident, when we recollect that it is an arc of the vertical circumference of the head, included between the extremities of the occipito-mental diameter, which is made to revolve, in the pelvic excavation, by the depression of the chin—and as this arc is part of an oval and not of a circle, when it is divided by lines drawn from the posterior extremity of the line subtending it, to different points of its curve, the length of the lines must increase as they approach the chin. Thus when the head has revolved so far as to correct the anterior flexion, which existed at the commencement of the labour, its occipito-mental diameter, *measuring four and a fourth inches*, will be brought into parallelism with the oblique diameter of the inferior strait, which measures *less than four inches*. When the posterior flexion of the head begins to take place, an in-

creasing diameter of the head displaces the occipito-frontal, until, if the posterior flexion is, or could be continued, the occipito-mental diameter, the base of the arc above indicated, measuring *five inches and a quarter* is brought into parallelism with the oblique diameter of the inferior strait. It has been stated that the occiput mounts up the os innominatum; it is evident, however, that this can take place but to a very limited extent, and that the posterior flexion of the head is produced almost exclusively by the depression of the chin —the occiput being the pivot, or centre of motion.

From this exposition it would appear that if the head is detained, for any considerable time, under these unfavourable circumstances, it would be highly hazardous, if not fatal for the mother, to attempt its rectification with the forceps—for so firmly would it be found wedged in the pelvis, that it could not be turned round the eighth of a circle, without violently contusing or lacerating the soft parts. In this deplorable case, does the science offer any other legitimate resource than Cephalotomy?

It remains to submit a few thoughts on the obstacle which opposed the rotation of the head in the case I have presented. I have already intimated that it existed in the preternatural rigidity and obstinate constriction of the fibres of the os and cervix uteri. Where else shall we look for it? It could not be any vicious conformation, osseous tumour, or other disease of the bones of the pelvis. It has already been related that the patient has since given birth to a living child, of good size, without difficulty. In the natural order of the parturient process, the uterine contractions do not assume the expulsive character until the fibres of the os and cervix uteri have relaxed, and the former become considerably dilated. But let irritation, from any cause, be excited in these fibres, so that they refuse to yield to those gentle efforts of the body and fundus of the uterus, which occupy the first stage of labour, and the organ begins to summon all its energies to the contest—its contractions become expulsive. What is the consequence? The os uteri is borne

down before the head of the child, and sometimes the obstinacy of its constriction seems to be increased by the additional irritation, such violence is calculated to produce. No doubt, this condition of things is sometimes induced, and always increased by premature efforts to bear down, * but I believe also that it is sometimes independent and even in spite of the will. Should it appear strange or incredible, then, that the fibre, of the os and cervix, which so frequently hold out against those contractions, tending to relax and dilate them, may sometimes resist also the parallel force of the uterine contractions, tending to rotate the head, and throw the face into the concavity of the sacrum? ' As far as I can discern, it requires no more power or energy to resist the one than the other. The resistance offered is, in truth, against the same force in both instances, only differently modified or directed. This resistance is generally greater in a first labour, † and there are a few accouchuers of any considerable experience, who have not observed the head compressed and moulded into a conical form, in its passage through this constriction, in a first labour, and no such change has been impressed upon the heads of children of the same mother in subsequent labours. At least, I have had an opportunity of making this observation several times. This shows the strength of the opposition, which is sometimes made to the passage of the head, and leaves us to conclude, that, if exerted to the utmost; it may be sufficient to retard, and altogether prevent the rotation of the head.

From what has been advanced, it may be collected, that my explanation of the case is, that the inordinate and protracted resistance of the os and cervix uteri opposed the rotation

*"Labour may also be rendered tedious, by the different stages not going on regularly, but efforts being made prematurely to bear down. In consequence of these, the uterus descends in the pelvis before the os uteri is dilated, and the process is often both painful and protracted. In some cases, the womb prolapses, so that its mouth appears at the orifice of the vagina."—Burns's Principles of Midwifery, Vol. 1. p. 424.

†Denman's Introduction, Vol. 2. p. 18.

of the head, until from the mechanism of labour, its rotation became impossible.

I do not know that this description of case has been distinctly recognised by obstetrical writers, and have, therefore, felt warranted in dwelling more lengthily upon it. M. Capuron * speaks of the difficulty or impossibility of the head's performing its rotatory motion, 1st. on account of the occiput being thrown backwards, and 2d. on account of defective curvature of the sacrum. In the first case, he recommends redressing the head with the hand or lever, before applying the forceps. In the second, delivery may be accomplished without rotating the head, as, according to him, the capacity of the inferior strait is in an inverse ratio to the contraction of the excavation. As M. Capuron does not dwell at any length, upon this part of his subject, I am at a loss to determine what description of case was intended by him. It is fair to presume, however, that he had reference to cases, where, on account of extraordinary capaciousness of the pelvis, combined perhaps with diminutive size of the fœtus, the head descends into the excavation in the situation alluded to. If this be not the case he had in view, it is difficult, at least for me, to understand him. Certain it is, if there be any validity in the reasoning I have submitted, after the head has been forced into backward flexion, by the violence and long continuance of the uterine contractions, it would be found no easy task to redress it, by depressing the occiput, and causing the *os-frontis* to mount up the *ischium*, preparatory to its rotation by the forceps. This condition of things, in my judgment, would be found sufficiently formidable to have claimed a larger space in the excellent work of that distinguished accoucheur.

* Cours theorique et pratique d' accouchemens, p. 556.