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ON THE

EMPLOYMENT OF ETHER

BY INHALATION

IN OBSTETRIC PRACTICE;

WITH

Cases & Clinical Observations.

BY

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*(Reprinted from THE LANCET of May 1st, 1847.)*

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LONDON:

PRINTED BY T. C. SAVILL, 4, CHANDOS STREET,  
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THE power of the vapour of ether, when inhaled, to diminish, or even to destroy sensation, and consequently pain, has been placed beyond doubt by the results of hundreds of surgical operations. Its safety in surgical cases may also be considered as established, especially when the administration of the ether is conducted with attention to the precautions indicated by experience. We may, I think, fairly consider that the instances in which ether will be administered before surgical operations will be the rule—those in which it will be omitted, the exceptions. We may also expect its use to be general in dislocations, hernia, spasmodic strictures, &c. In the first two of these cases, it acts in a twofold manner:—1st, it relieves the pain; and 2ndly, it relaxes the muscles, whose contraction opposes reduction. We shall see that in midwifery, also, it possesses the latter advantage, by its action on the perinæal muscles.

Ether has been but little employed in painful medical cases; and yet it has already been proved to give instant ease from the agony of neuralgia, and from the horrible dyspnœa of spasmodic asthma. A case of colica pictonum, which had resisted the usual means for three days, was cured by ether. A case of puerperal mania was immediately and permanently relieved; and several cases of dysmenorrhœa have been recorded, in which this agent has acted like magic. Probably,

many spasmodic diseases will be benefited by inhalation of ether; and we may confidently expect many forms of intractable hysterical pains to yield to it. In a few cases published by M. Piorry, which appeared unfavourably affected by it, the ether was probably impure. It is not my intention, however, to discuss the effects of ether in medical and surgical practice.

But though the diseases, as hysteria and dysmenorrhœa, which are commonly regarded as belonging peculiarly to the obstetric practitioner, will probably derive very great benefit from the etherial treatment, I would proceed to the inquiry, whether its exhibition will ever be habitually employed in daily obstetric practice.

To answer this question, we may examine—1st, the *à priori* physiological probabilities; and 2ndly, the results of the cases in which ether has been tried.

Labour is a complex process, in which every part of the nervous system is concerned. Now, ether affects, in succession, every portion of the nervous system, unless we except the ganglionic.

In labour, the brain is in action, as is proved by the presence of thought and special sensation; so, also, the pons Varolii (or whatever the seat of pain may be) is also active—as are the cerebellum, the medulla spinalis, the medulla oblongata, and the ganglionic system. But though all these portions of the nervous system are concerned in ordinary labour, they are not all necessarily, or, as it appears to me, advantageously so.

It is proved beyond a doubt, by cases of paraplegia, that the patient may be sensible, and yet feel no pain, though the uterus contract regularly. The same absence of pain is seen in puerperal convulsions, in which unconsciousness is super-added; and in some cases of paraplegia, even the reflex actions of the abdominal muscles have been wanting, so that labour has been terminated by the efforts of the uterus alone. Cases have occurred in which the patient has been unconsciously delivered, without accident or apparent delay, when in a state of extreme intoxication.

Thus, then, of the usual nervous concomitants of labour, consciousness, pain, and spinal reflex action, may be wanting, and yet parturition proceed uninterruptedly.

But though they may be absent, can they be artificially

abolished without danger? Can this be accomplished by ether—and if so, is it justifiable on Christian principles? as I have frequently been asked.

I will answer the last question before entering upon the consideration of the others; because, if we have reason to believe that an attempt to relieve the pains of labour would be in opposition to the will of God, all discussion of the other questions must at once be abandoned.

I think it is obvious that the same principle which would lead us to view any attempt to remove the dreadful and dreaded pains of labour, as opposed to the Divine will, would induce us to neglect every means of relieving human suffering. Though from different motives, we should, like the Turks, passively bear evils easily removable, as disease and suffering are alike dependent on the event which elicited the decree—"In sorrow thou shalt bring forth." In fact, precisely the same objections have successively been made to most of the great discoveries and improvements in medicine. Some may remember that one of the great arguments against vaccination—and, in the last century, against inoculation—was, that the practice was a presumptuous contravention of the Divine will. With far more reason might the objection be urged to the practice of inducing premature labour, and still more strongly against that of destroying in utero a living foetus. And yet it is now universally admitted, that to risk the life of the mother by refraining from these operations is not only unjustifiable, but highly criminal. Certainly, then, if it is justifiable to attempt the relief of pain, it is especially imperative upon us to do so in the most intense of all pain.

I am induced to offer these observations, in the hope that they may satisfy the scruples of those who have opposed the employment of ether in ordinary cases of labour, from a feeling that its use is not justifiable on Christian principles. Time has often hallowed what science and advancing knowledge have proved to be but the offspring of habit and prejudice; and in support of this assertion, I would quote a recent publication of Dr. Simpson, in which he says, "The idea of its inevitable necessity makes both the profession and our patients look upon the amount and intensity of pain encountered in

common cases of natural labour as far less worthy of consideration than they in reality are."

These observations will, I trust, be deemed conclusive on this part of my subject. Pathology, then, has proved that parturition will proceed without material interruption or injury by the ganglionic nervous influence. I do not enter into the question, whether the uterus is exclusively under the control of the ganglionic system. It is sufficient that it is very largely so.

Ether will first derange, and then temporarily suspend, in succession, consciousness, special sensation, common sensation, pain, (which is certainly something different from common sensation—i.e., tact,) power of muscular combinations, spinal reflex actions, and respiration.\* It is doubtful whether it will not, in some cases at least, increase ganglionic nervous power.† It is certain, however, that if the medulla oblongata is completely etherized, and, consequently, the movements of respiration stopped, the action of the heart is speedily arrested also, and life becomes extinct.‡

The chief authorities for enabling us to decide the question of the safety of ether from the actual results of its exhibitions are, Professor Simpson and Baron Dubois; and both maintain that they have observed no bad effect on either the mother or child. M. Dubois distinctly states that "none of the women who inhaled ether experienced any bad effects attributable to ether."§ These gentlemen differ, however, in reference to the probability that ether will become universally, or even generally, applicable to ordinary midwifery practice. The Baron states his "profound conviction that ether will be applicable to but a limited number of peculiar cases;" whilst the Professor entertains much more sanguine views. As yet, general experience favours the opinion of the latter.

The pain of labour (incomparably the greatest which human nature is called upon to bear) must, I think, be viewed as an unmixed evil. I will not quote the descriptions given by eminent accoucheurs of the agony and anguish of the final throes; they are universally acknowledged, as are also the

\* British and Foreign Medical Review, April, 1847, p. 571.

† Ibid, p. 572. M. Longet.

‡ Ibid, p. 572. M. Flourens.

§ THE LANCET, March 6th, 1847.

bad effects of intense pain. Pain acts injuriously in several modes. Thus, its severity is very greatly dreaded, and the depression caused by the anticipation of its inevitable occurrence, preying for months upon the spirits, has been known to produce very injurious effects.

The hope that ether will substitute tranquil dreams for the dreaded suffering would obviate this evil. Again: pain is one of the greatest elements in the shock of labour. It is probable that all parts of the nervous system share in this shock. Now, if the effects of ether can be so regulated as to be confined to the brain and spinal marrow, there would be left only those portions of the shock which are seated in the medulla oblongata and ganglionic system. I think we should not be justified in refusing the abolition of part, because we cannot destroy the whole of any evil. Again: we do not know the exact proportion in which the various parts of the nervous system share the shock; we only know that pain is a large element of it.

To the question, how far should we carry our etherization, I would answer, in ordinary cases of labour, merely till the cerebrum and pons Varolii are under its influence, as shown by the suspension of intellect, and of the perception of pain;\* but in cases requiring extraordinary manipulation or operations, we ought to bring the cerebellum and medulla spinalis into temporary narcotism, to prevent, as far as possible, the violent muscular movements which, when the control of the will is suspended, might be productive of mischief. Consciousness is certainly no advantage to the obstetrician; for the patient can do little or nothing to assist him, and frequently may do much harm by her involuntary efforts to bear down, and by her restlessness, which latter often greatly debilitates and exhausts her.

It is obvious, assuming the power of ether to produce these effects, that unless we can regulate the dose, or other circumstances which modify its effects, so as to limit the action to the cerebrum, pons Varolii, cerebellum, and medulla spinalis, ether would be a dangerous agent. Fortunately, there is no reason to doubt that, with proper apparatus, and common

\* British and Foreign Medical Review, April, 1847, p. 571.

observation of the symptoms induced, we may invariably prevent the medulla oblongata from being involved.

Though causing the patient to breathe atmospheric air, either pure, or mixed with the ethereal vapour, has hitherto been sufficient to check any approach to stertor or coma, and also to relieve such conditions when induced, I have observed, with much pleasure, that Mr. Hooper has adapted to his inhaling apparatus an appendage for administering oxygen. This will be a most valuable adjunct in cases where there exists an unusual degree of susceptibility to the effect of ether on the medulla oblongata.

Complete insensibility to pain exists only when the pons Varolii or seat of pain is narcotized; and M. Longet states (in a paper quoted in the last number of the *British and Foreign Medical Review*) that no operation should be attempted until this effect is produced.

On the patient awaking from the state of etherization, the nervous functions return in the same order that they were suspended.\* This explains the fact of many patients being perfectly sensible, and holding rational conversations, but being the whole of the time unconscious of pain.

The following observations by Dr. Simpson will serve to explain my reasons for venturing to enrol myself amongst the advocates of the new remedial agent:—

He says,—“A careful collection of cautious and accurate observations will no doubt be required before the inhalation of sulphuric ether is adopted to any great extent in the practice of midwifery. It will be necessary to ascertain its precise effects both upon the action of the uterus and the assistant abdominal muscles; its influence, if any, upon the child; whether it gives a tendency to hæmorrhage or other complications; the contra-indications peculiar to its use; the most certain modes of exhibiting it; the length of time it may be employed, &c.”

In the hope that some of these desiderata may be supplied, I now beg to lay before the profession the following interesting cases of instrumental labour which have occurred in my practice within the last few days, and in which I have employed ether by inhalation:—

\* Dr. Snow's paper, p. 9.

CASE 1.—On the afternoon of Sunday, 28th ult., I was summoned by Mr. Alder Fisher, to a lady on whom he had been in attendance all day. The expediency of being prepared to employ ether by inhalation, should it be deemed advisable, having been suggested, I gladly availed myself, as on previous occasions, of the valuable services of Mr. Tracy, of St. Bartholomew's Hospital, who has not only invented an ingenious and simple apparatus for administering this agent, but has successfully applied it in several hundreds of surgical cases. On our arrival at the residence of the patient (about four P.M.), we found her in strong labour with her first child. We were informed that her age was forty, and that she had been married eleven months. She is a woman of spare habit and lax fibre; apparently well formed, and about five feet three inches in height. From the age of fourteen, at which the catamenia first appeared, she has always been "regular;" and although not of a robust frame, has enjoyed uninterrupted good health; her last menstruation was in the end of June. I learned from Mr. Fisher, that premonitory labour pains had commenced at half-past twelve A.M., and had gradually increased, both in severity and frequency, until three A.M., when they recurred regularly every twenty minutes. At five A.M. the intervals became shorter, the uterine contractions coming on every ten or fifteen minutes, and the suffering they occasioned, even at this early period of labour, was very considerable. When first seen by Mr. Fisher, at eight A.M., although the os uteri was only dilated to the extent of half-a-crown, the head, still in the uterus, rested on the perinæum. At four P.M., the pains, which had been frequent and energetic since eight A.M., were now both strong and expulsive, recurring every four or five minutes, and the patient complained greatly of her sufferings. Having been informed of the benefit resulting from the employment of ether by inhalation, she was very urgent for its immediate adoption. The bowels had been well acted upon during the day; the tongue was moist and clean; and she was perspiring profusely. On a vaginal examination, the passage was found to be cool and well lubricated; the os uteri dilated to the size of the rim of a tea-cup; and the child presenting in the first cranial position. The head rested on the floor of the pelvis, and forcibly

pressed, during each pain, against the converging tuberosities of the ischia, the distance between which was barely four inches. The membranes were entire and distended with liquor amnii; they protruded through the opening os, the margins of which were rapidly yielding; the uterine structure was soft and dilatable. Being satisfied that there existed no abnormal complications to forbid the inhalation of ether, its exhibition was commenced by Mr. Tracy, at a quarter-past four P.M., immediately after the spontaneous rupture of the membranes. At this time, a pain was coming on, which proved to be very violent, and was attended with considerable straining, and some retching. The ether, in three minutes, produced insensibility to suffering, although the "pains" continued as strong as previously to its application, and recurred regularly every three minutes. The patient occasionally gave rational answers to questions, and stated that she had scarcely been conscious of any pain since the administration of the ethereal vapour; her friends who were present could hardly credit her report, as no difference in the violence of her efforts, or in the character and severity of the uterine contractions, could be remarked.

The following notes of the farther progress of the case were taken on the spot:—At half-past four P.M. the uterine contractions have recurred at intervals of three minutes only, though the patient has remained perfectly narcotized for the last quarter of an hour. During these "pains," which were very powerful, the legs were at times forcibly extended, and the right arm raised, and all the usual straining exclamations during expiration, continued as before. On placing my hands upon the abdomen, I became sensible of the powerful contraction, not only of the uterus, but also of the abdominal muscles. The os was now fully dilated.—Forty-three minutes past four P.M.: Since the escape of the waters, she has had "pains" every two or three minutes, and her cries are loud, sharp, and expressive of severe expulsive efforts. In the intervals of pain, the child's head rests on the perinæum, (producing a distention of its right side, and of the corresponding labium pudendi,) and is closely embraced by the bony outlet. The "pains" are of short duration. Pulse 84, soft and compressible; skin freely perspiring. Fifty-three minutes past four P.M.: During the last five minutes,

the inhalation has been discontinued, and there has been an intermission of uterine contractions for four minutes. In reply to inquiries, she again says she has felt scarcely anything since the ether has been employed.—Thirteen minutes past five P.M.: For the last twenty minutes, the ether has been administered only during uterine action, the intervals between which have been only two or three minutes. She occasionally cries out as if in slight pain, but when interrogated, states she is “perfectly easy and comfortable.”—Fifty minutes past five P.M.: The “pains” have continued every three minutes, but have produced no apparent effect on the head, which is firmly fixed at the outlet; the amount of straining effort, the peculiar cry, and the expression of the face, seem to betoken great suffering during her “pains,” but she again asserts that she is “easy.” The ether was now again suspended for ten minutes, when she had three uterine contractions, and became sensible to pain.—Half-past six P.M.: Under the influence of the ether, in the last half-hour she has had twelve “pains,” and has been wholly unconscious of them. The head is still fixed at the outlet.—Forty-five minutes past six P.M.: During the last ten minutes the ether has not been employed, and the pains have been precisely of the same character as when she was inhaling; she also states that they are productive of much agony. As the head had made no advance, and had been firmly impacted for half an hour, the cranial bones overlapping considerably, I determined, after ascertaining by the stethoscope that the child was alive, to apply the short forceps. This was accomplished at seven P.M., after emptying the bladder, and again narcotizing the patient. It was evident, from the extent to which the handles of the forceps were separated, that the head was a very large one, and that it would require considerable compression, as well as traction, to bring it through the disproportioned outlet. To accomplish this with safety to the mother, and with a prospect of saving the life of the child, I made my efforts at intervals of two or three minutes, during which I relaxed my grasp of the head, and held the handles of the forceps loosely, in order that the brain might recover from the effects of the severe pressure to which it was subjected during traction. By these means the head was delivered in fifty-five minutes from the first appli-

cation of the instrument, and at fifty-five minutes past seven P.M. a living male child was born. After the introduction of the forceps, some difficulty was experienced in consequence of the forcible extension of the patient's legs, and the constant disposition to straighten the body during the strong expulsive efforts. With the assistance of Mr. Fisher and another gentleman the pelvis was held in a favourable position; the right leg was separated from the other, and flexed on the abdomen, so as to admit the handles of the instrument between the thighs. By these means, and by occupying a position in front of the patient, I could easily employ traction in the direction of the outlet with my right hand, whilst with the left I supported the perinæum. The placenta quickly followed, and at eight P.M. the uterus was felt, firmly contracted, through the abdominal walls; a bandage was immediately applied round the abdomen and pelvis, and the ether, which, during the whole period of the operation had effected complete narcotism, was discontinued.—Five minutes past eight P.M.: Consciousness is restored; she expresses a hope that she shall soon be delivered, adding that she is very comfortable. She says she feels as if just awoke from a painful dream. When informed of the termination of her labour she burst into an hysterical laugh, and exclaimed, "It is a dream! it must be a dream! Oh what a good thing it is that I had the ether!" She also observed she had not been sensible of the circumstances attending her delivery.—Quarter past eight P.M.: appears somewhat exhausted, and her face being still flushed, it is ordered to be bathed with cold water. From this period she became rapidly restored to her usual state of mind and sensibility. Farinaceous nourishment and perfect quiet are enjoined.

The child weighed eight pounds and a half; it is twenty-two inches and a half in length. The dimensions of the head are as follows:—round the head and face, in the direction of the oblique or occipito-mental diameter, sixteen inches; around the forehead and occiput, in the longitudinal or fronto-occipital diameter, fifteen inches; from one parietal protuberance to the other, across the vertex, six inches.

It is worthy of observation, that neither the character nor the frequency of the "pains" was affected by the use of the

ether; that all the efforts of the abdominal and other muscles which aid in expulsion, and also the characteristic cries, continued unaltered; that though consciousness remained, excepting during the last hour, in which the forceps were employed, she was wholly insensible to pain, except when the ether was suspended for a time; that with the exception of this rest, she continued under its influence for three hours and three quarters, without experiencing the least injurious result; and that she inhaled, in all, eight ounces and a half of pure ether.

Notwithstanding the advanced age of the patient, and the disproportion between her pelvis and the child's head, delivery was effected within twenty hours from the time premonitory labour pains commenced, and with perfect safety to both mother and child.

In referring to the rigid condition of the extensor muscles of the trunk and inferior extremities, I would direct attention to the position of the operator and the patient as well calculated to overcome the difficulties created by these circumstances in instrumental labour. The result of this case also shows the importance of observing attentively the space between the blades of the forceps during compression, as with little practice it will enable the accoucheur to determine with accuracy the diameter of the child's head, and its relative proportion to the passages of the mother; and thus he will be better able to decide the important question of delivery by means of the forceps or perforator. From a conviction that the life of a child may sometimes be sacrificed by forcibly tying the handles of the forceps together, and by thus keeping up uninterrupted pressure on the head during the operation, I now usually adopt the plan mentioned in this case, by which the head is free from compression, save only during the efforts of traction.

It is to Professor Naegelé, of Heidelberg, that we are indebted for having first pointed out the true mechanism of parturition, and for showing that the head of the child passes through and emerges from the pelvis obliquely. Dr. Rigby observes, in his "System of Midwifery," that in the first cranial position, the right parietal protuberance lies, in the early stage of labour, lowest and deepest in the pelvis; whilst the

superior and posterior quarter of this bone is the part which first comes under the pubic arch and enters the external passages. I am not, however, aware that any one has observed a fact of some practical interest, in reference to this subject, which I have long known, and which I have alluded to in the above notes—viz., that in the first cranial position the right side of the perinæum and corresponding labium pudendi are chiefly subjected to pressure during the distention of the soft parts, and therefore principally demand the support which may be necessary to save the perinæum from accident, and *vice versa* when the head passes in the second position. From my own observations, I am induced to believe that future experience will prove, that as the first cranial position is the most common, so rupture of the perinæum usually occurs on the right side of its raphé, and that this accident may most effectually be prevented by acting on the suggestions I have here ventured to make.

March 29th.—Eleven A.M.: Has passed a comfortable and tranquil night, and has slept without dreaming—a very uncommon occurrence with her; the lochia are natural in quantity, &c.; pulse 70, soft and regular; tongue clean; is very cheerful, and entirely free from ailment, with the exception of inability to evacuate the bladder; a pint of healthy urine was accordingly drawn off by the catheter. She observed this morning that she had a most vivid recollection of severe suffering previously to the inhalation of the ether, and also a slight impression of having felt some pain during the intervals of its exhibition, which entirely ceased after a few inspirations; that with these exceptions, she was not at all aware of the birth of the child, or of any circumstance attending her confinement; and that it was not until after her face and temples had been bathed with cold water that perfect consciousness was restored, when she felt as though she had awakened from some strange and painful dream, the subject of which she could not call to memory.—Eleven P.M.: Has passed her urine spontaneously; is doing well in every respect. The child is healthy, and takes the breast readily.

30th.—Noon: Has had a good night; the milk is increasing; and with the exception of feeling rather stiff, she is perfectly well.

April 19th.—Both mother and child continue perfectly well, and since the delivery no medical aid, beyond the passage of the catheter on one occasion, has been required.

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CASE 2.—April 1st, 1847. Mrs. —, aged thirty-three; married ten years and a half; has had six children, of which the last was born in February, 1846; is a robust-looking woman, with florid complexion; states that her general health is good, and that, with the exception of slight chronic cough, she has been free from ailments during the term of utero-gestation; says her family is of a consumptive and rheumatic tendency, her mother having died at forty, and a brother at twenty, of phthisis; has always been “regular” from the age of sixteen, except when pregnant or nursing. Her first five labours were ordinary in their character; the fifth lasted forty-eight hours, and was attended with great suffering; and the sixth and last, five hours: in each the child was a female. In the last, the head was arrested at the brim for some time, and in consequence my assistance was called for; but as the labour terminated before my arrival, I did not make any examination. She last menstruated at the end of June. The bowels have been freely opened, and the bladder has been lately relieved. Premonitory symptoms of labour commenced on Sunday, 28th ult., recurring about every two hours. On the following day, 29th, they abated in frequency and power; but became more urgent on Tuesday, 30th, towards evening, with intervals of only half an hour. The pains were felt chiefly in the groin and hypogastrium. On Wednesday morning, 31st ult., she had an interval of rest until about eight o’clock, when a strong pain ruptured the membranes, and what she described as a “good deal of water” escaped. From this time the pains recurred about every half hour, until six A.M. of the following day, when they became slack. Mr. Orford, who attended this patient, first visited her at eight P.M. of the 31st ult. The os uteri was then soft and dilatable, but not at all dilated. An enema was given, which emptied the rectum. He visited her again at half-past twelve o’clock, when the dilatation of the os uteri was nearly complete. The pains having been very powerful and frequent, without any effect on the head of the child, Mr.

Orford gave tincture of opium, half a drachm. During the early period of labour, he could not detect the true position of the head in consequence of its high situation in the pelvis. Mr. Campion, who was called to the patient, first saw her at six A.M., when the head was resting on the pelvic brim, and was moveable; and as the symptoms at that time were those of arrest, he administered three doses of ergot at half-past six, seven, and half-past seven A.M. successively. This treatment had the effect of increasing the strength and frequency of the pains; but without producing any advance of the head, which became firmly fixed in the brim.

The above history was given to me on my arrival at ten A.M. On making a vaginal examination, I found the passages cool and well lubricated; the head resting on the brim, and firmly fixed during a pain; slightly moveable in the intervals. A very large *caput succedaneum*, and an evident malformation of the pelvis, rendered it difficult to diagnose the true position of the child. On carefully examining, however, I ascertained that it occupied the first cranial position, the posterior fontanelle being turned in the direction of the left foramen ovale.

The pelvis, in this case, formed a remarkable example of that condition so faithfully described by Professor Naegelé, of Heidelberg, under the appellation of "*pelvis obliqué ovata*." In this instance the pelvis was twisted, so that the symphysis was inclined to the right, and the sacrum to the left. The left side of the pelvis was flattened, as though driven inwards, and the left linea ilio-pectinea presented almost a straight line from the sacro-iliac synchondrosis to the posterior margin of the foramen ovale. From this point, the body of the pubic bone abruptly inclined backwards, so as to present a distinct ridge of the size of a finger. This ridge was formed by the angle, perpendicular surface, and inner margin of the ramus, and projected backwards so as to contract the conjugate diameter of the brim. This projection at first conveyed to the touch the impression that it was a considerable exostosis; but on further investigation, the true nature of the malformation was detected. Anteriorly, I could feel a narrow rim of the uterus, (the remains of the anterior lip,)

and by introducing two fingers this rim could be traced backwards, encircling the head of the child, and pressed between the projection of bone and the brim of the pelvis. The pains were coming on every three or four minutes; but were not at all powerful, lasting from a quarter to three quarters of a minute. It having been ascertained by the stethoscope that the child was alive, I determined to administer ether by inhalation. The patient was very urgent to be relieved from her sufferings, which were beginning to tell upon her strength and nervous system. At a quarter to eleven A.M., the ether was accordingly administered by Messrs. Campion and Orford. At first it induced slight cough, which entirely disappeared in about five minutes. At the end of the first eight minutes, during which she continued to inhale, but not uninterruptedly, she became conscious of a pain—the ether having been very imperfectly taken, from her frequent efforts to talk and to interrupt the process of inhalation. In ten minutes she was quite reconciled to its use; but owing to its imperfect exhibition, she became rather inebriated than narcotized. In this state she continued until a quarter to twelve, uterine contractions recurring every three or four minutes, but unattended by any efforts on the part of the abdominal muscles. From this time the ether produced more effect, and she became unconscious of her “pains,” though they were much increased in power, and were aided by distinct action of the assistant abdominal muscles. These were felt to contract forcibly under the hand. She was at times very loquacious. At every vaginal examination the “pains” became more frequent, returning every minute, and were much increased in intensity.—Fifty-five minutes past eleven: Is completely narcotized; the hand drops powerless when lifted up; the eye is turned up under the superior lid; her face is flushed; pulse 92, soft and smaller; skin profusely perspiring. The narrow rim of the cervix uteri can no longer be felt; the head is firmly impacted in the upper strait; the bones of the cranium overlapping.

Having determined on employing the long forceps, from the impression that, notwithstanding the great deformity, there was room to bring the head through the contracted brim by cautious traction, having previously introduced the catheter,

I accordingly applied this instrument at a quarter to twelve. For about half an hour, my repeated, but interrupted, efforts to extract were apparently unavailing; but in a few minutes afterwards, the head slipped suddenly over the projection before described, and fairly occupied the true pelvis. During this process, I passed two fingers of my left hand—one on each side of the projection, so as to guard it effectually from undue pressure during traction. A few more efforts brought the head through the os externum, when the child immediately cried loudly. The body quickly followed, and the placenta was thrown off by the same pain that expelled the child. The uterus contracted well, and there was very little hæmorrhage. The ether, which had been employed with but little interruption for two hours, was discontinued immediately after the birth of the child; and the patient recovered her consciousness in two or three minutes. Though apparently aware of the presence of pain in the early part of the process, she expressed herself very grateful for the use of the ether, and stated that she was entirely ignorant of the birth of the child, and of the means which had been adopted for its accomplishment. The pains instantly ceased on the expulsion of the secundines, but were immediately induced on the introduction of my finger, after the completion of the labour, in order to ascertain with more accuracy the true state of the pelvic deformity. So powerful were the expulsive efforts thus induced, that the uterus was forcibly driven down to the outlet; but these after-pains suddenly ceased with the withdrawal of the finger, and a state of perfect repose followed. The child is a very large and vigorous boy; the head presented a perfect cast of the deformed pelvis of the mother; it is very oblong—perfectly flattened on its left side from the lambdoidal suture to the temporal ridge of the frontal bone; whilst the opposite side describes a hemispherical, or rather semi-oval, figure, elongated by a very large *caput succedaneum*, which occupies the superior posterior angle of the right parietal bone.

April 2nd.—Has passed a tranquil night. Both child and mother are in every respect well. She states that she has no recollection of any circumstance from the time the ether was first administered, until the escape of the placenta from the vagina, of which she was conscious, though she felt no pain.

She is most profuse in her grateful acknowledgments of the blessing of the ether, which she hopes will be employed again, should she become pregnant.

6th.—Is sitting up in bed, and observes that she has suffered less after this confinement than in any previous one—in fact, that she has experienced no exhaustion, and, to use her own expression, “never felt so well in her life.” This unusually healthy condition she attributes to the use of the ether. Her cough is almost gone, and everything is going on favourably. The child is vigorous, and takes the breast eagerly; and its head has recovered from the misshapen state in which it was born.

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CASE 3.—Mrs. H——, aged twenty-four; primipara; of delicate appearance, and weakly constitution. From the age of fifteen years and a half, when menstruation first occurred, her health suffered from the sedentary nature of her occupation—that of dress-making. But from the period of her marriage, twelve months since, she has relinquished her business, and has enjoyed better health, though she has occasionally experienced pain in her chest, and has had at times black mucous expectoration. Her last menstruation was in July, 1846. Labour commenced at ten P.M., on the 14th of April. She was first visited by Mr. Orford, at seven A.M., on the 15th, when the os was dilated to the size of a crown-piece; and the pains were slight, and recurred at long intervals. The bowels having been constipated for some days, an enema was administered. At ten A.M. the uterine efforts were powerful and frequent, and the os fully dilated. The child was presenting in the first cranial position. The membranes ruptured during a pain at noon, at which time the head had not entered the true pelvis. The uterine contractions then became very forcible, and the intervals short, until two P.M., when the head descended to the outlet, where it remained stationary. At half-past three P.M., Mr. Orford gave her half a drachm of the ergot, the uterus having been in a state of inertia for an hour and a half. From this time until eight P.M., notwithstanding very frequent and expulsive efforts, the head made no advance. Mr. Campion having seen the case at this juncture, concurred with Mr. Orford in the necessity for instrumental assistance,

and my attendance was accordingly requested. On my arrival, I found the patient much exhausted, and very desirous to be relieved of her pain by the agency of ether. For nearly four hours the head had been firmly impacted at the outlet, the transverse diameter of which did not exceed three inches and a half. The cranial bones were overlapping to a considerable extent, and the caput succedaneum was very large. Having satisfied myself of the healthy condition of the thoracic viscera of my patient, and that the child was alive, the use of the short forceps and the inhalation of ether appeared to me to be clearly indicated. After the bladder had been emptied, the ether was administered by Messrs. Campion and Orford at ten minutes to nine P.M. In three minutes, she became perfectly narcotized, when I introduced the forceps and extracted the head in twelve minutes afterwards. The body of the child followed in five minutes more, and the placenta was expelled by natural efforts in about ten minutes afterwards, when the inhalation of ether was discontinued.

When I first visited this patient, I found that her pains were recurring every two or three minutes; but when she became under the influence of ether, their force and frequency were evidently augmented; the abdominal muscles, as well as the uterus, contracted powerfully, and each effort was attended by the cries peculiar to the last stage of labour. During the period of etherization, the breathing at first was stertorous for a few moments, and the thighs and legs were forcibly flexed, and drawn towards the abdomen. Having adopted the mode of operation proposed in Case 1, the extraction was accomplished with great ease. The head of the child (a male) was much flattened by the action of the forceps, and was still-born, but the usual means for restoring animation were successful before the separation of the funis. The maternal surface of the placenta, which was very large, presented a beautiful net-work of white, thread-like lines, apparently calcareous; this diseased condition of the placental cotyledons appeared to have exerted no injurious influence on the child, or to have impeded the separation of the afterbirth. I much regret that, owing to some misunderstanding, the placenta was destroyed. It is worthy of remark, that the perinæum presented no obstacle to the passage of the head, being perfectly relaxed, and yielding

readily to its pressure. In both this and the first case, the usual rigidity of the soft parts was entirely wanting, and I think we may venture to attribute this condition to the influence of the ether. Indeed, in both instances, and more particularly in Case 1, where the patient was a primipara, and forty years of age, this favourable condition was sensibly effected in the narcotized state. The uterus contracted firmly after the completion of parturition, and the loss of blood was trivial.

On restoration to consciousness, which was expedited by bathing the face with vinegar-and-water, she observed that she had been asleep, but yet was strangely impressed with the conviction that she had been "travelling very far on a railroad;" she was totally ignorant of all which had occurred during her state of narcotism. She expressed the hope that her labour would soon be terminated, and when I intimated to her that it was already accomplished, she replied, "Oh I won't believe that!" nor could she be convinced of the fact, until her infant, a fine, squalling boy, was called upon to witness to its truth.

Eleven p.m.: Is quiet and comfortable; says she only feels weak; lochia and urine have been passed freely; the child has taken the breast; she has asked for something to eat; she has had some after-pains.

April 16th.—Both mother and child are well; the former has passed a tranquil night. Towards evening the after-pains became troublesome, but disappeared after the expulsion of a few coagula.

17th.—The mother and child are going on well in all respects.

During traction on the head, which was in the first position, the bulging of the right side of the perinæum and labium pudendi, as mentioned in Case 1, was very evident to Mr. Champion, whose office it was to support the soft parts. In this case, it is remarkable that the legs were flexed, as extension of the lower extremities has been usually observed under the influence of ether.

The result of the foregoing cases will, I think, bear out M. Dubois' summary—viz.,

1. Ether prevents pain during obstetric operations.

2. It may momentarily suspend the natural contractions, but,
3. It does not suspend them, nor the contraction of the abdominal muscles, when energetically set up.
4. It appears to lessen the natural resistance of the perinæal muscles.
5. It does not appear to exert any bad influence on the life or health of the child.
6. It does not prevent or retard the subsequent contraction of the uterus.

To these conclusions I would add,—

1. That ether produces freedom from pain during natural labours, as well as during obstetric operations.

2. That it is very probable that the momentary suspension of uterine action, which sometimes occurs when ether has been administered in the earlier stages of labour, may be caused by the novelty, not unmixed with fear, of the inhalation, just as the arrival of the accoucheur will often temporarily suspend the contractions.\*

3. That it will be a most powerful agent in preventing rupture of the perinæum, especially in primiparæ advanced in life; firstly, by producing relaxation of the perinæal muscles; and secondly, by rendering the woman incapable of sudden movements, during the support of the soft parts, under the intolerable pain when the head is emerging from the os externum.

4. There is no evidence to show that the ether has any bad influence on the mother. If it has, the proof remains to be adduced.

Thus, then, I agree with Professor Simpson† in anticipating great advantages from the use of ether, not only in cases requiring manipulations or operations, but also in natural cases; and the chief advantages which I think we are entitled to expect are—

1. The saving of suffering—perhaps the greatest borne by human beings, and in no way contributing to the happy

\* I observed this to occur in Mr. Skey's case of Cæsarian operation, at which I assisted, the fatal termination of which was the combined result of peritonitis and previous shock.

† Dr. Simpson, who was the first to employ this agent in midwifery practice, has used it with perfect safety and success in forty or fifty cases, in some of which the etherization was kept up *for hours*.

termination of the case. Possibly, as a drawback from this advantage, we may admit that an inexperienced practitioner may occasionally pinch or bruise the maternal soft parts, from the inability of the patient to give any warning by her complaints.\*

2. The saving of a considerable portion of the shock, or that portion of it dependent upon the brain, which always occurs, and which can certainly not be looked upon in any light but that of an evil, and which is sufficient, in some cases, to destroy life.

3. The obtaining sleep, or at least quiet, during the progress of the case.

4. The more speedy relaxation of the os uteri and perinæal muscles.

5. During operations, the very great advantage of having the patient lying perfectly still.

6. The removal of the dread which many patients entertain during the whole of their pregnancy, and which, by its depressing effects, may prove injurious.

In all the cases published, the relief has been great and immediate. In none has there been any untoward event—no hæmorrhage, no convulsions, no collapse, which could fairly be chargeable upon the ether. Baron Dubois distinctly says, that he could trace no bad effect in his five cases to the ether; and my own experience confirms this account. He bases his opinion, that ether will never be habitually employed in ordinary cases, upon two main grounds; 1st, the small number of cases which he had to refer to; and 2nd, the impossibility or probable danger of keeping a woman etherized for several hours. Both these grounds have been removed; the latter especially, by the result of Dr. Simpson's cases and my own; and it is very doubtful if the Baron would not at this time greatly modify his opinion.

A point which may become of great interest and importance is, whether other agents cannot be combined with the ether; for instance, laudanum where the pains are dangerously violent; or tincture of ergot where they are insufficient. In

\* Let it be remembered, however, that two of Baron Dubois' cases, which terminated fatally from metro-peritonitis, were forceps cases; but puerperal fever was present in the wards of La Maternité.

one of Dr. Simpson's cases, the patient inhaled a volatile solution of ergot. The pains, which had previously been languid, almost immediately became strongly expulsive, and the child was born in a quarter of an hour. The woman had been in labour from forty to fifty hours.

In conclusion, I would state it as my opinion, that with perfectly pure ether, carefully administered by skilful persons, and with good apparatus, and especially by one containing an appendage with a supply of oxygen, the operation not being commenced until efficient etherization is produced, the employment of ether is not only justifiable, but promises to be instrumental in materially diminishing the dangers of operative midwifery. Probably, in natural cases it will be both sufficient and safer to carry the etherization only to the second stage, in which partial consciousness remains, but sensation is abolished; and towards the end, when the pains are ordinarily intolerable, to induce perfect narcotism. From the results which I have already obtained, it is my intention to continue the use of this valuable agent, and I do not hesitate to state my belief, that future experience will fully confirm my present opinion.

John-street, Bedford-row, April, 1847.