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ANÆSTHETIC MIDWIFERY:

1st serious appraisal ever
published on
relative virtues
of ether, chloroform
& nitrous oxide.

REPORT

ON ITS

EARLY HISTORY AND PROGRESS.

BY

J. Y. SIMPSON, M.D.,

PROFESSOR OF MIDWIFERY IN THE UNIVERSITY OF EDINBURGH.

——— "I do think you might spare her,
And neither heaven nor man grieve at the mercy."
Measure for Measure.

EDINBURGH:

SUTHERLAND AND KNOX, GEORGE STREET.

MDCCCXLVIII.

[FROM THE MONTHLY JOURNAL OF MEDICAL SCIENCE, OCTOBER 1848.]

TO
CHARLES J. HAMBRO, ESQ.,
BRANDBURY HOUSE, WILLESDEN.

MY DEAR SIR,

I venture to inscribe the following pages to you, to mark my deep and sincere esteem for your character; and because I know no heart that will rejoice more than yours over any abolition of human suffering. Besides, I cannot forget that, last year, in my earlier researches into the practice of Anæsthesia, I was encouraged to perseverance by no one so much as by yourself.

And, with every kindest wish to you and yours, believe me,

My dear Mr Hambro,

Your faithful Friend,

J. Y. SIMPSON.

52, QUEEN STREET, EDINBURGH,
30th September 1848.

ON THE EARLY HISTORY AND PROGRESS
OF
ANÆSTHETIC MIDWIFERY.

MY principal object in the following Report is, first, to sketch briefly the origin and earlier history of the application of artificial anæsthesia to midwifery; secondly, to adduce some evidence of the present progress and state of the practice, more especially in our own country; and, lastly, to answer some of the supposed difficulties and objections connected with it.

NOTES ON THE FIRST APPLICATIONS OF ARTIFICIAL ANÆSTHESIA
IN MIDWIFERY.

In a communication laid before the Edinburgh Medico-Chirurgical Society in November last, I attempted to prove that the idea of cancelling and abrogating the pains inflicted by the knife of the surgeon had not entirely originated in our own times. I showed that Dioscorides, Pliny, Apuleius, Theodoric, Paré, and others,¹ had long ago described, and some of them apparently practised, the induction of anæsthesia previous to operations, both by giving their patients narcotic substances to swallow and narcotic vapours to inhale. While making the researches upon which the communication alluded to was founded, I further attempted to ascertain if any writer had proposed to assuage or annul, by the same or by other means, the pains attendant upon human parturition. I failed, however, in

¹ Monthly Journal of Medical Science, Vol. 1847-48, p. 451.

finding any traces whatever either of any practical attempts to abrogate or modify, by true anæsthetic means, the pains of labour, or of any theoretical suggestions even as to the very possibility of effecting that desirable result. And I believe the history of the induction of anæsthesia in midwifery does not date far back, like the history of anæsthesia in surgery. The first instance in which the practice was adopted, occurred in my own practice in Edinburgh on the 19th January 1847. The case was one of deformed pelvis, in which I had pre-determined to extract the child by turning, and to try the inhalation of ether vapour upon the mother, with a view to facilitate that operation. During a week or two previously, I had anxiously waited for the supervention of labour in this patient; for, by the result, I expected that much would be decided in regard to the effect of ether-inhalation in parturition. Would it merely avert and abrogate the sufferings of the mother, without interfering with the uterine contractions? Or, would it arrest simultaneously both the contractions of the uterus and the sufferings that arise from them? As far as the proposed mode of delivery by turning was concerned, it was a matter of no vital importance whether the etherization stopped the uterine contractions or not. And, on this circumstance, depended the eligibility of the case for a first trial of ether-inhalation. The result was most satisfactory and most important; for it, at once, afforded me evidence of the one great fact upon which the whole practice of anæsthesia in midwifery is founded—it proved, namely, that though the *physical sufferings* of the parturient patient could be annulled by the employment of ether-inhalation, yet the *muscular contractions* of the uterus were not necessarily interfered with; or, in other words, that the labour might go on in its course, although the sensations of pain usually attendant upon it were, for the time being, altogether abrogated.

This case, with its more obvious results and inferences, was communicated to the Obstetric Society at their meeting on the 20th of January.¹ In the course of the subsequent three weeks I had an opportunity of trying ether-inhalation in several cases of natural labour and in one forceps case; and, at the next meeting of the Obstetric Society on the 10th February, I took an opportunity of bringing the subject under the attention of the members at greater length. In the published reports of the society,² the various inferences which then appeared to me to be deducible in regard to it are given in the following terms:—

1. That the inhalation of ether procured for the patient a more or less perfect immunity from the conscious pain and suffering attendant upon labour.

2. That it did not, however, diminish the strength or regularity of the contractions of the uterus.

¹ Monthly Journal, Vol. 1846-47, p. 639.

² Ibid. p. 795.

3. That, on the other hand, it apparently (more especially when combined with ergot) sometimes increased them in severity and number.

4. That the contraction of the uterus after delivery seemed perfect and healthy when it was administered.

5. That the reflex assistant contractions of the abdominal muscles, &c., were apparently more easily called into action by artificial irritation, and pressure on the vagina, &c., when the patient was in an etherized state.

6. That its employment might not only save the mother from mere pain in the last stage of labour, but might probably save her also, in some degree, from the occurrence and consequences of the nervous shock attendant upon delivery, and thereby reduce the danger and fatality of childbed; and,

7. Its exhibition did not seem to be injurious to the child.

Full details of some of the principal cases upon which these inferences were founded, were, along with other additional instances, subsequently thrown together and published in the form of a communication to the *Monthly Journal of Medical Science*.¹ In that paper I made some observations on the question, Whether it would be proper to employ anæsthesia in natural labour? I adduced various reasons from physiology and pathology for believing, that the parturient action of the uterus would go on healthily and uninterruptedly though the influence of the mind and purely cerebral functions were suspended, and that the dangers of the nervous shock attendant upon labour would be lessened; and I pointed out the necessity of ascertaining, by a cautious series of observations, what counter-indications there might be to the employment of the practice;—whether it were ever apt to give a tendency to hemorrhage or other complications; its influence, if any, upon the child; the length of time its use might be continued in any one case, &c.

At the date at which the paper that I have just referred to was written, viz. the 18th February, the longest time during which I had ventured to keep a parturient patient in the anæsthetic state was about half an hour. And many who believed that this state might be induced without danger for a few minutes, entirely doubted whether it could be sustained for any great length of time without extreme hazard. During the experience, however, of the next two or three weeks, I ascertained the fact, that the anæsthetic action could be safely kept up during labour for one, two, three, or more hours. At one of the subsequent meetings of the Obstetric Society, this result and others were adduced,² and the following additional deductions drawn, as stated in the words of the printed proceedings of the society, viz.—that,

1. The state of etherization had little or no influence upon the fœtus, none, at least, of a deleterious kind,—the fœtal heart increasing only a few beats, if at all, when the mother was kept long and fully etherized, either during pregnancy or labour.

¹ "Notes on the Employment of the Inhalation of Sulphuric Ether in the Practice of Midwifery."—*Monthly Journal of Medical Science* for March, p. 721.

² *Monthly Journal of Medical Science*, 1847-48, p. 214.

2. The mother, during labour, may be kept etherized, if required, for one, two, three, or more hours. Dr Simpson described two cases, in one of which the mother was about six, and in the other about four hours etherized before the children were born. In both cases the duration of the intervals and of the pains before and during etherization was noted (as in the experiments which Dr Simpson had published on galvanism), and the etherization seemed to have no effect either on their frequency or strength. But,

3. In two or three cases, Dr Simpson had seen a very deep state of etherization modify apparently the full strength of uterine contractions, but they recurred immediately in full force when the patient was allowed to fall back into a state of slighter etherization.

4. Dr Simpson had hitherto seen no traceable injury to either mother or child from its employment, but the reverse.

5. The inhaler he used was either a concave sponge saturated interiorly with ether and held over the face, or a simple portable flask without valves.

The first case of labour in which I employed artificial anæsthesia occurred, as I have already stated, on the 19th January 1847. This case and its results were stated publicly, on the following day, to my Class in the University, and immediately became extensively known to the profession through the medium of the public journals.¹ In the course of a short time the practice of anæsthesia began to be tried in other medical schools. On the 13th February, Dr Murphy of London stated to the Westminster Medical Society that he had employed it in a case of turning.² On March 27th a case was published of the use of ether in natural labour,³ by Mr Lloyd. Dr Protheroe Smith delivered a patient under a state of anæsthesia on the 28th of March; and in the *Lancet* for 1st May he published a paper, "On the Employment of Ether by Inhalation in Obstetric Practice," giving an account of this and two later cases in which he had recourse to anæsthesia during labour. He afterwards sent to the same journal several additional cases and remarks.⁴ Mr Lansdowne of the General Hospital, Bristol, subsequently published various cases in which the practice was successfully employed. His first case occurred on the 8th April.⁵

In Ireland, the first case delivered in a state of artificial anæsthesia was on the 28th November 1847. The patient was under the care of Dr Tyler of Dublin. It was an instrumental labour.

In France, the practice was much more early tried. In about a week after the first case occurred in Edinburgh, Fournier Deschamps delivered a patient by the forceps when she was in a state

¹ See Medical Gazette for 1847, Vol. XXXIX. p. 460. Also Provincial Journal for 1847, p. 84.

² *Lancet* for February 27, 1847.—Before this date, viz. on the 26th of January, a state of anæsthesia was attempted to be induced in a patient upon whom the Cæsarean section was performed by Mr Skey of St Bartholomew's Hospital, London. "But the inhalation of the vapour of ether was unsuccessful, or but very partially successful."—(*Lancet*, Vol. I. 1847, p. 140.)

³ Medical Times, 1847, p. 96.

⁴ *Lancet* for 1847, Vol. II. p. 121, and p. 305.

⁵ *Lancet*, Vol. I. 1847, p. 446.

of anæsthesia.¹ This was on the 27th of January. On the 8th February, Professor Paul Dubois exhibited ether in a case of forceps operation at the Hôpital de la Maternité of Paris, and up to the 23d February had used it in four other deliveries. He has not himself published, as far as I am aware, any written observations of his own upon the subject; but he early brought the question, in an interesting and able form, before the French Academy of Medicine,² and various reports of this important oral communication immediately appeared in different journals.³

Professor Dubois' conclusions, as officially reported in the *Bulletin de l'Académie*, were as follows:—⁴

1. The inhalation of ether can annul the pain of obstetrical operations.
2. It can suspend the physiological pains of labour.
3. It destroys neither the uterine contractions, nor the contractions of the abdominal muscles.
4. It diminishes the natural resistance of the perineum.
5. It does not appear to act unfavourably on the health or life of the infant.

Professors Villeneuve⁵ of Marseilles, and Stoltz⁶ of Strasbourg, subsequently published some additional cases and observations.

In Germany the first case of anæsthetic midwifery, of which I have found any published notice, occurred on the 24th February 1847, under the care of Professor Martin of Jena.⁷ The ether was administered during the operation of separating and extracting an adherent placenta. Professor Siebold⁸ read a paper on the subject before the Royal Scientific Association of Goettingen on May 8. He had employed ether in several cases of natural and instrumental labour. On the 3d June, Professor Grenser of Leipsic⁹ etherized a patient for a forceps operation, and afterwards resorted to it in several other natural and instrumental cases.

In America,—the country to which we are indebted for the first knowledge of the anæsthetic effects of sulphuric ether in surgical operations,—the same agent was not employed in midwifery till the reports of its use in obstetric practice in Europe had recrossed the Atlantic. Dr Channing, professor of midwifery in Harvard University, was, I believe, the first to employ it in labour.¹⁰ He adopted the practice in two forceps cases; the first of which occur-

¹ Gazette des Hôpitaux, 30 Janvier 1847.

² Bulletin de l'Acad. Roy. de Médic. Tom. XII. p. 400.

³ "Le 23 Février, M. P. Dubois, qui avait eu connaissance des recherches de M. Simpson, communiqua à l'Académie de Médecine le résultat de ses expériences.—(Chambert. *Des Effets des Ethers*, p. 231.)

⁴ Bulletin, tom. xii. p. 407.

⁵ De l'Éthérisation dans les Accouchements. Marseille 1847.

⁶ Gazette Médicale de Strasbourg, 27 Mars 1847.

⁷ Ueber die Künstliche Anæsthesie bei Geburten. Jena 1848.

⁸ Medical Gazette, Vol. XXXIX. 1847, p. 1052.

⁹ Ueber Aether-einathmungen während der Geburt. Leipzig 1847.

¹⁰ Two cases of the inhalation of ether in instrumental labour. Boston 1847.
—(From the Boston Medical Journal.) Dr Channing, in a postscript to an

red on May 5, the other on May 15, 1847. Drs Clark,¹ Putnam,² and other American practitioners, have latterly published the results of their experience in anæsthetic midwifery.

In November 1847, a new impulse was given to the practice of anæsthesia in midwifery, by the introduction of chloroform as a substitute for sulphuric ether. The ether required to be exhibited in large quantities in order to keep up its action; and hence it was objectionable in ordinary obstetric practice from its bulk, and the inconvenience of its carriage. Most medical men believed that an apparatus of more or less considerable size was necessary for its proper and effectual exhibition, thus further encumbering the practitioner. These and other difficulties were found not to appertain to the use of chloroform, and many, in consequence, adopted it in midwifery, who had previously altogether rejected the employment of sulphuric ether. The first case of labour in which I employed chloroform occurred on the 8th of November. On the 1st December, I reported to the Edinburgh Medico-Chirurgical Society a series of cases illustrative of its effects and use in natural and operative labours.³ In the London weekly journals, since that period, Dr Protheroe Smith, Dr Murphy,⁴ Dr Rigby, Mr Lansdowne, Mr Brown, Dr Bennet, Mr Phillips, and others, have published cases and reports upon the subject.

RESULTS OF THE PRACTICE OF ANÆSTHESIA IN MIDWIFERY.

Since January 1847, up to the present time, I have, in my own practice, delivered about 150 patients under a state of anæsthesia. The results to the children and mothers have been as follows:—

Results to the Children.—In the 150 cases, all the children were born alive except one. In this exceptional instance, the infant was expelled in a decomposed and putrid state, between the seventh and eighth month of utero-gestation. It had not been felt to move, nor had I been able to hear the foetal heart with the stethoscope, for two or three weeks previously. The mother had, before the present pregnancy, borne several premature dead children. Though the infant was small, yet the suffering attending upon its expulsion offered to be excessive, and, to relieve the mother of this unnecessary agony, I placed her under the influence of chloroform.

During the few weeks of my obstetric attendance after delivery

American reprint of one of my Essays on Chloroform, has announced his intention of soon publishing a volume "On the Employment of Etherization in Childbirth."

¹ Philadelphia Medical Examiner, March 1848.

² Boston Medical and Surgical Journal, February 2, 1848.

³ See Lancet for November 20, 1847, p. 533, and December 11, p. 613; also Medical Gazette for November 26, p. 934.

⁴ See also Dr Murphy's able Harveian Oration on the employment of Chloroform.

upon these 150 cases, only one of the children died ; namely, a child who sank under the symptoms of cyanosis. Nor am I aware that any of them has suffered, up to this time, under "cerebral effusions," or "convulsions," or "hydrocephalus," or any other of the affections which have been prophesied as certain to befall all such infants as would be borne in labours rendered painless by art. Perhaps it may be proper to add, that none of the children have shown any symptoms of what has been calmly averred, in more than one publication in London, as a possible, or rather probable result of anæsthesia, viz. Idiocy.¹—"Dixerit insanum qui te, totidem audiet."

Results to the Mothers.—Among the 150 mothers, the more immediate and direct effect of anæsthesia has been the alleviation or abolition of the physical sufferings attendant upon the latter stages of labour. And, certainly, if the object of the medical practitioner is really twofold, as it has always, till of late, been declared to be, viz. "the alleviation of human suffering and the preservation of human life," then it is our duty as well as our privilege to use all legitimate means to mitigate and remove the physical sufferings of the mother during parturition. The degree of these sufferings is, as a general rule, assuredly such as to call for this aid and mitigation. In proof of their severity, I might cite the unprejudiced testimony of various obstetric authors. At present, I shall content myself with one. Professor Meigs of Philadelphia—a declared opponent of the innovation of artificial anæsthesia in labour—when speaking of the sufferings of the mother in human parturition, fully admits their intensity. "What (says he) do you call the pain of parturition? There is no name for it but *Agony*;"² and he elsewhere speaks of the pains in the last stage "as absolutely indescribable, and comparable

¹ How can we "know or ascertain the possible consequences of the use of such an agent on the brain of the child? And how can we calculate what may be the ultimate consequences of its action in reference to the development of the mental faculties?"—*Dr Malan, in Lancet for April 29, 1848.*

"It is admitted by all, that the pulsations of the fetal heart are *greatly increased* during inhalation,—indeed, to such an extent has this been noticed, that in some instances the pulsations could not be counted, so much were they accelerated. Are not effusions to be feared from this? Are not convulsions after birth likely to ensue? And may not that occur which would make the most heartless mother shudder at the bare possibility of herself, by her want of courage, being instrumental in producing? May not *Idiocy* supervene? Of this we have as yet no experience, nor shall we have, perhaps, for years; but when *one* such case occurs, will there then be found any one who will afterwards be persuaded to submit herself to etherization during pregnancy?"—*Mr Gream, in London Medical Gazette for 7th September 1848.*—It is perhaps superfluous to add, that the premises of the preceding paragraph are as gratuitous as its conclusions; and that the pulsations of the foetal heart are little, if at all, increased in rapidity when the mother is anæsthetized. "The action of the child's heart (says Professor Siebold) was found to continue quite unaltered, not the slightest change in its frequency and regularity being detected."—*Siebold on the Employment of Etheral Inhalations in Midwifery, in the Medical Gazette for 11th June 1847.*

² Females and their Diseases, p. 49. I leave the italics the same as in the original.

to no other pains.”¹ Now, surely, if it be the duty of the physician (and who doubts it?) to relieve and remove the pains of colic, of pleurodyne, of headache, neuralgia, rheumatism, &c. &c., it is his duty to relieve pains so severe as to be “absolutely indescribable, and comparable to no other pains.” There is not one code of humanity for one class of pains and patients, and a different and opposite code for another class of them.

From November last, when I began to use chloroform in labour, up to the present time, none of the patients, with one exception, at whose delivery I have attended, has been aware of these last “absolutely indescribable” pains; the state of artificial anæsthesia having always been induced for a longer or shorter time before their supervention. And I have kept up this state for a period varying from a few minutes to four, five, six, or more hours before delivery. In the exceptional case referred to, the patient’s sufferings were greatly mitigated; but the state of anæsthesia was not, as usual, perfect and complete, the patient having been unexpectedly taken in labour when not in her own house, and the attendant anxiety and confusion of herself and her attendants being such as totally to preclude the requisite degree of quietude. When employing ether, I repeatedly saw cases in which the patients were thus only partially and not completely anæsthetized,—where, in other words, they were not entirely asleep, but were aware of the presence of the uterine contractions, and sometimes experienced, from them, sensations in some degree painful, but of a very mitigated and blunted character.

Besides thus alleviating and abolishing the sufferings of the mother during labour, the practice of anæsthesia carries along with it other advantages. A number of patients have spontaneously told me, that the prospect of being enabled to pass through the ordeal of parturition with the assistance of anæsthetic agents, and without their usual painful agonies, has destroyed, in a great measure, that state of anxiety and dread of anticipation, which, in former pregnancies, had, for weeks and months previously, silently annoyed and haunted them. If we can thus add to the happiness of our patients, by imparting to them feelings of safety and immunity under one of the severest trials to which nature exposes them, we surely follow out, in its truest sense, that which Dr Meigs correctly describes the office of a physician to be,—namely, “a great mission of benevolence and utility.”

But the practice of anæsthesia in midwifery not only saves the mother from the endurance of unnecessary mental anxiety and unnecessary physical agony; it saves her also from some of the dangers attendant upon parturition, by husbanding her strength and warding off the effects of that exhaustion and nervous depression which the pains and shock of delivery tend to produce. In most cases the

¹ Philadelphia Practice of Midwifery, p. 153.

mothers, after delivery, on waking from their anæsthetic sleep, have expressed surprise at their own feelings of strength and perfect well-being; and many, who have borne children previously, have gratefully declared to me the great difference which they have found between their condition after being delivered under anæsthetics, and without pain and suffering, and their state of prostration after former labours, when they were subjected to the endurance of all the usual "pangs and agonies" of parturition. Nor does the benefit end here. By annulling the parturient pains and shock, and their direct and primary depressing effects upon the constitution, we ward off, I believe, to a more or less marked extent, the chances and dangers of those secondary vascular excitements which are always apt to follow indirectly upon them. We increase the chances of a more speedy and a more healthy convalescence. And both patients and practitioners have, as a general rule, had occasion to observe, that the period of convalescence has been evidently curtailed and shortened by the previous adoption of anæsthesia during delivery.

Such certainly has been my own experience. For, since following the practice of anæsthesia, my strong conviction is, that I have seen both more rapid recoveries than formerly, and fewer puerperal complications. One patient, however, had a short attack of peritonitis, requiring leeches, &c. It was her third accouchement and her first living child; and, after her two former deliveries, she had required to be bled, and treated for similar inflammatory attacks. At her first labour she suffered severely from puerperal convulsions. In two others of my patients the convalescence was delayed, in one by an attack of the affection described by Dr Marshall Hall as "intestinal irritation" in puerperal females; and in the other by a fit of jaundice, which supervened two or three weeks subsequently to delivery, and after the patient had been for several days in the drawing-room. In December and January last, an epidemic of puerperal fever swept fatally over Edinburgh and other parts of Scotland. During the period of its prevalence, two of my patients were seized with it and died. But the previous employment of anæsthesia in these cases had nothing to do with this distressing results. Some of my professional brethren here and elsewhere, who were not using ether or chloroform, were much more unfortunate than I was. In a district in the neighbourhood of Edinburgh, one of the medical attendants informed me that, at that time, above twenty mothers were attacked and died, and in none of them whom the disease seized upon, did ether or chloroform happen to be used; while several who demanded chloroform during their labours, all fortunately escaped. The first of the two cases which I met with, was after a second labour. The patient's first labour was extremely tedious and prolonged, and, at last, symptoms supervened which demanded the delivery of the child by the forceps. In her second delivery, the labour was much shorter; the second stage lasted only for about twenty minutes, and during it she was completely anæ-

thetized. For fifty hours after delivery she progressed most favourably; and, after seeing her at that time with a pulse at eighty, and otherwise well, I was suddenly summoned, in consequence of extremely severe pain having come on in the uterine region after some muscular exertion. Rigors, rapidity of the pulse, tympanitis, &c., supervened, and she speedily sank with all the usual symptoms of puerperal peritonitis. The second case alluded to was in a primipara. The labour was tedious, the pains severe, and the patient was anæsthetized for four or five hours before delivery. For some days after delivery she went on prosperously, until she became unhappily and greatly excited by discovering intemperate habits on the part of the monthly nurse who was taking charge of her infant and herself. A fit of convulsions (a disease to which, in earlier life, she had been long subject) immediately supervened, and recurred several times. Fatal febrile symptoms then set in, with tympanitis and excessive diarrhœa.

I may add that, in the period during which these 150 cases occurred, I have had under my professional charge 20 or 30 other cases of labour in which anæsthesia was not employed, from the rapidity and facility of the delivery, from the patient being too late to send for assistance, from an aversion on the part of patients to the use of anæsthetics, more especially when ether first began to be used during last year, or from other causes.¹ One of the children in these cases was stillborn, and a second died two or three days after delivery. Two of the mothers suffered from crural phlebitis; a third had a severe attack of puerperal fever, but recovered. Two others died; one of them under an attack of puerperal convulsions and coma, which supervened fourteen days after delivery (see details of it in *Monthly Journal* for 1847, p. 213). In the other fatal case, the patient, who had suffered much in her previous labours, came to the immediate neighbourhood of Edinburgh to be confined, and with the view of using chloroform. But the labour proved unusually rapid, and she was delivered before the call for assistance reached my house. Her recovery went on uninterruptedly for two weeks, when a severe attack of dyspnœa supervened. My friend, Professor Miller, her ordinary medical adviser, saw her in my absence, and suspected some acute affection of the heart. When we visited her together shortly afterwards, the symptoms were then apparently those of acute endocarditis. She was submitted to the usual antiphlogistic treatment, and in four or five days felt again so well as to insist with us upon being allowed to rise, which was forbidden. In the course of a few hours afterwards, another fit of dyspnœa suddenly supervened, and, before Mr Miller reached the patient's house, she was dead. We did not procure an autopsy. If unfortunately she had used chloroform during the labour, as was her

¹ Since November last I have used chloroform in all the cases of labour, where I have been called in time, except two.

intention and wish, many of the objectors to its employment would have, I fear, unhesitatingly attributed the fatal issue in this case to its previous employment.¹

In addition to the 150 cases of artificial anæsthesia that have occurred in my own midwifery practice, and to which the preceding remarks apply, I have witnessed, during the last eighteen months, a considerable number of instances in which anæsthetic agents were employed in Consultation and Hospital practice; and I have frequently had recourse to their assistance in various obstetric operations that I have been called upon to perform, as in the separation and removal of the placenta, in various cases of turning, in one craniotomy case, and in several patients who required to be delivered

¹ In order to show the caution that is necessary in reasoning upon cases of death, apparently from the exhibition of chloroform during surgical operations, I may add that, since November last, scarcely an operation has been performed in Edinburgh without previous anæsthesia, except where the throat or mouth was the seat of incisions, or the operation itself slight and trivial. Amid all the numerous patients thus operated on in public and private practice, when under the use of chloroform, no kind of misadventure or accident has happened; except one case of temporary fainting, a few minutes after recovery from the state of anæsthesia, be regarded as such. On the other hand, among the *few* exceptional cases in which, since November last, patients have been operated on in this city without chloroform, two have died on the table. One of the two was being operated on by Professor Miller for a hernia, which had been strangulated for about fifteen hours; when, after the skin merely was divided, the patient complained of great faintness, vomited, and died with the operation unfinished. This occurred on the 8th of November, two or three days after the anæsthetic effects of chloroform were discovered, and nearly proved the first operation in which it was tried. The second case, a patient of Dr Pattison, had an abscess high up in the neck, requiring a simple puncture for its evacuation. He died without hemorrhage, or admission of air, or other apparent cause, a minute or two after the puncture was made. If chloroform had been used in these cases, would it not by some have been blamed for the result?

Twelve or fourteen months ago, Professor Syme was performing primary amputation of the thigh in the hospital, upon a patient upon whom there was no sign of reaction, and who was not etherized for the operation. "Upon the incisions being made, relaxation of the sphincters took place, the contents of the rectum and bladder were voided, and an effort at vomiting seemed the prelude of immediate dissolution. Before tying (says he) the arteries, I waited to ascertain whether the condition of the patient depended upon syncope or death. My colleague, Dr Duncan, by causing alternate pressure and relaxation of the chest, effected artificial respiration for some time without any sign of returning life; but by and by the actions of the system were gradually restored, and maintained through the use of stimulants."—See *Monthly Journal of Med. Sc.*, Vol. 1847-48, p. 76. Such dangerous symptoms, coming on in an anæsthetized patient, might have been mistaken for the effects of the anæsthesia.

Some time ago, before either ether or chloroform was used in surgery, Dr John Argyll Robertson was called, a few miles out of Edinburgh, to perform the operation for strangulated hernia. After having shaved the groin for this purpose, his patient complained of sickness and faintness, and died before any incisions were made.

Last year, Dr Girdwood of Falkirk came to Edinburgh to see the practice of etherization, in order to be able to apply it in a case of amputation. The day for the operation and etherization was fixed; but, some hours previously, sudden apoplexy came on, and the patient died.

instrumentally by the long or short forceps.¹ In all these varieties of operative practice, the previous superinduction of anæsthesia has appeared to me to be of the greatest and most undoubted benefit. For, besides freeing the mother from the additional corporeal suffering and additional mental anxiety attendant upon operative delivery, the state of anæsthesia enables the practitioner to apply any operative interference that may be necessary with more ease and facility to himself, and consequently also with more safety and success to his patient. When the state of anæsthesia is rendered adequately deep, it renders the patient quiet and unresisting during the required operative procedures; it prevents, on her part, those sudden shrinkings and changes of position which the boldest and firmest woman cannot sometimes abstain from when her mind and body have been worn out, as happens in most operative cases, by a previous long and protracted endurance of exhausting but still ineffectual labour pains;—the introduction of the hand into the maternal passages, or of the hand to guide our instruments, is greatly facilitated both by the passiveness and apathetic state of the mother, and by that relaxation of the passages which deep anæsthesia almost always induces; and, lastly, this state of relaxation and dilatability renders the process of the artificial extraction of the infant through these passages alike more easy for the practitioner, less dangerous for the child, and more safe for the structures of the mother. Besides, in midwifery as in surgery, the utility of anæsthesia before operating, is not, I believe, limited to the mere annulment and abrogation of conscious pain on the part of the patient, and the rendering of the operation itself more easy to the practitioner, but it adds to the safety of our instrumental or artificial interference. For, in modifying and obliterating the condition of conscious pain, the “nervous shock” otherwise liable to be produced by such pain, particularly wherever it is extreme in degree or duration, or intensely waited for and endured, is saved to the already tried and shattered constitution of the mother; and thus, an escape is so far gained from those states of immediate vascular and nervous depression, and of subsequent febrile and inflammatory reactions, that are always apt to follow more directly or indirectly in its train.

MODE OF EXHIBITING CHLOROFORM; DOSE, ETC.

In the course of the preceding observations I have omitted making any remarks on the degree of artificial anæsthesia required in obstetric practice, with the exception of stating that, when instrumental or operative interference is adopted, the anæsthetic state must be made adequately deep,—so deep, that the patient must be

¹ In one case of placenta prævia to which I was called, the mother had lost much blood, and her lips were pale, and her pulse very weak. On administering chloroform the circulation and pulse rallied—I separated the placenta—no bleeding recurred; and several hours afterwards the child was born. The mother made an excellent recovery.

rendered quite passive and apathetic. In fact, when induced for operative purposes in midwifery, the anæsthetic state should be as complete and profound as when it is induced for operative purposes in surgery. But, in common cases of parturition, the anæsthetic agent employed, whether chloroform or ether, does not, in general, require to be given in such large doses as in surgical practice. And in obstetric practice, the rules which I have usually followed in exhibiting the chloroform (the only agent I believe now used in Edinburgh and most other places), are those which I briefly stated when first writing on the subject for the *Monthly Journal* in November last. "After the first full dose, a few inhalations, before or with each returning uterine contraction, are generally sufficient. The state of anæsthesia should be made more deep as the head is passing the perineum and vulva."¹ I have elsewhere in the same *Journal* stated these rules at somewhat greater length.—(See No. for April, p. 762).

Occasionally I have at first, and especially in the early stages of labour, given the chloroform in small doses only, so as to obtund or obliterate the sensations of pain, without altogether abrogating the state of consciousness. In many patients, this degree of anæsthesia, with the results stated, viz. the loss, in a great measure, of pain without the entire loss of consciousness, can be readily enough induced, and answers excellently well; but, as a general rule, it has appeared to me in some cases objectionable. For not unfrequently, small doses, such as produce this condition, are accompanied with excitement and talking; and sometimes patients have complained to me of this renewal of the chloroform in small doses with each pain, being accompanied each time with a renewal of the ringing in the ears, flashes of light, and other disagreeable sensations accompanying, in some persons, the primary effects of the inhalation. Besides, we are never thus sure that we are really saving the patient to the full extent by the means we are using. If, on the other hand, she happen to be thrown at once into a deeper state of anæsthesia, the chances of such inconveniences and drawbacks are avoided. Often, when the anæsthetic state is thus made deep from the first, the uterine contractions are arrested for a few minutes, but speedily return. In order to effect this, we take care that as soon as the patient is asleep—(and, in natural labour, we seldom or never require to push the inhalation so far as to affect the respiration, and produce noisy inspiration and snoring as in surgery),—the chloroform should be withdrawn, and not reapplied again till the movements of the patient, or the state of the uterus, as felt through the abdominal walls, indicate a returning uterine contraction. A few inhalations given then, and repeated with each returning uterine contraction, keeps the patient in a state of unconsciousness; and this condition may be easily maintained for hours, by administering in this way the chloroform vapour with each

¹ *Monthly Journal*, vol. for 1847-8, p. 417.

pain, and withdrawing it entirely during each interval. The practice is not to be expected to come upon medical men by intuition ; for, like all other practices, some care and experience is necessary in order fully to acquire and apply it. And the *two* main difficulties which every beginner meets with are these ; namely, to keep the patient in a state unconscious of pain, and yet not so deeply anæsthetized as to have the uterine action interrupted. For too deep a state of anæsthesia in general interferes with the force and frequency of the uterine contractions ; while a lesser degree of the anæsthetic state leaves these contractions unaffected ; and a still smaller dose often excites and increases them,—the effects, in this respect, of chloroform upon the uterus, being similar to the effects of opium in different doses. But the influence of the inhaled agent passes off in a few minutes, differing in this respect from the more permanent influence of a drug when swallowed ; and if, at any time, the anæsthetic effect is too deep, and the uterine action is in consequence impeded, all that is necessary is to abstain entirely from exhibiting the chloroform for a short time, till the parturient contractions have been allowed to come back to their proper degree of strength and frequency ; and then the anæsthetic agency is to be sustained as before, by giving the vapour with every recurring pain, but in smaller doses, or for a shorter time during each pain, than was previously practised.

Anæsthetic vapours, when given in large doses, have less power of reining up the action of the uterus in the last than in the first part of labour. And as the sensations of pain become more agonizing as the head is distending the perineum, and passing through the vulva, the anæsthetic state usually requires to be then rendered more deep and complete than in the earlier stages of the process ; and in most patients this may be done without at all impeding the rapidity of the delivery. Indeed, in many women, this latter part of the process of parturition seems to be accelerated by the superinduction of anæsthesia ; for the degree of relaxation of the muscular structures of the perineum and vaginal orifice, commonly resulting from it, usually more than compensates for any diminution of uterine action, that may occur. If in any instance it prove otherwise, and the depth of the anæsthetic state interferes too much with the parturient contractions, the simple remedy is that I have already mentioned—a diminution in the state of anæsthesia, so as to allow of a return and increase of the expulsive efforts of the uterus.

The degree and depth of anæsthesia which different patients are capable of bearing without the irritability and contractions of the uterus being impeded, appears to differ greatly in different persons. In some, a very deep state will still leave the uterus almost or altogether unaffected ; in others, its action is interrupted by a comparatively slight degree of the anæsthetic state. It is this variability which at first forms the principal difficulty to those commencing the use of chloroform in obstetric practice. But experience and care will soon enable any attentive observer to overcome this apparent

obstacle, and to adapt the dose of the agent to the powers and capabilities of each different patient. I have never yet seen an instance, but I can conceive it possible, that in some rare exceptional cases and idiosyncrasies, the action of the ether or chloroform should, even in such small doses as merely produce unconsciousness to pain, interfere, especially in the first stage of labour, too much with the muscular action of the uterus, and require to be given up, at least till the labour be more advanced. But this would, of course, be no reason for not employing it in those other persons in whom it had not such an influence; any more than because opium occasionally does not act as an hypnotic on particular patients, it should not be given with that indication to any other patients with the view of inducing sleep.

During the anæsthetic sleep which chloroform induces in natural labour, the patient usually lies perfectly quiet and passive in the intervals between the pains, but moves more or less, and sometimes moans, as each uterine contraction begins to return. In the last stage she generally, with every recurring uterine contraction, makes the usual violent bearing-down muscular efforts, and the struggle can often be marked in the expressions of her face. The muscular action of the uterus and assistant muscles goes on, and yet she remains quite unconscious. The strictest quietude should always be observed and enforced around the patient, for noises and speaking, particularly soon after the chloroform is commenced, will sometimes excite and make her talk; and, if this happen, we may require to exhibit to her a deeper dose than would otherwise be at all necessary. One or two practitioners of midwifery in London have averred and repeated, over and over again, in our medical journals, and in pamphlets intended for non-medical readers, that obstetric patients, under the influence of chloroform, must be liable to talk and act grossly and obscenely. This objection to the practice of anæsthesia in midwifery has been repeated and gloated over by those who have propounded it, in a way forming, apparently unconsciously on their own part, the severest self-inflicted censure upon the sensuality of their own thoughts. An impure mind, more especially in a professional man, may easily fancy and find impurities where none whatever exist; but he is not on that account entitled to imagine, that his own lewd thoughts are typified in the thoughts or actions of his patients. In answer to the supposed objection itself, I have merely to observe, that I never once witnessed any trace of any indecency, either in word or action, in any obstetric patient under the use of chloroform; and the evidence of one and all of my obstetric brethren, at whom I have inquired on the subject here, is to the same effect. In a paper on temporary delirium occurring in the course of labour, Dr Montgomery several years ago described more marked instances of effects of this description, arising merely from "the extreme distress and pain" to which the mother was subjected in the dilatation of the os uteri, &c., during natural parturition, than were ever seen to arise from the influence of means used to abate and abrogate that "extreme distress and pain."

In administering chloroform in obstetric practice, I have always used the handkerchief, as the simplest and best apparatus. Sometimes, when the case is likely to be tedious, I have it folded and sewed into the form of a deep cup or cone. The chloroform is poured into the bottom of the cup, the open end of it held over the nose and mouth of the patient when the action of the vapour is required; and, when its application is suspended, by closing the open end of the cone, the escape and loss of the vapour is prevented during the intervals. Such an arrangement saves the chloroform. But a handkerchief merely folded together and sprinkled with chloroform, answers quite well; and in the intervals it may be compressed together in the hand, so as to prevent the escape of the chloroform. In *first* throwing the patient over into the anæsthetic sleep—(the point which requires the most management),—a handkerchief thus presenting a large surface is often much more serviceable than one folded into a cup shape; for the patient, when first coming under the influence of the chloroform, is apt to move her head from side to side; and, in order to keep up the constant inspiration of the vapour, she can be more easily followed by using a simple handkerchief, than by trying to keep any kind of apparatus applied to her mouth or face.

The quantity of chloroform used varies both according to the duration of the labour, and the susceptibility of the patient. Usually, when the handkerchief is used, about an ounce an hour is necessary, a small quantity being poured upon it from time to time. A less dose will suffice in some, and others require more. In one case lately, where the patient, in a first labour, was anæsthetized for two hours, I expended nearly six ounces, large doses being necessary to keep her in a sufficiently deep state of unconsciousness. The first quantity which I pour on, usually amounts to three or four drachms; but I always judge by the *effects*, not by measuring the dose; and I pour on an additional quantity in a minute or so, if it be required. In holding the handkerchief towards the patient, I take care that plenty of atmospheric air is admitted,—and seldom or never put it in contact with the face. At first, it is better to hold it at a considerable distance, in order to prevent any chance of irritation and coughing; and then gradually approach it. It is always to be remembered, that the vapour of chloroform is nearly four times the specific gravity of atmospheric air; and if the patient is lying on her side, the handkerchief or pillow can be easily arranged so as to keep a larger supply of this heavy vapour opposite the mouth and nostrils. I have always held and managed the handkerchief myself in the first instance, and till the patient was asleep. Afterwards, I have generally trusted it to the husband or nurse, teaching them to apply it near the face when the pains supervened; and folding up the handkerchief in the way mentioned, so as to preserve the chloroform during the intervals.

When exhibiting chloroform in obstetric practice, and in the way I have described, I have been often struck by the circumstance, that

its use is very rarely followed by sickness or vomiting. I do not remember having seen vomiting follow its exhibition in labour in more than four or five cases, and two of these (in the practice of Dr Paterson and Dr Cochrane), were instances in which I was called in to apply the forceps, and where the patients were placed for the operation in a state as deep as that used in surgery. I have repeatedly seen it arrest the sickness and vomiting occasionally accompanying the first stage of labour.

In addition, let me state, that I have usually begun the employment of the chloroform when the os uteri was well dilated, or towards the termination of the first and the commencement of the second stage of the labour. But when the pains were severe I have commenced it earlier, and when the os uteri was still comparatively little dilated. There is, I believe, no limit as to the date of the labour at which we may give it.

REPORT OF THE RESULTS OF ANÆSTHESIA FROM DIFFERENT OBSTETRIC HOSPITALS AND PRACTITIONERS.

The following account of the results of anæsthesia in the practice of the Maternity Hospital, Edinburgh, has been drawn up by Dr Duncan and Mr Norris, two gentlemen who have acted as resident house-surgeons in the institution, and upon whose power and accuracy of observation all who are acquainted with them will place implicit reliance.

Since the use of anæsthesia in labour became general in the Maternity Hospital, shortly after the discovery of chloroform, 95 women in all have been delivered in the house under its influence. Among these, 88 were natural and 7 were morbid labours. In the 88 cases of natural delivery, only one of the mothers died, convulsions coming on five hours after delivery, and proving fatal after a continuance of six days. On a *post mortem* examination, the kidneys were found to have undergone, in some parts, the true steatoid degeneration.—(See a report of the case, *Monthly Journal for September*, p. 196.) Among the same 88 cases of natural labour, there were 5 dead-born children. In 2 of these cases, the birth was premature, being at the sixth month. In the third case, the mother had previously given birth to two dead infants. The fourth dead child had a very large hydrocephalic head. The proportion of still-born children was thus 1 in 17. In the Dublin Hospital the proportion of still-born children, as reported some years ago by Dr Collins, was 1 in 15. The 7 instrumental cases were as follows;—1 application of the short forceps, in an unsuccessful attempt to save the life of the child; the mother recovered well;—2 cases in which the long forceps were applied; one of the women, in whom the head was very long impacted in the pelvic brim, died from sloughing of the maternal passages; the other made a good recovery; both the children were born alive;—4 cases of version; one of the mothers died from rupture of the uterus, the others recovered quickly; 3 of the children were still-born, and in one of these 3 cases the cord was prolapsed.

In addition to these eighty-eight cases of anæsthetic delivery, there have been upwards of fifty women delivered in the house without chloroform. These have been chiefly very rapid labours, where the women have come into the hospital just in time to give birth to their infants, or where the house-surgeon has not been able to see them till very shortly before delivery. From

the expense attending a large consumption of chloroform, it has always been an object to husband it as much as possible ;¹ and therefore, in the hospital, it has not been given in cases where the mothers did not very severely complain of their sufferings, nor were harassed with feelings of anxiety and fear.

On the whole, the results of anæsthetic midwifery, as observed by us in the Hospital, have been perfectly satisfactory ; and we can confidently state that the recoveries have been altogether more perfect and speedy than before. This has been remarked in so great a proportion of the cases, that there can be no doubt whatever of the truth of the observation. Besides the increased rapidity of recovery, we have noticed the almost entire absence of those uncomfortable feelings of fatigue, languor, and shivering, and of that shattered feeling which so frequently comes upon the mother immediately after an ordinary delivery. Instead of this, we have found the mother almost invariably awake from the anæsthetic sleep comparatively fresh, easy, and cheerful. Not unfrequently the anæsthetic has been found to change, without an intermission, into a natural sleep, which may continue for an hour or two.

Further, there have been, since the introduction of chloroform into the practice of the hospital, far fewer than formerly of those violent attacks of rigors, ephemeral fevers or weeds, and abdominal pains, which are so common in most crowded hospitals, forming a class of cases which used formerly to cause much anxiety, and was a common cause of the mother's being detained in the hospital after the usual fortnight allowed for recovery. In fact, since using chloroform, there have been scarcely any women detained in the house by these causes, and much less Dover's powder, calomel and opium, abdominal fomentations, &c., have been used.

The women have been, invariably, found deeply grateful for the relief to their sufferings afforded by the anæsthetic influence of chloroform.—Yours, &c.

J. M. DUNCAN. H. NORRIS.

At a meeting of the Edinburgh Medico-Chirurgical Society in June last, along with other practitioners, I gave in a report on the employment of chloroform in midwifery. At that time, and since, I have been favoured with written statements of the results by various medical friends in Edinburgh, and in different parts of the country. I shall now give extracts from a variety of the letters which I have received relative to this subject. Many more such communications might easily have been called up and adduced ; but I have deemed it useless to multiply unnecessarily this kind of evidence. It will be observed, that, with one exception (see the communication of Mr Lansdowne), the following letters refer—like the preceding statements regarding the Maternity Hospital—to the use of chloroform alone.

The first statement which I give is from my assistant and friend, Dr Keith.

I have employed chloroform in every case of labour under my care, since its introduction, with one exception ; and also in almost every case to which I have been called in by other practitioners. In my own cases, amounting to about four-and-twenty, it has been given for a period varying from half an

¹ Perhaps, in a short time, a benevolent government will allow chloroform to be made cheaper, by removing the very high duty on proof spirit when used for medical and chemical purposes (tinctures, &c.) At present that high duty is, in one respect, a direct tax upon the relief of human disease and the mitigation of human pain ; and a great obstacle to the progress of British organic chemistry.

hour to eight hours. The quantity of chloroform consumed has been, on an average, about one ounce per hour ; in a few cases double this quantity was found requisite. The anæsthesia has been in almost every case complete ; that is, the patient, on awakening, has declared, that while under the influence of the chloroform, she was utterly unconscious of all pain. In most cases the patient has lain quiet even during the pains, the presence of which is then generally indicated by the breathing becoming more rapid and somewhat laboured. In other cases there is suppressed moaning during the pains, or even, in some, loud manifestations of powerful straining and muscular exertion. I can state most positively that I have seen no serious symptom which could be traced to the chloroform, in any one case, either as affecting the mother or the child. Most of the mothers have made uncommonly good recoveries. Those who have had children previously, have, almost without exception, stated to me, that they felt very decidedly stronger after delivery than on former occasions. In two cases the recovery was rather slow, but this was owing to the patients' having been in a very delicate state during pregnancy,—and, in both instances, I considered the chloroform was of very great service, by saving their strength. All the mothers are now in their usual health.

In no one of the twenty-four cases was the child still-born. In one case labour was brought on at the end of the seventh month, owing to the brim of the pelvis being much contracted. The child was born alive, but died on the second day. All the other children are now alive. They have all been nursed by their own mothers, with one exception.

I have had occasion to use the forceps seven times since the introduction of chloroform, and once to break up the child's head and extract by the crotchet. In all these cases the patient was first put into a deep anæsthetic state, and in most she lay perfectly still and apathetic during the operation. All the mothers have done well, except in the case of craniotomy, where the uterus had ruptured previous to the use of chloroform.—Yours, &c.

G. S. KEITH.

From Dr Moir, Edinburgh.

Since the beginning of December I have, with a very few exceptions, used chloroform in the course of my midwifery practice, and I have not met with a single case where any unpleasant effects, either to mother or child, can be traced to its use.

As far as my observation has gone, I think it will be found that, in some cases, the chloroform, if freely administered at an early period of the first stage, retards the pains a little, and in others also lessens their power ; and when this does occur, the best remedy is either to intermit its use till the labour is further advanced, or to give it in smaller quantities and at longer intervals, so as not, at that stage, to induce complete unconsciousness. But, whether correct or not in this opinion, I am quite satisfied that the second stage is much accelerated, especially towards its termination, by the chloroform doing away with the resistance offered to the expulsion of the head by the muscles at the outlet of the pelvis,—and this to such an extent, that, in some *first* cases, there is a risk, unless very great care is taken, that the perineum be slightly lacerated, from the head being so rapidly expelled as not to give time to the parts to yield so rapidly as they would otherwise do. But this is comparatively a very rare occurrence, and requires to be mentioned principally with the view of putting young practitioners on their guard against it, and of leading them to use the necessary means to prevent it.

In exhibiting so powerful an agent as chloroform, I think it a point of importance to use as small a quantity as is compatible with the obtaining of its full anæsthetic effects ; and, as this seems to depend much upon the rapidity with which it is conveyed into the system, it seems a point worthy of consideration to ascertain the readiest means of so doing. Various instruments have been invented for this purpose, though they have been almost universally superseded by the use of the handkerchief, as recommended by you, and used either in the form

of a hollow cone, applied again and again, after renewing the chloroform, over the nose and mouth of the patient; or simply folded up several times, and frequently having interposed between the folds a piece of wool or flannel, with the view of better retaining the chloroform. In both methods there is a considerable loss of chloroform, much of it being retained in the folds of the handkerchief, and much of it escaping without passing into the lungs, or else passing into them so slowly as not to produce the desired effect. I have, for some time, been in the habit of using a linen or white cotton handkerchief, folded only once, or, if very thin, folded twice; the point requiring attention being, that it should not be so thick as to offer any impediment whatever to free respiration when applied over the mouth and nostrils. Since using the chloroform in this way, I have never failed in rapidly producing the anæsthesia, either in my own practice, or when accompanying some of my patients (who were several months advanced in pregnancy) to their dentists to have one or more teeth extracted. For administering the vapour to patients who are in the erect position, the chloroform should be poured on that part of the handkerchief placed on the palm of the operator; the edge of the little finger should then be applied close to the chin, and the hand gradually raised up towards the mouth, till the sensation of choking which generally accompanies the first inspirations has passed off, after which, the handkerchief should be left on the face and the hand removed; the patient then breathes freely through that part of the handkerchief wetted with the chloroform, and, in general, half a drachm is sufficient to produce anæsthesia.

In obstetric practice, I find it the most convenient plan to place one end of the folded handkerchief under the left cheek of the patient, to pour a little chloroform on it, and then, taking hold of the loose end of the handkerchief, to bring it gradually near the mouth, till it can be left there without inconvenience, the patient breathing freely through it. And it is not necessary again to remove the handkerchief, but simply to pour on it occasionally a very few drops, whenever the patient begins to show symptoms of returning consciousness, or on the accession of a pain. The only precautions necessary are, to raise a small fold of the handkerchief from the skin when the chloroform is to be applied, so as not to blister the skin; and to drop the chloroform, not on that part of the handkerchief immediately over the mouth, but a little above it, so that the vapour, being heavy, may flow down towards the mouth or nostrils, and thus be, during inspiration, more readily received into the lungs. By adopting this plan, I have had the handkerchief applied for nearly two hours without removing it; and the quantity of chloroform I have used in single patients, has been much less than other practitioners have used in cases of the same duration.—Yours, &c.

JOHN MOIR.

From Dr Malcolm, Edinburgh.

Since November last I have employed chloroform in above thirty cases of labour, and with the most satisfactory and delightful results. A majority of these were first labours. I have kept my patients under it for periods varying from half an hour to six hours, and have never found the slightest unpleasant effects result from its use. All the children have been born alive, and are at this moment in perfect health, with the exception of one that died when about a month old, of a sudden and severe attack of dysentery. All the mothers have made recoveries with rapidity and completeness, far above the average which I had previously observed in my practice. This has struck me as the more remarkable, seeing a large proportion of my patients were primiparous; and I can only attribute this result to the entire absence of suffering and shock to the nervous system which is effected by the use of chloroform. Although in a few cases my patients and their friends have at first objected to the use of anæsthesia to abolish pains which they considered "natural," yet every one has afterwards expressed to me sincere gratitude for saving them from their agonies; and I am sure not one who has experienced the beneficial effects of the practice will ever submit to these agonies again, now that they know that they are so totally unnecessary, and can be so easily and safely abolished. I have repeatedly found the mothers

of my patients object to anæsthesia, as if they grudged that their daughters should not experience the same sufferings as themselves,—but I have uniformly found them afterwards as grateful as their daughters for the relief administered.

Generally, I have employed about an ounce of chloroform per hour. I have never seen the uterine contractions arrested by its use, although I have no doubt a large dose would, when necessary, have that effect. I have seen no case of hemorrhage, or convulsions, or any other complication whatever. Let me add, that I cannot conceive on what principle the employment of chloroform in natural labour should be objected to, as long as it is our duty, and assuredly it is our duty, as physicians, to relieve and mitigate human suffering.—Yours, &c.

R. B. MALCOLM.

From Dr Thomson, Edinburgh.

After stating the details of ten cases, Dr T. remarks:—

Among the middling classes I have met with more difficulty in using chloroform than I had anticipated, as it has only been when the sufferings of the patient were very severe, or her friends had begun to dread the effects of prolonged continuous suffering on her constitution, that I could get my wishes carried into effect. That fatal Newcastle case, which was trumpeted a good deal in the newspapers, is still haunting their minds, and is very frequently urged by some timid friend when you propose the chloroform to relieve the sufferings of the patient.

My experience of it has been in all obstetric instances analogous to your own; with one exception, I have had no difficulty in getting the patient under its influence: a minute or two was in general sufficient to lay the most restless or ungovernable patient quiet on her pillow.

Not the slightest *post-partum* hemorrhage has taken place in my ten cases, though in the two forceps cases, where it was given deeply, the uterus remained flabby for nearly thirty or forty minutes, and threw off the placenta with difficulty.

Its relaxing effects are, I think, undeniable. In one case, the soft parts had resisted for a considerable time the descent of the head; they yielded very readily within an hour after the chloroform was begun. I have not had another instance of this kind lately; but, were I to meet with one, I feel confident it would yield with much more facility under the chloroform than without it.—Yours, &c.

ALEX. THOMSON.

From Mr Carmichael, Edinburgh.

I have given the chloroform in twenty-six cases of midwifery, four of which were first labours; the others varied from the second to the eleventh pregnancy. The quantity given varied from two drachms to four oz., and the length of time during which it was exhibited from a few minutes to four hours. The preparation I have used has always been that of Messrs Duncan, Flockhart, and Co., and I have never seen the slightest bad effects from it, either in midwifery or other medical cases, or in any case where I have administered it for amusement, except occasional sickness where it was exhibited shortly after a meal.

I have met with no case of flooding whatever. I have heard it alleged that it drives away the milk; but I have not found it so, as my patients have all been able to nurse, with the exception of one lady, who has not been able to suckle her child for the last three times.

In all of these cases it was administered with the greatest ease and with perfect success, and, in no case, with any bad results.

The recoveries have been certainly more than usually speedy. Indeed the only objection I have met with as to its use, has been on the part of the monthly nurses, who seem afraid that the new practice will curtail their attendance and pay.

All the children were born alive, and are doing well. The only case in which the child proved the least refractory was a footling one.

I have also found it most useful in cases of dysmenorrhœa, in spasmodic colic, and tic douloureux.

I also gave it, in a case which you saw along with me, of most severe neuralgia of the uterus, with the most perfect success.

In no case whatever have I seen any bad results of any kind arise from the use of the chloroform.—Yours, &c. W. S. CARMICHAEL.

From Dr Burn, Edinburgh.

I regret that I cannot give you the number of cases of labour in which I have exhibited the chloroform, but I may state that I have given it repeatedly, and have not seen any bad consequences either to the mother or child result from its use.

All the mothers made rapid recoveries, and the children did not appear to suffer from its use.

I have given the chloroform in three or four cases of adherent placenta where the uterus was firmly contracted, and had far less difficulty in extracting it than I have experienced in similar cases where the chloroform was not exhibited.—Yours, &c., J. BURN.

From Dr Purdie, Edinburgh.

I have now used chloroform in seventeen cases, which I have noted, and in every instance with decided effect, not merely by lessening suffering, but I am perfectly convinced, by the most careful observation, by shortening the duration of labour. The pains have never in my experience been interfered with, except by rendering them quicker, and far more effectual.

There is one of the cases which I would wish to recall to your memory. The patient, thirty-eight years of age, was in her first labour, which commenced early on Wednesday morning, and went on well but slowly till the evening, when its progress ceased, although the pains continued regular and strong. The os uteri was well dilated, but the head made no progress, although there was no very evident cause. About one o'clock on Thursday morning I sent for you to deliver her with forceps. On your arrival, you thought that still there was hope of the labour being terminated naturally. The patient, who was suffering much, was then put under the influence of chloroform and ergot, while you waited patiently for any advancement, for nearly two hours, without effect. You then delivered with the long forceps, which cost you great exertion, from the head being impacted in the brim. The patient's position was changed, the placenta was extracted, she was bound up and laid in a comfortable and easy posture, in which state she continued to sleep soundly until she was awakened after the child was dressed, the crying of which surprised her, as she had not been conscious of what had taken place from the time she got the first dose of the chloroform after your arrival. This patient had an excellent recovery. I never saw a patient suffer less after labour, or recover more rapidly. I may just add, that there are few things vex me more with regard to patients, than to witness the sufferings of a childbed patient, who will not allow, from ignorance or prejudice, the use of chloroform. Happily, however, such cases are very rare among us.—Yours, &c. W. PURDIE.

From Dr Finlay, Newhaven, near Edinburgh.

I have used chloroform in a considerable number of cases of natural labour. It was with much reluctance that I first administered it, and only at the urgent entreaty of a patient who was enduring intense agony before the birth of a first child. It was completely successful. Her screams had been audible across the street. In a few minutes they ceased, and she fell asleep, while the uterus continued to act as powerfully as before. She was not aware that she had got her baby until a quarter of an hour after it was born. In five of the other cases the

influence of the chloroform was as complete. In the other three cases *entire* insensibility was not induced, but the sufferings were greatly mitigated, and the relief was so evident to the patients, that, whenever the labour pain was approaching, they grasped with great eagerness the handkerchief on which the drug was sprinkled. Satisfactory as these cases have been, I have hitherto used the chloroform with considerable hesitation and caution, and only when it was asked for by the patient. But every trial has emboldened me to employ it with greater confidence on future occasions. In each of my cases the placenta was soon and easily detached; in none of them did hemorrhage occur; and they all made excellent recoveries.—Yours, &c.

A. FINLAY.

From Dr Cumming, Edinburgh.

I have now attended thirty-five cases of labour under chloroform, and it has been used in all with marked advantage. All the patients have made unusually good recoveries; and I have been very much impressed by the fact, which was remarked by the first patient submitted by me to chloroform, and repeated by all, that the convalescence was not accompanied by the crushed and dislocated feeling that they have experienced without it.

I always begin by introducing the chloroform slowly and gradually into the lungs, allowing a large proportion of air to be inhaled along with it. In every instance it was administered, not with reference to the quantity given, but to the effect produced,—this effect being complete unconsciousness during the pain; and thus administered, I have never seen any unpleasant or absurd consequences, nor any thing to excite alarm or even uneasiness.

Two of the cases had had large floodings in a previous labour; with the chloroform there was none. This, of course, I do not impute to the medicine; but it at least tends to prove, that hemorrhage is neither a necessary nor a likely consequence, as many at first were disposed to imagine.

All the children were born alive, and are so still. None of them as yet give the slightest indications of idiocy, either present or future; nor have I observed in any the temporary stupefaction immediately after birth, ascribed to the presence of chloroform in the apartment, that some have remarked.

I am quite satisfied that, if properly given, it acts as a calmative; and I believe, from what has passed under my observation, that very many of what are called exceptional cases are not so in reality, but appear to be such from error in the mode of administration, and that further experience will amply demonstrate the truth of this.

In short, I am, unfortunately for the appearance of veracity, compelled to say, that all my cases hitherto have been so successful, the recoveries so uniformly good, and the satisfaction on the part of the patient (I may add also my own) so great, that I am rapidly approaching to, if indeed I have not already arrived at, the conviction, that, *if there be any sin connected with chloroform, it is chargeable on those who refuse to administer it.*

I may add, that not one of those patients who have already inhaled it will ever be denied it in any subsequent pregnancy, as they have repeatedly assured me; and certainly I shall not attempt to keep it from them, and that not more for their sake than my own.—Yours, &c.

W. CUMMING.

If necessary, I might have adduced more evidence in favour of the anæsthetic effects of chloroform in midwifery practice, from Dr Beilby, Dr Ziegler, Dr Weir, Dr Young, Dr Menzies, Dr Gilchrist, Dr Campbell, and other medical practitioners in Edinburgh who have been using it.

In order to vary the kind of evidence, I shall next adduce extracts from various communications which I have received on the

use of chloroform in midwifery, from medical correspondents in different parts of Scotland, England, and Ireland. It is needless, I believe, to attempt to arrange them in any special order; and I shall content myself, therefore, with beginning with the letters of those practitioners who live farthest north, and proceed southward.

The following is an extract from a letter written to me this summer :—

From Dr Grigor of Nairn.

Dr Allan of Forres and myself would as soon think of going to an obstetric case without our chloroform phial, as we would of going to bleed a patient without a lancet. In this quarter, doctors are only called in when things are going wrong, or in extreme cases; so that, since your grand discovery, he and I have only used it in about twenty-four cases, in all which it came up to all you have written about it,—no still-born children—mothers recovering well—fewer after-pains, &c. &c. One of my cases was a first child, the mother nearly forty-eight years of age, weakly in constitution, and of small formation. Had it not been for the chloroform, I do think she would have sunk.—Yours, &c.

J. GRIGOR.

Dr Dyce, lecturer on midwifery in Marischal College, Aberdeen, favoured me some time ago with the following interesting communication, regarding the obstetric employment of chloroform :—

I have reports from my friends Drs Harvey, Pirrie, and Gilchrist, all of whom, I was aware, had been employing it. I may at once state that I consider it a most invaluable agent; that I have every confidence in its safety; that I recommend it almost on every occasion; that no evil consequences have ever attended its use; and that I have found its effects nearly alike in all. I have used it eleven times. The labours have, with one exception, been natural. The exception was a breech case, and a first child. Two of the eleven children were lost; one was putrid, and in the other (the breech case), though the funis did pulsate for some minutes, the child could not be recovered.

Dr Harvey has given me a brief account of four cases delivered under chloroform; all the children were born alive.

Dr Gilchrist at Woodside writes me, "I have observed no evil results to the infants themselves from the use of chloroform." He does not state the number of his cases; but I presume they have been numerous from his remarking, that "latterly I have not used this agent so generally as when it was novel, reserving it now, unless when urgently requested by the patient, for cases unusually painful, whether arising from excessive sensibility of the system, rigidity of the soft structures, or cases requiring manual assistance."

Dr Pirrie has employed chloroform in fourteen cases. Ten of these were natural, two instrumental, and one a case of turning. He says, "as to the children, they have all been born alive, and continue to go on satisfactorily."

I never use it early in labour; generally the second stage has come on, or at least the os uteri is tolerably well dilated. This appears to be the practice of my brethren here. I then keep the patient in a state of insensibility more or less complete during the future progress of the labour. Occasionally I have allowed them to come completely out of the anæsthetic state; but, on the recurrence of the pain, the patients invariably and urgently seek for the handkerchief. When I used chloroform, I imagined that the intenseness of the stupor induced, did lessen the frequency and force of the pains, and even put a stop to the labour altogether; and I am still of opinion, that if the full effect is produced and kept up for any time, the pains will cease; but if a more moderate

effect is produced, so that consciousness to a certain extent remains, my conviction is, that instead of checking uterine action, its use enables the organ to act with more freedom ; the mental influences are quickened ; and, more than this, it has a decided power in relaxing the soft parts, and thus removing a very frequent cause of protracted labour. I had a very interesting case illustrative of these remarks in January last, in a lady in her fifth pregnancy, of a very irritable, anxious, and highly nervous temperament, who had previously to labour determined to use this wonderful agent. Her former labours had always been tedious, and very painful throughout every stage. This commenced and had continued for a couple of hours before I saw her. She was complaining much of the severity of the pains, especially of her inability to move from one posture. Her anxiety and agitation were very considerable ; her pulse was above 100, and her body was already wet with perspiration. On examination I found the parts rigid, and the os not larger than a shilling, while the rectum actually encroached upon the vagina from its loaded state. I determined, therefore, on emptying the gut by an enema before employing the chloroform, and mentioned this to my patient, and gave the nurse the necessary instructions. I very soon found that I had added not a little to her already excited state, as she was not prepared for delay, and would only, after some persuasion, consent to its exhibition, and only then on condition that immediately after she was to be allowed the "stuff." Her request was complied with, and I confess to you its effect on her general state from the moment she was under its influence, not only gratified myself, but pleased her friends, who complained much of her impatience and imagined evils. A few inhalations sufficed to induce insensibility, before which she gave one or two hysterical laughs, and made some incoherent remark. She then became still and quiet, until a pain returned, —the only indication of which was a gentle writhing of the body. Her pulse very soon fell to 80, at which it remained ; her skin became cool ; the parts rapidly relaxed ; she moved, and allowed herself to be moved in any direction readily : the pains were certainly more regular and efficient than in any of her former labours ; and in two hours and a half from the first inhalation, the child was born. Once only during this period, and that was after one hour had elapsed, was she perfectly sensible. This was permitted at the solicitation of the nurse and friends, who had not seen chloroform used before, and could not be convinced that so sudden a change could exist and the labour progress perfectly. They soon had evidence of this, by the patient screaming out in her former impatient tone, "Pain, pain ! where is the handkerchief ?" From this time until delivery she was perfectly unconscious. The placenta came away naturally in ten minutes. The roller was put on, some of the soiled things were changed, and it was not for several minutes ere she was convinced that her trials were over. I need hardly say that she was gratified in the highest degree to find that she had escaped so much of her former suffering, and expressed her deep thankfulness for so valuable a boon. The child was putrid. Her recovery was perfect, and more rapid than on any former occasion.

In my practice I have met with no instance of chloroform failing in producing its usual effects in a very few minutes, where it was willingly and readily inhaled ; in some nervous patients, a few seconds are sufficient for this purpose. In the case I have just given, I was surprised at the few inhalations she took ; and Dr Pirrie mentions that one of his patients was so highly susceptible of its effects, that, on making three or four inhalations, the state of anæsthesia became so complete, that the labour was entirely suspended ; he therefore, in this case, discontinued its use. On some occasions I had difficulty in persuading the patients to use it ; hence a longer time elapsed. In one case when persuasion failed, I watched an interval of drowsiness, and in spite of herself brought the woman fairly under its influence, in which state she remained for twenty minutes, when the child was born unconsciously. Its cry aroused her ; she turned herself hastily around with an enquiring look, and

after a momentary gaze said, "What is that? you have been giving me the stuff."

The quantity of liquid used has varied in my hands from $\frac{3}{8}$ ss to $\frac{3}{16}$ iss. This last quantity was expended in the case of a young woman, of eighteen years of age, pregnant of her first child, and who was more or less under the influence of chloroform for five hours. As this was amongst my first cases, if not the very first, and the longest period in which I have employed this agent, perhaps you will excuse my giving it somewhat in detail, more especially as ergot was given along with it, which I am not aware that I had seen any where recommended. Jane —, æt. eighteen, unmarried; first child, December 18, 1847. When seen at five P.M., the membranes were reported to have ruptured twelve or thirteen hours before; on examination, the os uteri was found dilated to the size of half-a-crown, and the breech was discovered as the presenting part; the pains were frequent, irregular, at times only effectual, but they had been increasingly severe during the after part of the day, and now were strong.

About seven P.M., after some persuasion, she first inhaled the chloroform. She soon became insensible; it was then only presented to her at intervals as a pain recurred, a single inhalation being generally sufficient. She laughed and sang for a few minutes, but at length seemed perfectly unconscious, and we were only sensible that she had pain by her now and then rolling about, as is the case when labour-pains continue under convulsions. For an hour she was kept in this state; but thinking the pains were becoming more distant, and the progress of the labour slower, she was allowed to come out of this torpid state. Soon after $\frac{3}{8}$ ss. of powdered ergot was given, and repeated four times at intervals of a quarter of an hour. The pains now became stronger and more frequent, and my patient, who was conscious of the powerful agency of the chloroform, and the advantages she had derived, insisted on its repetition. She had, in fact, secreted the handkerchief, and was now keeping it at her mouth. But, alas! its talismanic powers had vanished; she threw it rather angrily at the student, who, at that moment, sat by her bed-side, desiring him to give her the bottle in its stead; she assured us that she had felt no pain until now, that she had been dreaming of her illness, which she believed was finished. From this time (nine o'clock) until her delivery, which took place between one and two o'clock the following morning, she was kept in a perfectly unconscious state, at times more so than at others, according to the severity of the pains. Towards the end of the labour the throes were very severe, but during none of them did the patient complain of the slightest pain. The only indication, as I have already said, of apparent suffering, was a movement of the body, and occasionally a low moan. The child in this case did not breathe or cry; it was not therefore legally in life, though the funis pulsated for some minutes.

I can scarcely think that the death ought to be attributed to the chloroform, or even to the ergot. The length of the labour, the nature of the presentation, and especially its being a first child, were almost against its being born alive. So that, with this exception, no injury has befallen the infant in the practice of any of us here who have employed chloroform.

I have only further to say, that the recoveries in every case have been most satisfactory. They appeared even more rapid than under ordinary circumstances.—Yours, &c.

R. DUCK.

From Mr Lawrence, Montrose.

I am sorry I cannot furnish much information as to the employment of chloroform in midwifery in this quarter. It has been very little used by myself or brethren, owing chiefly to a very general prejudice on the part of our parturient patients against it. The very last case I attended, the patient resolutely refused it, although suffering very severe pain! However, in one of those in which I administered it, and to which I had gone unprovided with the chloroform, my patient compelled me to send for it! In one case in which

a patient of mine had convulsions in her first labour, I exhibited chloroform at her second confinement with the usual success.

I have seen no injurious consequences of any kind.—Yours, &c.

SAMUEL LAWRENCE.

From Dr Steele, Montrose.

I have used chloroform in midwifery practice on six separate occasions. In two of the cases, it was given to the extent of producing only a partial immunity from suffering; but with the effect of converting, especially in one to whom it was administered for about four hours, what would have been a very severe, into a very easy labour. In the other four the effect was highly satisfactory; two of the children being born without the consciousness on the part of the mothers, for some time after, of that event having taken place. One lady remarked, that she thought "the march of intellect had never taken a happier direction than when it led to the discovery of chloroform."

All the children did well. One of them, however, was asphyxiated for nearly a quarter of an hour after its birth.

From the little experience I have had of chloroform, any opinion of mine as to its merits is not entitled to much weight. It seemed certainly in several of my cases to prolong the interval between the pains, and thereby retard the termination of the labour; and I thought also that the uterine action was sometimes less effective when the patient was under the power of the medicine.—Yours, &c.

GEORGE STEELE.

From Dr Paton, Dundee.

I have ascertained that chloroform has been employed in upwards of fifty cases up to this date (5th June 1848), several of them instrumental, and with the best effect; and no bad consequence has attended it either to the mothers or children. All the children have been born alive. In the cases in my own practice in which I have used it, it speedily induced the anæsthetic state, and appeared to accelerate the uterine action in some. The recoveries of the mothers were more favourable than in former instances where no such agent was employed. In all, the children were born alive, except one, where the child was *acéphalous*.

To explain the small number of cases in which it has been used here, I ought to mention that, in consequence of the deaths of two ladies in a respectable rank of life, from puerperal fever, when it was epidemic a few months ago—in both of which cases chloroform was used—the public, of course, attributed the unfortunate result to the new agent; and since then it has been difficult, and in many instances impossible, to overcome the prejudice against it. Of late, however, from the favourable opinion entertained of it by those who have had it administered, it is not so frequently objected to.—Yours, &c.

GEO. PATON.

Dr Anderson, president of the Medico-Chirurgical Society of Glasgow, and one of the most experienced and esteemed physicians in that city, some time ago wrote me a letter, from which I make the following extract:—

Not being connected with any obstetric institution, and having now little practice of this kind amongst the poor, I am sorry I cannot offer you any sufficient statistics on the use of chloroform; but I have had so much reason to be satisfied with its effect that I almost always use it, and most of my patients have expressed themselves as strongly in its favour as you have done. I recollect only two exceptions, where, although the usual effects were produced, both patients complained that, previous to the full anæsthetic effects, their feelings, instead of being agreeable, were very much the reverse. One

lady said, that she felt it like approaching insanity; and that she would rather endure the labour pains than be subjected to this again. In no case have I had reason to suppose that mother or child suffered injury. All the mothers have done well, and several of them have spontaneously remarked, that they made better and quicker recoveries than after former accouchements. In this I coincide. Two children were still-born. One, in the sixth month, died during parturition, after long-continued discharge of the liquor amnii for many weeks before the induction of labour; the other, in the eighth month, after hemorrhage from fatigue, followed by protracted labour: in this case a placental clot was found after delivery, so that the child's death was sufficiently accounted for.

On the whole, my experience of chloroform in parturition is more favourable than in other cases, where I have several times seen it produce alarming spasmodic and other nervous symptoms, followed by sickness. These effects, I think, are most apt to occur in subjects who have had spinal irritation, or an excitable state of the nervous system, or who use the chloroform when exhausted, or after abstinence from nourishing food.—Yours, &c.

A. D. ANDERSON.

The following communication was sent me in June last—

By Mr Spencer, Douglas, Isle of Man.

I forget how often I had used the chloroform when I last wrote you; but, since then, I have used it frequently, with invariable success so far as it is concerned. There have been no still-born children from its use, and all the children have continued to thrive well; none as yet have had a fit from teething—this I consider a great matter. We want some powerful proof here to bring it into general use. I cannot use it in half my cases, as I would not do it without leave from the patient. I had a case of puerperal mania the other day, and did *not* use it in it. If I had used it, I should have been blamed. This is so small a place that every thing one does is at once known. I have often operated under its use, with no ill effect.—Yours, &c.

J. H. F. SPENCER.

From Mr Ceely, Aylesbury.

I have much pleasure in communicating to you the general results of my very limited use of anæsthetic agents in midwifery. I have used both ether and chloroform in numerous operations, small and great, in public and private practice, have been several times the subject of their influence, and have repeatedly employed them in hysteria, epilepsy, and other nervous and spasmodic affections; but my employment of them in midwifery has been more limited, and at present restricted chiefly to primiparous and difficult or tedious cases. I have used them in only six cases as yet.

It has happened that most of my late obstetric cases have been so easy and so rapid as to supersede the use of chloroform. My own observations of its effects in midwifery, would induce me to *urge* its use in all *severe, protracted, or operative* midwifery; and in any case of natural labour, with only the ordinary suffering, I would not hesitate to employ it, with the concurrence of the patient or friends, if I saw no contra-indication; because I believe that, in proper doses, with suitable management, it is harmless and may be beneficial; but if the patient, under these circumstances, were averse, I should not, of course, press it. Neither do I think I should venture to employ it in natural and easy labour, where I suspected or knew that subsequent hemorrhage would arise, from flabbiness of fibre and flaccidity of the organ; because I think the *secale cornutum*, during the last hour or two of such labours, has in my hands been so beneficial, and seems more appropriate.

In all the cases in which I have employed ether or chloroform, the patients and their friends have been perfectly satisfied and gratified with the results, and abundantly thankful for the boon. In only one case has there been any

sickness or syncope. In a town about twelve miles hence, it has also been successfully used by Mr Knight of Brill, in several cases. In Bicester, I have heard of its use, but chiefly by younger medical men.

I will only add that, in using the chloroform, I have, in some of the cases, now and then omitted to repeat the dose, to show the friends and attendants how differently the patient was situated; but the latter has soon removed any hesitation of the friends by calling out hastily for that "nice chloroform" again.—Yours, &c.

ROBERT CEELEY.

In a printed pamphlet¹ obligingly furnished me some time ago by Mr Stallard, surgeon to the Leicester General Dispensary, that gentleman observes:—

I have exhibited the chloroform in upwards of thirty cases of midwifery during the present year, and they have included a greater number of severe cases than the general experience would support; this is accounted for by the fact that two of the worst were pauper patients, to whom the surgeon's attendance is required only in cases of unusual severity. One other formidable case also occurred to my father, and in it I was requested by him to use the chloroform. In this experience I have never once observed the least retardation of the parturient paroxysms, *so long as absolute insensibility was not induced*; and in several cases the pains were palpably increased. When a patient is suffering acute pain, she does all in her power to suppress it, and the act of doing so is well known to retard the process of parturition; when, therefore, the pain is no longer felt, the effort to suppress it no longer ensues, and the accouchement is accelerated in a remarkable degree. But again, it has been argued that the pain of labour is desirable; and that it is wrong to interfere with this natural indication of what is going on. Now, with this assertion I am totally at variance; there is nothing so depressing to the powers of life; nothing so soon exhausts the already feeble body; nothing so effectually prevents the sufferer from aiding nature by her volitional effort, as pain; and consequently nothing so powerfully maintains the strength, or invigorates the system, as its annihilation. . . . In the thirty cases I have attended I have not had a single case of flooding, and two individuals had never been free from it on former occasions. This is, in my opinion, an additional recommendation for its exhibition; and in all those excitable persons in whom flooding is most likely to occur, the diminution of fear and excitement caused by its exhibition, has a direct tendency to prevent the flooding. Nothing but a very extended experience can justify any conclusion upon this head; as far as my own experience goes, I am decidedly of opinion that chloroform exerts no perceptible influence upon the child.

From Dr Protheroe Smith, London.

I have records in my own practice and that of my friends of upwards of 125 cases of anæsthetic labour; and, with one exception, all have done well. In several thus treated, no hemorrhage has ensued, though in previous labours there was flooding. In nearly all, the getting up has been more speedy, requiring no aid of opiates and purgatives; and it is my sincere conviction that chloroform lessens the chance of puerperal inflammation and fever. I usually employ my inhaler to administer it, and with it I fancy I can administer it with greater success and precision. I have kept patients under its influence from half an hour to twenty-eight and a half hours. I have used it in cases in which bronchitis was present, and one lately, in which, at the time, there was complete aphonia. She has never had so good a time—in four or five previous births she had protracted recoveries, floodings, peritoneal attacks, &c.; these she has wholly escaped. I have used it in turning and forceps cases, &c., and in

¹ Practical Observations on the Administration and Effects of Chloroform in Natural Labour, p. 16, &c.

all I have been most successful. In administering chloroform I adopt your plan of inducing rapidly complete sleep, and afterwards keep up the effect by repeating the inhalations at each recurrence of uterine effort. The other day I had three cases, the one after the other, which strikingly illustrated the various effects of the chloroform on different subjects,—1st, a primipara, æt. twenty (administered in the second stage), kept under its influence four and a half hours, slept sweetly without any movement of the body, save during the last expulsive efforts, when the usual abdominal muscles were called into action. The “pains” under the chloroform became more frequent and powerful, and a fine male child was born. After the expulsion of the child, the patient awoke refreshed as from a sweet sleep, without any pain or evidence (save the advent of her first-born) of having been confined, as far as her own feelings were concerned. The uterus contracted firmly, and I instantly left her for the second—a lady of title. She required to inhale for a minute and a half (in the third stage), before the induction of anæsthesia was complete, when she became very talkative, addressing her maid in French, speaking of matters wholly foreign to her condition, and of an amusing character, as though she was perfectly at ease and had nothing to do with the labour, which advanced rapidly, and terminated in an hour from the first exhibition of chloroform. On recovery, in about three minutes after, she was introduced to a fine boy, and remarked she had been sound asleep. The third case had the chloroform in the *second* stage; she slept soundly in half a minute, and then became conscious of what was going on—described to the nurse who stood by, the progress of the labour, and observed that she was greatly delighted that she had her senses, and yet was wholly unconscious of any pain or distress of any kind. She remarked that with the entire freedom from suffering she was sensible of the progress of the labour, as though it was effected by an agency with which she was altogether unconnected. During the last three I made her sleep; so she was ignorant of the birth of a fine boy: in this and the second case the placenta immediately followed; the abdomen and uterus contracted firmly. In all three cases no after treatment was required, and they made rapid recoveries.—Yours, &c.

PROTHEROE SMITH.

From Dr Rigby, London.

Of course I use the chloroform in midwifery, but I cannot think that a large dose at first, is the best way. In almost all private patients, you can draw the line between loss of pain and loss of consciousness. I give but a small quantity at a time; the patient takes it herself (on a strip of sponge), and when it is exhausted she asks for more.—Yours, &c.

E. RIGBY.

From Mr Lansdowne, Bristol.

I have now used ether or chloroform in seventy-one midwifery cases; I have two modes of administering it, the one with a bladder, in which is placed a brass pipe with a stopcock, and into this is screwed, after I have poured the chloroform into the bladder, a piece of elastic tubing with a mouth-piece, the whole being pierced with a bore $\frac{3}{4}$ of an inch, through which the vapour can be readily inhaled. If I find I am likely to be giving the chloroform for a long time, I use this apparatus, both for the sake of convenience, and also of economy, as 3j will last me nearly or quite an hour with this; and, should I use it many hours, it not only effects a great saving of material, but does not so frequently require replenishing, and is always ready at the approach of each separate uterine action; and it may (as has been the case with me) be used by any friends, or by the nurse, should the practitioner require to be absent for a short time. The other apparatus is an inhaler, such as is commonly sold; it is made of a thin and pliable lead, adapted over the nose and mouth, having a piece of perforated zinc in its front, and containing a piece of sponge, over which the chloroform is thrown; the depth of this inhaler is such as to prevent

the nose being touched by the chloroform. It is home manufactured, not expensive, and very easy of construction. This latter I make use of if I am likely to be wanting it for a short time only ; it requires to be supplied afresh every five or ten minutes, and, accordingly, I use 3j or 3ss, which latter is my quantity when about to extract a tooth. If the action of the uterus causes great pain, as is frequently the case in an early period of the labour with the first child, I commence giving it as soon as the os uteri is sufficiently dilated for the head to pass ; I have given it when the opening has not exceeded the size of half-a-crown. I believe it may be given with impunity as early in the labour as we please, and the only obstacles to its being so used that I can see, are the inconvenience to the medical attendant in being thus occupied with one patient for such a length of time, and also the very great expense which such a lengthened use of it must entail. On the patient's account, I can see no possible reason why it may not be used for a whole day, or even more ; indeed, I cannot see why a limit should be set to the length of time in which it may be used. I have no doubt but that it will soon be the anodyne generally used at the latter stages of painful cancerous diseases. The greatest length of time in which I have used it has been 16½ hours, a fresh inhalation being made at every renewal of the action of the uterus ; in other cases, I have given it 11½ and 12 hours, and the only reason of the inhalation being limited to this time, has been the cessation of the necessity for its use, namely, that the child has then been born, otherwise it would have been continued until such event had taken place.

I have found that nearly all my patients have recovered very rapidly ; most of those who have had children previously, have been astonished at the unusual rapidity of their recovery.

I find no difference as to the expulsion of the placenta and the subsequent discharge, when administering chloroform, to what takes place in the usual natural labour. I have, upon two occasions, used it for very severe after pains, pains so severe that their cries could be heard at a considerable distance ; indeed they appeared worse than the pains of actual labour ; in both cases the pain was completely subdued by its use. Both these persons had determined not to avail themselves of the benefit of the chloroform during labour, neither did they, but they were delighted afterwards with its soothing effects. The former of these I had long resolved to give it to for this express purpose, it was her thirteenth child ; her labours have always been very rapid, scarcely any pain accompanying them ; but no sooner has the child been born than her agony has been almost past bearing, the pain recurring at intervals for a fortnight. Upon this occasion I gave it to her three times within the first ten hours, and she had nothing to complain of afterwards.

As regards sickness, I have not found that symptom, except where fluid has been previously taken ; on the contrary, if the patient has been sick the chloroform has almost invariably checked it. The cramp I have not heard them suffer from whilst under its influence. I have never yet met with any thing which has caused me to regret having used it.—Yours, &c.

J. G. LANSDOWNE.

During the course of last winter and spring the practice of anæsthesia in midwifery was tried in London by a very intelligent young Russian physician, Dr Haartman of Helsingfors, while, for the sake of information, he was living as house-surgeon in the great Lying-in Hospital at Westminster. Dr Haartman subsequently visited Edinburgh, and kindly drew up for me, before leaving England, the following account of the results of his practice. I have much pleasure in publishing his letter, both on account of its own intrinsic value, and because the results of the practice of anæsthesia in this Hospital have been in no small degree misrepresented, both publicly and privately.

Results of Anæsthesia in the Westminster Lying-in Hospital.

I fulfil with the greatest pleasure your wish, in writing down my observations on chloroform as used in midwifery. I do it certainly not without much embarrassment, the greater the more I think of my ignorance of the English idiom; but, encouraged by your indulgence, I do not hesitate to begin the task, more especially as I know that some erroneous ideas of the use of the chloroform in the General Lying-in Hospital in London have been spread about.

During the three months I was house surgeon in that hospital, I had the opportunity of observing 105 women in labour, of whom about twenty-five were attended by my friend Dr Delafield of New York, the other eighty by myself. But having been most of the time the only house surgeon, and otherwise much engaged, I was not able to exhibit the chloroform oftener than in twenty-five cases, which, I need scarcely say, were in no way selected. The most of these patients were, however, *primiparæ*. In the administration of the chloroform I followed your method, using simply a towel, upon the interior of which the liquid was diffused; but I held it as a rule to exhibit it in the beginning of each case rather in small doses, and with caution, watching, in the mean time, the pulse as the surest indicator of any danger. But when the patient got accustomed to it I gave it freely, not removing the towel till the patient was in deep sleep. In this state, the respiration was in general sonorous, sometimes stertorous; the pupils were usually somewhat contracted, sometimes, however, dilated, sometimes not at all affected. The pulse was, in the beginning, either a little accelerated, or quite natural, I think, when the patient was not frightened. Yet, I have seen the pulse without any bad consequence go down to 40, when the chloroform was used for a long time or in large doses. Its strength was very seldom altered, being then weaker. The patient usually lay quiet, all the muscles being relaxed till the uterine contractions came on, during which they all, with few exceptions, pressed down as in common labour. Some of them complained, although they afterwards said, "they felt no pain whatever." Few talked or laughed, except the Irishwomen, whom I found rather refractory to the anæsthetic influence, probably because they are, in general, too much accustomed to drinking spirits. All the cases were, with few exceptions, observed with the greatest care, and both the duration, the frequency, and the nature of each uterine contraction, both before and after the chloroform was exhibited, were marked down. Thus, I find, by comparing all my annotations, arranged in tables, that, during the full effect of the chloroform, the uterine contractions became less frequent and, I should say, less powerful, but, when the effect had passed off a little, they then became more frequent and shortened in duration; for example, if the interval between two uterine contractions before the use of the chloroform was 6 minutes, and the duration of each $1\frac{1}{2}$ minute, both these periods were reduced after its exhibition. The interval, from 6 to 5, 4, or 2 minutes, and the duration of each pain from $1\frac{1}{2}$ to 1 or $\frac{1}{2}$ minute. Besides, I think, that in this state the uterine contractions in general came on more suddenly than in common labour, a circumstance which, however, may depend on an illusion, by the absence of pain existing and announcing the action of the uterus in the usual labour. I have never observed the uterine contractions quite arrested, yet often somewhat delayed. The supposed relaxation of the soft parts seems to me at least uncertain and accidental. In two cases in which I thought the chloroform had very much relaxed the rather rigid parts, I had, notwithstanding, rupture of the perineum. Among the twenty-five cases of chloroform, I had only in one a slight hemorrhage, a fact the more remarkable, as at the epoch at which I used chloroform most frequently, I can say I had hemorrhage, and that often very severe, in almost all the other cases in which chloroform was *not* used.

After the delivery, I found the patient in general quite unconscious of any

occurrence during the anæsthetic state, some of them saying, nevertheless, that they had felt something going on, although they did not know what. They seldom complained of headache, and it usually disappeared during the following day. The mothers recovered all speedily and perfectly, with one exception worthy your attention, although I am fully convinced that the accident by no means was the result of the chloroform, of which only two drachms were used—my provision at that time not being larger. During the use of the chloroform this patient was, as usual, insensible and quiet; but, for want of chloroform, the effect could not be kept up for a long time, and she was delivered with the usual pains. She was the following day perfectly well, and continued so till the 8th day after the delivery—she had then complained to the other patients of headache. I was, however, not called for before she, in the afternoon, had had a fit of what is commonly called apoplexia nervosa; after which she got paralytic on the right side. I need not to give you a tedious description of the proceeding, and the treatment of the disease; allow me only to state that the patient began, by the use of strengthening medicine, to walk about in a month.¹

Of all the 105 children, six were either still-born, or died sooner or later after the birth—two only of them belonging to the twenty-five cases of chloroform. But, before I relate these cases, I beg permission to point out some general remarks. In the majority of the cases I could not discover any change whatever upon the child, some of the children being rather bloodfull, others anemic—states depending, I think, as usual, on the duration and the nature of the labour. In one case, however, in which Dr Ferguson was present, the newly-born infant was found rather strange, or, to use the eminent doctor's expression, "tipsy." It breathed less frequently and more abruptly than usual, the sound of its scream being rather singular. It recovered, nevertheless, perfectly. I must here observe that the mother (Irish), who, after the confinement, had brought up a large quantity of gin and broom, confessed having taken spirits before admittance into the hospital. Of the two children who died, the first was rather weak and thin, but continued pretty well till the seventh day, when it got peritonitis, and died on the tenth day after birth. The second, a large and fat child, died four hours after birth: in this case, when the head was born, I observed around the neck small blue spots, which I found to be blood extravasated under the skin. After birth the same kind of spots began to appear over nearly the whole of the body. The child breathed well in the beginning, but would not suck. It died without convulsions. By the *post mortem* examination, the spots were found to be blood extravasated from the capillary vessels of the skin; a large quantity of half-coagulated blood was found in the cavity of the peritoneum, and small blood coagula in both lateral ventricles of the brain. The lungs and the brain were slightly congested. The blood seemed to be quite natural, and had no anormal smell.²

¹ The "puerperal paralysis" was in this, as it is in most other cases, probably connected with albuminuria. One of my patients, who was confined for the second time, four months since, was attacked two years ago with hemiplegia immediately after the birth of her first child. I have a patient at present under my care, from Forres, who several years ago was attacked with hemiplegia at the time of delivery.

² This special case of purpura has been often mentioned. Every one acquainted with infantile pathology knows that purpura is not a rare occurrence at birth, as the cases and observations of Andral, Billard, Otto, Lobstein, and Graetzer, &c., amply prove. A patient who came some time ago from London to be confined in Edinburgh under my care, was gravely assured by a distinguished London physician, that if chloroformed, her child would be sure to be, as they all were in the Westminster Hospital, "either dead born, or with their blood in a putrid and dissolved state!" The want of the head in the anencephalic child born at Dundee (See Dr Paton's letter, p. 31), might have been as logically ascribed to the mother's use of chloroform, as the purpura in the above instance.

Before I finish, I beg to add that I have used the chloroform in a case of turning with the greatest advantage. I was called out from the hospital to a poor woman in labour, and found a presentation of the cord and the uterus so contracted that I could nowhere introduce my hand, although I made repeated attempts without success. I then gave a large quantity of chloroform, and I was quite astonished at the great change which took place, it being now uncommonly easy to perform the turning.—Yours, &c.

CHARLES DE HAARTMAN.

Of the use of chloroform in midwifery in Ireland, I have few details. From Dublin, my friend Dr Tyler wrote me in June last, that the practice has not yet been much tried. He observes—

As to the progress of chloroform in obstetric practice here, I regret to state that its virtues have not yet been fairly put to the test by any of our Dublin accoucheurs, owing to a dread of bad consequences resulting, although I am unaware of any case followed by such being brought home to it, except a rumoured one of *threatened* convulsions and spasms, where —— was administering it.

As to the surgeons, I hear them all speak in the highest terms of it. The resident surgeon of Steven's Hospital, Mr Wilmot, told me yesterday that he administers it previously to every operation there, now in some hundred cases, without meeting with any untoward result.—Yours, &c. A. TYLER.

Subsequently Dr Tyler informed me that Mr Shekleton, master of the great Dublin Lying-in Hospital, was trying the effects of chloroform. While this sheet was passing through the press, Dr Denham, assistant physician in that hospital, visited Edinburgh, and informed me that Mr Shekleton has now exhibited chloroform in upwards of forty cases of labour, most of them of an operative or instrumental kind, and that the effects have been such as to induce him to go on with the trial of it. No unfavourable results, either as regards the mothers or children, have been observed to follow the use of the chloroform. Some of the principal private practitioners in Dublin, are also, Dr Denham informs me, beginning to employ the practice.

Regarding the use of chloroform in midwifery on the Continent of Europe, I possess little or no information. Dr Krieger of Berlin, tells me that in that city most medical men are opposed to the practice of anæsthetic midwifery, but still, five or six accoucheurs constantly make use of it. Writing to me in July last, Dr Krieger says—

About five or six accoucheurs of this place, I don't think there will be more of them, use chloroform in almost every case they attend; many more only in cases of morbid labour; the majority not at all. The cause of this curious occurrence—*curious*, because in *every* surgical operation chloroform is made use of—may be found, not only in the disinclination of the public at large to such extraordinary means in quite a natural process (as they take labour for), but perhaps also in the expense, chloroform being still a costly article. I don't know whether the preparation we get here is less strong than it ought to be, or not, but I seldom require less than six drachms or an ounce, sometimes more, for one delivery, and the price is as much as half-a-crown per

ounce at apothecaries' shops. Professor Martin of Jena has used ether in seven, chloroform in ten cases of morbid labour, and cannot strongly enough recommend the latter anæsthetic agent, stating, that he never witnessed but favourable consequences. I am sorry I cannot give you any more details about the progress chloroform has made in Germany—but the perplexing political affairs have so very bad an influence on scientific publications, that we get but very little medical news from any where on the Continent, and those only such as were long prepared before we fell victims to revolutions.—Yours, &c.

E. KRIEGER.

In a letter which I have lately received from Vienna, the writer, Dr Arneth, informs me that the use of anæsthetic agents in midwifery is, as a general rule, discountenanced in that city by the two leading professors of midwifery in the University, but that, in several late cases, they have used it in operative delivery. He further states, that in Würzburg the use of chloroform in obstetric practice is more common. He states—

While I am writing this letter, Professor Kiwisch of Würzburg tells me, that in that place no woman is confined, neither in private nor in hospital practice, without having been chloroformed. In two cases of eclampsy he saw decided effect of these vapours, viz., the fits subsided.—Yours, &c.

F. H. ARNETH.

The preceding kind of evidence, in relation to the practice of anæsthesia in midwifery in this and other countries, might, as I have already stated, be very easily increased and multiplied by a little more extended inquiry, and by an appeal to the experience of the numerous accoucheurs here and elsewhere that have employed it. But the evidence as it stands—and spontaneous as it is in most cases—is amply sufficient to show both the great extent to which the new practice has already been adopted, and the great success that has attended upon it. Every innovation in medicine which implies, like the present, a violent and extensive change in existing doctrines and old established practices, has always been, for a length of time after its introduction, stoutly decried and resisted. The history of the first introduction and subsequent progress of the three greatest modern improvements in practical surgery, midwifery, and medicine—viz. the ligature of arteries, the induction of premature labour, and the discovery of vaccination—afford sad but strong historical proof of this observation; and we have many minor instances of the same constant enmity to change, in the bitter opposition which the first employment of antimony, ipecachuana, cinchona bark,¹ and other medicines encountered. And I believe that I am correct in stating,

¹ The London physicians have, on several occasions, specially distinguished themselves by their determined and prejudiced opposition to all innovations in practice not originating among themselves. In the whole Pharmacopœia, there is perhaps no one remedy which, at the present day, is acknowledged to be of greater value, or to have saved more human lives, than cinchona and its preparations. In the seventeenth century, the proper time and manner of using the cinchona bark, for the cure of the then prevalent intermittent fevers of England, was made out by Robert Talbor, a medical practitioner in Essex. When Talbor subsequently removed to London, and began to use with success the new remedy

that probably no innovation, embodying so very direct and decided a deviation from all the former routine and rules of practice, as the employment of anæsthesia in midwifery implies, ever, in the same short period, made such extensive way and progress as it has done among the profession. As a matter of course, however, it has called forth also abundance of published and unpublished opposition and objection. No small share of the resistance against it has taken the form of personal or professional abuse of me as the introducer of the practice. All that I most willingly pass over and excuse, as, judging from all past experience in medicine, it was nothing more nor less than I was entitled to expect under the circumstances. But some difficulties and objections of a more palpable nature have been urged against the practice; and, in conclusion, I will very briefly allude to, and attempt to answer, the more prominent among these that happen to have been brought forward.

ALLEGED DIFFICULTIES IN THE SUPERINDUCTION OF ANÆSTHESIA.

In a previous page, I have stated the principal circumstances which require to be attended to in the exhibition of chloroform in labour. I have been occasionally told of cases, in which it was supposed that it was impossible to produce the anæsthetic effect of this agent. In my own practice (and I have now used chloroform in many hundred persons), I never yet met with a single instance in which a person was proof against its full influence.

It has been sometimes averred in the English journals, that on attempting to use chloroform, jactitation, incoherent talking and delirium, spasms, &c. &c., have supervened *instead* of a state of quiet anæsthesia. These are symptoms which do occasionally come on in the *first* or exciting stage of its action, more especially if strict

in the cure of the common agues of the metropolis, he found that, as he gained the favour of the world, he lost that of the physicians of London; and apparently their persecution of him became such that the King at last was obliged to interfere, and in the year 1678, King Charles II. sent a royal mandate to the College of Physicians, commanding the president, Dr Mickelthwait, "and the rest of the College of Physicians," not to give Talbor "molestation or disturbance in his practice." Among the list of London physicians averse to the new practice of curing ague by cinchona bark, De Bergen mentions the illustrious names of Sydenham, Harvey, &c. In 1698, a Dutch physician, Dr Groenvelt, published a work entitled, "*De tuto cantharidis in medicina usu interno.*" A few years previously, viz. in 1693, when Groenvelt practised in London, the President of the College of Physicians imprisoned him in Newgate for daring to recommend and use the new remedy whose virtues he had discovered. Six or seven years after vaccination began to be generally used throughout England, Dr Moseley, a member of the London College of Physicians, suggested to his College the propriety of putting down "the beastly new disease," as it was termed, of cow-pox; and in 1805, he boasted that the middle and inferior classes of London had then "renounced the delusion." In the last Number of a respectable London medical journal, a London medical practitioner questions whether the practice of relieving women, by anæsthetics, from the pains and agonies of parturition, should not "be considered criminal according to law!" See *London Medical Gazette* for September 8. p. 424.

quietude is not enjoined; and, though they are apt to terrify the beginner, they are in reality no more serious in their effects and character, than some of the equally frightful symptoms sometimes seen in hysteria. They are an evidence, however, of one of two things; either that the vapour is being given too slowly, or that it is given in too small quantity,—in an exciting, in fact, instead of a soporific dose; and the simple remedy, as every one properly experienced in its action knows, is at once to increase the dose in order to pass the patient as speedily as possible into the *second* or full narcotic stage.

Chloroform, it is alleged, sometimes gives rise to much coughing, and pulmonary irritation. Certainly not so, if the chloroform is of good quality, and its vapour is not at first approached in too strong and concentrated a form to the face of the patient. After some experience, it will be found that it can be given so as seldom or never to induce even coughing. Some time ago, a well known physician, in a large city of the south of England, wrote me, that he and his townsmen had found it too dangerously irritant a substance to breathe, and that he had seen it produce cough, bronchitis, phthisis, &c. The answer was simple; it never produced any such effects in Edinburgh practice. And I believe that the explanation was equally simple; he and his townsmen had experimented with an imperfect and impure article. A few days ago, one of the principal druggists in Edinburgh showed Dr Christison, Dr Douglas MacLagan, and myself, a bottle of chloroform of high specific gravity, viz. 1490, which he had just received from a very large manufacturing chemical house in London. It was impossible to breathe it without feeling great irritation in the throat and chest. It emitted fumes that at once reddened litmus paper; and which, on examination, proved to be muriatic acid. Is it wonderful that bronchitis, coughs, and more serious disasters, should have followed the inhalation of such an improper and dangerous article?

Dr Letheby has shown, that some kinds of chloroform in the market, besides containing muriatic acid, are also mixed with aldehyde, hydrochloric ether, hypochlorous acid, &c.¹

¹ See *Medical Gazette* for June 16, 1848, p. 1038. The presence of some of these deleterious agents has been supposed to be an inevitable and speedy effect of the spontaneous decomposition of very pure chloroform. But I find that some of the article, manufactured several months ago in its purest form by Duncan, Flockhart, and Co., of this city, has undergone no kind of change, even though long exposed to the sun. Messrs Smith have also shown me the same, in regard to their chloroform. I have reason to know, that the dangerous article alluded to in the text as containing a quantity of muriatic acid, has been extensively sold to the profession throughout Scotland and England, at a price two or three shillings per pound cheaper than is charged for the pure chloroform manufactured by other houses; and, probably, its very cheapness has led to its extensive use. The following is the formula by which chloroform is prepared by Messrs Duncan, Flockhart, and Co. of Edinburgh, whose article I have always found of the most superior quality:—4 pounds of chloride of lime, and 12 pounds of water, are first well mixed together, and then 12 ounces of spirit added. Heat is then applied to the still (which ought not to be more

OBJECTIONS TO ANÆSTHESIA IN MIDWIFERY.

Objections of various kinds, religious, moral, and medical, have been zealously brought against the practice of anæsthesia in midwifery.

Elsewhere¹ I have attempted to answer the supposed religious objections that were at first so very strongly urged in various quarters against the practice, on the supposed ground of the permanence of the primeval curse; and I have shown that the disputed word "sorrow," *'etzeb* ("in sorrow thou shalt bring forth children"), does not in the original Hebrew really signify the sensations of pain, but the muscular efforts and contractions connected with childbirth. Besides, if this were not the fact, and that it was the duty of man to give effect to the curse, instead of struggling to ameliorate and resist its penalties and influences, then the whole art of physic should require to be abandoned entirely, for, in the primeval curse, man was doomed to die; and yet is not the great leading aim and object of the physician a continuous attempt to preserve him in life? All forms of obstetric assistance would require also to be rejected, for the whole art and science of midwifery is one undivided effort to abate and ameliorate the effects of the curse; and to attain that object imperfectly, as heretofore, by venesection, baths, by counter pressure to the back, and other minor practices, is as sinful as to attain it more perfectly now by anæsthetics, inasmuch as the principle of interference is not altered by the degree of relief given; "for whosoever shall keep the whole law, and yet offend in one point, he is guilty of all." In short, if there is any evidence of feelings of impiety and irreligion in the whole question, it is surely on the side of those persons who suppose that pain is permanently ordained in the primal curse as an accompaniment of human parturition; and yet that by anæsthetics, man, the creature, has discovered a power by which he can alter and subvert an immutable decree of God, the Creator.

The principal moral "objection," as it has been termed, against the employment of anæsthesia in midwifery, amounts to the often repeated allegation, that it is "unnatural." "Parturition," it is avowed,

than a third full), but as soon as the upper part of the still becomes warm, the heat is withdrawn, and the action allowed to go on of itself. In a short time the distillation commences, and whenever it begins to go on slowly the heat is again applied. The fluid which passes over separates into two layers, the lower of which is chloroform. This, after having been separated from the weak spirit forming the upper layer, is mixed with half its measure of strong sulphuric acid, added gradually. The mixture, when cool, is poured into a leaden retort, and distilled from as much carbonate of baryta by weight, as there is of sulphuric acid by measure. The product should be allowed to stand over quicklime for day or two, and repeatedly shaken, and then redistilled from the lime. The specific gravity of the resulting chloroform is generally 14.96 or 14.97.

¹ See also Dr Protheroe Smith's late pamphlet entitled, "Scriptural Authority for the Mitigation of the Pains of Labour."

is a "natural function," the pain attendant upon it is a "physiological pain" (Dr Meigs),¹ and it is argued that it is impossible "to intermeddle with a natural function;" and to use anæsthetics is a piece of "unnecessary interference with the providentially arranged process of healthy labour" (Dr Ashwell).² The above is, perhaps, the most general and approved of all the objections entertained and urged at this moment against the practice of anæsthesia in midwifery. But it certainly is a very untenable objection; for, if it were urged against any of our similar interferences with the other physiological functions of the body (every one of which is as "providentially arranged" as the function of parturition), then the present state of society would require to be altogether changed and revolutionized. For the fact is, that almost all the habits and practices of civilized life are as "unnatural," and as direct interferences with our various "providentially arranged" functions, as the exhibition of anæsthetics during labour. Progression upon our own two lower extremities is a "providentially arranged" function, a "natural process;" and yet we "unnaturally" supplement and assist it by constantly riding on horseback and in carriages, &c. The "physiological process" of walking is apt to produce pain and injury of the uncovered foot of man, and we "unnaturally" use boots and shoes to bind the foot, and add to the protecting power of the cutaneous and other structures of the sole. Mastication and digestion are "natural processes;" but we daily intermeddle with and attempt to aid them by the arts of cookery and dietetics; and so on with regard to other functions.

To annul the pain of labour by anæsthetics is, argues Dr Meigs, "a questionable attempt to abrogate one of the general conditions of man." Riding and railway travelling abrogate one of the general conditions of man (progression), and are constantly leading to accidents and deaths. Should we never travel therefore except on foot? Disease and death itself form one of the most "general conditions of man,"—and medicine is a "questionable attempt to abrogate them." Should medicine therefore be abandoned?

In a note now lying before me, an eminent London divine urges the following objections against anæsthesia either in midwifery or surgery; and I notice it here, because it is an objection which I have often heard repeated. He writes:—"The question with me is not the alleviation of pain, but the destruction of consciousness. I should hesitate greatly to take a step which destroys consciousness." Now, certainly, our consciousness is destroyed in natural sleep as much as in the anæsthetic sleep. I have little doubt that the distinguished writer whom I have quoted, has, many a day, perhaps during almost every day for a long lifetime, voluntarily given up and destroyed his own consciousness in sleep, for an hour or

¹ Philadelphia Medical Examiner, March 1848, p. 152.

² Lancet for March 11, 1848, p. 291.

two longer each morning than the necessities of his system required. Putting these many hours together, he has perhaps now, from first to last, unnecessarily but voluntarily, surrendered up his mental consciousness for periods that, if added together, would count up weeks, and months, and perhaps years. He has done so too, merely for the reprehensible indulgence of indolence ; and yet he insists upon his fellow creatures not surrendering up *their* consciousness for a short time on rare and extraordinary occasions, when the object is the far more legitimate one of the avoidance of unnecessary physical pains, and the securing life and health by saving the system from the endurance of these pains. If we may sleep, and thus indulge in the destruction of consciousness to avoid and cure corporeal fatigue, surely we may do the same to avoid and cure corporeal agony.

Dr Merriman¹ opposes the employment of anæsthesia in natural labour, on the ground of "the great superiority of allowing nature to conduct the whole process of the birth." But the practice of anæsthesia does, in reality, allow "nature to conduct the *whole* process of the birth:" it merely abstracts that intensity of pain and suffering which accompanies the act of labour in the civilized woman, —a "disadvantage inseparable" from civilisation, to employ Dr Merriman's own expression, and which is not an essential part of the process of parturition, according to his own doctrine ; for, as he himself states, "in the earliest ages of the world, and in savage nations at present, childbirth appears to have been, in almost every instance, *easily* accomplished ; the mother suffers *little*." And in this state of natural anæsthesia the convalescence of the mother is consequently unusually rapid ; for again, to quote Dr Merriman's words, she almost "at once resumes her ordinary occupations." Dr Merriman afterwards, in speaking of the use of chloroform, decries its propriety in any except "instrumental or very tedious labours,"—arguing that we should not interfere unless where the labour is morbid, for (to use his own words), "the duty of the physician is to *imitate* nature as far as possible, and watch her methods of acting." But surely the physician strictly imitates nature in her most natural state, according to Dr Merriman's own premises, when, during labour, he induces by art that state of anæsthesia, which, in Dr Merriman's opinion, *originally* pertains to parturition in the human mother. The female in an uncivilized state more truly shows us the true method and types of nature, than the female in a civilized state. Besides, are we not called upon to relieve the woman, when we can, of her sufferings, as an act of common professional duty and common professional humanity ? In law and in morals, we judge greatly of actions by their intent. No accoucheur would intentionally inflict upon a patient the agonies of labour by a deliberate act of *commission* on his

¹ Arguments against the Indiscriminate Employment of Anæsthetic Agents in Midwifery. London, 1848.

part. Is an accoucheur properly justified in intentionally refusing to save a patient from the agonies of labour by a deliberate act of *omission* on his part? When a child, at birth, is intentionally destroyed by the loss of blood, it does not matter, in the eye of the law, whether the death has been produced by voluntarily *omitting* to tie the umbilical vessels, or voluntarily *opening* other vessels.

Up to within the last few months, and till the power of annulling pain by the inhalation of ether was discovered, severe bodily pain, such as we witness in surgery and midwifery, was universally regarded by the profession as possessing an evil and morbid effect. Some of the opponents of anæsthesia have taken up a novel and different view; and, as a medical argument against the practice of anæsthesia in midwifery, it has been particularly averred that a labour pain is "a desirable, salutary, and conservative manifestation of life force" (Dr Meigs). Parturient "pain is (says Dr Copland)¹ often salutary as respects its effects; neither its violence nor its continuance is productive of injury to the constitution," &c. No opinion, I believe, could be more erroneous. I have already shown in this Journal, from the evidence of extensive statistical returns, that some of the graver operations of surgery are now much less fatal in their results when patients are operated on under the condition of anæsthesia, and consequently without any attendant pain, than the same operations were formerly, when patients were submitted to all the agonies of the surgeon's knife in their usual waking and sensitive state. The prevention of the pain in surgical operations is, in other words, one means of preventing danger and death to those operated on; the saving of human suffering implies the saving of human life. And what holds good in relation to pain in surgery, holds good in relation to midwifery. Pain, whenever it is great in degree or great in duration, is in itself deleterious; and by shielding our patients, by anæsthetic measures, against the more severe portion of the pains of parturition, we not only preserve them from the agony of their more immediate sufferings, but we preserve their constitutions also from the effects and consequences of these sufferings. And the evidence which I have adduced in the preceding pages tends to prove, that, when thus freed from the endurance of pain by artificial anæsthesia, they assuredly, as a general rule, make both more rapid and more perfect recoveries than when such means are not used; just as woman in a savage state, and where she enjoys a kind of natural anæsthesia during labour, recovers more easily and rapidly from the shock of labour than the civilized female. In short, in cancelling the pains of parturition by anæsthesia, we also, I believe, to a great extent, cancel the perils of the process; for the mortality accompanying labour is regulated principally by the previous length and degree of the patient's sufferings and struggles. In the Dublin Lying-in Hospital, when under Dr Collins' able care, out of all the women, 7050 in number, who were

¹ Dictionary of Practical Medicine, Vol. III. p. 484.

delivered within a period of two hours from the commencement of labour, 22 died; or 1 in every 320. In 452 of his cases, the labour was prolonged above 20 hours; and of these 452, 42 died; or 1 in every 11,—a difference enormous in its amount, and one surely calculated to force us all to think seriously and dispassionately of the effects of severe suffering upon the maternal constitution.

The last and certainly the principal objection against anæsthesia in midwifery, is the supposed danger accompanying the exhibition of anæsthetic agents. In the earliest paper which I published on the subject of chloroform in this Journal, I pointed out this circumstance in mentioning various cautions in the use of it. When we consider the immense extent to which it has already been employed in all quarters of the world, in medicine, surgery, and midwifery,—the little care sometimes observed in its use,—and the deleterious and dangerous articles with which, as we have seen (p. 41), it is sometimes mixed, the wonder is that so few alleged accidents have happened from its employment. By saving a vast amount of human suffering, it has already, I believe, been the means of saving no small amount of human life; and it is assuredly improper to argue, as some have done, that the mere chance of its disagreeing with some rare and special constitution, now and then, is any valid reason for refusing its use for the abatement and abrogation of human suffering. If there were any soundness in the reasoning, a thousand things beside would require to be abandoned. Railways, steamboats, stage-coaches, &c., when used as substitutes for the natural and physiological function of human progression, are ever and anon attended with accidents to limb and life. But surely no one would, from this, maintain that these means of conveyance should, in consequence be abandoned. Many persons are annually drowned in bathing.—Should bathing, therefore, be prohibited, and this powerful means of maintaining and restoring health be entirely forsaken? According to the Registrar's official returns, a great number of lives¹ are lost yearly in England by the improper medical use of opium.—Should the use of opium, therefore, be given up? Patients sometimes sink under the depressing action of antimony, calomel, &c.—Should these valuable drugs, therefore, be banished from the Pharmacopœia? Many a patient has perished in consequence of venesection.—Should this operation be expunged from the art of surgery? From mistakes and errors, &c., in diagnosis and practice, medicine and surgery are sometimes the unhappy means of destroying instead of saving life.—Should these arts, consequently, be interdicted? Works on medical subjects have sometimes led both patients and

¹ In 1840, out of every 1,000,000 living in England and Wales, 24 were poisoned by opium, and 22 by other medicines improperly given to children below the age of five years alone.—(See *Seventh Annual Report*, p. 82.) See Taylor on Poisons, p. 187, &c., for the great numbers destroyed in England by opium, &c., improperly given.

practitioners into serious and fatal errors.—Should no medical works, therefore, be allowed to be printed? Long ago Raynalde, in sending forth the FIRST work on midwifery ever published in the English language, seems to have foreseen that, against the utility of publishing any book or books on midwifery, the same argument would be used as we have found in our own day used against the application of anæsthesia to midwifery; and he has answered the argument in a style so earnest and apposite, that I shall quote this reply, by anticipation as it were, in his own words, in an abridged form:—

“Lo!—such is the light judgment of them, the which in every thing, whereof may ensue both good and evill, have alwaies their eyes waking and firmly affixed and directed upon the evill, picking and choosing out the worst of every matter, omitting and leaving to speake of the best, as the thing which were nothing to the purpose. If every thing in this world should be weighed and passed upon after this sort, then should we be faine to condemne and banishe those things farre from us, which are, at this time, accompted and taken for the most necessary, worthie, and of greatest price or estimation. To be short, there is nothing under heaven so good but that it may be perverted and turned to an evill use, by them that be evill and naught themselves, and so abuse it: ne is there anything so absolute and perfect, but by the occasion of the abuse thereof, at one time or other, may and doth ensue great danger and damage to mankinde? Fire and water be two right necessary elements to the use of man, without the whiche he could not live: yet by the meanes of them many a miserable deed hath been done and perpetrated. By fire hath bin consumed and devoured whole cities and countries; by water, swallowed and drowned infinite men, shippes, yea, and whole regions. Againe (he continues), meate and drinke, to the moderate users thereof doth minister and maintain life; and contrary, to the unmeasurable and unsaciate gourmands and gluttons it hath full many times brought surfeet, sicknesse, and at the last, death. * * * But (he argues) should men, for the avoyding of the aforesaid inconveniences, and for the reasons above said, condemne and banish fire and water, or forsake their meate and drinke? No, it were but madnesse once to think it. Therefore I say, the judgment of that eye can never be equall and indifferent, which hath more respect and regard alwaies to the displeasures and hurts possible to happen (only through the misuse of a thing) then to the emoluments and profites daily and commonly like to ensue to the wel users of the same: and that of it selfe is good, is never to be disallowed for the sake of them that do abuse it. For to them that love good themselves, whatever it be, it is to them a sufficient matter and occasion therein to seeke the glory of God, and the only profit of their fellow Christian: And contrary, such as be of ill disposition, will in every thing, be it never so good and salutary, pick out matter of maintenance to their lewdnesse, turning matters of discretion to foolish and peevish prating contention.”—(*Prologue to Raynalde's Birthe of Mankinde*, Edition of 1626, p. 9.)

APPENDIX.

DISCUSSION ON THE EMPLOYMENT OF CHLOROFORM IN MIDWIFERY AND SURGERY, BEFORE THE MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH.

[*Abridged from Monthly Journal of Medical Science for July 1848, p. 54.*]

Dr Simpson gave a long Report and detailed communication on the employment of chloroform in midwifery, stating that he had used it constantly, and with the best results, in his own practice since November; mentioning the rules required to be attended to in its exhibition; answering the supposed objections to its use, &c. &c. He read numerous communications and reports regarding its employment, from various practitioners, showing that a great number of persons had been already successfully delivered without pain or suffering under the use of chloroform during the last six months.

Drs Moir, Malcolm, Keith, Carmichael, &c., stated to the Society, some verbally, and others in writing, the uniform and successful results which they had met with, employing it, as they did, constantly in their practice, and in all cases of labour.

Mr Crisp of London stated, that though a stranger, he was induced to rise were it for no other purpose than to say, that, after having attended the meetings of many a medical society, he had never till to-night seen one that was *unanimous* in opinion on any topic. He had come to Edinburgh a fortnight ago, and now entertained a totally different opinion about chloroform from what he did when he arrived; for he had now seen it constantly and most successfully employed in the hospital and elsewhere. At the same time, although this had been the result of additional experience on his own mind, he was not disposed to blame, but, on the contrary, to commend the scepticism which had been shown by many most eminent men in London and elsewhere, on this subject, which he thought was no more than justified in relation to an agent of such a novel kind, and so important in its practical application. He believed that this scept-

ticism had not its origin in any exclusive or bigoted feeling, but would be overcome as soon as the facts came to be as well known in London as they are in Edinburgh.

Dr Bennett considered it probable, that one of the reasons chloroform was not much used out of Edinburgh, was the impurity of the article administered. It was not long ago that *Dr Clay* of Manchester had stated to the Society, that although he had frequently seen it given in that town, he had never witnessed its proper effects produced until he came to Edinburgh. *Mr Crisp* from London had just made a similar statement. *Dr G. Wilson* had lately informed him, that even the chloroform manufactured in Edinburgh was not so pure as it might be, and that he had lately purified some which produced the full effect more rapidly, and with a smaller quantity, than that in ordinary use. He (*Dr B.*) conceived that the purity of the chloroform was not sufficiently attended to by those who had tried it, and that those who would not, had better, like *Dr Clay* and *Mr Crisp*, come and see it given in Edinburgh.

Dr Simpson observed, that he believed the want of success in England was owing also to another cause. From what he had learned, he was quite convinced that our English brethren, in using chloroform, often stopped altogether at that point which really constituted the true commencement of the effects of the inhalation. Immediately before the chloroform produced anæsthesia, more especially if there was any noise or disturbance, it not unfrequently excited the patient, who would talk incoherently for a moment or two, beg the inhalation to be suspended, perhaps struggle to get free from it, and have his arms and legs thrown into a state of strong clonic spasms. In Edinburgh, we all sufficiently know that these symptoms indicate merely that the patient is about to come under the full influence of the vapour, and that, in a minute or so, these symptoms will pass, and he will immediately be completely anæsthetic and completely unconscious. But in England these premonitory symptoms seem to have been often regarded as very alarming, and all attempts at further inhalations stopt, exactly where and when the dose of the vapour should have been increased. And in the English Journals such cases have been repeatedly and gravely recorded as instances of delirium, and spasms, and convulsions, and failure. They are not more anxious, or deserving of attention, than the same symptoms would be in a case of hysteria, and are quite transient if the inhalation is only persevered in. *Dr Simpson* added, that now, amongst many hundred patients, he had never yet met with one instance in which any person was unsusceptible of the full effects of the chloroform. He knew that the experience of many of his brethren around him went to the same effect. Nor, in any one case, had he seen any marked bad effect from the fullest use of the chloroform. *Dr Simpson* asked *Professor Miller* and *Dr Duncan* to state the extent to which they used

chloroform in the Royal Infirmary, and in their private surgical practice.

Professor Miller observed, that in the Hospital and elsewhere the surgeons of Edinburgh had used chloroform in all their operations, with the exception, perhaps, of any such within the cavity of the mouth as were expected to be attended with much hemorrhage. And he could speak of its perfect success, and perfect certainty, and perfect safety, in the most unequivocal terms. There had been no misadventures, no failures, and now no fears of those spasms and other preliminary symptoms to which Dr Simpson had alluded. In saying all this, he believed he was simply stating the opinion and experience of all his surgical brethren here; and that no one amongst them would deem himself justified, morally or professionally, in now cutting and operating upon a patient in a waking and sensitive state. Every professional principle, nay, the common principles of humanity, forbid it, seeing that surgery was now happily possessed of sure and safe means by which it could avoid the necessity of such cruelty. These were strong opinions, strongly expressed, but, in answer to Dr Simpson's question, it was impossible for him to say less.

Dr Duncan stated, that he sincerely coincided in every part of the statement made by Professor Miller, and that, in his Hospital and in his private practice, he constantly, like his other surgical brethren, used chloroform in all his operations, and even when making any painful examination for the purpose of diagnosis.

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