

tion with tincture of sesquichloride of iron and dilute hydrochloric acid, was now substituted for the former medicine.

The patient continued to improve from this time, and I did not see her again until July 10th, when she was quite convalescent, and only a little roughness of skin remained where the eruption had been.

[*To be continued.*]

## ANÆSTHESIA IN MIDWIFERY; WITH NEW APPARATUS FOR ITS SAFER AND MORE ECONOMICAL INDUCTION BY CHLOROFORM.

By THOMAS SKINNER, M.D., Liverpool.

[*Read before the Obstetrical Society of London, May 7th, 1862.*]

“ But there is  
No danger in what *show* of death it makes,  
More than the locking up the spirits a time,  
To be more fresh, reviving.” (*Cymbeline.*)

CHLOROFORM, as an anæsthetic, is undoubtedly one of the great subjects of the day, and inseparably connected with the advancing state of society. It would however appear, from the general spirit of many of the leading medical journals, both in Europe and America, that now, as much as ever, there exists a want of confidence in, if not a strong feeling against, the general use of chloroform, an agent, the use of which, in my estimation, is unquestionably the greatest therapeutic discovery of the age. With the view of saving chloroform as an anæsthetic from falling undeservedly in the estimation of my professional brethren, particularly those engaged in the practice of obstetric medicine, I venture to offer the following remarks: and in doing so, let me trust that, however widely I may differ in my views from others, I may be allowed a patient hearing and a calm discussion of the merits of the subject; the more so, as the conclusions which I have arrived at are the result of conscientious inquiry and close observation during a period of fourteen or fifteen years.

*Chloroform as a General Anæsthetic.* Some authors writing in our journals lately, have appealed to the many deaths which have occurred from the inhalation of chloroform, as facts calling for our serious attention, and as arguments against the general use of chloroform as an anæsthetic. Granting such facts to be of the utmost importance, still, when we take into consideration the great power which chloroform exercises over the heart and chief nervous centres, the enormous quantity consumed, and the incompetency of many of those who administer it, I cannot help thinking that we have more reason to be surprised at the smallness, than at the largeness of the mortality.

Again, when we consider that some of those who have been anæsthesised have recently rallied from what might have been a fatal collapse, that others have just been saved from imminent death by hæmorrhage, that a large percentage are the victims of cancerous and scrofulous growths and inflammations, and consequently are worn out with hectic and altogether *in extremis*; when we look to the emaciated and bloodless forms, the dreadful and often fatal nature of the diseased conditions, and the formidable operations to which the majority of the recipients are subjected; have we not great reason to congratulate ourselves and the public upon the incalculable amount of suffering spared to humanity under the circumstances with so small a bill of mortality, particularly in the infancy of so powerful a therapeutic agent? I have said that we have reason for congratulation in the smallness of the mortality, but I shall go further and state what I believe will meet with universal concurrence, that for every life which has succumbed to chloroform there have been many more lives prolonged, if not saved, through its benign influence. Let me add, that in con-

sequence of the dozens of operations which it facilitates, and which never would have been performed but for the discovery of chloroform, the actual number of surgical operations has been greatly increased within the last fourteen or fifteen years, and they are daily increasing; on these accounts, have we not further reason to be satisfied with the agent and to be thankful that the mortality is no greater? But I feel confident that all the alarm and timidity, that all the hue and cry against chloroform, is not so much on account of the *number* of deaths which it is alleged to have occasioned, as the *suddenness* of the occurrence and termination of the fatal cases.

In one of the leading articles of the JOURNAL for 18th January last, it is stated that "Dr. Simpson has had an immense experience of chloroform, and has never, we believe, met with any fatal consequences from its use, and this fact is often used as an argument in favour of chloroform." The writer further adds, "but it is quite forgotten that the administration of chloroform for obstetric purposes, not necessarily involving absolute insensibility, is a very different thing from its administration for surgical purposes, in which such insensibility is required." The author of these remarks is evidently not aware that Professor Simpson daily puts several females, and even infants and children who are in a more or less delicate state of health, under the full anæsthetic influence of chloroform, for surgical operations totally unconnected with the impregnated state. Knowing this to be true, and that Dr. Simpson uses in his private practice *not less than from five to seven gallons of chloroform annually*, I am much inclined to believe that the absence of accidents in the hands of one who has had so "immense" an experience of chloroform, both in surgical and obstetric practice, is one of the most convincing proofs of the safety of chloroform as an anæsthetic, and that one great secret of its successful and safe administration, like all else in the practice of our art, lies in experience combined with tact. In the words of Dr. Simpson, "the practice of anæsthesia is not to be expected to come upon medical men by intuition; for, like all other practices, some *care and experience* are necessary, in order fully to acquire and apply it." I verily believe that much of the mortality from chloroform arises from carelessness, want of experience and the exercise of a ready presence of mind during its administration. My own experience of the use of chloroform dates from its discovery in 1847, about fifteen years, and I can conscientiously avow that every successive year has steadily increased my confidence in it over all other agents for the induction of anæsthesia under every circumstance. I would not have it believed that in the practice of *general surgery* I have never seen dangerous symptoms occur; on the contrary, I have seen several patients *in articulo mortis*, but I have never lost one.

A great deal has been said lately about the greater safety of ether over chloroform as a general anæsthetic, particularly on the other side of the Atlantic; but it is my firm conviction, from an experience of both agents, that it is just as possible to walk across the Atlantic dry-shod, as for those who have had sufficient experience of chloroform to obtain confidence in its use, to relinquish it for ether; and, until some really superior and less dangerous anæsthetic is discovered, society, in order to obtain the benefits of anæsthesia must put up with a greater or less percentage of accidents; and allow me to state that the best method of lessening the danger and the number of accidents, is not by undermining or shaking our confidence in chloroform, but by every one of us striving diligently to acquire that experience of it which can alone inspire confidence in ourselves and secure safety and success in its administration to others. I doubt not, but that the new method of administration will greatly assist towards the same desirable end.

*Chloroform in Obstetric Medicine.* Apart from general surgery and dentistry, there is a department of medicine

which stands out in bold relief as a great and triumphant proof of the safety of chloroform as an anæsthetic, and of its superiority over ether in every respect: I allude to the obstetric department. For many reasons, I take a deep interest in this subject. First, on account of having commenced my studies contemporaneously with the discovery of chloroform, which has revolutionised the medical world, and ushered in a new era for suffering humanity. Secondly, on account of my late connection with its discoverer, Professor Simpson, I feel justly proud to have an opportunity of supporting his views. And lastly, from the experience which I have had of its use, for a period of fourteen years—two of which were spent with Dr. Simpson—I can affirm that I have every confidence in this agent.

The chief object and intention of Dr. Simpson in introducing chloroform as an anæsthetic, I believe, was to *render the function of parturition entirely painless under every circumstance whatsoever*, and there can be no doubt that the agent has in his hands preeminently succeeded in doing so with perfect safety to human life and happiness. Since its discovery, anæsthetic midwifery may be said to have enjoyed a special immunity from accidents of any kind, and I cordially acquiesce in the sentiments of my distinguished friend Professor Barker of New York, when he says, "I never feel the least anxiety in administering an anæsthetic in obstetric practice, while I cannot divest myself from more or less apprehension when asked to do so by my surgical friends, or by my patients, when dental operations are to be performed. Hence I feel warranted in asserting that the question of anæsthesia in surgery is altogether distinct from anæsthesia in midwifery." (JOURNAL, 1861, vol. ii, p. 688). In other words, there is a *special tolerance* for chloroform in midwifery, which does not pertain to the practice of surgery. Dr. Kidd has also recognised this tolerance, and he is of opinion that it arises from "the unusual and active condition of the reflex system during labour, and the active condition of the respiratory system especially." I would only add in explanation, that the pregnant female, particularly in the latter months, enjoys not only sound health, but her nutrition is almost invariably at a maximum.

*Contraindications.* I do not believe that we are at present in the possession of any facts which will enable us to determine before-hand whether or not chloroform is likely to disagree with any one inhaling it. The only true and reliable test is to watch its *effects* on the patient's *respiration*, pulse, colour, and general appearance; the *quantity* and the *exact* proportions of chloroform and air being no guides whatever. We may examine the chest as carefully as we like for contraindicative symptoms, but we shall grievously err, if, in the seeming absence of them, we grant a certificate, verbal or otherwise, that the party is a fit subject to inhale chloroform. I would not wish it to be thought that I consider organic diseases of the chest in no degree to contraindicate the use of chloroform—a diseased organism can never compete with a healthy one—but I simply hold that organic disease is not nearly so great a contraindication as many of us are still inclined to think.

*Stage of Labour for Administration.* The question is often put to me at what stage of labour ought chloroform to be administered?

I am in the custom of giving it at all stages, whatever the state of dilatation of the os uteri; and I am of opinion that when an anæsthetic is resolved on it should be given *in toto*, or not at all, and having once commenced the administration, it should never be altogether withdrawn, except under pressing circumstances.

*Medical Objections.* I am frequently informed that it delays labour, encourages hæmorrhage, retards convalescence, and is otherwise followed by a multitude of evils. In short, it would appear that everything which happens

of a sinister kind or out of the common run, during and for the next six weeks after the administration of chloroform in labour, is put down to the debit of the anæsthetic; even puerperal fever, mania, convulsions and pelvic inflammations.

To such objections as these I have no hesitation in giving a direct negative. With the exception of a questionable tendency to the occurrence of hæmorrhage in some rare cases, chloroform may be said to be perfectly innocent of all and every medical objection that has ever been raised against it in the practice of midwifery; and with a little care and good management this accident may be avoided or easily remedied. An eminent authority, namely, the late Dr. Snow, has said that in his experience "there has hardly ever been uterine hæmorrhage of any amount, except in patients who had suffered from it in previous labours." I would further observe, that these and many other conditions have occurred and will ever occur in the practice of midwifery whether chloroform is administered or not.

So far as the public are concerned, it is of no use arguing with them, as they are incapable of forming a correct judgment in the matter; but as I find that in general they very wisely obtain their opinions from their medical advisers, it is the latter consequently to whom I must look for their better enlightenment. Lastly, it is sometimes told me that chloroform produces improper thoughts, words and actions, in persons otherwise pure; I have little hesitation in stating that the impropriety is much more likely to be the offspring of the mind of the observer.

In conclusion, it is gratifying to reflect, that the prejudices and objections, so unsparingly raised against the practice of anæsthetic midwifery, at its introduction, are now steadily and surely disappearing; while the encouragement which it has received from the first personage in the realm, will, in every way, contribute to its progress. So far as the spread of the practice is concerned, I am glad to be able to state that in Liverpool it has considerably increased within the last five years. I am informed by Messrs. Evans, Sons, & Co., one of the largest wholesale drug establishments in the town, that the quantity of chloroform sold by them to the retail chemists of Liverpool alone, during the last five years, is forty per cent. greater than they sold during the previous five years. It is just about five years since I first advocated anæsthetic midwifery in Liverpool.

**Apparatus.** An important object of this communication is to introduce some new apparatus for the more safe, effectual, and economical administration of chloroform. For all that I know, the means may be nothing new, but they suggested themselves to me on hearing of the method lately introduced by Professor Simpson, of administering chloroform by drops on a muslin or cambric handkerchief, which method, however advantageous, is subject to two objections, namely, (1.) The difficulty of dropping the chloroform and of seeing where you are dropping it; and (2.) The difficulty of protecting the patient's face from being irritated by the anæsthetic, even by inunction with olive oil. This inhaling apparatus not only obviates those inconveniences, but I feel certain that it will render the inhalation of chloroform less dangerous and more effectual in smaller quantities, consequently, more economical.

By the old method, I used as much as from one to one and a half fluid ounces an hour, whereas, with my new inhaler and drop-tube I can easily anæsthetise an average case of labour at the rate of half an ounce an hour, which is equal to a saving of about *sixty-five per cent.* of chloroform; no small consideration. For a year back or more, I have never used any other than methylated chloroform, which I find to be quite equal to that prepared from the best rectified spirit, thereby the practice of anæsthetic midwifery is still further economised; and the quantity of chloroform consumed may be still further lessened

by withdrawing the inhaler at every expiration of the patient.

The apparatus is extremely simple, and is composed of a mask or inhaler, for receiving and evaporating the drops of chloroform, and a bottle with a peculiar form of drop-tube attached.

1. The inhaler is a mask, the framework of which is of tinned iron or German silver wire. It somewhat resembles a fencing mask, excepting that it is covered with thin coarse domette instead of wire gauze, and that it covers only the lower half of the face. For convenience, it has a movable handle, and is otherwise made to fold up so that it may be carried in the pocket, hat, or case.

2. The drop-tube is a tube of glass about two inches long, sealed at one extremity, so that a silver wire ligature only can pass; it is then thrust through a perforated cork which is inserted into a three or four ounce phial, and it is ready for use. The cork is more durable if covered with white kid leather. (Messrs. Maw and Son, have greatly improved this drop-tube by making it entirely of glass.)

On inverting the bottle and drop-tube with chloroform in it, at no single inversion can more than thirty nor less than ten minims escape until it is reinverted. The advantages of such an arrangement will at once suggest themselves. The principle of this simple little invention is, that no more liquid can flow at one inversion, than is sufficient to allow the atmospheric pressure to balance the elastic force of the vapour of chloroform and air within the bottle. It might be called a pneumo-hydraulic regulator of chloroform. I will just add, that this drop-tube will serve for many other equally useful purposes, namely, for dropping collyria, for the administration of medicines in the form of drops, and as a "poison cork." For such purposes it is only necessary to incline the bottle until it begins to drop, when a child may almost be entrusted to drop laudanum with it. The leather covering over the cork is only requisite with chloroform.

The following illustrations may serve to give some better idea of the apparatus previous to its improvement by Messrs. Maw and Son.

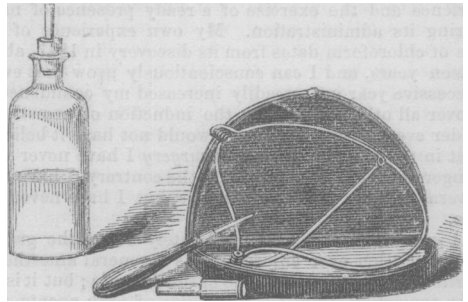


Fig. 1.—Framework of wire, etc. (greatly reduced).

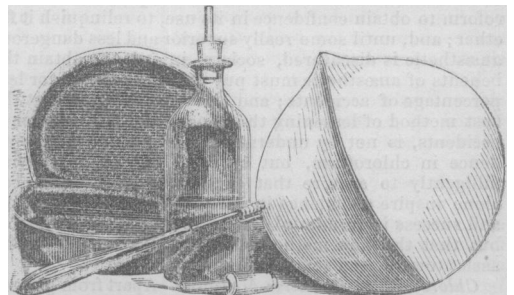


Fig. 2.—Inhaler, etc., complete.

NOTE.—Messrs. Maw and Son, of 11, Aldersgate Street, London, have engaged to supply the apparatus complete at the following prices.

1. Inhaler in case, with bottle and drop-tube, 11s.
2. Inhaler for carrying inside the hat, with bottle, etc., 8s.

(It is due to Messrs. Maw and Son, to state that they have displayed much mechanical ingenuity in the perfecting of the latter instrument, as well as the drop-tube.)

Specimens may be seen at their establishment, as also in their cases at the International Exhibition, Kensington.

P.S.—I have frequently used the above apparatus to induce the deepest state of anæsthesia during surgical operations, and it has always given me the greatest satisfaction.

T. S.