

**I. GENERAL CONSIDERATIONS
UPON MAJOR ANESTHESIA. II.
THREATENED DEATH DURING
MAJOR ANESTHESIA. III. A BRIEF
DIGRESSION UPON SHOCK**

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I. General considerations upon major anesthesia. II. Threatened death during major anesthesia.
III. A brief digression upon shock by Robert H. M. Dawbarn

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ROBERT H. M. DAWBARN

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BY

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* A number of papers published in the April and June New York
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Which shall we use—ether or chloroform? There is no study less profitable than that of the relative death-percentages all over the world from chloroform *vs.* ether. It is absolutely wasted time. That von Nussbaum saw chloroform used forty thousand times without a death,† and that chloroform has been exhibited thirty-six thousand five hundred times in the Edinburgh Infirmary with but one fatal result,‡ would seem evidence that such danger from the use of this anesthetic as exists is largely due to the personal equation; that is to inexperience on the part of the anesthetist, or to improper methods of meeting the emergency. Whereas, in studying 12,000 cases operated upon in New

* A number of papers published in the April and June New York POLYCLINIC and the August, September and October *Atlanta Medical and Surgical Journal*.

† Wood's Reference Handbook, Vol. 1, p. 189.

‡ *American Journal of Medical Sciences*, November, 1888.

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York Hospital, Dr. Weir found ether-deaths in the proportion of one to each two thousand.*

In New York, Philadelphia and Boston there is a curious distrust of chloroform not apparent in the rest of the world of surgery to the same degree, either abroad or in this country.

The writer was one of a hundred or more auditors when that famous surgeon, Dr. Henry B. Sands, once told a story which it required a man of his eminence and his truthfulness to relate, concerning an experience of his in Germany. He was present during an operation by Dr. Schede in the Allgemeines Krankenhaus in Hamburg-Eppendorf, when Schede happened to remark that he had never in his life seen ether given; that he and all the famous men of his country relied solely upon chloroform. Dr. Sands thereupon agreed to enlighten his inexperience, and taking the anesthetist's place gave ether to the next patient. It is painful to relate that this patient had the bad taste to die from the ether, thus casting discredit upon a most valuable drug. Dr. Sands said that he and Dr. Schede worked over the man with artificial respiration and other means for a long while, but failed to revive him. And I venture to say that Dr. Schede now has the same distrust and fear of ether as an anesthetic

* *Trans. Am. Surg. Assn.*, Vol. VI, p. 544.

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which seems to prevail regarding chloroform in the trinity of cities just named.

If it be admitted that, taking averages the world over, more deaths on the table occur from chloroform than from ether, nevertheless were we to add those happening weeks and months later, due to ether-irritation of lungs or kidneys in persons already enfeebled in these organs, perhaps the percentages would be different.

It is unquestionably true that more skill is needed to give chloroform safely than ether. Were the writer to need an operation upon himself he would choose ether, if subjected to an "emergency" anesthetist, but chloroform if that assistant were skilled and experienced.

Even in the three cities just mentioned together, however, certain conditions are recognized as justifying the use of chloroform as against ether. These are:

1. The presence of severe pain. Chloroform is relatively safe in childbirth, even in the hands of inexperience.* The reason is, perhaps, that the suffering causes cerebral congestion to some degree, and with plenty of blood

*H. C. Wood says (*Therapeutics*, 7th. edition, p. 190): "So far as I know, no death has yet occurred from chloroform during parturition."

Wood's Reference Handbook, Vol. 1, p. 1451. "Chloroform has been used in natural labor many hundreds of thousands of times, yet but a single case of death is on record where it was administered by a competent medical man, and in this instance there is lack of post-mortem confirmation."

in the brain chloroform is safer than otherwise.

2. In childhood; at least, this is the teaching of Dr. Jacobi and numerous other children's specialists.

3. To control convulsions—uremic, epileptic, strychnic *et al.* Here ether would be too slow in taking effect.

4. In cases where actual cautery must be used about the mouth, ether being inflammable.

5. In certain diseases of the lungs, kidneys, stomach, brain.

6. In military surgery, being less bulky, more rapid in action and cheaper.

7. In hot climates (ether boils at 95° F., chloroform at 142° F.)

8. At night, if flame must be held near the patient. (But chloroform is not free from disadvantage at night, being decomposed by the flame, and chlorine and other gaseous irritants set free. All surgeons have noticed the tendency to cough under such circumstances.)

The Question of Mixtures.—This is one that remains unsettled, the widest divergence of views continuing. Dr. J. C. Reeve, already quoted as to relative mortality, says: "The chloroform committee of the Medico-Chirurgical Society of London in 1864 recommended, among others, a mixture of one part alcohol, two parts chloroform and three parts ether, by

measure, known as the 'A. C. E. mixture,' which has probably been used more than any other. At Vienna a mixture of six parts of ether to one of chloroform has been used so much as to be known as the 'Vienna mixture.' It is stated that there have been eight thousand administrations of it without a death. Billroth, of the same city, used a mixture of three parts of chloroform, one of ether, and one of alcohol."

Against such mixtures the argument has always been urged that a new chemical is not thus made, with a single rate of diffusion; and that while the rate of relative evaporation is doubtless in part modified by the mixture, the patient substantially gets first ether, then chloroform, then alcohol, in order of volatility. The writer agrees with the majority of surgeons in feeling that a gain in security is not made thereby. Straight drinks are safest—to speak after the manner of the world.

Chloride of Methylene. (CH_2Cl_2).—This is mentioned simply as standing as a type of drugs belonging more or less to the chloroform class—the halogen anesthetics. This short essay does not permit of a careful discussion of them. This particular one enjoys the indorsement of Sir Spencer Wells, who after considerable use of it, regards it as the best anesthetic.

Nitrous Oxide.—The writer believes that laughing-gas will be considerably more used in the future, in general surgery, than in the past. Now that it is obtainable in liquid form in small steel canisters* of such a size that one may be slipped within a small handbag, an objection to its use has disappeared. A special closely fitting mask and a large thin rubber bag to hold the gas generated from the liquid, complete the outfit.

Heretofore its exhibition has remained almost solely in the hands of dentists; but it would seem that there is a field here for young physicians to fill. The writer has many times employed a certain dentist to give gas at the patient's house, and on more than one occasion the operation has lasted, with satisfactory anesthesia, fully three-quarters of an hour.†

As every one knows, the color of the patient meanwhile is always ghastly in its lividity; but this seems not dangerous in reality. Differing

* It is liquefied by about forty atmospheres. Since 1860, or thereabouts, N_2O has been liquefied and shipped in large canisters all over the world. But in general surgery at the patient's residence, there has, as yet, been comparatively little use of the small, easily portable steel cylinders of the liquid.

† Prof. R. Ogden Doremus informs the writer that many years ago at a lecture at Steinway Hall, N. Y., for the benefit of the widow of Dr. Horace Wells, Dr. J. Marion Sims stated that he (Sims) had performed an operation an hour and twenty minutes long under laughing-gas anesthesia.