Anaesthesia in Midwifery
History of Anaesthesia

In the year 1844, Dr. Horace Wells, a dentist of Hartford, Connecticut, published the result of some experiments which he made with regard to the anaesthetic power of nitrous oxide gas. He was at first very successful, being able to extract teeth without the least pain, but, on exhibiting the effects of the gas before the Medical College at Boston, he failed from some mismanagement of it. This so preyed upon his mind that he at last committed suicide in January 1848.

About two years after the publication of Dr. Wells' paper, Dr. Morton, a dentist of Boston, discovered the anaesthetizing effects of the vapours of sulphuric ether when inhaled. He first tried its effects upon himself on the 30th September, 1846, and on the evening of the same day he extracted a tooth from a man called Eben H. Frost. Soon afterwards Dr. Morton used this agent with complete success in operations at the Massachusetts General Hospital.
soon reached England, where it was employed by Mr. Lister on the 21st December, in two operations, giving great satisfaction.

About this time, when there was no prospect of the thing becoming generally lucrative, another gentleman, a Dr. Jackson, laid claims to the discovery of the drug in the gumnet that he had given Dr. Morton some information regarding the properties of the ether, which led the latter to investigate its physiological effect more thoroughly.

It must not however be supposed that anaesthetics had not been thought of before, for many a gent, and among them even Josephine Estée, were previously suggested. In 1795, Dr. Pearson proposed the inhalation of ether only for the purpose of relieving the cough in asthma, bronchitis, phthisis, and not for producing general anaesthesia.

In 1810, Sir Humphry Davy recommended the employment of nitrous oxide gas in the extraction of teeth and other minor surgical operations. Dr. Hickman, in 1828, suggested the inhalation of carbonic acid gas, as a means of producing insensibility during operations. About the end of last century Dr. More tried to bring about local anaes-
thesis of a limb during operations, cut by compressing the nerves supplying it by a tourniquet, applied for an hour before the time. This plan, however, which had been proposed before by Paré, did not turn out successful. It was supposed at one time that general anaesthesia might be induced by compression of the carotid arteries and consequent diminution of the supply of blood to the brain. There is no doubt that such a practice would early bring on stupor or coma, and unfortunately too often seen in cases of gunshot, in which this method had been used.

In various authors, both of ancient and modern times, we meet with passages showing that the induction of more or less complete anaesthesia by means of drugs was not unknown to them, but the precise nature of such potions is very often withheld. Opium has been various times suggested, but the dose, which would be required to produce anaesthesia, is so large that no one could safely administer it. It is well ascertained however that two substances were held in great repute by patients about to undergo surgical operations, and also by criminals condemned to
Suffer torture. These drugs, once Indian Hemp (Cannabis Sativa var. India), and Mandragora, Mandrake (Mandragora officinalis), Sir Joseph Banks alludes to the preparation and use of Indian Hemp in various parts of the East, in which countries it goes under the names of Bang, Churru, and Branjol. When any of these preparations are swallowed, a rapid succession of pleasant ideas springs up, during which there is a perfect insensibility to pain, which state is soon followed by sleep. From old Chinese manuscripts, which was laid before the French Academy by M. Julin some years ago, reference is made to the use of Indian Hemp for annulling the pain in cauterization and surgical operations by Chinese practitioners as early as the third century. Many devine one of the opinions that the thought offered to our savious at the time was some preparation of Indian Hemp, and also the same that is referred to by the prophet Ams in the "wine of the condemned."

Herodotus describes the effect of the inhalation of the vapors of burning hemp as practiced by some races of the Scythians to produce excitement.
Mandragora however appears to have been much more frequently used to induce anaesthesia. Its use most intensely employed by Herophilus of Chalcedon in the twelfth century, forming part of a secret preparation, which however is described by his son and successor Theocritus in his "Chirurgia."

"Take of opium, of the juice of the unripe mulberry, of hyssopus, of the juice of hemlock, of the juice of the leaves of mandragora, of the juice of the woodivy, of the juice of the fitch mulberry, of the seeds of lettuce, of the seeds of the dock which has large round apples, and of the water hemlock; each an ounce; mix all these in a brazier vessel, and then place in it a new sponge; let the whole boil as long as the sun lasts in the dog-days, until the sponge consumes it all, and it is boiled away in it." He then describes the way in which it is to be used and the mode ofearing the patient after wards, as follows: "As oft as these shall be need of it place this sponge in hot water from him, and let it be applied to the nostrils of him who is to be operated on until he has fallen as sleep; and so let the surgery be performed. This being finished, in order to awaken him,
apply another sponge, dipped in vinegar, prepar
by to the nose, or thence the juice of the root of
Jerusalem into the nostril, slightly be wound.
This preparation was known soon abandoned,
as it occasionally caused convulsion andconv
and in some cases even death.
In the "Natural Magic" of Baptista Porta,
instructing one given how to prepare a sleep
apple (Pumina amanifera) with opium,
mandragora, juice of the water hemlock, seeds of
Hyssopum and mask. This apple, he tells
us, was capable of inducing anaesthesia during
operations.
Dioscorides repeatedly alludes to the effects of drink
preparation of mandragora, and often
employment in operations.
Rhei also in his "Historia Naturalis," speaks of its
exhibition for similar purposes; and also recom
mends it as a remedy against snakebites.
A pulseless infusion of its purgative,
which he says one to be counteracted by bitters
and honey, till the patient vomits.
Numerous passages might be quoted from mod
ern authors, to show that the idea of inducing
anaesthesia is by no means a modern one, but it will be sufficient to give the names of the chief, viz., Shakespeare (in "Romeo" and Juliet) and Boccaccio. The history of anaesthesia in midwifery does not require such a lengthened consideration, as it is only in recent times that such a practice has been systematically had recourse to. The ancient historians were not totally ignorant of the capability of such a thing, as both Plutarch and Theophrastus mention the painless delivery of one of them. The latter author calls this insusceptibility to pain produced by ether, the draught, "modyna", which is decidedly a better and more expressive term than anaesthesia.

In the trials of the sixteenth century, there are found many cases in which witches were prosecuted for attempting to abolish the pains of labor by charm; and in the celebrated case of the Comtesse de St. Geran it was proved that delivery had been effected through insusceptibility brought on by a narcotising draught. The first time that sulphurised ether was administered to alleviate the pangs of labor was in
the 19th January 1847, in the case of a woman
with a deformed pelvis, in whom Dr. J. Jones Smith
induced anaesthesia, and then effected delivery
by turning. This was attended with a most satisfactory
result, for it showed that the physical sufferings
of the patient could be completely relieved, without
the pain of the muscular contractions, being in
the least degree impaired.

In France, ether was first used for this purpose by
Fournier Desramps, on January 27th.

In London it was not made trial of until the
13th February, and in Ireland not till the 28th No.
ember. The American physicians did not think
of employing the Ether, with this view, until the
news of its exhibition in this country in labour was
conveyed across the Atlantic.
Objections
advanced against
Anaesthetia in Midwifery.

With the usual fates which attend all new discoveries in science, the employment of Anaesthetia met with great opposition. Such was also the reception met with by Vaccination when introduced by Dr. Jenner; by the proposal of Paracelsus to arrest haemorrhage from bleeding arteries by ligature; by Cervin, who first introduced as a remedy for intermittent and remittent fevers by antimony mercury and many other then famous remedies. The objections, which have been advanced at various times against the employment of anaesthetizing agents in obstetric practice may be considered under three heads.

A. Objections founded on Religious grounds.
The use of anaesthetia in midwifery has been denounced by several medical as well as ecclesiastical writers as impious and atheistical, inasmuch as it is an attempt to interfere with the decrees and arrangements of Providence.

These objections are of course founded upon the
words of the curse pronounced upon the woman at the fall.

"Unto the woman he said, I will greatly multiply thy sorrow and thy conception; in sorrow thou shalt bring forth children, and thy desire shall be to thy husband, and he shall rule over thee." Is this objection answer valid? That will be best settled by considering in order the three following points: Is the curse to be interpreted literally? The opposing monstratory midwifery would have at least interpreted the curse inflicted on the woman literally, but if we do so the other points must be viewed in the same manner, which would necessitate the abandonment of agricultural implements and all aids to husbandry. Is it not man expired to till the ground by the sweat of his brow? Are medical men justified in their successive endeavors to avoid death which is inflicted as a penalty? What is the real meaning of the word employed in the Hebrew text? Denote what our translation renders "sour"? Professor Simpson has most completely answered this question by showing that, while in English
the phrase "pains of labor" has two entirely different significations, being used to express, either, the muscular contraction of the uterus, or the physical pain attendant upon such contraction, the Hebrew language possessing two distinct words, ṣīqeb or ṣīqeb, and ḥel or ḥelēh, which are used, judging from the various passages in the Old Testament in which they occur, to signify, the former, muscular excitation, and the latter, the physical pain arising from such muscular excitation. Now in the case inflicted on the woman, the word used for pain is ṣīqab, so that the real meaning of the sentence is "with muscular excitation shall she bring forth." This view of the subject is further corroborated by the word ṣīqab, its being used in the 17th verse, "in sorrow shall she bring forth all the days of thy life." The word sorrow here can hardly be said to mean pain, as elongation is not accompanied by pain, but in by muscular excitation. We may then I think fairly conclude that delivering the pains of a parturient woman is not an act of iniquity and is not all interfering with the original curse inflicted upon woman.
Objections founded on Moral grounds.

Numerous objections might be mentioned under this head, but the chief are

That the employment of anaesthetics in midwifery is unnatural.

The use of anaesthetics in midwifery has been said to interfere with a natural and a providentially arranged function. Such an objection, however, might be urged with equal propriety against almost any advance in civilization.

Does not wearing clothes interfere with the natural function of the skin? Does not interfere with the natural function of the lower extremities by riding and driving, of the stomach by the use of seasoned articles of food? But who may ask the question—

Does not interfere with a natural function, whereas playing anaesthetics in midwifery? The only effect that they have is to relieve the pain, which cannot be looked upon as an essential part of the process, as it is much less severe in the black races than in the white, and even in some cases white women are delivered without suffering any pain at all. This objection therefore must be allowed not to be of any great importance.
That anaesthesia causes the abrogation of consciousness.

It is quite true that the inhalation of anaesthetic vapours has this effect, but then many other drugs, in the Materia Medica also likewise, open action in this way, yet no one would ever dream of abandoning its use, and why should Chloroform or Ether be abandoned any more than it?

That anaesthesia is unnecessary in childbirth as shown by the birth of vast myriads. Such an objection will however strike everyone as very feeble, and undeserving any consideration, for, were we to adhere to such a line of conduct as it inculcates, all further progress in science would be prevented. Every new discovery would have to be laid aside on the ground that mankind had got on well enough before it was made. Such an idea is manifestly absurd. A similar objection was brought forward against the employment of vaccination as a preventative of smallpox when it was first introduced.
Medical Objection

That, as pain is a state desirable and salutary, the abolition of it by anaesthetics is injurious.

Numerous authors, among whom may be mentioned Dr. Nambettham and Meigs, allege that pain is an essential element of natural labour, that it is highly beneficial and by no means to be annulled. If pain during labour is valuable, it might be expected that, the longer its duration, the safer would the labour be to the mother. Statistics, however, give a very different answer for they convincingly show that the longer the labour, as and consequently the pain, the greater is the danger both to the mother and child. It cannot be so easily admitted that pain is an essential element in parturition, for it is much less in some women than in others, and in the black race there is generally no pain felt at all.

Is it not our duty also as medical men to relieve pain, whenever we can safely do so? Which happy result experience has most fully proved can be attained in obstetric practice without the least risk to the patient.
The prevention of pain in operative and instrumental labors is held by many to be wrong, as depriving the practitioners of the best and most useful guide to the proper application of instruments. It should be better known that all obstetric practitioners are able to apply the various instruments, which the urgency of the case may require, without any assistance from their patients.

That anesthesia produces diverse symptoms, the slowing respiration, which indicates the full influence of the anaesthetic vapor, has alarmed some, but experience has shown that this is rare with the least danger. Besides in natural labors great care ought to be taken never to allow the respiration to be in the least degree affected.

That the inhalation of anaesthetizing vapors produces diverse complications, and even in some cases bodily or mental disease.

The following diseases may be mentioned as having been thought to have been the result of the exhibition of Chloroform:

Cerebral Convulsions. This idea is drawn away, as so far from Chloroform causing convulsions, it
is one of the very best remedies, that can be employed in the treatment of that fearful complication.

Pneumonia, was also held by some to be induced by the vapors of Chloroform, on account of this disease being found to exist in the majority of patients, both the after surgical operation, in which Chloroform has been used. Such was known generally the cause of death after surgical operation, before anaesthetics were used. Chloroform was used extensively in the treatment of Pneumonia, either alone, or with other remedies. It may safely be affirmed that the inhalation of this vapor has not the effect of causing inflammation of the lungs, if the Chloroform be pure. If however, it is partially decomposed, and contains a little hydrochloric acid, it will be almost certain to bring about this disastrous result, if long inhaled.

It has been alleged that the use of Chloroform in childbirth may produce injury in the infant, but such an occurrence has never been satisfactorily proved. The inhalation of Chloroform by the mother does not even affect the dif-
edity of the foetal head as was stated by Mr. Green.

Insanity in the mother was another disease stated to have been brought in in some instances by the administration of anaesthetics in labour. Sometimes the exhibition of Chloroform during childbirth has prevented the recurrence of prepu-

perl mania in women who had suffered from it after previous labours, but in other cases it has not been attended with so satisfactory a result, although it cannot be fairly said even to have brought it on. In all the cases where Mania has occurred after the exhibition of Chloroform during the labour, the woman has been subject to it, and has suffered from it previously.

That anaesthesia interferes with the mecha-

nism of labour.

According to some authorities, the state of anaes-

thesia induced prevents the woman bringing her abdominal muscles into action, and thereby greatly impends the second stage of labour.

Others again argue that the exhibition of

Chloroform is very injurious, as that vapour stops the uterine contractions.

There is no doubt that such a disastrous result
may and will likely follow the incorrect administration of this agent. If however care be taken not to allow the respiration to be affected, and the Chloroform be not administered during the intervals between the pains, the practitioners will never have to cease the administration of the drug on account of it, impairing the contraction of the uterus, or paralyzing the abdominal muscles. Some obstetricians even maintain that Chloroform is an emmenagogue, exciting the uterus to stronger contractions, but this seems very doubtful. That anaesthetics sometimes prove fatal. This is the most important objection that has yet been advanced against the employment of anaesthetics, and it applies chiefly to their use in surgery, as fatal results arising from Chloroform in labour are very rare, not more than one or two having been recorded. Even in surgery the number of deaths are very small, if we take into consideration the thousands of people to whom Chloroform is administered yearly, and the immense quantity if it used. A great many more deaths occur annually
especially amongst children from overdoses of Opium or its preparations. In 1840, there were 75 cases of deaths from Opium in England and Wales, and of these 42 occurred in children under five years of age. No one would now ever think of abandoning the use of that valuable remedy. All the deaths which occur during the exhibiting Chloroform must not be attributed to that agent, as in many cases it is the person who is administering the agent who is to blame and not the Chloroform. Sometimes death results from the too long continued administration of the vapour after the respiration has ceased, while in other cases it is due to improper means used for resuscitating the patient, for forcing brandy down the patient's throat when he is unable to swallow. In Midwifery, as has been stated the occurrence of a fatal event is very rare, which is easily explained by the comparatively slight amount of anaesthesia which is induced.

It must be remembered how slow that death sometimes suddenly occurs both during labour and during convalescence, where no
Chlorodyne has been used. The fatality may generally be attributed to embolism in some part of the body, chiefly of the pulmonary artery, the plug being formed by a clot detached from the uterine sinuses. It should be seen, therefore, that sudden death during labour, or puerperal fever, is not always to be attributed to the injurious action of the Chlorodyne.

Such are the chief objections which have been raised at various times against the employment of anaesthetics in midwifery, but none of them appear to be so just as the demand for the abandonment of a practice which can confer so much benefit upon women.

The only remaining part of the subject to be considered is the rules which are to guide us in the exhibition of anaesthetic vapours in labour, and without a proper attention to these the practitioners will be far more likely to do harm than good.
Rules for the Exhibition of Chloroform in Parturition

1. The inhalation of the Chloroform must be commenced whenever the patient begins to complain of much pain, generally towards the end of the first stage.

2. Perfect quietness around the patient must always be inculcated, particularly when the Chloroform is first given. The medical man must not allow either the nurse or the friends to talk, and he must not do so himself, or it will Set the patient off and make her less amenable to the influence of the agent. The patient also must not be held even through the struggle which however is rare.

3. The Chloroform must only be given during the pains, and must always be withdrawn during the intervals. This is a very important rule and must be particularly attended to, as the uterine contractions may be affected. Care must be taken to have the hand-knife, on which the Chloroform is to be administered, quite ready for use, so as to be able
to apply it immediately. The patient will generally be able to tell when a pain is coming on, but when she is not, the practitioner must examine it for herself, which is easily done by keeping one hand over the abdomen of the patient. If however the pains are unusually severe, and the patient awakes during the intervals complaining of them, it may be right to give a whiff of the chloroform during the intervals, and if the action of the heart should be in the least degree affected, the vapor should only be applied every second or third pain.

4. When the chloroform is given during the first stage, the anaesthesia need not be deep, except the suffering be great, or the symptoms of anaesthesia disagreeable. The patient may complain of whirling sounds in the head, which however are soon removed by increasing the dose of the chloroform.

5. As the second stage progresses, the anaesthesia must be made so complete as to destroy all sensibility. This is required by the greater severity of the pains.

6. Care must be taken not to allow the vapors
Hadding to become undistended.

It is better to empty it by means of the catheter, than to awake the patient and let her do it herself.

The patient must not be restrained from position.

It is quite easy, for the person who is administering the chloroform, to follow the patient about with the napkin.

The chloroform must be removed as soon as the child is born.

Care must be taken that the nurse put the napkin away in a safe place, and does not leave it close to the patient's mouth or she may be asphyxiated.

The patient must not be awaked artificially.

If the patient be left to herself, she will awake very soon and in a much more comfortable state than if any means had been employed to arouse her.

In the third stage of labour, chloroform must not be exhibited as the pains are not sufficiently severe to demand it.

Care must be taken that the chloroform, which is used, is of the proper strength and purity.
Good Chloroform should have a specific gravity of about 1.480. Sometimes it contains a little alcohol, where it will be almost sure to cause sickness, and headache; while at other times it may be in a decomposing state, then it will contain hydrochloric acid gas and of this be induced vomiting and an intractable cough with sneezing, and at last Pneumonia or Bronchitis may be set up. Are there any diseased states of the body which contraindicate the employment of anaesthetic vapours?

The following are the chief diseases, which have been held at various times to forbid the use of Chloroform, namely, Phthisis, Pneumonia, Epilepsy, Hypothesis, adhesions of the Pericardium, and valvular diseases of the heart. The fear of harm resulting from the use of Chloroform in these affections is known grounds yet, and that agent may be safely used in any one of them.

What means are to be employed for the recovery of those who have been anaesthetized? Quiet is the great agent in favoring a rapid and complete recovery from the effect of anaesthesia. The patient should be allowed to pass gradually...
and the anaesthetic state, and in the great majority of cases no means must be had recourse to. If however the patient is awaking still suffers from the effect of the Chloroform, she should be enjoined to make two or three deep inspiration and expirations (to ensure the more rapid diffusion of the matter from the blood), while at the same time free access of fresh air is allowed and her face and hands syringed with cold water. In cases where the sleep is very deep and prolonged, and the patient shows no tendency to come out of it, death even being threatened, the only means, which have hitherto proved successful in resuscitating patients, are the free access of fresh air, the dashing of cold water upon the face, and the maintaining artificial respiration by Marshall Hall's method. How is the Chloroform to be exhibited? Numerous instruments and inhalers have been devised for the administration of anaesthetics, but the simplest and best method is to employ a napkin or handkerchief folded up in a conical manner, the Chloroform being dropped into the hollow of the cone. A better way, and the one now
generally employed by Professor Simpson, is to take the single layer of a napkin, and lay it over the patient's mouth and nose, and then drip the required amount of Chloroform on it, just over the mouth. The patient's face, at least the parts in the neighborhood of the mouth, should be previously smeared with oil or butter, soon to prevent the Chloroform blistering the skin. Care must also be taken, that there's sufficient access of air, which may be admitted at each side of the nose. This method has the following advantages:

1. The anaesthetic can be easily withdrawn during the intervals between the pangs, by simply folding the napkin over on the patient's breast.
2. The patient is put under the influence of the Chloroform much more rapidly than in any other way.
3. Much less Chloroform is required in order to attain the wished for effect.

However, the practitioner prefers using an inhaled gas for this purpose, the best one is that lately introduced by Dr. Murray Thompson.

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