of diagnosis only, the routine estimations of the agglutinin content of the blood have here been found of such value as to justify a recommendation for their continuance.

The question of blood agglutinins opens up the whole question of the dependence which should be placed upon the agglutinability of meningococci with regard to the pathogenic properties. Vines draws attention to the fact that agglutinability varies in primary and subcultures and wonders whether it is possible to define a border line between pathogenicity and apathogenicity by using the agglutination test as a criterion.⁵ In the present changing condition of our knowledge of the problem I am firmly convinced that no single one of the criteria in vogue suffices to determine whether Gram-negative cocci are pathogenic or not. The whole evidence obtained from the morphological, cultural, and serological observations demands review in every instance.

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NITROUS OXIDE AND OXYGEN IN COMBINATION WITH ETHER OR C.E. MIXTURE FOR NOSE AND THROAT OPERATIONS.

BY

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In November, 1917, I read a paper before the Medical Society of London on "The use of nitrous oxide and oxygen with regulated rebreathing in military surgery," and in that paper I went into detail with regard to the actual administration, and gave my results up to that date. Since then I have had further opportunities of enlarging my experience of this method in civilian surgery, and have developed a technique for the administration of nitrous oxide and oxygen in combination with ether or C.E. mixture for nose and throat operations.

In working out the details of this method I have had the cordial co-operation of Captain Douglas Harmer, the senior surgeon to the Throat Department of St. Bartholomew's Hospital, and we have now arrived at a stage at which we are both confident that the results we obtain are infinitely better than we ever got before with the older methods.

There are three points that stand out as a result of our work:

1. The exceedingly small amount of C.E. mixture that is required.
2. The enormous difference in the patient's well-being after the operation, as compared with the older methods.
3. The excellence of the anaesthesia.

The technique, briefly, is as follows:

A hypodermic injection of morphine and atropine is given half an hour before the time of operation. I vary the amount of the dose with the nature of the operation and the condition of the patient, and in some cases I add scopolamine to the injection. The largest dose that I use (and this is the routine dose for the military cases) is morphine $\frac{1}{4}$ gr., atropine $\frac{1}{100}$ gr., and scopolamine $\frac{1}{100}$ gr.; whilst for some women, and children of about 15 years of age, the dose is usually morphine $\frac{1}{8}$ gr. and atropine $\frac{1}{200}$ gr., and for small children I omit the hypodermic altogether, or at most give atropine $\frac{1}{200}$ gr.

The patient is then anaesthetized with nitrous oxide and oxygen with rebreathing in the method that I have described in my paper before the Medical Society, and as soon as anaesthesia is obtained, or, to be precise, just before that state is obtained, the nitrous oxide and oxygen is allowed to run through the ether or C.E. mixture until the requisite depth of anaesthesia is obtained; the face-piece is then removed, and the anaesthesia is maintained by running the combination either through the nose or into the mouth. The patient's condition will determine whether the mixture is given throughout the operation; usually it is unnecessary, the C.E. being only required from time to time for a few seconds.

Given in this way, and provided always that the airway is kept open and the breathing is not unduly obstructed by sponges, the anaesthesia will meet the requirements of most operators. Throughout the whole anaesthesia the patient should be pink in colour, there should be no cyanosis whatever, nor should there be any pallor; both of these conditions are signs of overdosage and of a bad administration of the anaesthetic. The former is easily remedied by additional oxygen but the latter is more serious.

It is a remarkable fact that in several of the anaesthetics I have given for the enucleation of tonsils only 1 drachm of C.E. mixture has been used, and with this in combination with the nitrous oxide and oxygen the anaesthesia has been all that was required.

This method as I have described it sounds easy, but I do not advise any one to try it until he has made himself thoroughly acquainted with the various points of nitrous oxide and oxygen anaesthesia with rebreathing for long cases. That I consider necessary as a preliminary training.

Apart from the ordinary throat operations, such as enucleation of tonsils, submucous resection of septum, and the like, I have used this method for bronchoscopies and oesophagoscopies, and have been particularly struck by the ease and quietness of the anaesthesia, and the rapid return to a condition of well-being and comfort after the operation.

The more I see of the anaesthesia produced by nitrous oxide and oxygen with rebreathing in combination with ether or C.E. mixture when necessary, the more am I convinced that whilst the anaesthesia is wholly adequate for the surgeon's needs, and can be prolonged as long as is necessary, so that there is no need for hurry on the part of the operator, the condition of the patient, both during and after the operation, is infinitely better than with ether, chloroform, or mixtures thereof.

To give but one instance. Even if the patient is "sick" after the anaesthetic, he does not have that horrible sickly smell of ether or chloroform hanging about himself and the room for hours and it may be days, but he is rid of his anaesthetic mixture in a few minutes, and is his normal self again.

During the administration of this combination of anaesthetics for nose and throat operations I have observed that—

1. Complete relaxation of the jaw is obtained, even in muscular subjects, and with this goes also the relaxation of the soft palate as well.
2. The swallowing and cough reflexes are easily abolished, and yet are restored almost immediately on withdrawing the anaesthetic.
3. The amount of bleeding appears to be less, both during and after the anaesthetic, than with other methods.
4. The rapid recovery to consciousness after the operation is a point of extreme importance, for one never sees patients lying, after the operation, in that deep unconscious state that so frequently follows the administration of chloroform, but on the contrary they are conscious in a few minutes, have a good colour, and are well.

The number of cases that I can now report as having been anaesthetized with nitrous oxide and oxygen with rebreathing, and with ether or C.E. mixture when necessary is—

Administered by H. E. G. Boyle	...	...	2,032
Administered by Captain Trewby and residents at 1st London General Hospital	...	...	1,165
Total	...	...	3,197

There have been no fatal cases.

I regret that circumstances over which I have no control have prevented me from publishing in detail the particulars of a machine that has been made for me for the administration of this anaesthetic, but I hope in the near future to be able to do so.

On December 10th the Belgian Surgical Society, at its first meeting since July, 1914, elected Professor Depage president. A strong protest was recorded against the infamous manifesto issued in October, 1914, by ninety-three German professors, and a resolution was passed that no intercourse should be held with German scientists until their calumnies, especially those directed against Belgian medical men, have been publicly disavowed.