pharmacology, and practice. This should comprise familiarity with the common agents and mixtures and apparatus.

(b) Of having actually administered nitrous oxide gas, ether, and chloroform. As a minimum, 50 cases might be accepted at which the student has been present, and of these at least 12 should have been conducted by him from start to finish.

(c) Of having obtained a certificate of proficiency from a recognised teacher.

2. That the final examination of students should include one by which their knowledge of anæsthetics can be tested. This should when possible include a practical and *viva voce* examination, and an addition to the surgery paper of two questions, one only of which need be answered. Or what would be better, to give a separate paper with three questions, one being optional. Such a paper need not take more than an hour to answer, as no subject presents greater facilities for examination. In a few sentences any student can make or mar himself when writing of anæsthesia.

Possibly the practical part of the examination may appear less simple. This need not necessarily be so. The experienced teacher will soon detect whether the examinee has a practical knowledge of his subject, and has ever seen or handled the apparatus.

If, in conclusion, I were asked to give one strong reason why anæsthetics should be forced into such prominence, I should say this: Practically every medical man in some stage of his career will be compelled to give an anæsthetic, and by far the majority will have to do so very frequently. Admitting this, and admitting the grave danger which attends want of knowledge and lack of experience in giving anæsthetics, it follows that all students should during their training for their profession acquire a competent knowledge of this subject, and should further be compelled to prove their efficiency before being granted a diploma to practise their profession.

NOTE.

¹ It is obviously most important that some care should be used in selection of such teachers, all of whom should possess hospital appointments.

ON CERTAIN PRACTICAL APPLICATIONS OF EXTRACT OF SUPRARENAL MEDULLA.

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As the result of numerous experiments which have been conducted in this laboratory by Drs. J. D. Slight, J. Malcolm, and W. E. Frost, which are not yet published nor entirely finished, I feel justified in suggesting that a trial should be made of the extract of suprarenal medulla in all cases in which it is desired to strengthen or to induce uterine contraction. The observations which we have hitherto made show that this extract has a far greater power in causing contraction of the muscular tissue of the uterus, whether pregnant or non-pregnant, than any other drug having the same reputed action, and this whether the extract be applied directly to the muscular tissue or be introduced into the circulation. Since the active principle is unaffected by the gastric juice, it can be given by the mouth, but in *post-partum* cases it would doubtless be more advantageous to inject it directly into the uterine cavity, where it would not only tend to produce immediate contraction of the uterine musculature, but also of the uterine arterioles, and thus more effectually control accompanying hæmorrhage. The solution which I would recommend to be used is an infusion of dry medullary substance, 30 grs. to the pint of water. This should be sterilised by boiling and injected whilst still fairly hot. Such a solution is a powerful styptic, and its value in this respect may be still further increased by the addition of 60 grs. of calcium chloride.

Another class of cases in which the extract in question may prove of the greatest clinical value are those of sudden cardiac failure, whether as the result of shock or hæmorrhage, or of an overdose of anæsthetics. In these cases the sterilised decoction, which may be of the strength of 5 grs. to a fluid

ounce and must be filtered, should be injected with a hypodermic syringe very slowly into a superficial vein, or even, in extreme and apparently hopeless cases, into the heart itself through the thoracic wall. I have seen such remarkable results from the application of this method to animals in which the circulation had apparently entirely ceased, and in which the heart has been completely resuscitated by the action of the drug, that I have no hesitation in recommending that it should be tried in this class of cases in the human subject.

The material which we have used has been prepared at my request by Messrs. Willows, Francis, Butler and Thompson, of Aldersgate Street. It consists of the separated healthy medulla of the suprarenal capsules of the ox or sheep, rapidly dried in thin layers at a temperature of not more than 50° C., then powdered and kept in well-stoppered bottles. In this form it retains its activity for a considerable time, and an infusion can be prepared from it in two or three minutes. The exact strength of the solution for the purpose of intrauterine injection is immaterial; any that might be absorbed into the general circulation would be beneficial rather than otherwise. For intravenous injection in cases of cardiac failure a much weaker decoction than that above indicated can be used, but it should then be made with 0.9 per cent. salt solution, and injected warm; a dose of 5 grs. of the dry medullary substance may be introduced into a vein in this way slowly without fear of deleterious results, and may be repeated if found necessary.

SUPRARENAL GLAND EXTRACT IN THE EPISTAXIS OF HÆMOPHILIA.

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SCHÄFER's discovery that the local application of suprarenal gland extract is followed by contraction of the unstriped muscle fibres in the walls of blood vessels first led to the use of this substance in hæmorrhage from mucous surfaces. Since its introduction it has grown rapidly in favour, especially with rhinologists, as a speedy and efficacious hæmostatic in cases of epistaxis, and in bleeding during operations upon the nasal cavities.

It is said that the condition known as hæmophilia is associated with "congenital hypoplasia" (Immerman) of the vessel walls, including, of course, the muscular elements. If this statement be correct, one would expect, says Grünbaum,¹ that in hæmophilia the application of suprarenal gland extract to a bleeding surface would be of little or no use. That writer finds that his clinical experience bears out this reasoning, and as far as I can discover no case has hitherto been recorded which would induce us to reconsider our views. Weil,² indeed, says that in cases of "habitual nose-bleeding" the use of the organic extracts is worth a trial, but he pins his faith to local applications of a 5 per cent. solution of gelatine for the epistaxis of hæmophilia. The following case, therefore, is of value as bearing on this point.

G. B., male, aged 13, was brought to me on February and suffering from "bleeding at the nose," which had lasted off and on for ten days. Ordinary homely remedies had entirely failed, and the boy had become blanched and weak. Insertion of the speculum into the affected nostril—the left—was sufficient to start the flow. No bleeding point was found. Tannin was given for insufflation, and 5 grs. of calcium chloride in water every four hours by the mouth. Next day I was sent for to find his condition unchanged. The nostril was then plugged and the bleeding controlled by a strip of lint introduced from the front. The following day, however, on removing the lint bleeding began again, requiring fresh plugging, and so on daily for seven days. The calcium chloride was dropped after three or four days.

During this time the boy lost little blood, but the appearance of purulent discharge from the constant presence of the foreign body in the nostril, and the discomfort induced by the plug itself, led to a trial of suprarenal gland. Three tabloids (5-grain, Burroughs, Wellcome, and Co.) were bruised to powder, mixed with 5j of water, and allowed to settle. A tampon of cotton-wool soaked in the clear fluid was loosely inserted into the nostril, with immediate success. Violent sneezing accompanied the application of the remedy. A slight recurrence of bleeding some hours after was checked at once in the same way, and there has been no further trouble.

The diagnosis of hæmophilia rests upon the following facts:

Family History.—His father, in youth, bled constantly and freely at the nose; and now bleeds freely with any slight cut or tooth extraction.