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 unstripped 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.

This man's grandfather on his mother's side was subject to severe nose bleedings.

Personal History.—In March, 1892, at the age of 6, the patient had an attack of epistaxis lasting ten weeks, which was not treated, "for fear of threatened meningitis." In November, 1892, at that year, after measles, he was operated on at the Royal Ear Hospital, Soho Square, for adenoids. Bleeding continued for several days after the operation, demanding special means for its control. In 1896 there was a profuse epistaxis lasting three days. It stopped spontaneously. Slight cuts are always attended with a loss of blood out of all proportion to the size of the wound. Free bleeding from the gums followed the removal of loose milk teeth at different times. He is easily bruised. There is no history suggesting effusion into the knee or any other joint.

Attention is directed to two points in this case: first, the clear history, hereditary and personal, of the hæmorrhagic diathesis; and, secondly, the instantaneous effect of suprarenal gland extract after the other remedies had failed.

NOTES AND REFERENCES.

¹ BRITISH MEDICAL JOURNAL, November 3rd, 1900, p. 1308. ² *Centralblatt f. die gesammte Therapie*, Wien, December, 1900. Epitome of Weil's article in *Klin.-Therapie Wochenschrift*, No. 15, 1900.

THE DIETETIC VALUE OF SUGAR.*

By H. WILLOUGHBY GARDNER, M.D.LOND.,
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MANY of us can remember that when we were young sugar was considered more a luxury than a necessary or even useful article of diet. It was looked upon with disfavour; was thought to ruin the teeth, to conduce to worms, to be constipating, to be watery, and to be "flatulent." It was not only the lay public who thought thus badly of it. Even as late as 1884 we find a well-known specialist for diseases of the nose and throat asserting that the fundamental error responsible for the catarrhal diathesis and a host of evils consequent thereon was the excessive use of sugar. "Sugar," said he, "is the unrecognised bane."

Now the pendulum has swung far in the opposite direction. Sugar has come to be looked upon almost as a necessity, and certainly as one of the most valuable articles of diet. Even when we were boys it used to be said that at some public school an ascetic head master once placed the tuck shop out of bounds and forbade hampers and luxuries of all sorts, and that the results were so disastrous to the boys' health that the school doctor intervened, and the tuck shop was reinstated. Such was the story. We boys hardly believed it, yet probably it was true. Now opinion has completely changed, and we hear of Dutch and Berlin rowing clubs using sugar when in strict training—"sugar training" they call it; and we find Continental armies increasing their rations of sugar.

Now that the Government have reintroduced the sugar tax, it may be interesting to review briefly our knowledge of the subject. Sugar comes from two great sources—the sugar cane and the beetroot. In 1900 the world's total production of sugar was 7,933,000 tons, of which 5,523,000 tons were beet and 2,410,000 cane sugar. The early history of the sugar cane is very obscure. It is said to have been grown by the Chinese from time immemorial, but the first country in which it was definitely known to have been cultivated was the Indo-Chinese peninsula. Thence it spread to India, where it was found by Nearchus, one of the generals of Alexander the Great; thence gradually through Persia and through Egypt into Europe. Practically, however, the ancients were unacquainted with sugar as we know it. There was another form of sugar which they knew and greatly valued, namely, honey, and we know that both in Rome and in ancient Greece much time and thought was devoted to the keeping of bees. Palestine, it will be remembered, was described as a land flowing with milk and honey.

In the Middle Ages Venice was the great centre of the sugar trade. It was apparently first introduced into Great Britain about the end of the thirteenth century. In 1319 we find that 100,000 lbs. were shipped to London from Venice, and curiously enough in the same year we find a note that the price of sugar in Scotland was one shilling and ninepence half-penny a pound. That does not sound so much, but it would have purchased in this town of Shrewsbury, at the prices settled by order of the bailiffs in the preceding year, six fat geese, six hens, two chickens, four pigeons, and three dozen fresh eggs. The

* Read before the Shropshire and Mid-Wales Branch of the British Medical Association.

Spaniards carried the sugar cane to the West Indies at the end of the fifteenth century, and from that date the trade expanded with great rapidity.

Beet sugar has a far more recent history. Its production is entirely due to the work of scientific men. It was discovered by a German chemist named Maggraf in the year 1747, but it was not until 1800 that the first beet sugar factory was established in Silesia. Its cultivation in France was due to the genius of Napoleon Bonaparte, who realised its importance and stimulated its production by means of bounties.

It was not until the last century that the use of sugar really became at all extensive, and it is during the last quarter of the century that the great increase has taken place. During the last fifteen years it is said that the world's consumption of sugar has nearly doubled. The following figures show the increased consumption in our own land:

In the year 1700 the total amount consumed in Great Britain was 10,000 tons.

In the year 1800 the total amount consumed in Great Britain was 150,000 tons.

In the year 1864 the total amount consumed in Great Britain was 600,000 tons.

In the year 1885 the total amount consumed in Great Britain was 1,100,000 tons.

In the year 1900 the total amount consumed in Great Britain was 1,627,000 tons.

Another and perhaps more interesting way in which to consider it is to take the increasing amount consumed per head of population:

In 1863 this was 30 lbs. per head.

" 1866 " 38 " "

" 1884 " 70 " "

" 1890 " 86 " "

That is, nearly 28 ozs. per head per week; or an allowance of 4 ozs. a day to every human being in the British Islands. This is, however, more than is actually consumed, for a certain quantity is exported in the form of jam and biscuits, and some of it is used for the feeding of animals; 3 ozs. per head per day is probably nearer the mark. As the price of sugar is now 1½ lb., this means, roughly speaking, 2d. a week per head—or, say, a man with a wife and four children would spend a shilling a week on sugar. The tax of ½ lb. would therefore add 4d. a week to his expenditure.

This great increase in our consumption of sugar is due to its cheapness, and is one of the results of Free Trade. People still living can remember when sugar was 7d. a pound, at which price it was a luxury. The duty on sugar was reduced by Mr. Gladstone in 1864, and again in 1870 and in 1873, and was finally abolished by Sir Stafford Northcote in 1874, more than a quarter of a century ago. It is claimed that this steadily-increasing consumption of sugar has been the main cause of the greater height and weight and health and vigour of the English people which has been so specially noticeable during the last thirty or forty years. In this relation it is interesting to compare the consumption of sugar by other countries, which is given in this table:

In the year 1896:

Great Britain consumed 86.15 lbs. per head of population.			
The United States	65.50	"	"
Denmark	43.60	"	"
Switzerland	42.90	"	"
France	28.14	"	"
Germany	27.14	"	"
Holland	25.90	"	"
Belgium	22.00	"	"
Austria	16.80	"	"
Russia	11.25	"	"
Italy and Spain	7.00	"	"

It will be noticed that the Americans are the only other people who eat sugar in anything like such large quantities as we do. In fact, the Anglo-Saxon may be distinguished as the sugar-eating race. The characteristics of that race are its energy, robustness, and vigour, its pluck, and its power of endurance; and again we must notice that it is especially during the last half century that that race has multiplied so enormously and has spread over the earth, and we have seen that it is during this same half century that its consumption of sugar has so greatly increased. In looking down the list we notice that the Germans consume but little sugar; we must not forget, however, that they drink vast quantities of beer, which contains a very similar sugar, namely, maltose. Very nearly at the bottom of the list we find the Russians. A short time ago there was an article in the *Spectator* on the Slav characteristics, in which it was said: "One deficiency is a certain want of energy. The Russian has energy, it is