mind before advising operation. It is well known that some cases die suddenly from cardiac failure after operation. Death is probably due to ventricular fibrillation, a condition shown by Levy²⁵ to occur when large doses of adrenalin are injected into the blood stream of animals. Thus it appears to us that, the other factors remaining the same, those cases with the lower pressures will be most suited for operation, since the post-operative pressure will not be sufficiently excessive to seriously embarrass a partly exhausted myocardium; and we may say that this procedure in using the blood pressure as an important indication in selecting cases for operation has been fully justified by results.

We would summarize our more important conclusions as follows:

(a) In typical and uncomplicated cases of Graves's disease the systolic blood pressure is usually lower than normal, the diastolic pressure approximately normal, and the pulse pressure consequently low.

(b) The systolic blood pressure passes through three phases:

1. *A Short Stage of Primary Hypertension.*—This is associated with the onset of the disease, and due to vasoconstriction owing to suprarenal stimulation.

2. *A Prolonged Stage of Hypotension.*—This is due to peripheral dilatation caused by a depressor substance secreted by the thyroid, and is of variable duration, but usually lasts for years.

3. *A Stage of Secondary Hypertension.*—This comes on late in the disease, and is associated with secondary changes in the cardio-vascular system and reduced thyroid activity.

(c) After operation on the thyroid the systolic blood pressure tends to rise. This rise is not infrequently associated with cardiac acceleration and an irregularity of the pulse due to auricular fibrillation, and possibly in extreme cases followed by ventricular fibrillation resulting in death.

(d) A low systolic blood pressure in Graves's disease, other factors being equal, indicates from an operation point of view: (i) Little myocardial exhaustion. (ii) A small post-operative rise in blood pressure and consequently little liability to post-operative cardiac failure. (iii) Less haemorrhage.

(e) Diurnal variations in blood pressure are considerable in Graves's disease, being relatively greater than in health.

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INTRATRACHEAL ANAESTHESIA BY THE NASAL ROUTE FOR OPERATIONS ON THE MOUTH AND LIPS.

BY

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THE following is a brief description of a method of anaesthesia which I have found very useful in plastic operations, and which is recommended for all operative procedures in the region of the mouth. The catheter is well out of the surgeon's way, and his technique is thus rendered more aseptic.

It consists essentially of three manœuvres:

1. Passing the catheter through the nose and nasopharynx.
2. Catching it up in the oropharynx by means of a special guiding rod.
3. Directing it into the trachea.

These may be supplemented by

4. The provision of a return nasal airway, a procedure which is often a great help to the surgeon, in that it prevents bubbling of blood in the mouth and directs expired anaesthetic vapours away from him.

The following instruments are required:

Catheter.—The usual "aseptic" type of tracheal catheter.

Laryngoscope.—Hill's pattern. Illumination is obtained either by an attached distal lamp or by a pencil light pushed down by the side of the laryngoscope.

Guiding Rod.—This is a round rod of metal $\frac{1}{8}$ in. in diameter and 10 $\frac{1}{2}$ in. long. The end for picking up the catheter (Fig. 1, A) is sloped away on its under side (Fig. 1, A, (1) and (2)) for about 1 $\frac{1}{2}$ in. back in order to allow it to dip more easily from the laryngoscope into the eye of the catheter. The upper side (Fig. 1, A, (2) and (3)) is also bevelled for $\frac{1}{2}$ in. from the end to meet the under side. The terminal $\frac{1}{4}$ in. (Fig. 1, A, (2)) is now tilted upwards until the upper bevelled surface is parallel to, and only very slightly above the level of the upper surface of the rod. This slight tilt gives an upward bend to the catheter which makes its introduction through the cords much easier. The end is rounded off, and there is no sharp edge where the upper and lower surfaces meet. The other end of the rod is curved down to form a handle, bending away so that the operator's hand does not hide his view along the rod.

Details of Method.

Before starting, the end of the guiding rod is pushed from the top of the eye into the solid end of the catheter and a little notch (Fig. 1, B) made for its reception in Stage 2 (Fig. 1, C).

FIG. 1.

1. The passage of the catheter through the nose is usually easy. It should be curved with the eye facing inwards, and, after lubrication with sterile vaseline, passed through the nares with its concavity towards the floor of the nose. Stiff new catheters sometimes strike the back of the nasopharynx and refuse to go on. Rotation of the catheter—or the previous passage along its lumen of a piece of stout wire, the end of which is lodged in the notch for the guiding rod, followed by bending so that there is a very distinct tilt to the end of the catheter—will usually overcome this difficulty. The wire should, of course, be removed before proceeding to the next stage.

2. A view of the catheter is obtained by means of the laryngoscope passed to the back of the mouth. The guiding rod is passed down the speculum and its extremity pushed into the notch in the end of the catheter (Fig. 1), the outer end of the catheter being held meanwhile either between the little and ring fingers of the hand manipulating the rod, or by an assistant. After it has been picked up it is essential that the catheter be held taut outside the nose so that the guiding rod shall remain pushed home in its end.

3. The laryngoscope is now manipulated so that a view of the glottis is obtained, and the end of the catheter directed between the cords by the guiding rod, which is withdrawn before

pushing on the catheter from the nasal end. In an average adult the catheter should be passed for a distance of about 30 cm. from the ala of the nose, or about 5 cm. further than the distance from the teeth required in the oral route. Catheterization is greatly facilitated by the relaxation obtained by a really deep anaesthesia and by the use of a large size laryngoscope.

4. Six pieces of ordinary rubber tubing (sizes 22, 24, 26, 28, 30 and 32 French catheter gauge, walls 2 mm. thick) are smeared with sterile vaseline, and, starting with the smallest, rapidly passed one after the other through the opposite naris. This manoeuvre gradually dilates the nasal passage, and enables a tube large enough to provide a sufficient return airway in most cases to be used. The length of tubing to pass may be roughly estimated by the distance between the patient's ala and the external auditory meatus of the same side; but the most suitable length can really only be found by trial in each case, a good return airway with the end of the tube as near the glottis as possible being the aim. A metal angle piece may be fitted into the outer end of the tube to direct the anaesthetic vapour away from the surgeon, and prevent towels obstructing the airway. The back of the mouth is now packed with a long strip of gauze.

Fig. 2 illustrates the method in use during a plastic operation on the lips. A sufficient nasal return airway

FIG. 2.

cannot always be obtained in this manner, but occasionally it may be improved by increasing or decreasing the degree of extension of the neck. Again, it is sometimes found that if a tube which has remained in for a short time and dilated the nasal passage be removed, the larger airway obtained by its removal proves sufficient.

Occasionally, when the catheter is passed through the nose with a wire in it, as described above, and pushed on, the cough characteristic of its passage into the trachea occurs, and, on inspection, the fact that it has actually passed between the cords is confirmed. Working on this, attempts were made to judge the curve on the catheter required to direct its end towards the mid-point of the thyroid cartilage after passage through the nose; but so far experiments have shown this to be a very uncertain method of tracheal catheterization, the correct curve for each case being very difficult to estimate. The guiding rod, nasal tubes, and metal angle piece were made for me by Messrs. Mayer and Phelps.

A CASE OF CEREBELLAR TUMOUR.

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WITH respect to the ataxia in localized cerebellar tumour, different statements have been made in British and foreign medical literature as regards the side to which the patient tends to fall when attempting to walk. By some distinguished British and Continental physicians it is stated that, in the ataxia of cerebellar tumour, when the patient walks there is no constant relation between the side to which he tends to fall and the side of the tumour. By others it is stated that the patient tends to fall to the side of the lesion. According to some physicians, when the posterior part of the middle lobe of the cerebellum is affected the patient tends to fall backwards when walking; and when the anterior part is affected the patient tends to fall forwards.

The abstract of the notes of the following case may be of interest, because it tends to support the view which has been expressed by certain English physicians with respect to the direction in which the patient tends to fall. The case is an instance, also, of the deviation and rotation of

the head described by Dr. Grainger Stewart and Dr. Gordon Holmes "as occurring in certain cases of cerebellar tumour."

M. G., a man aged 45, was sent to me by Dr. Sawers Scott. When first seen his chief symptom was headache. The optic discs were then normal, and no symptoms of cerebellar disease or other localized organic brain disease could be detected. I did not see the patient again for many months. When I next examined him definite symptoms of cerebellar tumour had developed. He complained of severe headache, and on examination the following were the chief symptoms: Double optic neuritis; internal strabismus of the left eye; paralysis of the left external rectus muscle; diplopia; ataxic gait; definite tendency to fall backwards and to the left when walking—the last symptom, at the end of the illness, was very well marked; also when standing or sitting the head was tilted or rotated, so that the chin was directed, or approximated, to the right shoulder.

The autopsy revealed a cerebellar tumour. It was situated at the posterior part of the cerebellum, just under the tentorium.

It affected the posterior half of the middle lobe (or vermis) and extended to the left lobe, affecting almost the whole of the posterior half of this lobe, but it only affected a very small portion of the right lobe, quite close to the middle lobe. The

Horizontal section through middle of cerebellum. Position of tumour shaded.

growth extended both to the upper and lower surfaces of the posterior half of the left lobe of the cerebellum; but it was most extensive in the central or middle portion of this lobe. The dentate nucleus was seen outside the growth on the right side. The growth occupied the position of this nucleus on the left side and the position of the roof nuclei in the middle lobe. The growth was a plexiform angio-sarcoma, the cells being chiefly spindle cells.

A NOTE ON INFLUENZA IN INDIA, 1918-20.

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My report on influenza, published in February, 1919, gives an account of the result of treating the 1918 influenza outbreak by stimulants instead of by the usual depressant mixtures containing salicylates. It records the treatment of 28,859 cases, with 509 deaths—a case-mortality of 1.7 per cent.

The second outbreak in 1920 gave a general impression to all my staff of medical men, numbering almost 100, that one attack of influenza protects the individual against a second attack. The following definite records, although of small numbers, are so confirmatory of this impression that we may, I think, accept them as proving that "one attack of influenza protects against a second," as much as measles does. The cases recorded were all clear to type, and not catarrhal cases, so often mis-called influenza.

At the three Oak Grove Schools, Mussoorie, we have a population of:

Boys' school	...	...	...	...	220
Girls' school	...	...	...	...	118
Junior boys	...	...	...	...	105
Junior girls	...	...	...	...	72
Staff (includes families)	...	...	...	...	56
Clerks	"	"	...	...	9
Menials	"	"	...	...	225
					805

To attend on these we had one medical officer, two sub-assistant surgeons, and eight nurses. The records and attendance were therefore probably much better than those furnished in the average case. Every one of the nurses in turn contracted the