La Force. There are two blades, one the crushing blade (A), and the other the cutting blade, which lies between the bed plate and the crusher and works close up to it. The crusher, which grasps the stump of the tonsil, is primarily actuated by the handles with such pressure as may be brought to bear by the strength of the grip of the hand. This action automatically engages the mechanism (BCD) for the final crush—a useful time-saving feature.

This mechanism is in the form of a pair of double cylindrical circumvolutes, the internal or female (B) being attached to the bed of the guillotine, and the external or male (C), which has a lever (D) attached, is fitted and rotates freely on the crushing blade and is kept in position by means of a spring (E). A quarter turn of the lever (D) tends to drive the crusher further forward and exerts extra pressure and automatically locks it and completes the crushing operation. The mechanical advantage being about 1 to 14, the crushing effort is very great. The cutting blade is attached to the crusher, and the final cutting is performed by the depression of a lever (F) which drives the cutting blade forward. The releasing of the guillotine brings the lever (F) of cutting blade in contact with the stop on (B) and automatically throws it out of action and sets the cutting blade ready for the next operation.

It will readily be seen that it is not possible for the cutting blade to be brought to action until the crushing

blade has done its work. Miniature sharp chisels are on the distal rim of the fenestra (H). The purpose of screw (G) is to set the blades at any desired position in order to vary the size of the fenestra. Thus one guillotine will do for all cases except for children under 2 years. The guillotine is shown set for a small tonsil.

The actual handling of the guillotine is simplicity itself. When the tonsil has been completely inverted (Fig. 3) the crushing blade is sent home by compressing the handle, and lever (D)—already partly engaged—is pushed over to its limit with the free hand in a clockwise direction. After a suitable period the tonsil is secured with a vulsellum and is cut off the guillotine by depressing lever (F) (Fig. 4). Lever (D) is then returned to its original position and the guillotine will spring open and be already set for the other tonsil.

It is obvious that if the crushing pressure is maintained until coagulation has taken place an added safeguard is incorporated. Accordingly I crush the stump for three to five minutes before removing the tonsil. If the mouth is large enough and a second guillotine available the other tonsil can be dealt with while the first still crushes its stump. There will be no bleeding—merely a moistness of the tonsillar bed.

If desired, the stump can be ligatured in a dry field—an easy matter. The whole operation in adults takes ten minutes at the outside. In children, where the peritonsillar tissue is soft and elastic, momentary crushing suffices to secure complete haemostasis. I have used the instrument illustrated for almost a year at the Royal Ear Hospital, University College Hospital. In not a single case has there been any primary reactionary or secondary haemorrhage.

Irwin Moore, quoting McNab, and referring to two-bladed guillotines, complains that the anterior pillar is frequently removed. The type of guillotine used is not stated. I can only say that with the technique indicated I have not been able to emulate this. The anterior pillar comes through the ordeal uninjured—provided the fenestra of the guillotine is not too large for the tonsil. Even in that case the expert will manage not to invert it completely through the fenestra. It is, however, definitely an advantage to adjust the fenestra slightly on the small side, which can be done instantly in the instrument illustrated.

The criticism has been made that reactionary haemorrhage occurs a few hours after the operation with two-bladed guillotines. I have not encountered this, and can only assume that the instrument used did not allow sufficient crushing force to be applied to the stump.

Children whose tonsils have been removed by this method show no, or only very slight, rise of temperature. This I attribute to the obliteration (by crushing) of the lymphatics and subsequent minimal toxic absorption from the open tonsillar wound.

I wish particularly to acknowledge my indebtedness to my friend Mr. Phelps, of Messrs. Mayer and Phelps, and to their technical staff, for the great assistance and the facilities extended to me.

TONSILLECTOMY.

BY

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It is not desirable that one method, and one method only, of performing the operation of tonsillectomy should be adopted for patients, whether adults or children. Each case is a law to itself, and should be judged on its merits. If this mental attitude is adopted it will save the unwary and the comparatively inexperienced operator from many pitfalls.

To attempt to remove the deeply embedded adherent tonsil which has been the site of many attacks of tonsillitis, and perhaps the subject of abortive attempts at removal, by the guillotine only, or even with a finger on the pillar, or traction by tonsil forceps, will only lead to disappointment for the patient and the operator. For the tonsil will not move by finger pressure, and the forceps will take away a superficial piece of tissue, but will not remove the main mass of the gland from its strong anchorage.

Another subdivision of this sort of tonsil, met with in even young children, is that in which the pillars have met in the median line in front, and are indistinguishable from the underlying tonsil. This type is also the product of long-continued chronic inflammation with interludes of acute tonsillitis. The tissues are usually very septic, and the tonsil when reached is generally found to be lying in a pool of pus. For such tonsils dissection or partial dissection should be employed.

It is of advantage to employ a tonsil forceps, such as that made for me by Messrs. Mayer and Phelps. The

FIG. 1.—The Author's tonsil forceps.

advantage of this instrument is that it need not be removed during the operation, since, by means of the ratchet, it retains its hold, thus freeing a hand. Moreover, the handles will pass through the ring of the guillotine, if it is desired to use this instrument. (Fig. 1.)

The dissector best suited for this type of tonsil is one with a short curve and a cutting edge, the other end being

blunt and having a large curve. The pattern illustrated is also made for me by Messrs. Mayer and Phelps. (Fig. 2.)

If the pillars meet in a continuous fold in the median line an incision should be made at about the mid-point, each pillar in turn being held by special forceps and gently dissected off the tonsil for a short distance; the forceps then grasp the tonsil and traction is made upon it. If the pillars do not join in the median line, the tonsil forceps may be applied at once, and traction exerted till the line between the capsule and the posterior tissues is seen, when the curved cutting edge is inserted firmly, but with care, and the capsule separated from the surrounding tissue with short sweeps. When this has been accomplished the instrument is reversed, and the blunt large

FIG. 2.—The Author's tonsil dissector.

curved end is used in the same manner to separate the posterior part of the tonsil; the guillotine is threaded on to the tonsil over the handles of the forceps, and the final enucleation is effected by that instrument. This combination of the dissector and guillotine I find to be more satisfactory than complete removal by dissection. It is more rapid, and leaves a smoother surface to heal; the parts are more comfortable after operation, while there is less likelihood of haemorrhage. If for any reason, however, the guillotine is not desired, the dissection may be completed in the ordinary way, bleeding being controlled by pressure forceps.

For the type of tonsil which is prominent and not adherent, and in which the pillars of the fauces are easily separated, the guillotine is the instrument of election. Dissection is unnecessary, and even mischievous, for it requires deeper and more prolonged anaesthesia, with more dragging on and handling of the pillars; the parts are more uncomfortable after the operation, and heal more slowly. In this type of tonsil the guillotine alone may be used for enucleation, or, again, its action may be aided by the tonsil forceps. The guillotine should be very blunt, and if it be sufficiently so the need for the expensive complicated crushing guillotines does not seem to exist. The most useful form probably is Heath's modification of Mackenzie's pattern.

A good deal depends on the illumination and view of the parts for successful operation, and these will be best secured by wearing an efficient headlight and using Spencer's gag, a tongue clip, and a strong tongue depressor with a long handle, such as Seymour Jones's.

Haemorrhage is a constant source of discussion in tonsil operations. If it is confined to slight capillary bleeding it may be disregarded during the operation, and in very septic conditions is beneficial. If it impedes operation it may be mopped or removed by suction with a suction-anaesthetic apparatus. After the tonsil has been removed the bed should be immediately filled with a firm sponge or mop, and pressure kept on for a short time. On removal of the pressure there will, as a rule, be no haemorrhage; if, however, a main artery is bleeding, a ligature should be applied, while if multiple capillaries are still bleeding the pillars should be stitched. If bleeding is profuse from a large number of vessels owing to low coagulation power of the blood, pressure should be continued while 10 c.cm. of horse serum and 1/12 to 1/4 grain of morphine, according to age, is injected. When such haemorrhage is controlled the pillars may be stitched, though this, as a rule, is not necessary. In bleeding of this type recurrence in a modified degree may take place, when a second or even a third dose of horse serum may be injected.

If the anaesthesia is to be short the second tonsil may be proceeded with while pressure is kept up in the bed of the first; but with long anaesthesia the first tonsil bed should be dealt with where necessary before enucleation of the second tonsil is begun. The best anaesthetic for removal of adherent buried tonsils in adults and children is ether, or ether three parts to chloroform one part, by the open method. In children ethyl chloride is an admirable anaesthetic when the tonsils are prominent and not adherent, or

adherent only to a moderate extent; in certain adult tonsillectomies also, when the tonsils are very free or rapid short anaesthesia is required for any reason, ethyl chloride may be recommended.

It is frequently found that the turbinate bodies obstruct the airway in those with enlarged septic tonsils, and a routine examination for this should be carried out. When found, submucous fracture should be done. A convenient

FIG. 3.—The Author's instrument for submucous fracture of the turbinate bones.

form of instrument for this purpose is that made for me by Messrs. Mayer and Phelps. If this is done it is not, as a rule, necessary to remove the posterior ends of the turbinate bodies.

The operation of tonsillectomy, by whatever method, should be considered as a major procedure and left in the hands of the specialist. It is, however, recognized that circumstances often lead to its being performed by others, and to them the following suggestions are made.

Never approach the operation as a small easy procedure devoid of danger. Use ether, or one part chloroform to three parts of ether, as the anaesthetic, rather than ethyl chloride, as the latter requires an expert anaesthetist, trained assistance, and a special inhaler. Lower the head on an inclined plane. Don't hurry, but calmly examine the extent of the tonsil to be removed by strongly depressing the tongue. Grasp the tonsil with a strong pair of tonsil forceps passed through the ring of the guillotine, draw it from its bed, and thread the guillotine on to the tonsil from below, upwards and outwards. Press the distal end of the instrument firmly into the tonsil bed. Push down the blade of the very blunt guillotine to compress strongly the neck of the tonsil. Remove the forceps; carry the handle of the guillotine across the mid-line of the body and then twist the instrument half round. These movements get the tonsil from its bed and compress and twist the vessels that supply it. Drive the blade home and remove the tonsil. Insert at once a mop on a long holder in the tonsil socket, and keep up pressure for a couple of minutes; then gradually remove the mop. If, as is usually the case, there is no haemorrhage, proceed to remove the second tonsil, giving a little more anaesthetic first if required. If there be haemorrhage, deal with it by ligature, stitching the faucial pillars, or by injections of horse serum and morphine as circumstances demand.

A NOTE ON THE TREATMENT OF ASTHMA.

BY

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CASES of hypersensitiveness, of whatever kind, have of late been brought more closely into union. Some pathologists considered that anaphylaxis and anaphylactoid shock were entirely different phenomena. But physicians are bringing them into near relationship. Kolmer¹ suggests that "enough acceptable data have now been accumulated to permit of at least a partial classification and house-cleaning of terms and ideas." He thinks that for all cases of hypersensitiveness the best term is "allergy," and objects to any classification based on our ability or inability to transfer passively the antibody, as it may be present only in the cells. He adds that "we may safely assume that precipitin and allergic antibody are not identical." I came to the same conclusion long ago.²

Barber and Oriel³ remark that

"the important fact is that many of the symptoms to which sensitized persons are liable are identical with those seen in