1. To determine the presence of a drainage tube in the cavity, which was said to be missing.

2. Where a polypus near the hiatus semilunaris could be located, which had kept up a sero-purulent discharge.

3. Where by a series of bony septa the pus was retained.

4. To ascertain the differential diagnosis of angio-ma, where suddenly a severe hemorrhage took place from the antral cavity.

5. To facilitate the thorough scraping of the necrosed bone by means of a bent curette—introducing first the curette and then the antroscope.

NEW INSTRUMENTS.

Read in the Section on Laryngology and Otology, at the Forty-fifth Annual Meeting of the American Medical Association held at San Francisco, June 5-8, 1904.

BY SETH SCOTT BISHOP, M.D.

PROFESSOR OF OTOLGY IN THE POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL, CHICAGO, ILL.

DOUBLE RETRACTORS.

The double retractors take the place of an assistant in keeping the soft tissues out of the way of the operator, and in controlling the hemorrhage during mastoid and other operations of like magnitude. The retractors consist of two shafts, each armed with a series of hooks that can be brought together and interlocked for insertion into the incision, when they can be separated and fixed at any desirable point up to two inches apart. After they have been drawn apart as far as may be required, the thumb screw on the fixation bar next to the hooks should be screwed down firmly into the bar, the handles should be pressed a little together until the tissues are well stretched as the distal ends of the retractors separate, then the thumb nut on the thread bar should be turned down against the movable handle.

If the instrument is properly adjusted the tissues can not slip out of its jaws and their pressure on the stretched lips of the wound reduces the hemorrhage to a minimum. In one operation these hooks proved more effective than five artery forceps.

The following arrangement renders these retractors equally useful in the smallest and the largest mastoid operations: The outer half of the shaft of

hooks can be slipped out of the inner half, leaving the retractors only an inch long. Replacing the adjustable series of hooks makes them two inches long, and by drawing these adjustable hooks outward one-half inch you can lengthen the hooks to two and one-half inches. This has the effect, when the instrument is in position in a large wound, of making an opening two inches to three and one-half

inches wide, by three or more inches long through which to work. However the opening can be made as small as one wishes, and the capacity of the instrument is far beyond what we usually require in operations on the skull, but I have had it made so as to be of service in other and more extensive operations, since its size in no way impairs its efficiency in mastoid cases.

When the adjustable parts of the hooks are removed for small operations the openings in the permanent hook-shafts, into which the adjustable hooks fit, may be securely sealed by a bit of beeswax to prevent the entrance of blood, etc. After being used, this wax will run out on the application of a little heat. A drop of oil should then be put in the same openings to prevent corrosion, or sticking of the adjustable shank.

A PERIOSTEUM SEPARATOR, RETRACTOR AND CURETTE.

This hoe-shaped device overcomes a serious objection to the misnamed periosteotomes we have been using. Indeed these instruments should not be *tomes* at all. They should not cut the membrane, but should lift it from the bone in continuity, so as to carefully preserve its integrity.

The old periosteotomes put the operator at a disadvantage by necessitating an unnatural play of his muscles. With a pushing motion one has not perfect control of the movements of the instrument and it is likely to slip and cut where it is not desirable to wound. In the use of this kind of a lifter the motion is one of drawing or pulling toward one's self so that the muscles brought into play are, together with the instrument, under easy control—on the same principle as the farmer's use of his hoe, after which it is patterned.

As the separator serves the purpose, not only of detaching the periosteum, but of retracting the loosened tissues, or of curetting necrosed bone, it may be said to constitute three instruments in one.

EAR ASPIRATOR.

This instrument is for the purpose of evacuating, or aspirating, the middle ear and adjacent cavities of pus. It consists of an improved air pump and adjustable glass air chamber that fits into the external auditory canal by means of a soft rubber covered tip.

A few gentle tractions of the piston will draw out the discharges from the attic and deeper recesses after the most thorough ordinary methods have proved futile. Not enough force should be employed to cause actual pain or much sanguineous effusion. Yet a slight show of hemorrhage is not disadvantageous, for the parts are stimulated and thoroughly washed of discharge.

The pump is serviceable in chronic cases of caries of the attic, aditus, and antrum in order to obtain complete evacuation and cleansing as the first step in every treatment.

These instruments were made for me by Messrs. Chas. Truax, Greene & Co., of Chicago.

Columbus Memorial Building.