

## Letter to the Editor

Regarding the question of anæsthesia the author shows the Continental predilection for the local method as opposed to the general, though he does not hesitate to show his preference for the latter when, in his opinion, its use is more strongly indicated.

After these chapters on generalities of a theoretical and practical kind he passes in review the different affections which interest the specialising surgeon: the acute and chronic inflammations, traumata, benign and malignant tumours, congenital malformations, and facial neuralgia. Finally, a last chapter is devoted to plastic and æsthetic regional surgery.

The chapter on Ludwig's angina is particularly of interest to members of our specialty. Here the gravity of the affection, the difficulty of early diagnosis (particularly from the less serious cases of circumscribed abscess), and the importance of early surgical treatment combined with an equally early serum therapy are emphasised. Other important chapters directly concerning the rhino-laryngologist are those relating to maxillary sinusitis, osteitis of the maxillae, paradental cysts, dentigerous cysts and adamantine epitheliomata, and tumours of the buccal mucosa and of the maxillae. The remaining chapters can scarcely be said to be less important since they embrace all those other affections which may occur in a domain which is the common ground of all specialists of this region and the knowledge of which is so essential to an efficient and practical therapy. In other respects the book, though essentially written for the dental student, can well serve the specialist and practitioner, if only as one of reference unencumbered by too much detail.

L. GRAHAM BROWN.

## LETTER TO THE EDITOR

THE EDITOR,

*The Journal of Laryngology and Otology.*

DEAR SIR,—In the June 1929 issue of the *Journal* I replied to a criticism of Dr. Ross Souper with regard to the cost of an Audiometer. I agreed that the price was high but not excessive for that type of apparatus. I further mentioned that I hoped to produce an apparatus (Otometer) which would give an accurate quantitative estimate of hearing capacity at a cost of under £50. I have had the good fortune to be associated with Captain A. G. D. West, M.A., B.Sc., who is in charge of the experimental department of the "His Master's Voice" Company. I regret to say that we have had to curtail our aims very considerably. Our object was to secure a frequency range of 16 to 10,000 double vibrations. We had to content ourselves with a range of 50 to 7500. We are satisfied that the range mentioned covers more than the essential wave-band concerned in useful hearing. The

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instrument we have decided on is in the nature of a gramophone of the electrical type. A record (12 in.) with pure notes ranging from 50 to 7500 spaced into 10 notes, each of one minute's duration, is desirable. These notes have been oscillographically tested for purity of form.

The intensity of each note is varied by a potentiometer which is calibrated in steps of 5 decibels, the decibel being the accepted ratio for sound measurement. Instead of an ear-piece, a moving coil loud-speaker with permanent magnets is used. The ear is placed at a definite distance from the centre of the moving coil through an aperture in the board. Air is allowed to escape around the latter to avoid cavity resonance. For checking purposes, the output of the amplifier is measured before it reaches the loud-speaker by means of a thermo-galvanometer or a valve voltmeter. The sound pressure generated by the speaker on the tympanic membrane can be determined with sufficient accuracy for useful comparative purposes. The amplifier derives its power from batteries, to avoid any possibility of hum. The instrument could also, of course, be used to test speech or any other form of sound, with the appropriate record. The method of testing is the customary one of decreasing the intensity of sound until the patient indicates that he no longer hears it, when the number of decibels reduction registered on the potentiometer is noted. A duration of one minute has been found ample. In order to avoid malingering, a device can be incorporated which, unknown to the patient, would cut off all sound completely. The cost of this instrument would be approximately £30.

This apparatus is now in the advanced experimental stage. It compares favourably with the well-known 2A Audiometer in that—

- (1) It costs less than one-third of the Audiometer.
- (2) It uses a moving coil speaker instead of a telephone ear-piece.  
The test with the moving coil is by pure air conduction.  
With a telephone ear-piece, resonance is unavoidable.
- (3) It is able to handle far greater volumes of sound.
- (4) It has approximately the same range.

I have the greatest admiration for the Western Electric Audiometer. With certain modifications, I am convinced that it would be very widely used by otologists in this country but for its cost. I believe the instrument described would meet essential requirements.

Captain West, whose interest is purely academic, would welcome suggestions. Any information can be obtained from him, c/o The Gramophone Company, Hayes, Middlesex.

There is no intention of commercialising this instrument.—I am,  
yours truly,

O. POPPER.

12 WIMPOLE STREET, W. 1,  
20th September 1931.