

Letter to the Editor

always fascinating and are more than usually so in this issue. Dan McKenzie, T. B. Layton, F. B. Gilhespy, Milne Eaton, Norman Barnett, O. Popper, Thacker Neville, Charles E. Scott, T. B. Jobson, Eve (of Hull) contribute to it some novelties in connection with tonsillectomy.

On the whole a most informing and inspiring volume.

JAMES DUNDAS-GRANT.

LETTER TO THE EDITOR

INTENSITY OF PERCEPTION IN MONAURAL AND IN BINAURAL HEARING.

TO THE EDITOR,

The Journal of Laryngology.

SIR,—I have read with interest Mr J. A. Keen's article in the current number of the *Journal* on the relative intensity of perception of monaural and binaural sounds. The subject is an important one, and I hope it will receive further investigation.

Mr Keen is mistaken in thinking that the suggestions I have put forward as to the mechanism of intensity perception are in conflict with his conclusions. I think he must have gathered this impression from the short abstract of my paper (*American Journal of Psychology*, April 1927) which appeared in the *Journal* in October 1927, p. 703. In the original paper will be found the following sentence: "The loudness of the sound heard would presumably be determined by the sum of the 'quanta' transmitted by the nerves connected to the receptors involved." I have further enlarged on this point in "The Mechanism of the Cochlea" (p. 177).

Mr Keen states that I have attacked the "all or nothing" principle as applied to the cochlea. It would be more correct to say that I had protested against what I considered to be an unwarranted extension of the application of the principle based on a misconception of what it really implies. Surely no one has a better claim to interpret the principle than Adrian, to whom we owe its original enunciation, as applied to nerve impulse. He has shown by a series of masterly experiments, that continued stimulation, applied through the usual receptor channels to afferent nerves, evokes a series of impulses. The individual impulses are all of the same magnitude whatever the intensity of the stimulation, but their frequency is greater the more intense the stimulus. This does not exclude the possibility that the intensity of the sensation aroused may not also depend on the number of nerve fibres transmitting their separate "quanta" simultaneously to the same centre.

GEORGE WILKINSON.