

## 190 (2150)

## A new auditory test apparatus.

By A. G. POHLMAN and F. W. KRANZ.

[From the St. Louis University and Wallace Clement Sabin Laboratory of Acoustics, Geneva, Illinois.]

Practically all tests on the location of deafness are made by comparing the acuity of hearing as found by use of the tuning fork by air transmitted sound with that determined by applying the stem of the fork to the head bones. The disadvantages of the tuning fork test are both of a physical and physiological nature. No two forks are alike nor can the activation of any fork be expressed in terms of absolute or even reproducible units. It is also quite impossible to establish the threshold of audition either by the distance through which a fork is heard or in the case of bone transmission, by the length of time a given fork is heard when applied to the head. Scientific work on the problem of auditory acuity demands first of all that a standard method of measurement of acuity by air transmission be adopted. It is also essential that a new type of apparatus be devised which shall replace the tuning fork for the determination of minimum audibility for bone transmitted sound. Such an apparatus must fulfill several requirements. It must be possible to deliver the energy to the bone in a series of graded intensities. It must also be so arranged that the stimulus may be exhibited at a given pitch and a given intensity for an indefinite period of time. It must be capable of accurately reproducing any given intensity. Finally, for clinical purposes it must be easily transported, standardized and practically fool-proof.

Such a piece of apparatus has recently been developed at the Riverbank Laboratory. In its refined form, the range of intensities available will be sufficient to test subjects of all grades of acuity of hearing. The clinical type of instrument is portable and may be connected with any lamp socket on the ordinary sixty cycle alternating current. Standardized reproducible intensities may be obtained both for air and bone transmitted sound at 60 and 120 p.p.s., the vibrating elements being actuated electromagnetically. It is hoped that this device will serve the otologist as an accurate instrument for diagnostic purposes in the field in which the low pitch tuning fork is now used.