

An Optical Sonometer.

ONE form of an optical sonometer recently made by Messrs. Adam Hilger, Ltd. (of 75A Camden Road, N.W.1), is shown diagrammatically in Fig. 1. The

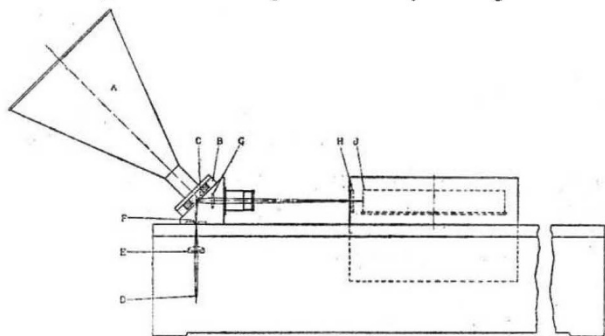


FIG. 1.

apparatus is designed to record the pressure variation caused by sound waves. It consists of a diaphragm box B, to which is attached a horn for receiving sound waves. In box B is a diaphragm with a platinised, silvered, or gilt inner face; this is the actual receiver. Recording the vibrations produced in the disc is accomplished by means of a beam of light directed from the source D (a Pointolite Lamp of 30 or 100 candle-power) by a condenser E through the slit F and brought to a focus on the diaphragm C. Thence by means of lenses G and H an image of the slit is formed on the photographic paper

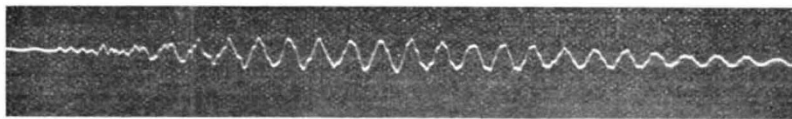


FIG. 2.

or film on the drum J. The lens H being cylindrical with its axis parallel to the drum, the beam of light is brought to an intense point image on the drum, and as the latter rotates a record of the deflection of the diaphragm is obtained. The spot of light can be focussed on the drum at any distance from 4 to 20 inches according to the amplitude of vibration under investigation and the degree of magnification consequently required.

Some of the models constructed are fitted with a camera into which the film is loaded through a small aperture at the back, while an arrangement for visual observation of the sound wave is also included. The revolving drum, on which the record of the vibrations is made, is enclosed in a specially designed camera with an automatic shutter; by this means any fraction of the drum, from one-sixth to one complete revolution, can be exposed according to the type of record which it is desired to make.

Records of various sounds have been made with the apparatus, *e.g.* for whistling at a frequency of about 1300 per second, singing at about 200 per second, and

of the sound produced by a leather-covered mallet on wood. This last is shown in Fig. 2, the frequency being about 250 per second.

The Rowett Research Institute, Aberdeen.

THE Rowett Institute, which was formally opened by Her Majesty the Queen on September 12, had its origin in the scheme of research in agriculture adopted by the Development Commission in 1911. Under that scheme provision was made for the establishment of one or more Institutes to carry out research in each of the branches of agricultural science. It was decided to establish two Institutes for the study of Animal Nutrition, one at Cambridge and one in Scotland. In 1913 a Joint Committee representing the University of Aberdeen and the North of Scotland College of Agriculture was constituted to act as a governing body for the Scottish Institute. Preliminary work was begun in 1914, but was stopped by the war. In 1920 the scheme for the development of the Institute was approved by the Board of Agriculture for Scotland and the Development Commission, and the erection of the buildings began early in 1921. The buildings are now practically completed, except for the fitting up of one or two of the laboratories.

In determining the nature of the Institute to be established it was recognised that the basis of practical experimental work is the researches of the purely scientific worker. Provision was therefore made for work in those branches of science that constitute animal nutrition. The Institute was planned to consist of the following departments: physiology, biochemistry, bacteriology, and pathology, which are housed in the one main building, and animal husbandry,

which consists of an experimental stock farm with buildings adapted for conducting feeding experiments. To facilitate the collaboration of those engaged in laboratory researches and those carrying out feeding experiments, the main building containing the laboratories has been erected on the experimental farm. This enables the workers to be in daily contact with each other, and to be conversant with the different aspects of the problem or group of problems on which the Institute is engaged.

The experimental farm is situated on the outskirts of Aberdeen, within easy access of tramway and train. The building containing the laboratories is built of granite and is 156 feet long by 45 feet deep in the central block and 39 feet deep in the wings. It consists of two floors and a basement. The biochemical department, the calorimetry room, the aseptic room, and certain other rooms occupy the ground floor. The physiology and the bacteriology and pathology departments are on the first floor. In the west wing of this floor is the administrative department, rooms for filing records and statistics, and the library. About 30 yards west of this building are the experimental farm buildings which have a floor area of about 1500 square yards. The part nearest to the building containing the laboratories is occupied by two rooms, where animals under metabolic experiment can be kept in cages. The rest of the building consists of food stores, food preparation rooms, and stalls and pens for the