APPARATUS AND METHOD FOR CLINICAL RECORDING OF THE ELECTRORETINOGRAM

by

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With 7 fig.

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The first attempt to use the electroretinogram (ERG) as part of the clinical examination of the human eye was made by Kahn and Löwenstein (1924), but they finally concluded that the practical difficulties of the method were such as to render it unsuitable for clinical use. Later a number of workers (Hartline, 1925; Sachs, 1929; Cooper, Creed and Granit, 1933; Berhard, 1940; Adrian, 1944) have shown that a satisfactory ERG can be obtained from trained subjects capable of suppressing the blink reflex and maintaining a steady fixation.

With the development of new technique it was possible to improve recording so that an ERG could be obtained from almost any adult (Karpe 1945). However, this new method requires special training and much patience on the part of the investigator as well as an electrically screened room if the results are to be satisfactory and for this reason the method, although giving results of great scientific interest, seemed unlikely to be of widespread clinical value. In order to make the technique simpler, and so more generally applicable, the apparatus described below was designed in collaboration with Dr R. Elmquist, Stockholm.

The active electrode consists of a chlorinated silver rod screwed into a bottleneck in a plastic contact glass. The glass is filled with physiological saline and adjusted well over the centre of the cornea. (Fig. 1) In this way a non-polarisable electrode in satisfactory contact with the anterior surface of the eye is obtained. The contact glasses are made for me by Järnhs Elektriska AB, Stockholm, since the specially made Müller-Wiesbaden glass which I used earlier is no longer available. The indifferent electrode is a chlorinated silver plate fixed to the inside of a plastic head band.

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Fig. 1.
Plastic contact glass.
A chlorinated silver electrode is inserted through the bottle neck opening and applied to the patient's forehead. This head band also carries all the leads from the patient to the amplifier. (Fig. 2) In addition

Fig. 2.
The three leads from the patient.
Left, from the contact glass, (active electrode);
Centre, from the silver plate on the back of the frontal band, (inactive electrode);
Right, from the spring speculum, (protection from interference).