FIXATION DEVICE FOR CENTRAL FIELD EXAMINATION*†

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EXAMINATION of the central visual fields on the Bjerrum screen is easily and accurately carried out when fixation is perfect owing to sparing of the macula. Frequently, however, it is desirable to estimate the central and paracentral fields when the fixation area has been affected. This cannot be done satisfactorily unless the eye which is being examined is accurately immobilized.

Reed (1960) enumerated several methods by which the central field may be investigated when fixation has been lost. These may be summarized as follows:

- (1) Confrontation methods which may show the presence of a central or paracentral scotoma but little else.
- (2) Eye-hand co-ordination, as by placing the nail of the patient's index finger on the fixation target and asking him to look at his finger nail. This can only be done at perimeter rather than screen distance.
- (3) The phenomenon of "completion" may be used. The target is large and consists of a cross or a series of concentric rings. If the eye can see the outer part of the pattern, it may "complete" the inner parts and fix the centre steadily.
- (4) Red/green goggles may be used. In the case of a patient having a central scotoma in the right eye, the left eye fixes a green fixation light through a green glass. The central field of the right is then plotted with a red test light.
- (5) The phenomenon of polarization of light may be similarly used. The patient wears goggles with polarizing lenses. The fixation light and the target light are polarized at right angles to each other, so that the fixation light is seen with one eye and the test object with the other.
- (6) Stereoscopic devices, such as Lloyd's stereocampimeter (Lloyd, 1920), are said by Reed (1960) to be the most satisfactory, but these are not generally available and are not applicable to the Bjerrum screen.

It is the purpose of this communication to describe a simple device‡ which can be used if central fixation is available in the fellow eye. As in Methods 4 and 5 above, difficulties may arise when large degrees of heterophoria are present. The method is not applicable for very small central scotomata.

A conical tube painted dull black has an internal diameter at the large end of

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3.5 cm. and at the small end of 5 mm. The patient sits before the screen, holds the larger end of the tube to his good eye and fixes the central spot on the screen (Fig. 1).

FIG. 1.—The device in clinical use.

The tube limits the field of this eye to the central 2° circle and allows an examination of all parts of the field of the other eye, except the tiny central area which is already covered by the fixing eye, and a surprisingly small triangular area at the nasal edge of the screen which is the only part overlapped by the tube (Fig. 2).

FIG. 2.—Example of central scotoma elicited by the aid of the device. The triangular area on the left denotes the area of occlusion of the tested eye which is produced by the device, and the small hole in the central scotoma denotes the fixation point seen by the "good" eye.

In this clinic the Juler projection scotometer (Lloyd, Houlton, and Purvis, 1953) is used as a routine. Easy changes in the size, colour, and brightness of the test object, and the absence of the "wand", seem to present obvious advantages. The examiner is seated beside the patient and the scotometer and the pad are held in one hand. The other hand is used to plot the field defect directly on to the paper chart without the necessity of using pins on the screen or the automatic recording device sometimes used with this scotometer.

The instrument is small and light, and even the less intelligent patients find it very easy to use. It takes the place of more complicated apparatus and, being hung beside the screen, is instantly available. Field defects, except the very smallest central scotomata, can be readily worked out in a manner which is not easily possible otherwise.

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REFERENCES

- LLOYD, J. P. F., HOULTON, A. C. L., and PURVIS, V. (1953). *Amer. J. Ophthal.*, **36**, 1130.
LLOYD, R. I. (1920). *N.Y. med. J.*, **112**, 944.
REED, H. (1960.) "The Essentials of Perimetry". Oxford University Press, London.