- LIVINGSTON, P. C.—*Brit. Jl. of Ophthal.*, Vol. XVI, p. 577, 1932.
 LUCKIESH, M.—*Arch. of Ophthal.*, Vol. XLIII, p. 382, 1914.
 ——— *Amer. Jl. Phys. L.*, p. 383, 1920.
 LUCKIESH, M., HALLADAY, L. L. and TAYLOR, A. H.—*Jl. Frank. Inst.*, Vol. XCCVI, p. 353, 1923.
 MARTIN, E. K.—*Proc. Roy. Soc. B.*, Vol. LXXXV, p. 319, 1912.
 MARTIN, L. C.—*Trans. Opt. Soc.*, Vol. XVIII, 1917.
 MIETHE and LEHMANN.—*Sitz. Ber. d. Kgl. Preuss. Akad. d. Wiss.*, Vol. VIII, 1900.
 MILLIKAN, R. A.—*The Electron*. Chicago. 1924.
 MULLER.—*Arch. of Ophthal.*, Vol. CXIV, p. 503, 1924.
 PLANCK, MAX.—*The Origin and Development of the Quantum Theory*. Nobel Prize Address. Oxford. 1922.
 POWELL, H. J.—*Glass making in England*. Cambridge. 1923.
 RAWLINS, F. I. G. and TAYLOR, A. M.—*Infra-red Analysis of Molecular Structure*. Cambridge. 1929.
 RHEINBERG, J.—*Phys. Soc. Lond.*, 1920.
 RUTHERFORD, SIR E.—*Proc. Roy. Soc.*, Vol. XCVII, p. 374, 1920.
 SCHANZ, F. and STOCKHAUSEN, K.—*Zeitschr. f. Augenheilk.*, Vol. XXIII, p. 397, 1910.
 VERHOEFF, F. H. and BELL, L.—*Tr. Ill. Eng. Soc.*, Vol. XVI, p. 625, 1921.
 VOEGE.—*Ill. Eng.*, Vol. II, p. 543, 1909.
 VOGT, A.—*Schweiz. med. Wochenschr.*, Vol. LV, p. 425, 1925.
 ——— *Arch. f. Ophthal.*, Vol. LXXXI, p. 155, 1912.
 WOLF, K. L.—*Trans. Faraday Soc.*, p. XXVI, 1930.
 ZSIGMONDY, R.—*Zeitschr. f. Instrumen.*, Vol. XXI, p. 97, 1901; *Ann. d. Phys.*, Vol. IV, p. 60, 1901.

A TRANSPARENT PROTRACTOR FOR SCOTOMETERS

BY

JOHN FOSTER

LEEDS

ANY simplification of the means employed to measure the position of any point upon a "Bjerrum-Screen" represents the saving of a considerable amount of time, and wider use of this most sensitive test. The actual test itself demands an unusual amount of concentration from both patient and examiner, and is often very tiring.

Since in addition, the transfer of the map outlined by the pins on the screen to the chart may take almost as long as the original mapping, many ophthalmologists appreciating this difficulty have employed a variety of methods to overcome it.

White lines on the back of the screen are helpful but the points of the pins are less easy to see than the heads, and the positions of scotomata are reversed. Stitched marks on the face of the screen are satisfactory but there is an absence of numbering which makes frequent reference to the centre, and the vertical, or horizontal, meridians desirable; often the radial lines are as far apart as 30°, calling for approximate estimations of considerable magnitude.

The appearance of a projection scotometer capable of making an almost instantaneous record makes the recording time required for the screen even more objectionable, and incidentally suggested a method for decreasing the gap. It occurred to me that a much less elaborate apparatus would suffice to project the chart upon a "Bjerrum-Screen," namely a projection lantern with a miniature scotometer chart as a lantern slide. Unfortunately I had overlooked the fact that a "Bjerrum-Screen" is especially made to reflect as little light as possible, and the effect is not impressive, a very high degree of illumination obviously being required to project white figures on a black background. This method could still be utilised with a white screen and a black object, provided that the illumination were kept low enough to avoid dazzling, and that if comparative results were required, the black test objects were made slightly larger than the white ones used with a "Bjerrum-Screen," to allow for irradiation. It could also be employed by projecting black lines

FIG. 1.

Scotometer Board with Protractor.

on to the black background, as (since the original writing of this paper, September, 1932) has been done by another author (Tudor-Thomas).

The next method of projecting the chart on to the screen was by means of a transparent protractor which could be laid over the whole screen, sub-divided as closely as required, and with definite numbering at frequent intervals to indicate the meridian and the angular distance from the fixation point.

The protractor is made of heavy transparent cellophane, about as thick as, and similar in some respects to cartridge paper, marked with radial lines and concentric circles. At the 15° intersections of the radii and circles there are red figures to indicate the angular distance from the centre, and white figures to number the radii in degrees in accordance with the usual McHardy convention.

There is a stick attached to the bottom edge, and when not in use the protractor is rolled up upon it.

After the scotometric map of the central field of vision has been made on the "Bjerrum-Screen" the protractor is unrolled either from a roller-blind mounting above the screen as shown above, or pinned to the screen through four eyelet holes, so that the centre of the protractor is over the fixation point, and the upper and lower margins horizontal.

If lighting is suitable (it is best if above and behind the observer) the heads of the pins can be seen through the protractor and a scotoma of any ordinary complexity and size drawn freehand in under half a minute on a chart which bears the same markings as the protractor.

Should the heads of the pins be not visible, it is a rapid and simple matter to stick in a gold-headed pin beside each black-headed pin, the latter being easily seen through the protractor in any reasonably well-lit room.

Alternative methods of fastening the protractor spring to mind, such as snap fasteners, drawing pins, etc. It can also be marked out in any style desired; with equidistant circles instead of the circles corresponding to the tangents at one metre, thereby rendering it suitable for use at any distance with the appropriate tables; or with radii consisting of dots at unitary distance to correspond with charts already in use; and make mapping even more rapid.

The protractor has so far been made for me with only the 26° field for use at one metre, as the maximum width of commercial sheet cellophane is 39 inches. Mr. McKie Reid, of Liverpool, however, has modified the protractor so that a quadrant of the field, instead of the centre, is marked out on it. If the protractor is then suspended over a central point, and moved and reversed so that it

fits each quadrant of the screen appropriately, it is possible to cover the whole of a two metre screen with it.

An illustration is inset Fig. 1, showing the effect of gold-headed pins marking out a scotoma as seen through the protractor mounted as a wall-roller blind. The instrument as shown is inexpensive, and is easily affixed to a wall or an easel.

I am obliged for assistance in the development of this instrument to Messrs. H. M. Traquair, McKie Reid and John Pike.

The instrument is made by Rayner & Co., 100, New Bond Street.

The instrument can be further improved by a system of even illumination from two "Holophane" reflectors, which can hold 60 watt frosted bulbs on iron brackets. These lamps are mounted on iron brackets and at a position 2 ft. above and in front of the upper corners of the screen with a slight inclination downwards and inwards. This is calculated to give an even illumination of 10 foot-candles over the whole black surface. This intensity of illumination is the same as that now in use on the Bjerrum screen at Moorfields.

EXTENSIVE OCULO-PALPEBRAL NEOPLASM; EXCISION OF LIDS AND ENUCLEATION OF THE EYEBALL, FOLLOWED BY OCCLUSION OF THE ORBIT

BY

PROFESSOR DR. ELENA PUȘCARIU

ROUMANIA

IN our practice it is not unusual to meet with neoplasms of the bulb and lids involving the orbit, whether the tumour had in the beginning an epibulbar, or as more frequently, a palpebral origin.

One would vainly look in the ocular surgical treatises for a method to be followed in such cases, which have been probably considered as incurable, and indicated only for radiotherapy.

For such cases I have long since imagined and practised a method which always gives full satisfaction.

The intervention to be here described, should advantageously be preceded by a preparatory treatment in order to get the surface of the tumour as clean as possible, and to destroy the suppuration germs by means of antiseptic dressings (preferably compresses with Dakin's fluid).

As anaesthetics, if the patient be not too nervous, morphia will be sufficient, associated with retrobulbar injections of novocaine-adrenalin. The same solution is used for the infiltration of the integuments needed for the occlusion of the orbit.