SIMPLIFIED INDIRECT OPHTHALMOSCOPE*

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INDIRECT ophthalmoscopy is one of the most important methods of fundus examination, especially in cases of detachment of the retina. The advantages of this method over direct ophthalmoscopy include a larger field of view, a more brilliant image, and a greater depth of focus. It is especially valuable for the examination of the highly myopic eye. The stereoscopic view obtained with the binocular indirect ophthalmoscope separates the fundus picture into its component layers, which is very helpful in the differential diagnosis of retinal from choroidal lesions (Fison, 1959).

Indirect ophthalmoscopy was introduced by Ruete (1852), who used a silvered mirror and a strong convex lens. The source of illumination was later improved (Arruga, 1946; Epstein, 1950; Anderson, 1952), and the mirror was superseded by binocular devices to provide a stereoscopic view of the fundus (Schepens, 1952; Donaldson, 1958; Fison, 1963).

A further modification is here proposed, in which the condensing lens is fixed to the patient's head instead of being held in the observer's hand.

Description of the Instrument†

FIG. 1.—The instrument, showing jointed arm supporting lens.

The instrument (Fig. 1) consists of an adjustable head-band to which is attached a ball-and-socket joint (A). Attached to this joint is an arm terminating in a hinged joint (C) which carries a further arm of the same length to which is attached a further ball-and-socket joint (B), which holds the lens. The combination of these three joints allows movement in all directions, so that the lens can be positioned and focused much more easily. Joints A and C allow movement of the lens for crude adjustment at the start of the examination, and joint B allows fine adjustment of the lens whilst searching for peripheral tears.

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† The instrument may be obtained from Clement Clarke Ltd., London, W.1.

Method of Use

Figs 2 and 3 show the instrument in use. It is essential to have the pupil well dilated, and the head-band must be carefully placed just above the patient's eyebrows with joint A in the centre (this allows the lens to be swung from one eye to the other with the minimum of adjustment—Fig. 4).

FIG. 2.—The instrument in use, leaving one hand free.

FIG. 3.—The observer, having focused the lens, has both hands free to depress the sclera and to draw the fundus.

FIG. 4.—Focusing right or left eye without adjusting head-band.

The instrument has the following advantages:

- (1) The design is simple.
- (2) The lens can be very easily focused.
- (3) The view is steady, because the magnifying lens is attached to the patient and not held in the observer's hand. This facilitates fundus drawing, an essential preliminary to any detachment operation.
- (4) The observer's hand no longer needs to stretch forward to hold the condensing lens, and is now free. The observer using a binocular self-illuminating ophthalmoscope will have both hands free to manipulate the eye (Fig. 3), as for example during surgical procedures or when depressing the sclera in the manner described by Schepens (1955) and Brockhurst (1956).
- (5) The instrument is useful in demonstrating the image of the fundus to students by first focusing the lens so that each student can examine the fundus without moving the lens.

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