APPLIANCE

INFRA-RED IMAGE CONVERTER IN ROD SCOTOMETRY*

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How frequently has one wished one could see in the dark? In ophthalmic practice it is often desired to observe a patient performing tests in the dark without affecting the night vision or introducing a reference point of visible light. These difficulties can be overcome by the use of an infra-red image converter.

Apparatus

The converter consists essentially of a source of infra-red light. In the instrument used in this experiment it was a car head-lamp with an infra-red filter in front, and an electronic device to convert these rays when reflected off the object into an image "painted" on a small fluorescent screen. A telescope can be incorporated to give a magnified image.

With this apparatus it is possible to see very small eye movements while the patient is quite unaware of any light falling on his eyes. The only sensation experienced by the patient is a feeling of warmth on the face.

FIGURE.—Diagram of arrangement of apparatus.

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When undertaking rod scotometry using a Livingston Night Vision Screen with self-luminous test object, it is essential to ensure that the patient maintains fixation on the central target without introducing any other source of retinal stimulation.

Application

Two particularly difficult cases were examined by this technique, and the visual fields were plotted by Squadron-Officer Gwilt (orthoptist to the Royal Air Force) whilst they were being observed by the author.

The patients were children suffering from Little's disease who had undergone hemispherectomy operations. Their intelligence was slightly impaired and because of their physical deformity it was extremely difficult to maintain their interest and co-operation.

The observer sat alongside the Livingston screen on the opposite side to the examiner, and from this vantage point he could see the patient's eye movements clearly through the converter. By reporting to the examiner when the patient was looking away from the screen, or was following the test object, inaccurate plots could be avoided. It was found that when it was pointed out to the patient that he was looking off-centre, he would renew his concentration and maintain his fixation. Similarly, false readings due to deliberate cheating could be checked.

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