

binding powers, as that of 8-hydroxyquinoline is⁵. Dr. A. J. Tomlinson, who has kindly compared these substances on *Staphylococcus aureus*, reports that the tetracyclines kill much more slowly than 8-hydroxyquinoline and, unlike the latter, are highly active in iron-depleted media. In any event, knowledge of the metal-binding properties of these drugs is valuable because in the human body they cannot fail to combine with metallic cations. Model experiments⁶ have shown that the practice of giving alumina with the tetracyclines (to prevent gastric irritation) completely inactivates them, as the constants given here would suggest.

We thank Dr. B. L. Hutchings of Lederle Laboratories for the chemically pure tetracycline.

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Stabilized Interference Fringes on the Retina

A METHOD of producing a stabilized retinal image (that is, an image which is stationary on the retina) was first described in *Nature*¹, and other work has been reported elsewhere²⁻⁴. Here we describe a method of producing a stabilized image with interference fringes. A cylindrical unit 6 mm. in diameter and 3 mm. thick is formed by cementing a calcite crystal between two pieces of 'Polaroid'. This unit is cemented to a steel ball which fits tightly into a ball-socket joint on a stalk fixed to a contact lens as shown in Fig. 1.

If convergent light is incident as shown, the subject wearing the contact lens sees a pattern of rings and brushes when the eye is focused for infinity. The centre of the pattern is in the direction of the optic axis of the calcite and the image on the retina is

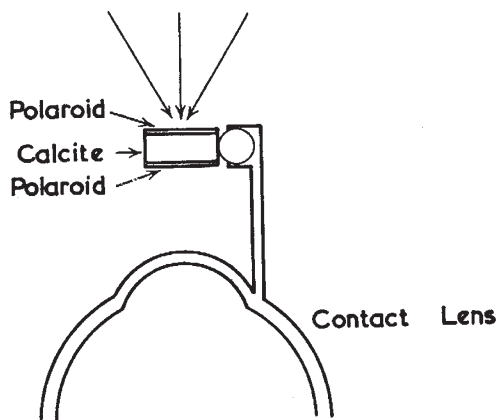


Fig. 1

stabilized provided that this axis is fixed relative to the optic axis of the eye. It has been previously shown^{5,6} that a well-fitting contact lens follows small eye movements very accurately.

When the subject first looks at a suitable source, the fringes are clearly seen but they fade in a period of 1-5 sec., leaving a grey field which sometimes goes black. This fade-out persists for about 10 sec., after which the eye makes a sharp and uncontrollable movement and the fringes are again seen very clearly. Sometimes the fringes reappear much less clearly and over only a part of the field without any violent movement of the eye. The fade-out has been observed at the very high brightness obtained by allowing the subject to view a bright cloud through the unit. With light interrupted at a suitable frequency the image does not fade out.

Other ways of producing stabilized fringe systems on the retina are being investigated. A sharp fringe pattern has been obtained by substituting a small Fabry-Perot étalon for the 'Polaroid'-calcite unit and the fade-out has been observed with this arrangement.

The method here reported is not suitable for certain types of experiment which can be carried out with the apparatus previously described³, but for some experiments it has considerable advantages of simplicity and convenience.

This work is assisted by a grant from the Medical Research Council.

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Bombardment of Glass by Alpha-particles

IN the course of work previously carried out elsewhere, the production of a solid amorphous deposit in soda-glass vessels containing solutions of radium salts was observed; visible quantities were produced, for example, in six months by a solution containing 3 mgm. of radium (as chloride) in 25 ml. of solution. Recently, further investigations have been undertaken on this effect, which is attributed to the physico-chemical breakdown of the surface of the glass following α -particle bombardment.

The solid formed by the action of strongly α -active solutions upon glass is of an amorphous flocculent nature and off-white in colour. After thorough washing, spectroscopic analysis of a typical sample showed silicon as the only major constituent. The solid is strongly adsorbent. Irradiation of glass by a 30-curie cobalt-60 source to give absorption of a γ -ray flux comparable to the α -particle energy deposited, followed by prolonged digestion with water on a steam-bath, did not bring about any formation of solid material in the digesting liquid.

In the present experiments, radon was used as a source of α -particles. Irradiations were carried out in the presence and absence of water; subsequent digestion at 80° C. with dilute acid produced solid