but Lennard-Jones and Corner\textsuperscript{1} were able to show, on the basis of dimensional considerations, that the parameter is proportional to $P^{2/3}$. For non-associated organic compounds, including those in which the molecules are so unsymmetrical as to restrict rotation in the liquid state, they found that the formula

$$\rho = 0.410 \frac{P^{2/3}}{c}$$

gave slightly better agreement than that of Ferguson and Kennedy. Examination of the available data for liquids of this type reveals that formula (2) is definitely superior to that of Ferguson and Kennedy, and is in general slightly more accurate than that of Lennard-Jones and Corner.

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Charcoal prepared from pine wood and coconuts and also some lightly charred sugars (saccharose, glucose) give a fairly intense paramagnetic resonance line. This line disappears in charcoals activated at 900° C. in presence of combustion gases and steam. No line appears in crude oils; but one is found in pitches which are residues from crude oil distillation. It can be said that paramagnetic resonance appears when carbohydrates are damaged either by Nature, as in coals, or artificially by heating, as in charcoals, sugar charcoal and pitches. The same line appears if the samples (woods, sugars) are irradiated by $\gamma$-rays, as was found by two of us\textsuperscript{6}, which suggests the same sort of damage. This paramagnetic resonance cannot be attributed to a specific defined structure at present; but further experimental and theoretical work is being carried out.

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Electroretinal Photopic Sensitivity Curves

Since Adrian\textsuperscript{1} first suggested the existence of separate rod- and cone-components in the human electroretinogram, there have been attempts to isolate them so as to demonstrate the degree to which their spectral sensitivity curves adhered to scotopic or photopic patterns.

Thus Rigs, Berry and Wayner\textsuperscript{2} determined the function for the $B$-wave. With a 7:5° foveally centred stimulus-flash, the curve closely resembled the scotopic function but was displaced toward the blue. Armington, Johnson and Rigs\textsuperscript{3} derived a similar curve for the $A$-wave of the dark-adapted eye. Again excess blue-sensitivity appeared. Boynton\textsuperscript{4} has supposed this to be related to the part played by stray light. With small stimulus areas a significant portion of the electrical response is due to light scattered over the peripheral retina, outside the foveal area. One contributor is Rayleigh scatter, varying as an inverse function of the fourth power of the wave-length, scattering blue more than red. To support this interpretation, Boynton shows that divergence from scotopic values is less when larger areas are used. Johnson and Armington\textsuperscript{5} have confirmed this, demonstrating that with full-retinal stimulation, using an integrating sphere, electrical sensitivity curves for the $B$-wave of the dark-adapted eye coincide with the usual scotopic luminosity curve. Armington\textsuperscript{6} has fitted data for the $X$-wave (Motokawa's designation for Adrian's photopic component) to the CIE photopic luminosity curve. With the photopic receptors we expect stray light to have less effect. Cones are concentrated near the fovea and are supposed (cf. Stiles-Crawford effect\textsuperscript{7}) to be directional. It is disconcerting to find that the $X$-wave curve diverges from the photopic curve just as the small-area $B$-wave curve diverges from the scotopic function. No one has used full-retinal stimulation to elicit the $X$-wave. We cannot say whether such a procedure would bring the $X$-wave.
results into line. Armington speculates that it might not. He has used night-blind subjects and found some alleviation of the disparity. This suggests that the X-wave of the normal-seeing person, as elicited by Armington's procedures, is partly of scotopic origin or, alternatively, that the peripheral cones of his night-blind subjects had been affected so that the effect of stray light was diminished even though a 'pure cone' index was being observed.

To throw additional light on the problem we have employed a technique suggested by Dott¹, in a communication in Nature in 1951. He affirms, and we agree, that with a stimulus flickering above a rate of about 20 per sec., scotopic responses appear to fuse, manifesting the equilibrium characteristic of steady illumination. Responses synchronous with 30 per sec. flashes should represent activity of the faster responding photopic system. In the dark-adapted eye there is an initial B-wave, following which the 30 per sec. fluctuations appear. These may continue, unaltered, for several minutes. Records taken after different lengths of time in darkness differ only in the size of the initial B-wave.

Using 4 per sec. flashes (to which the above argument does not apply), and delivering these to the light-adapted eye, we confirmed Armington's findings for the normal eye. Total height of response was measured, from trough of A to peak of X. Fig. 1 shows the form of the curve obtained using a 20-μV response criterion. Excess blue-sensitivity is apparent. (Apparatus and treatment of results in this work were similar to those employed in refs. 2-6.)

With 10-msec. flashes delivered to the dark-adapted eye at a rate of 30 per sec., and using a 10-μV trough-to-peak response criterion, the 'sensitivity curve' (Fig. 2) resembles the photopic more than the scotopic function, but is still displaced slightly toward the blue and is less sharply peaked.

We must either consider the hypothesis that Rayleigh scatter contributes to the photopic electroretinogram, as it does to the scotopic, or we must admit that neither the employment of night-blind subjects nor the use of flickering stimuli prevents intrusion of a blue-sensitive system, presumably the scotopic, which contributes to the electroretinogram yet fails to show itself during determination of the photopic luminosity curve by the standard procedures.

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A Disease Epidemic in Fish

An epidemic has occurred in a fish culture of Tilapia mossambica in Southern Rhodesia during June 1954. The disease had a mortality of more than 90 per cent of the exposed population. Barbus species were also affected. Fungus was seen mostly on the extremity of the dorsal fin but frequently occurred on the caudal peduncle, the tail and on the inter-orbital region. Affected fish were seen lying in shallow water and gasping at the surface. The intestine was filled with a clear gelatinous fluid. No macroscopic gill lesions were noticed. Although cold (below 56°F.) seems a predisposing factor, the etiology is not clear. Helminth cercariae may be implicated as well as fungus. Histologically gill necrosis associated with an invasion of conidia-like bodies, and kidney and liver cloudy swellings are present.

Further details will be published later.

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