The character of these phenomena offers some basis for explanation of the structure of this layer: it may be composed of separate moving masses, shielding the Kennelly-Heaviside layer (as does a cloud, when it covers the sun) or produced by some variable agent, and is able to appear and disappear very rapidly. Further light might be thrown on this question by comparing moments of echo cessations at two points not very far apart.

No correlation was found between the changes taking place in the *E* and *F* layers and the presence or absence of the absorbing layer. Therefore the absorbing layer must be considered as an independent formation quite apart from the *E* layer and due to other agencies than the *E* and *F* layers.

There is undoubtedly direct correlation between the phenomenon of echo cessation and magnetic activity.

The difficulty caused by magnetic storms of maintaining continuous wireless communication over high latitudes may be attributed to the existence of the absorbing layer.

These results agree in general with those obtained by Prof. E. V. Appleton during his observations at Tromsø (NATURE, Sept. 2, p. 340).

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Basking Shark in the Bab el Mandeb

WHEN passing through the Strait of Bab el Mandeb in November 1933 on board the Dutch mail steamer *Johan van Oldebarnevelt*, my attention was directed to the fact that a big fish was fastened on the bow of the vessel. So long as the latter continued running at full speed, the shape of the fish could not well be determined. It was evident only that the enormous tail was turned to the right side and could be seen moving now and then as if the fish were still alive, the tip reaching the surface of the water occasionally.

After the vessel had diminished its speed and finally stopped, what I had suggested was confirmed, namely, that we were dealing with the big 'whale shark' or 'basking shark' (*Rhineodon typus*). The shape and the very conspicuous colour-pattern (white lines, intersecting each other at right angles, and white blotches on a black ground) could be very clearly distinguished. The animal had been 'rammed' by our vessel in a similar way to that already recorded by E. W. Gudger for the same species in a few cases, just behind the left pectoral fin, so that it could not free itself and remained fastened with the left side of the back to the sharp bow of the ship. After the ship had stopped the fish got free, showing a big wound on the left side and sinking down slowly into the depth. I could not state with certainty whether it was still alive. I estimate its length at 6–8 metres.

As stated above, similar cases of this kind have been recorded by Gudger, namely, one that happened near Abrolhois Light off the coast of Brazil, and another near the mouth of the Sassandra River in the northern part of the Gulf of Guinea.

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New Methods for Direct Visualisation of Ultra-sonic Waves and for the Measurement of Ultra-sonic Velocity

MEASUREMENTS of ultra-sonic velocities in liquids can be easily made by the method of Debye and Sears or Lucas and Biquard[1], who used the periodically alternating densities produced in a liquid by ultra-sonic waves as an optical grating. Such measurements have been made in this department at the suggestion of Prof. H. Falkenhagen, who wanted more precise data on the compressibilities of electrolytic solutions. In the pursuit of these researches we have found it preferable to visualise this 'optical grating' directly instead of using it for the diffraction of light. Details of the new method will be given in a forthcoming publication in the *Zeitschrift für Physik*. The picture reproduced as Fig. 1 is a photomicrogram of a stationary ultra-sonic wave formed at a convex mirror in xylol, frequency about 4500 kHz. It is possible to measure the distance of the nodal lines very precisely. By measuring a great number of nodal lines, we are able to make measurements of ultra-sonic velocities in liquids with the highest precision.

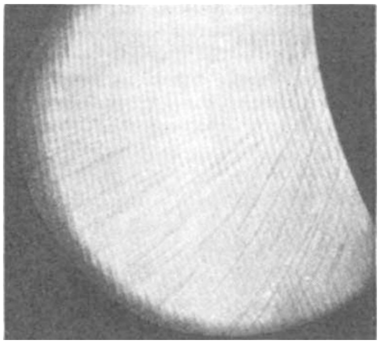

FIG. 1. Stationary ultra-sonic wave formed at a convex mirror.

In order to clear up some theoretical problems on which such successful pioneer work was done by R. W. Boyle[2], it is necessary to use progressive waves instead of stationary ones. We succeeded also in the direct visualisation of ultra-sonic progressive waves by using a high-frequency stroboscope based on the principle of the Kerr cell. This enables us to study a sound field without disturbing the field itself. We can also measure directly with a microscope or a comparator the distance of subsequent wavefronts of progressive ultra-sonic waves. This is another new method for the measurement of ultra-sonic velocity with the highest precision.

The advantages of our new methods will be discussed elsewhere shortly.

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[1] P. Debye and F. W. Sears, *Proc. Nat. Acad. Sci.*, **18**, 410; 1932. R. Lucas and P. Biquard, *J. Phys. et le Rad.*, **3**, 464; 1932.

[2] R. W. Boyle, J. F. Lehmann and C. D. Reid, *Trans. Roy Soc. Canada*, **19**, 167; 1925; and many other papers by Boyle and coworkers.