some description of the method of anode rays and of the work of Bainbridge in the chapter headed "Positive Rays"; some explanation of the general methods of quantization before, for example, fourteen pages are devoted to the calculations on the Stark effect; some mention of the work of Hartree and others where the old work on electron distribution is discussed; and, in short, all the other fundamental points which, as I point out in my review, are completely neglected—is going to be described in a second volume; and secondly, that I ought to have known this from the passage which he quotes from the preface. The answer is, first, that the passage which he quotes does not say this, and, secondly, that even if it did, this is, *in my opinion*, a bad way of writing a book, especially as Prof. Saha's disciples are still awaiting the second volume which shall explain the first. In my opinion—but Prof. Saha says that my opinion is not worth much. For all I know he may be right, but there his quarrel is with the Editor, who invited me to give it, and not with me. In any event, Prof. Saha's remark that the authors "do not propose to bother about the *ex cathedra* remarks of the reviewer" on methods of teaching absolves me from the distasteful task of spending further time on Prof. Saha's favourable review of this volume of his book. I look forward, however, to reading his review of the second volume.

E. N. DA C. ANDRADE.

'Lines' on the Surface of Moving Water

SINCE reading the interesting accounts of this phenomenon by Prof. W. Schmidt[1] and Prof. H. Stansfield[2], I have noticed several striking instances which yield a clue to their cause. They occurred on the surfaces of clear country streams bridged by planks that touched the water, obstructions which, mechanically, resemble the mill-stream example described by Prof. Stansfield. Evidently the macroscopic agent causing the sudden change in velocity need penetrate only to a very small depth.

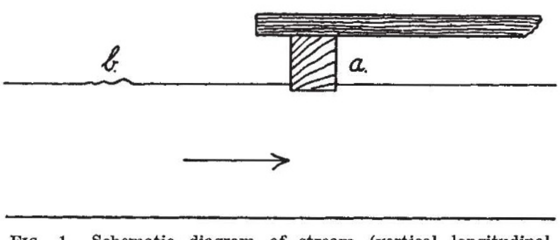

FIG. 1. Schematic diagram of stream (vertical longitudinal section); *a*, beam penetrating surface; *b*, surface line and secondary waves.

In the case illustrated, the 'line' was remarkably stable at an average distance of about 40 cm. from the bridge, and the conditions such as to be easily reproducible in a laboratory. The stream was about 1·3 m. wide and 40 cm. deep. The water flowed without visible turbulence and with a mid-stream surface velocity of about 25 cm. per sec. Fig. 1 represents a vertical, longitudinal section of the stream and foot-bridge, which touched its surface across the full width. Close to the line on the up-stream side was a series of parallel waves of diminishing amplitude and stationary with respect to the line. These secondary waves are clearly visible in the photograph (Fig. 2), and the reflections of overhanging foliage demonstrate the relative tranquillity of the surface between the line and the obstruction causing it.

In a wider and more slowly moving portion of the stream, a similar bridge had collected a band of scum. Here the line occurred nearly a metre above the scum, and secondary waves were visible only when the line was disturbed by winds, to which it was more sensitive than the line photographed.

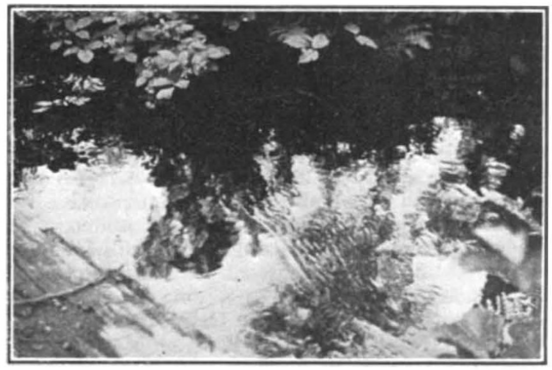

FIG. 2. Photograph of a particularly stable 'line'.

The experiments recorded in previous letters concerning the behaviour of floating particles and the effect of soap were repeated. The initial position of the line depends on the velocity of the stream, whilst the extent of its temporary displacement up-stream caused by substances affecting the surface tension depends on the velocity of the stream, and on whether the addition is made up-stream or down-stream relative to the line. Qualitatively, the observations, including the 'oil-patch' effect, are consistent with the idea that the line marks the boundary of a surface film of colloidally dispersed material under lateral compression caused by movement of the water.

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[1] NATURE, **137**, 777 (1936).
[2] NATURE, **137**, 1073 (1936).

Habit and Shell-shape in the Portuguese Oyster, *Ostrea angulata*

IT is known that the form of the shell of Portuguese oysters (*O. angulata*) living on the shore is different from that of individuals living permanently below tide-marks[1]. In the latter the shell is relatively very broad, in the former long and narrow, almost in the shape of a shoe-horn with the hinge at the narrow end. No explanation of this difference in shape could formerly be offered, but in a recent inspection of extensive inter-tidal beds of Portuguese oysters in the River Blackwater, to which I was courteously invited by Mr. Louis French, a probable explanation of the prevailing elongate-shaped shell suggested itself.

The oysters were lying on the normal muddy bed and had recently put on extensive new shell growth which was concentrated mainly at the end of the shell remote from the hinge; in almost all cases, the new growth was turned up from the substratum, whichever way the oyster was lying, so that in crossing the beds one walked on the sharp protruding shell-edges. As increments in shell-area are laid