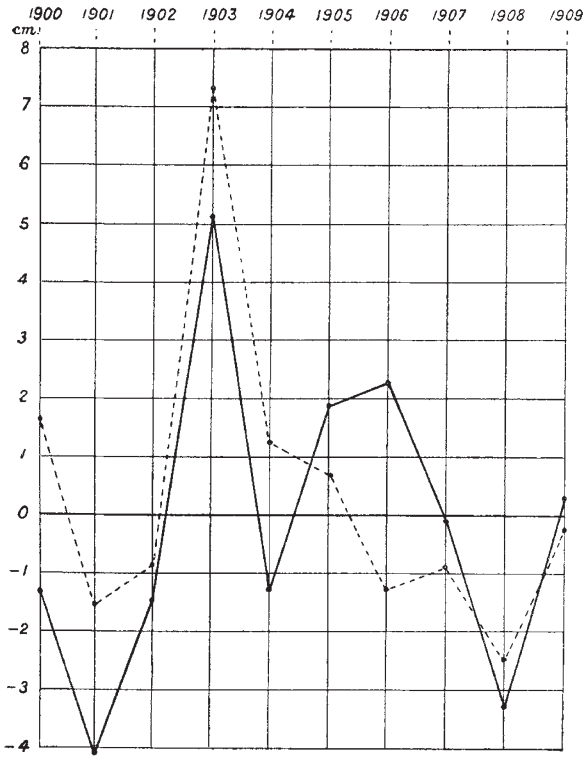
extended by the author, who is director of the Laboratory of Physiology and Technology of Fermentations at Copenhagen. The new work is a remodelling of the first edition, and due regard has been paid throughout to the advancement of this branch of applied science during the last decade. The absence of an index is scarcely compensated for by the somewhat full table of contents.

LETTERS TO THE EDITOR.

[*The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts intended for this or any other part of* NATURE. *No notice is taken of anonymous communications.*]

Variation of Mean Sea-Level.

THE many papers which have been written in recent years upon the above subject have dealt chiefly with the now well-known annual fluctuation (first noticed by Lord Kelvin nearly fifty years ago), by which the mean intertidal level of the sea stands on our North Sea and Baltic coasts something like 20 cm. higher in



Mean annual heights of mean sea-level, 1900–9, compared with the mean for the whole period. – – – – – At Dundee. ——— Mean of fourteen Danish and German ports, after Dr. Brehmer.

autumn than in spring. But while we still know too little about the details and the causes of this phenomenon, we know much less about the fluctuations of longer period, or even of the elementary facts of correspondence between different coasts in regard to the mean level in successive years.

A paper published a couple of months ago by Dr. Brehmer, of Hamburg, in the *Annalen der Hydrographie*, gives a valuable set of data for the years 1900 to 1909, drawn from fourteen German and Danish ports, from Bremerhaven to Memel. The results at all these ports are very concordant, and all show a remarkable elevation of mean sea-level in 1903. I had lately been analysing the tide records at Dundee (for the years 1897–1912), and the correspondence of the mean annual values at Dundee with Dr. Brehmer's observations, as the accompanying diagram shows, is so remarkably close as to deserve particular attention. Only between the years 1905–7, and especially in 1906, is there any noteworthy discrepancy.

D'ARCY W. THOMPSON.

August 1.

On the Transmission of X-Rays through Metals.

WHEN a beam of X-rays is allowed to pass normally through thin rolled metal sheets and fall upon a photographic plate placed behind and parallel to the sheet, some curious patterns are obtained.

These patterns fall into two classes: (*a*), in which the central spot produced by the direct beam is surrounded by an irregular halo of smaller spots, and (*b*), in which the central spot is surrounded by faint extended patches forming a *perfectly symmetrical pattern*. The design varies with the metal.

Class (*a*) markings are given by metal sheets which are either well aged or recently annealed, while the symmetrical patterns of class (*b*) are only obtained with newly rolled sheets. The spots of the former are due to reflections from the microcrystals within the metal, while the symmetrical patterns of the latter are produced by the structure imparted to the metal in passing through the rolls. These star-like patterns are evidently analogous to those obtained when a beam of light passes through a crystal which appears streaky to the naked eye. By annealing a newly rolled sheet the pattern changes from class (*b*) to class (*a*) and *vice versâ*.

It will be of interest to study the nature of the structure which gives rise to the symmetrical patterns.

H. B. KEENE.

University of Birmingham, August 7.

A Red-water Phenomenon due to Euglena.

A PHENOMENON of dichromatism in Euglena precisely similar to that described by Prof. Arthur Dendy in NATURE of August 7 was recorded by me in *The Essex Naturalist* in 1890 as occurring at Donyland Heath, near Colchester. During July and August the surface of the largest pond on the heath was almost completely covered with a film which was red in the morning and turned to green in the afternoon. I watched the change take place on August 3 at noon, the transformation taking about half an hour. The omen of blood was viewed with some alarm by the superstitious in the village, and was held to betoken some ill for the community. After the heavy rains of August the pond was quite clear of the film, and no earthquake occurred.

Dr. D. D. Cunningham mentions, in *Science Gossip*, 1886, a similar phenomenon in tanks around Calcutta.

Colchester, August 8. CHARLES E. BENHAM.

The Ribbon-Fish.

A SPECIMEN of the rare, deep-sea ribbon-fish, *Trachypterus arcticus*, which was landed at the Grimsby market recently, has been sent to me. The following details of the specimen are perhaps worth reporting:—Length, 5 ft. 8½ in.; greatest width, 10¾ in. No anal or pelvic fins. Caudal fin not axial, and the ventral portion without fin rays. Base of pectoral fin horizontal. Dorsal fin with 154 smooth rays. Teeth small but sharp. Skin silvery, and spinous on the ventral edge of body and along lateral line. Eye 3 in. in diameter. Lower line of body straight.

F. J. COLE.

University College, Reading, August 2.