

## LETTERS TO THE EDITOR.

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## End-Products of Thorium.

MR. J. R. COTTER's letter on this subject (NATURE, January 30), stating that he has been unable to detect the presence of thallium in thorianite, and is confident that it does not contain even 0.005 per cent., is in accord with other evidence of which I have been given private information. I may say, however, that the actual amount of thallium I separated from 20 kilograms of thorite was very small, certainly less than 0.005 per cent., though no particular precautions were taken to effect a quantitative separation, as its presence was only detected during the working up of the whole quantity for lead. Prof. Joly has pointed out (NATURE, June 7, 1917) that the hypothesis of the instability of the major end-product of thorium involves the explanation of the disappearance from the 20 kilograms of mineral of 150 grams of unstable lead, whereas the structure of the thorium halo gives no support to the view that unknown  $\alpha$ -ray changes occur in the thorium series.

Not only against the particular suggestion as regards thallium, but also on the general one that one of the end-products of thorium is unstable, the evidence appears now to be against the view. I have no new observations to offer, but Mr. Lawson, writing to me recently from the Radium Institut, Vienna, refers to researches carried out there by Prof. Meyer and others, from which the conclusion has been drawn that both the isotopes of thorio-lead appear to be stable. Referring to elements which an unstable lead could conceivably produce, he mentions my observation of the presence of appreciable quantities of iodine in thorite and the possibility that this may be "eka-iodine" of atomic number 85. I may say that this point was thoroughly investigated four years ago by Mr. J. A. Cranston, who determined its atomic weight, and found it to be that of ordinary iodine.

FREDERICK SODDY.

## The Neglect of Biological Subjects in Education.

PROF. BOYCOTT's letter on this subject in NATURE of January 23 deserves the serious attention of those who are striving to secure, as an element in our higher education, some sound knowledge of elementary science and of true scientific method of thought. Quite apart from the important and useful information which would be incidentally acquired from well-directed biological teaching, the student would thus receive an excellent schooling in how to think clearly. It is constantly forgotten that an immense proportion of the subject-matters which concern human beings in their everyday life are on the "biological" side of the border-line which conventionally divides them from the domain of "physics."

It has frequently been shown how ignorant many men in very high places are of the elements of chemistry and physics. To illustrate such lack of knowledge of simple biology would be a very easy task. But the value of some really sound instruction in biology, even only as a mental training, should be widely recognised.

H. BRYAN DONKIN.

London, January 30.

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## Scientific and Practical Metric Units.

IN the article entitled "Scientific and Practical Metric Units" which appeared in NATURE of October 24, 1918, reference is made to the convenient bridge to the metric system which exists in the ton, and the author asks for a convenient monosyllabic name for a weight of about 2.2 lb. I would commend for consideration the word "seer." The Imperial Indian seer, in common use all over India on the railways, weighs 2.05 lb., and would be as convenient a bridge to the metric system for India as the ton would be at home.

In many parts of Madras the local measuring seer for grain weighs a little more than 2 lb.

G. R. HILSON,

Deputy Director of Agriculture.

Bellary, Madras, S. India.

December 7, 1918.

## THE ECLIPSE OF THE SUN ON MAY 29.

IT has been found impossible to organise any British solar eclipse expeditions since those sent to Sweden and Russia in the summer of 1914, just before the threat of war arose. Consequently, advantage is being taken of the cessation of hostilities to arrange for the occupation of two stations in the eclipse of next May by parties sent out by the Joint Permanent Eclipse Committee of the Royal and Royal Astronomical Societies. This eclipse is noteworthy for the long duration of totality, which is 6m. 50s. in mid-Atlantic, and 5m. 13s. at each of the selected stations. The duration of totality in the eclipses of the same series in the Saros cycle has been gradually increasing, and will reach a maximum of about 7m. 8s. in June, 1955, in the neighbourhood of Manila; this duration will exceed that of any eclipse in the preceding millennium.

The track of totality next May crosses the entire breadth of South America and Africa. For stations of tolerable accessibility and sufficiently high sun, our choice is restricted to north-eastern Brazil and equatorial West Africa. There is a rather serious error in the maps of the eclipse printed in the ephemerides; they indicate the track of totality as lying to the south of the Liberian coast, but totality will, in fact, be observable on that coast, and the duration of totality and height of sun are greater than at any other land station. However, the weather prospects are not favourable, and it is not proposed to occupy a station there. The selected Brazilian station is Sobral, in Ceara, about 80 miles inland, connected by railway with Camocim, which is reached by steamer from Para. Messrs. Crommelin and Davidson, of the Royal Observatory, Greenwich, are going there, while Prof. Eddington and Mr. Cottingham will occupy the Portuguese island of Principe, 110 miles distant from the African coast, which is reached by fortnightly steamer from Lisbon.

Other possible stations are the African coast, near Libreville, or the high ground to the west of Lake Tanganyika. The weather prospects at the latter place are the best along the track of