have been made between the present sea-beds and the Chalk, the Gault, and the Greensands, which appear to be among the deepest water deposits now accessible as dry land. Instead of this we are merely told that chalk "must be regarded as having been laid down rather along the border of a continent than in a true oceanic area" (NATURE, p. 134). All geologists are aware, since the publication of Dr. Gwyn Jeffreys' address to the British Association, and the appearance of Mr. Wallace's "Island Life," that some naturalists regard the Chalk as a shallow-water formation, but the former opinion, pronounced as it was by one of the most competent judges, was based exclusively on the present habits of the very few genera of Mollusca that have survived from the Chalk period, and seems quite in contradiction to the far more important groups, the Sponges, Echinodermata, and the minute organisms of which the formation is so largely composed, while no opinion has yet found its way into the hands of geologists regarding the depth of water indicated by the Crustacea and the fishes of the Chalk. Mr. Wallace's collation of the Chalk, as a formation, with the decomposed coral mud of Ooahu, is so fantastic as to have failed to carry conviction to the mind of any competent geologist. The points of resemblance between some Globigerina ooze and the Chalk are so numerous and peculiar, that surely the assertion that the latter is a littoral formation, while the former is oceanic, requires strong support. The relative analyses of chips from the Chalk and of Globigerina ooze, quoted by Mr. Wallace, are not by any means final or conclusive. We all know that the silica has been removed and segregated into flints from the White Chalk at Shoreham, and that the iron and other metals are also segregated into crystallised masses, so that a comparison of the Chalk, minus these, is misleading. In like manner the Grey Chalk at Folkestone has lost all its oxide of iron by segregation and crystallisation, and many of the layers are cherty, and unduly rich in silica obtained probably at the expense of other layers in which it is now relatively scarce. During the ages that Chalk has been elevated and has acted as a sponge for the collection of rain water, who can say what other of its constituents may not have been dissolved away or metamorphosed? Siliceous sponge skeletons have been replaced by calcite, calcite shells have been replaced by silica, whilst aragonite shells have been entirely dissolved away. In like manner, can it possibly be contended that the absence of volcanic matter in the Chalk is an important distinction between it and Atlantic ooze? It is an accidental lithological distinction, but nothing more, and merely shows that volcanic dust was not being ejected in the same masses as at present. The Cretaceous and Eocene eruptions, so far as I am aware, are all fissure eruptions of vast magnitude, and the contemporary rocks in their vicinity seem to show that they were not accompanied by the showers of ash that mark eruptions from craters at the present day. Messrs. Renard and Murray have had exceptional opportunities of studying this question, and have no doubt convincing proofs of their statement regarding the littoral character of the Chalk deposit; but I really think that, considering the national character of the undertaking which made the collection of proof possible, it should no longer be withheld. Geologists at present, supposing my feelings are generally shared, are asked to believe that an enormous formation, which shows little, if any, trace of the proximity of land, and abounds with the remains of deep-sea life, was laid down upon a coast-line; but beyond the extravagant assertion that it is decomposed coral-mud no reasons whatever for this belief are brought forward, nor are any areas pointed out in which an equivalent to the Chalk is in course of deposition. I cannot conceive why our official geologists have ignored this, one of the most important questions in the whole range of the science. It is little to our national credit that, having spent vast sums in the collection of evidence, we are still in the dark as to its geological significance.

J. STARKIE GARDNER

A Rhyolitic Rock from Lake Tanganyika

THE interesting note by Dr. H. J. Johnston-Lavis on a volcanic rock from the shores of Lake Nyassa (NATURE, p. 62) calls to my mind a couple of specimens in my collection which, with not a few others of interest, have perforce remained for some time undescribed. They were given to me by N. F. Robarts, Esq., F.G.S., who received them from Capt. Hore of the London Missionary Society, by whom they were collected at Cameron's Bay on the south-west of Lake Targanyika, a little north of the Lofu River. As they are evidently fragments of the same kind of rock, I have only had a slide prepared from one of them. The rock is externally of a pale yellowish- to reddish-gray colour; compact, but exhibiting faint traces of a fluidal structure, with occasional spots resembling small crystals of decomposed felspar. A fresh broken surface, however, shows the real colour to be a purplish brown, streaked and mottled with a pale reddish tint. Microscopic examination shows that the rock is a rhyolite, somewhat darkened with numerous specks of disseminated ferrite, with many clearer bands, indicative of a fluidal structure. In this matrix are scattered crystals of decomposed felspar, not exceeding ·1 inch in diameter, and a few plates of a ferruginous mica, also exhibiting signs of decomposition, with two or three granules of quartz. With crossed Nicols a minute devitrification structure is exhibited by the slide as a whole, and this is coarser and stronger in the clearer bands. Here crystalline quartz is developed, which assumes with the felspars on occasion a spherulitic or sometimes approximately micrographitic structure. The larger felspar crystals are rather decomposed, but orthoclase and a plagioclastic felspar can be recognised. Many distinct granules of iron peroxide (? hæmatite) are scattered about. Examination with high powers causes me to doubt whether the devitrification is complete in all parts of the slide, and whether the phenomena are not rather due to the development of a large number of minute crystallites of not very regular form in an isotropic base. In this, however, there is nothing exceptional.

From the structure I should consider it more probable that the specimen had been taken from a flow than from a dyke. I should suspect the devitrification structure to be the result of secondary change, and the rock not a very modern one. In some respects it reminds me of the pre-Cambrian rhyolites (devitrified) of Britain, but I should think it had not quite so high a percentage of silica, *i.e.* that this did not exceed 70, and perhaps was rather less. Among the rhyolitic rocks which I described from Socotra (*Phil. Trans.* 1883, p. 273), collected by Prof. I. B. Balfour, were some of a rather dark purple colour, not unlike to this specimen from Lake Tanganyika.

T. G. BONNEY

Aseismatic Tables for Mitigating Earthquake Shocks

IN Mr. Topley's paper on the Colchester earthquake, which appeared in NATURE, vol. xxx. p. 60, he mentions the aseismatic joint designed by my father, Mr. David Stevenson, for mitigating the effects of shocks on lighthouses in countries subject to earthquakes, and from information which Mr. Topley has received and cites it would appear that the appliance had been tried in Japan, found wanting, and abandoned. The facts of the case, however, are as follows, and are supplied to me by Mr. Simpkins, who was engaged in fitting up the apparatus sent out from here, and has only recently returned from Japan. Of the seven lighthouse apparatus designed by Messrs. D. and T. Stevenson and furnished with the aseismatic joint and sent out to Japan, there are three at present in action, and have been so for ten years, viz. Mikomoto, Siwomisaki, and Yesaki. At Iwosima and Satanomisaki, in the south end of the island, the tables are screwed up so as not to act, as it is reported that no earthquakes are felt at these stations. At Tsuragisaki and Kashmosaki, which are revolving lights, the steadying screws sent out with the apparatus (to prevent the table oscillating while winding up the machine, which is the main inconvenience felt, and which was foreseen) were for some reason not put in at these stations, and the tables were firmly strutted with timber to prevent any motion. These two are the only lighthouses at which any damage has been done; while those stations at which the tables are in operation have never suffered at all, although they have been repeatedly subjected to shocks.

With regard to the effect of wind, to which Mr. Topley alludes, I may say that none of the *towers* are placed on tables, it is only the *apparatus* inside the lantern which is so treated, although my father proposed it for the towers themselves, and I have no doubt that, from the experiments I saw made here, they would have been equally effective. Two towers fitted with the tables were made and sent out to Japan, but were unfortunately lost at sea and not replaced.

CHARLES A. STEVENSON

45, Melville Street, Edinburgh, June 16

The "Cotton-Spinner"

ON seeing my article on this rare British Holothurian, Mrs. Fisher—who, as Miss Arabella B. Buckley, is well known to a