

A great advance in our knowledge of typhoons in the China Sea will no doubt follow on the construction of a lighthouse on the dangerous Pratas Shoal, such as has for many years been talked about. Our storm-warnings would gain still more in value, and the cost of construction need not exceed the loss caused by a single disastrous typhoon.

### EARTHQUAKE IN SIERRA LEONE

THE following correspondence has been forwarded for publication by Mr. R. H. Scott, F.R.S., Secretary, Meteorological Office:—

*Government House, Sierra Leone, October 29, 1886*

SIR,—I have the honour to transmit a copy of a communication received from Mr. J. M. Metzger, Manager of the Western District, in which he reports that an earthquake was felt at Sennehoo, in the Bompeh River, about the middle of last month.

(2) In the third and fourth paragraphs of his letter, Mr. Metzger draws attention to the fact that the shock in question was almost simultaneous with those experienced in other quarters of the globe, and that the latitude of the Bompeh District is within a few degrees of Charleston, America, where their effects lately proved so disastrous.

I have, &c.,

(Signed) J. S. HAY,  
Administrator-in-Chief

The Right Hon. Edward Stanhope, M.P.,  
&c., &c., &c.

I HAVE the honour to state, for the information of His Excellency the Administrator-in-Chief, that on the return of the District boat from the Bompeh River on the 16th inst., the coxswain reported that he had been informed at Sennehoo that about the middle of last month an earthquake was felt at that place and in the upper parts of the country; in consequence of which, many of the natives, who interpreted the event as prognostic of coming war, hastened down to the water-side to procure arms and powder in preparation for hostilities, which they regarded as imminent.

(2) The shock is said to have been continuous, accompanied with a rumbling noise as of some heavy-laden cart being moved along, resulting in the cracking and falling down of the mud plaster on the walls of the houses at Sennehoo. What happened in the upper parts of the country is, of course, not known, but the force must have been sufficiently severe to impress the people and influence them as they appeared to have been.

(3) It is remarkable that these vibrations, which seemed to have been extensive throughout the Bompeh District, and which seemed to have been so distinct, are almost simultaneous with those experienced in some places in the Mediterranean Sea, in Greece, and notably at Charleston, on the Atlantic coast of America, where their effects were so disastrous.

(4) The Bompeh, like the Ribbee and Cockborough Rivers, runs into Yawry Bay, which is an arm of the Atlantic, and the Bompeh District, on the eastern side of this ocean, is opposite to, and not many degrees of latitude below, the scene of the late disasters in America.

(5) I think it my duty to make this communication, as the information might possibly be of use to scientists engaged in the study of the facts connected with the range and transmission of these seismic disturbances.

(Signed) JOS. M. METZGER, Manager

Kent, Western District, October 20, 1886

### SCIENTIFIC SERIALS

*American Journal of Science*, November.—The higher oxides of copper, by Thomas B. Osborne. The oxides here dealt with are copper dioxide and copper sesquioxide; but being unable to continue the subject, at least for some time, the author publishes the incomplete results so far obtained, in the hope that they may be of use to others wishing to continue this line of investigation.—The structure of the Triassic formation of the Connecticut Valley, by William Morris Davis. It is shown that disturbance

has taken place after the period of deposition; that it was not caused by overflow or intrusion of trap-sheets; that it was not a simple monoclinical tilting; and that there is evidence for occurrence of unseen faults. The probable character of the disturbing force, its action on the fundamental schists, with consequent monoclinical faulting of overlying Triassic strata, and generally the area and depth of the disturbance, are questions also discussed in this elaborate paper.—Researches on the lithia micas, by F. W. Clarke. Descriptions and exhaustive analyses are given of the lepidolites of Rumford, Hebron, Auburn, and other parts of Maine, and of the iron-lithia micas of Rockfort granite-quarries near Cape Ann, Massachusetts.—The thickness of the ice in North-Eastern Pennsylvania during the Glacial epoch, by John C. Branner. So far from rising only 2200 feet above sea-level, as hitherto supposed, the ice is shown to have covered the twin peaks of Elk Mountain (2700 and 2575 feet), and no doubt also the Sugar Loaf, Ararat, and the other loftiest summits of this region during the Glacial epoch. A sheet of ice 1500 feet or less in thickness could never have flowed across such a mountainous region, so regardless as the great glacier was of its marked topographical features.—On the time of contact between the hammer and string in a piano, by Charles K. Wead. Owing to the uncertainty attending the theory developed by Helmholtz regarding the action of the hammer on a piano-string, the author has attempted to measure directly the time of contact by a simple process with results here tabulated.—Photographic determinations of stellar positions, by B. A. Gould. This is a reprint of the paper presented at the late Buffalo meeting of the American Association, and containing a brief history of stellar photography, and of the results so far obtained by the author in this department of practical astronomy.—Lucasite, a new variety of vermiculite, by Thomas M. Chatard. A description and full analysis is given of this substance, specimens of which have been found associated with corundum at Corundum Hill, Macon County, North Carolina. It has been named lucasite in honour of Dr. H. S. Lucas, so well known in connection with the Chester emery mine, Massachusetts.—Crystallographic notes, by W. G. Brown. An account is given of certain artificial copper crystals, of artificial crystallised cuprous oxide (cuprite), and of crystallised lead carbonate (cerussite) found under circumstances here described.—On the chemical composition of ralstonite, by S. L. Penfield and D. N. Harper. A comparative table is given of the analyses made by Nordenskjöld, Penfield, and Brande of this rare mineral, which was found associated with thomsenolite at Arksuk Fjord, Greenland.—Analyses of the thomsenolite by the same chemists.—Mineralogical notes, by Edward S. Dana. Descriptive analyses are given of columbite from Standish, Maine, of diaspore from Newlin, Pennsylvania, of zincite from Stirling Hill, New Jersey, and of some native sulphur from Rabbit Hollow, Nevada, interesting because of its complex crystalline form.

*Rivista Scientifico-Industriale*, October.—On the cause of the magnetic rotatory polarisation, by Prof. Augusto Righi. Fresnel's hypothesis having been proved inadequate by recent experiment, the author has resumed the subject, with the view of ascertaining whether it may be explained by the reflected or transmitted vibrations of bodies endowed with rotatory power. If the incident polarised ray on penetrating a body is really decomposed into two inverse circular rays endowed with different velocities, the intensity of the two rays must also vary both in the reflected and transmitted light. The ray possessing greatest velocity of propagation, and consequently a lower index of refraction, must possess least intensity in the reflected and greatest in the transmitted light, assuming the two indices to be greater than unity, as in the opposite case the result would be reversed. Hence both the reflected and transmitted ray will become elliptical; and Prof. Righi has succeeded in determining this ellipticity by employing iron, the body endowed with the greatest rotatory power. The elliptical vibration of the reflected ray is in the opposite direction to that of the magnetising current, while that of the transmitted ray is in the same direction. In a future communication it will be shown that this agrees with the hypothesis of double circular refraction.—On the tests of fatty substances, and especially of olive oil, by Professors G. B. Bizio and L. Gabba. This paper contains a critical inquiry into the methods of testing the purity especially of olive oil, and it concludes that none of the processes now in use are absolutely trustworthy. Even that of Bechi fails to distinguish with certainty between olive and cotton oil.