

analogy between them. But in the Polyfant rock felspar, whether kaolinized or not, seems to be entirely absent, and this forms a notable distinction. Moreover, a great deal of the serpentinous matter certainly does not resemble highly altered olivine; so that, if there be any rock properly to be classed with the picrites in Cornwall, this is it. It must, too, be admitted that the Duporth rock has a good deal of superficial resemblance to it, although it was originally so very different. The Polyfant stone is quite soft—except for the occurrence of occasional hard grains of pyritous or siliceous matter—so that it can be readily cut with a chisel or even with a pocket-knife. Sound fragments have been formed into crucibles and used for melting tin and copper for small castings. It appears to be well adapted for this purpose, although I am unable to say that it has advantage over the ordinary “black-lead” pots.

NOTICES OF MEMOIRS.

I.—SHORT NOTICES OF SCIENTIFIC PAPERS.

1.—*Iattagelser öfver kvartära bildningar på Gotland. Af Henrik Munthe. Geol. Föreningens i Stockholm Förfhandlingar. No. 100. Bd. viii. H. 2.*

2.—*Om postglaciala sänkningar af Gotland. Af G. Lindström. id. No. 102, Bd. viii. H. 4.*

THE first of these papers contains many interesting facts respecting the Glacial and Post-Glacial phenomena of the isle of Gotland. Two systems of Glacial striæ have been noted, one, best developed in the north and north-west, has a main direction from N.W. to S.E., and the other, extending over the rest of the island, runs from N.E. to S.W. Raised beaches are traced at various elevations up to 78·5 m. or 259 feet above the sea-level, the highest point on the island. A description is given of a remarkable Ås or Kame near Visby, which rests on Boulder-clay, and is partially covered by it. The erratic boulders are traced from the Åland isles, Ångermanland; possibly from the South-west of Finland, and from the bed of the Baltic. Two maps are appended; one showing the direction of the striæ and the contour-lines of the island, and the other of the district round Visby.

In the second paper, Prof. Lindström gives a description of sections lately exposed at Hafdhem in Gotland, in which turf deposits, nearly 50 feet above the sea-level, containing 28 species of existing freshwater mollusca, are overlaid by a marine sand with littoral shells. The author points out certain facts in the configuration and structure of the rock terraces in Gotland which indicate that the island received its present form by denudation, previous to the Glacial Period, and that various changes of level have taken place since that time.

3.—*Om Kambriska pyramidalstenar. Af A. G. Nathorst. Ofversigt af Kongl. Vetens.-Akad. Förfhandl. 1885. No. 10.*

4.—*Sur les causes de la production de facettes sur les quartzites*

des alluvions pliocènes de la vallée du Rhône, par M. F. Fontannes. Bull. de la Soc. Geol. de France, t. xiv. 1885-6, p. 246.

Dr. Nathorst notices the various opinions held by German and Scandinavian geologists respecting the origin of pebbles with distinctly faceted surfaces, and he points out that, before they had been particularly remarked in Europe, attention had been called to them in New Zealand by Mr. Travers,¹ in 1869, and their faceted surfaces had been rightly attributed to the action of wind-driven sand. The author records the interesting fact that pebbles with faceted surfaces, precisely similar to those from New Zealand and elsewhere, had been lately discovered in the Eophyton sandstone of Lugnås, Sweden.

M. Fontannes brings forward, in the paper cited, several objections against the sufficiency of wind-driven sand to produce the faceted surfaces of the quartzitic pebbles found on the slopes of the Rhone valley, and attributes the phenomena to the current action of water and sand.

5.—On the Minute Structure of *Stromatopora* and its Allies. By Dr. C. Rominger, Proc. Acad. Nat. Sci. Phil. 1886, pp. 29-56.

This paper is a criticism of the joint essay by Prof. Nicholson and Dr. Murie on the structure of *Stromatopora*, which appeared in the Journal of the Linnæan Society in 1879! It is certainly peculiar to read this review on a paper published six years ago, and one wonders what Dr. Rominger has been doing in the interval. He does not even now seem to be aware that one of the authors of the paper, with which he can see so much to disagree, has in the meantime further studied the subject, and has himself considerably altered his previously-expressed views. It seems somewhat presumptuous on Dr. Rominger's part to propose to substitute some names of his own, which he brought forward in an unpublished paper unluckily rejected by the Smithsonian Institution, for those given by the authors of the paper he criticizes.

6.—Review of the Progress of North American Invertebrate Palæontology for 1885. By J. B. Marcou. American Naturalist Extra, June, 1886, p. 505.

This paper gives a list and a short précis of the various works which have appeared on the subject. The author remarks that there is a distinct increase in the number of articles on palæontology, and that the tendency to publish new species without any illustrations is also diminishing.

7.—A List of the Cretaceous Foraminifera of Keady Hill, County Derry. By Joseph Wright, F.G.S. Proc. Belfast Nat. Field Club Appendix, 1885, p. 327.

Mr. Wright published in 1874 a list of the Cretaceous Microzoa of Ireland obtained from the material in the interior of flints, and the present paper contains a list of 94 species and varieties of foraminifera from the base of the White Chalk at Keady Hill. Twenty-seven of these are additions to the Cretaceous Fauna of

¹ See also a paper by J. D. Enys, "On Sand-Worn Stones from New Zealand." Quart. Journ. Geol. Soc. vol. 34, 1878, p. 86.

Ireland, and three forms, *Gaudryina Jonesiana*, *Bolivina decorata*, and *Marginulina Reussiana*, are new to science. The new forms, as well as some others, are figured in the plate accompanying the memoir.

G. J. H.

R E V I E W S.

I.—MONOGRAPH OF THE EARTHQUAKES OF ISCHIA. A MEMOIR DEALING WITH THE SEISMIC DISTURBANCES IN THAT ISLAND FROM REMOTEST TIMES, WITH SPECIAL OBSERVATIONS ON THOSE OF 1881 AND 1883. By H. J. JOHNSTON-LAVIS, M.D., F.G.S., etc., and SOME CALCULATIONS by Rev. Prof. SAMUEL HAUGHTON, M.D., F.R.S. 4to. pp. 112. With numerous Plates and Photographs. (F. Furchheim, Naples; Dulau & Co., London, 1885.)

IN this work Dr. Johnston-Lavis has essayed to do for the recent earthquakes of Ischia that which was so well accomplished for the great Neapolitan earthquake of 1857 by the late Mr. Robert Mallet. In the mathematical portion of the work he has been fortunate in securing the co-operation of Dr. Haughton, who supplied Mr. Mallet with the necessary equations for his work.

The excellent way in which Dr. Johnston-Lavis made use of his opportunities as a resident in the neighbourhood, after the earthquakes of 1881 and 1883, is very well known; and the columns of *Nature* and various newspapers were supplied with detailed accounts of catastrophes from his pen, many of which contain observations of considerable scientific value. But in the present work, he has treated the whole subject in a systematic and comprehensive manner, and has succeeded in producing a book which, like that of Mallet, is of great value both to seismologists and geologists.

After a short introductory chapter, the author devotes six pages to a *résumé* of what is known concerning the geology of Ischia, based on the researches of Scacchi, Fonseca, Vom Rath, Fuchs, and other geologists. Chapters III. and IV. are chiefly historical; the former dealing with the earthquakes and eruptions which have occurred in the island from the earliest historical times down to the present day; while the latter contains a translation of Covelli's interesting account of the Ischian earthquake of February 2nd, 1828. Chapters V. and VI. are occupied with the details of the author's own observations on the effect of the earthquakes of March 4th, 1881, and of July 28th, 1883, respectively. The destructive effects of these great earthquakes are made strikingly apparent to every one, and especially to those who have visited the island, by the series of admirable photographs, taken for the most part by the author himself, and reproduced for the purpose of this work in Turin.

The next three chapters of the book are devoted to a discussion of the nature of the earthquake waves, and of the paths which they followed, and to a determination of the positions of the seismic vertical, the epicentra, and the isoseismals of the two earthquakes; while,