

cutting of the railway close by, a good, but much smaller specimen of *Sigillaria*, with roots attached, was carefully got out, and presented by the engineer to the Yorkshire College at Leeds. So remarkable a fossil as the one described should be procured at once for one of our museums; it would be an unrivalled example for geological students. To allow it to meet the common fate of many fine fossils, that of being broken up for rockeries or gardens, would be an act of inexcusable and gross scientific vandalism. The proprietors intend, although it stops the progress of their business, to allow it to remain undisturbed for three or four weeks longer, and to any geologists tempted by the breezy Yorkshire hills and fine scenery, they offer a hearty Yorkshire invitation to inspect this giant fossil.

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## NOTICES OF MEMOIRS.

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### I.—SHORT NOTICES OF SCIENTIFIC PAPERS.

1.—Bibliothèque Géologique de la Russie, rédigée par S. Nikitin. Large 8vo. pp. 126. (St. Petersburg, 1886, Librairie Eggers et Cie.)

**T**HIS work is intended to be a record of all books, periodical publications, and brochures treating of the geology, mineralogy, and palæontology of Russia, whether published in that country or elsewhere. It gives a short *résumé* of the contents of each work in Russian and French. The present is the first memoir of the series, and contains references to 256 separate papers which have been published in 1885. They appear to have been very carefully prepared, and in the palæontological papers the names of the new genera and species are quoted. There is also a complete index. This record will be of special value to all geologists, to whom at present works published in Russian are quite unavailable, for it will at least furnish an idea of the progress of the science in that country, and we sincerely hope that it may be continued in future years.

Annalen des K. K. Naturhistorischen Hofmuseums; redigirt von Dr. Franz Ritter von Hauer. Bd. i. No. 2. (Wien, 1886.)

This second number of the Annals of the new Natural History Museum at Vienna contains amongst others, the following important papers:—

2.—Ueber die miocenen Pteropoden von Oesterreich Ungarn, von Ernst Kittl. Mit einer lithogr. Tafel.

The characters of the minute and delicate shells of Pteropods from the Austro-Hungarian Miocene strata are carefully worked out, and illustrations given of most of the species. Their presence in great numbers indicates, according to the author, the abyssal character of the deposit. The following new species are described: *Creseis Fuchsi*, *Vaginella Lapugyensis*, *V. austriaca*, *V. Rzehaki*, *Balantium Fallauxi*, *B. Bittneri*, *Hyalæa bisulcata*, *Spirialis Kæneni*, *S. Tarchanensis*, and *S. Andrussowi*.

3.—Ansichten ueber die palæozoischen Insecten, und deren Deutung; von Prof. Dr. Friedrich Brauer. Mit zwei photozinkogr. Tafeln.

This is an elaborate critical review of the classifications adopted by Scudder, Brongniart, and others, for Palæozoic insects, and of the significance of the characters on which these have been based. In many points the author disputes the views of Scudder, lately published in Zittel's *Handbuch der Palæontologie*. The wing-structures of many of the Palæozoic insects and of their nearest living allies are well illustrated in the accompanying plates. Amongst other conclusions, the author states that the Palæozoic insects present no contradiction to the views of biologists as to the origin of the class, and that they did not form a special order which could be regarded as a general basis for the existing orders of insects.

4.—Bestimmung des specifischen Gewichtes von Mineralien, von Dr. Victor Goldschmidt.

The author points out the causes for the differences occurring in the practical determination of the specific gravity of the same mineral; which rest not so much in the method adopted as in the selection of the materials which are tested. G. J. H.

II.—NOUVELLES OBSERVATIONS SUR DES TRACES D'ANIMAUX ET AUTRES PHÉNOMÈNES D'ORIGINE PUREMENT MÉCANIQUE DÉCRITS COMME "ALGUES FOSSILES." Par A. G. NATHORST. Avec 5 planches en phototypie et plusieurs figures intercalées dans le texte. Kongl. Svenska Vetenskaps-Akademiens Handlingar, Bandet 21, No. 14. (Stockholm, 1886.)

THIS memoir is intended as a reply to the objections raised by the Marquis of Saporta and MM. Lebesconte and Delgado, to the opinions previously published by the author, that many of the supposed fossil algæ are in reality nothing more than the tracks of animals, or phenomena of purely mechanical origin. The fossils, whose nature is thus contested, are commonly known as *Cruziana*, or *Bilobites*, *Harlania*, *Eophyton*, and some other genera. They generally present themselves in demi-relief on the *under* surface of the beds in which they occur; no traces of organic substances are found associated with them, and they are composed of the same minerals as the matrix in which they are imbedded. The theory of their vegetable character rests on the peculiarity of their markings, which are supposed to be incapable of being produced by the tracks of organisms. Dr. Nathorst, however, shows very conclusively, that whilst it is difficult to understand how algæ could thus form casts in demi-relief on the under surface of the beds, such structures would be the natural result of the filled-up tracks or burrows of marine organisms. Of the *manner* in which these could be made, the author gives practical proof by passing a movable roller, shaped like a double spindle, over the surface of a layer of soft mud, and then by means of gypsum obtaining moulds of the concave impressions. Photographs of these moulds are given in the accompanying plates, and they faithfully represent in almost every detail, the supposed

algæ. The author by no means denies the probable occurrence of true Algæ in Palæozoic strata, though he considers that most of the forms described as such by Saporta have no claim to be included in the vegetable kingdom. G. J. H.

III.—ON THE FLORA OF THE CROMER FOREST-BED. By CLEMENT REID, F.G.S. Transactions of the Norfolk and Norwich Naturalists' Society, vol. iv. pp. 189—200.

FROM various exposures of the so-called Cromer Forest-Bed at different localities on the coast of Norfolk, and at Pakefield in Suffolk, Mr. Reid procured samples of dark peaty sandy clays, which by careful manipulation and washing, yielded the seeds and fruits of a number of plants. These were patiently and carefully picked out under a magnifying glass, classified, mounted, and then compared with existing forms, with the results that the number of species in the accompanying list is more than double that previously known. The species of Mosses and *Chara* have not yet been determined, but the list includes 40 species of *Dicotyledons*, 18 of *Monocotyledons*, 5 *Gymnosperms*, and 3 *Cryptogams*. With a few exceptions the same plants still exist in the locality, but some are locally extinct. Mr. Reid points out the significance of this fact, when it is considered that since the period when the plants lived whose fruits and seeds have been preserved, the Glacial epoch has intervened, and the large mammals, and even many of the mollusca, have become extinct. So far the investigations into the Pliocene Flora show that the period of intense cold produced but little effect in the distribution of the plants in this locality, since the same forms with few exceptions returned, apparently without intermixture, to re-occupy their former habitats.

The paper is a brief one, but it represents a great amount of steady, continuous work, and careful observation. It will prove of much value, both from a botanical as well as a geological point of view, and its importance is enhanced from the fact, that with one or two unimportant exceptions, no Plant-remains are yet known from other Pliocene beds in Britain. G. J. H.

## REVIEWS.

I.—DEPARTMENT OF THE INTERIOR. REPORT OF THE UNITED STATES GEOLOGICAL SURVEY OF THE TERRITORIES. F. V. HAYDEN, UNITED STATES GEOLOGIST-IN-CHARGE. VOLUME III. THE VERTEBRATA OF THE TERTIARY FORMATIONS OF THE WEST. BOOK I. By EDWARD D. COPE, Member of the National Academy of Sciences. (Washington, Government Printing Office, 1883.)

IN recent scientific history of civilization few administrative events can compare in magnitude, or in their effects upon the populations concerned, with the Geological Survey of the United States. In no other part of the world have the resources of the Government been used with a like wisdom and liberality in accumulating and diffusing natural knowledge of the country, for