

lava (abundantly) and an ancient lava (Vesuvius); nepheline rock; toadstone (Derbyshire); Rowley-rag (Dudley): Bischoff, Geol. Chem., Engl. edit. vol. ii. p. 25. Phosphate of lime in basalt and dolerite (Vogelsberg): M. Bromeis, Ann. Mines, 5^e sér. vol. iii.

Laurentian.—Apatite in granite, zircon-syenite, hornblende-rock, marble, talcose, micaceous, and chloritic schists, dolerite, metalliferous veins traversing granite, in gneiss, diorite, porphyry, clay-slate, and beds of magnetic iron-ore; in various parts of Europe: Bischoff, *ibid.* vol. ii. p. 23. Also in marble in Westmeath and other townships on the Ottawa, Canada, and in St. Paul's Bay and Murray Bay, N.E. of Quebec, and in Laurence County, State of New York: Rep. Geol. Surv. Canada, 1848–49, 62.

Silurian: Primordial.—Phosphatic shells of *Lingula*; Canada, Minnesota, &c. (Logan, D.D. Owen, and J. Hall). Black phosphatic nodules at R. Onelle, Lower Canada, in a calcareous conglomerate: Can. Geol. Rep. 1851, ii. p. 106. —*Calceiferous Sandrock.* Dark phosphatic nodules (coprolites) in a conglomerate, resting transgressively on gneiss, Lake Allumettes: Geol. Rep. Canada, 1851, ii. p. 110.—*Chazy Limestone.* Black phosphatic nodules; Loehiel, Hawksbury, R. Ottawa: *ibid.*—*Trenton Limestone.* Phosphatic fossils in blue shell-limestone of Kentucky: D. D. Owen, Geol. Rep. Kentucky, p. 98.

Lower Silurian (?).—Immense deposits of Phosphorite in Spain (Logrosan, Estremadura): Bullet. Soc. Géol. Fr., n. s. vol. xvii. p. 15.

Carboniferous.—Phosphate of lime in clay-slate, Fins (Allier, France): Meugy, Ann. Mines, 5^e sér. vol. xi. p. 150. In the many and large beds of iron-ores and of clay-iron-stone of Kentucky, 29.5 per cent. of phosphate in one of the latter (at Crittenden): D. D. Owen, Geol. Rep. p. 378.

Mesozoic.—Phosphoric acid very distinct in ten different Jurassic and Triassic limestones, none of it in others: Fehling, Quart. Journ. Geol. Soc., vol. vii. Misc. p. 90. Phosphate of lime in the marl-beds of the Lias (Calvados, &c.), in Jurassic, St. Thibault (Côte d'Or): Meugy, Ann. Mines, 5^e sér. vol. xi. p. 150. Phosphate of lime, in a thin bed 550 miles long, under Chalk, Russia: Count Keyserling, Bullet. Soc. Géol. Fr., n. s. vol. iv. p. 11. In Lower Chalk, Greensand, and other rocks of nearly the same age; Wissant, Havre, Rethal near the Ardennes: Meugy, Comptes Rendus, vol. xliii. p. 755. The phosphatic beds of the Lower Greensand, Gault, and Upper Greensand of England.

Tertiary.—Phosphate of lime in the Lower Tertiary beds of the Paris Basin, particularly in the Plastic Clay of Auteuil: Meugy, Ann. Mines, 5^e sér. vol. xi.

Recent.—Phosphate of lime exists in all waters running into the sea. The springs of Carlsbad, Bohemia, would, if it were collected, yield 55.6 pounds a year. Phosphoric acid in the sea-water of Copenhagen (Forchhammer). In the incrustations from steamboat-boilers (Volcher), Bischoff, vol. i. p. 109; ii. p. 27. Common in the soils of Kentucky (D. D. Owen).

ABSTRACTS OF FOREIGN MEMOIRS.

ON THE BACULITE-BEDS OF BÖHMISCH-KAMNITZ, NORTH-WESTERN BOHEMIA. By Dr. LAUBE. (Proceed. Imp. Geol. Instit. Vienna, Feb. 16, 1864.)

THESE strata, the youngest of the Cretaceous Period, are rather extensively spread East of the Elbe, until above Böhmisch-Leipa and Reichenberg, overlying the Quader-Sandstone, without the interposition of the Pläner beds except at three localities, where

they are but very imperfectly developed; so that local disturbances in the level of the Cretaceous sea must be supposed to have taken place even before the deposition of the Baculite-beds. The thickness of these strata, generally clays and argillaceous marls, very poor in organic remains, varies from a few to sixty feet. *Nucula striata*, Roem. (*N. pectinata*, Sow.), *Leda semilunaris*, and *Ostrea Proteus*, Reuss (*O. minuta*, Roem. ?), have been found in them.

They are best developed and richest in fossils near Böh-misch-Kamnitz, a locality already mentioned by Geinitz and Reuss. They are partly genuine clays, of yellowish-grey tints, laminated and soft, not plastic, nor adhering to the tongue, and partly argil-laceous marls, greyish-blue, soft, and slightly adhering to the tongue. In their chemical constitution, the clays differ from the marls by being destitute of carbonate of lime, poorer in alumina and water, and richer in silica. These Baculite-strata, strikingly recalling to the mind the Gault of Folkestone (from which, however, they totally differ as to their palæontological character), rest immediately on Quader-Sandstone, without any intercalation of the Pläner. Their fossils, especially the Gasteropods, are generally in a very bad state of preservation. Sixty species (2 Fishes, 2 Annelids, 5 Cephalo-pods, 13 Gasteropods, 39 Bivalves, 2 Brachiopods, and one Coral), have been determined among the fossils from Böh-misch-Kamnitz. Of these 60 species, the number of those occurring in other Creta-ceous localities is in the following proportions:—*Germany*: Priesen, 36; Luschütz, 33; Postelberg, 21; Strehlen, 19; Aix-la-Chapelle, 12; Kieslingswalda, 9; Quedlinburg and Coesfeld, 7 each; Hal-dem, 5; Koschütz, Goslar, and Isle of Rügen, 4 each; Gosau, 2. *Galicja*: Nagorzany, 15; Lemberg, 13. *Switzerland*: Perte du Rhône and Ste. Croix, 4 each; Geneva, 1. *Sweden*: Köppinga, 9; Ingnaberg, 5. *Netherlands*: Limbourg, 8; Maestricht, 4. *France*: Rouen and Uchaux, 5 each; Tournay and Ervy, 2 each. *England*: Lewes, 8; Sussex, 7; Folkestone and Isle of Wight, 2 each.

COUNT M.

UNE RECONNAISSANCE GÉOLOGIQUE AU NEBRASKA, par M. JULES MARCOU. 8vo. pp. 15. 1864. (From the *Bullet. Soc. Géol. France*, 2^e sér. vol. xxi. p. 132, &c.)

NEBRASKA is a new Territory of the American States, lying towards the Rocky Mountains, west of Iowa and Missouri, and occupying about the central part of North America. M. Marcou, who had visited Wisconsin to the north and New Mexico to the south, desired to examine the intervening country, and, in spite of trouble from civil war and Indians, he and his friend M. Capellini crossed the country in two directions in 1863, and gives the result of his traverse to the French Geological Society. As in 1862 Dr. Hayden, the State-Geologist, published the result of a great amount of detailed work in the same district, M. Marcou's observations are chiefly interesting in so far as they suggest modifications of Dr. Hayden's results. The *Dyas* (Permian) and the existence of what M. Marcou describes as islands in the Dyassic sea, are believed by him to be present in a highly characteristic form in Nebraska,

with two members corresponding to the Rotheliegende and Zechstein respectively, and in true contact with the American Trias. Instances, he thinks, will be found in Kansas and also near Beavertown on the Canadian River.

M. Marcou also asserts his discovery of a true Miocene flora at the bottom of the Cretaceous series in Nebraska. The fossils occur in a freshwater formation, in which is a *Cyrena*, formerly found by the author in New Mexico; and he especially identifies *Laurus primitiva*, Unger, and a Fern, 'near the Lycopods,' among the fossils. This deposit is 'No. 1' of the Cretaceous series of Hayden, containing lignite, fossil wood, impressions of dicotyledonous leaves, *Equisetum* (?), *Pectunculus Siouxensis*, &c.

Lastly, M. Marcou objects to the use of Brachiopoda as characteristic fossils, and believes that their place in the animal series in this respect is even lower than that of Corals!—D. T. A.

REVIEWS.

MAN AND NATURE; OR, PHYSICAL GEOGRAPHY, AS MODIFIED BY HUMAN ACTION. By GEORGE P. MARSH. 8vo. pp. 560. London: SAMPSON LOW, SON, and MARSTON.

THIS volume is one of considerable interest to the geologist, although it does not profess to communicate original matter or new views. It is a somewhat expanded account by an exceedingly intelligent American writer, well acquainted with Europe and European literature, of various operations in nature, chiefly connected with human influence, by means of which the surface of the earth is now undergoing such changes as would be recognized hereafter among geological phenomena. Something of this has already been done by Sir Charles Lyell in his great work on the Principles of Geology; but other considerations, not less important, are here introduced, and numerous facts and inferences are put forward for the first time.

That climatic changes, in countries entirely or very largely occupied by man, have, in the course of time, been brought about by the various changes in the face of nature, induced by human wants and tastes, there can be no doubt; and it is certain that, of all these, the removal of forests has been the most important, both directly and indirectly. No one can travel in Greece or Asia-Minor, none can visit the North African shores, no one can even run through Italy, without being aware of modifications of the surface and of climate in places once very thickly peopled, but now almost without inhabitants. There is equally little difficulty in proving, that not only there, but generally throughout Central and Southern Europe, the climate on the whole, and within the historic period, has become more extreme; and the rivers have assumed more and more the character of torrents. This is well exemplified in the case of the Seine, a river which, owing to its great distance from any mountain-