FOREIGN CORRESPONDENCE.

On the Silurian "Colonies" of Bohemia. By Mr. M. V. Lipold.

Certain strata of greenstones, graptolite-shales, and concretionary limestones, petrographically and palæontologically analogous to M. Barrande's "superior Silurian etage E" ("Litten-strata" of the geologists of the Vienna Imperial Institute), but appearing in isolated lenticular masses between the slates and quartzite-sandstones of his "Lower Silurian étage D," have been pronounced by M. Barrande to be "colonies," the fauna of which, already existing in a distant sea at the period when the strata of the "étage D" were forming on the present Silurian region of Central Bohemia, had immigrated thither under favourable conditions, and had subsequently disappeared, together with these conditions, to reappear again and come to its full development after the strata of "étage D" had been completely deposited at the bottom of the Silurian sea. Prof. Krejcy, of Prague, having co-operated as a volunteer with the geologists of the Imperial Institute in the survey of the environs of Prague and Beraun during the summer of 1859, has made some objection to the explanation of the above-mentioned facts as given by M. Barrande, as, according to his views, they could be very well accounted for by upheaval and disturbances which had affected the upper and lower strata of Bohemia. M. Barrande, having protested against this assertion, M. Lipold was entrusted by Director Haidinger with the close examination of one or more of M. Barrande's "colonies." The results of this examination, made in the summer of 1860, are given in the present report. M. Lipold closely examined the "colonies" named in honour of MM. Haidinger and Krejcy,* south of Prague, near Gros-kuckel, lying within the slates and quartzite-sandstones ("Königshof" and "Kossow" strata of the Vienna geologists) of M. Barrande's "étage D," division D^5, and re-examined with "scrupulous" attention Prof. Krejcy's survey on the south margin of the Upper Silurians, proceeding south-westward from Gross Kuckel to the environs of Litten, along a line of about fourteen English miles in length. The facts stated by this survey are traced on two geological maps, and on a series of sections. They show the "Königshof" and "Kossow strata" on the south margin of the Upper Silurians, together with the "Litten strata," to have undergone repeated foldings and dislocations. Two such foldings and dislocations of the "Königshof" and "Kossow-strata," extending

* Since this time M. Barrande has delivered to the Géol. Soc. of France (meeting of June 4th, 1860) a paper on "Colonies," and read an abstract of it concerning the colonies "Haidinger" and "Krejcy." (See Bulletin de la Société Géologique de France, 2e serie, t. xvii., p. 302.)

north-east to south-west, as far as Litten, coming to the surface south-westward in zones gradually narrowing and disappearing near Litten, beneath the Litten strata, are particularly conspicuous. On the other hand, the "Litten strata" very extensive, and totally overlaid by Upper Silurian limestones in the vicinity of this place, begin there to be divided into two stripes, intercalated in the foldings of "Königshof" and "Kossow strata," decreasing in breadth as they proceed north-eastward, and at last totally disappearing between Harlik and Wonoklas.

Isolated portions and zones of "Litten strata," intercalated between "Königshof" and "Kossow strata" occur again in the same north-east direction, near Wonoklas, Cersonic, Kosor, Radotin, and Gross Kuckel (colonies "Haidinger" and "Krejcy"); so that a connection of both these "colonies" with the above-mentioned two zones of Litten strata intercalated between the foldings of Königshof and Kossow strata can no longer be a subject of doubt.

The colonies "Haidinger" and "Krejcy," where beside the Litten strata appear not in conformable but in disturbed stratification between the Königshof and Kossow strata must therefore be considered as remains of a once more extensive deposit, forced between these last strata by the foldings and dislocations they had undergone. Without the least depreciation of the services which geology owes to M. Barrande, the sagacious and indefatigable explorer of the Silurian strata in the centre of Bohemia, the facts just mentioned must be acknowledged to corroborate Prof. Krejcy's theory of dislocations being the real cause of the palæontological abnormities comprised under the general denomination of "Silurian colonies." The "colony" named in honour to Prof. Zippe, although at present inaccessible to investigation, may be supposed, by analogy, to afford new facts in favour of this theory.

On the Red Chromate of Lead, and useful Minerals of the Philippine Islands. By W. W. Wood, Esq.

Specimens of the red chromate of lead from the Labo mines in the province of North Carnarines (Isle of Luzon), obtained by Prof. Hochstetter, through Mr. W. W. Wood's (of Manilla) kindness, have been examined by M. Dauber (Academical Proc. No. 21, 1860, p. 21), Mr. W. W. Wood, at Dir. Haidinger's request, gave the following details about this interesting mineral, and the useful minerals of the Phillipine Islands. The chromate of lead was discovered accidently, and was dug out in considerable quantity; the diggings, however, having been subsequently filled up, it is not at present to be obtained, and little is known about it at Manilla. It was afterwards found again in small quantities near the first locality. A Spanish mining-engineer, who visited the Luzon about three years ago, reported it to be very scarce and to be with difficulty obtained.

There are but very few mines in the island. A very rich deposit of argentiferous galena, found in North Caranines, is said to be now abandoned after having been exploited for some time by a Spanish company.

The quartz of this province, and nearly all the rivers, are aurifeferous. A gold mine in quartz, drowned by water, lay abandoned for a long time, until a Spanish company tried to make it accessible by driving a gallery, but this project was abandoned in consequence of heavy losses.

Excellent iron, worked in a very primitive way, is found in the province of Bulacon (north of Manilla). Fine magnetic iron-ore occurs also. Grey sulphuret of copper is exploited in the northern part of Luzon, both by natives (who bring the metal to the coast in small shapeless cakes), and by a Spanish company. Native mercury not associated with cinnabar, occurs in black magnetic iron-sand at Albay (East Luzon). Coal exists in the inaccessible localities of North Carnarines, and in the Isle of Leba, north of Mindanao. Platinum is said to occur in a brook coming from the hill of St Mablo, near Manilla. A Spanish company exploiting the copper occurring in rolled pebbles on the Isle of Samar (south-east of Luzon), could not cover their expenses. As to the red chromate of lead, it had been discovered by Don Isidro de Baaranda, of Madrid, who brought to England the finest specimens of this mineral. Its scarcity is accounted for by the circumstance that the natives near the Leba gather the small crystals of it and crush them to powder, to strew over newly written letters.

New Fossils from Radoboy and Trieste.

Remains of *Delphinopsis Freyeri* have been found in the Tertiary beds of Radoboj (Croatia)—so well known for their abundance of fossil plants and insects. A tooth of a *Rhinoceros*, different from *Rh. tichorhinus*, and resembling the *Rh. Merckii*, from Daxland, near Carlsruhe, has been found in a cave recently discovered near Matterie, two Austrian miles from Trieste.

Stoliczker on the Fossil Mollusca of the Hierlatry (Middle Lias) Strata.

Among the seventy-two species of moluscs (fifty-four Gasteropoda and eighteen Acephala), occurring in these beds of the east Alpine region, eighteen are identical with the forms known from the middle Lias of Fontaine-Elonpefour, and the Châlons-sur-Saone (Normandy), eighteen with German forms, and forty-eight species have not been described. Six species only occur simultaneously in the German, Alpine, and French Lias; some of them are also known to occur in the coeval strata of England.

Secondary Rocks of Portugal.

Prof. E. Suess, on examining a large collection of fossil Brachiopoda from Portugal, has arrived at the conclusion that the marine fauna of the secondary rocks in Portugal bear a far greater resemblance to the corresponding faunæ of North-Eastern Europe than to that of South Europe.

M. Foetterlie on the Brown Coal of Zovencedo (Nicentine).

This coal is embedded in the basaltic tuff of the Monti Beridi, overlying a small surface of the Eocene Tertiaries. Two coal-seams from three and a half to seven feet in thickness, are at present open; both

contain well-preserved specimens of *Anthracotherium magnum*, Cuv., of which teeth or portions of jaws are in the possession of the Vienna Imperial Geological Institute.

Earthquakes and their connection with Meteorological Phenomena.

A letter addressed from M. Julius Schmidt, astronomer at the observatory, at Athens, to Director Haidinger, gives details of an earthquake felt there on July 4th, 1860, at half-past six p.m.. At the same time a violent thunderstorm was rising above Mount Hymettus, and low clouds of a quite uncommon form began to cover the top of the mountains. M. Jul. Schmidt has stated the coincidence between atmospheric phenomena and subterraneous commotions of a probably local nature being circumscribed within the geological system of Mount Hymettus. The observations of this able astronomer have given the following results:

1852. July 16th, evening: commotion; strong thunderstorm on Mount Hymettus; abundant rain; clouds of striking form on the mountains.

1860. Feb. 6th, morning: commotion; thunder-stroke on Mount Hymettus; clouds of uncommon form on this mountain, persisting during half an hour.

1860. July 4th, evening: commotion; violent thunderstorm on Mount Hymettus; clouds of fantastic forms.

At the date of this letter (July 7th) M. Schmidt was specially employed in observing the new comet. During May 1860 he joined Prof. Unger of Vienna in a tour through Eubœa (where he measured Mount Delph, or Diphis, one thousand seven hundred metres in height, or about five thousand four hundred feet, Bœotia, and back to Athens through Eleusis. Interesting facts concerning the topography and hydrography of Bœotia were the result of this excursion. On July 9th M. Schmidt was to set out for Egina for two days. The Greek government has directed the provincial authorities to collect evidences concerning earthquakes, and to transmit them to the observatory at Athens.

PROCEEDINGS OF GEOLOGICAL SOCIETIES.

GEOLOGICAL SOCIETY OF LONDON.—*December* 5, 1860.

"On the Structure of the North-west Highlands, and the relations of the Gneiss, Red Sandstone, and Quartzite of Sutherland and Ross-shire." By Professor James Nicol, F.G.S.

The author first referred to his paper in the Quart. Journ. Geol. Soc., vol. xiii., pp. 17, &c.. in which the order of the red sandstone on gneiss, and of quartzite and limestone on the sandstone was described, and in which the relation of the eastern gneiss or mica-schist to the quartzite was stated to be somewhat obscure on account of the presence of intrusive rocks and other marks of disturbance. Having examined the country four times, with the view of settling some of the doubtful points in the sections, the author now offered