

5. From the above we are warranted in coming to the conclusion that the Green Slates and Porphyries of the Lake-district are super-imposed unconformably upon the series of the Skiddaw Slates.

Addendum.—Since the first part of this paper was published, I have found a single small section between the Vale of St. John and Keswick, in which the upward termination of the Skiddaw Slates is exhibited. This occurs about two miles to the S.E. of Keswick, close to the high road to Ambleside, near a place called Dale-bottom, in the valley of Naddle Beck. Here a small stream flows down from a hill called the Pike, and exhibits in its lower portion a small exposure of the upper shaly beds of the Skiddaw Slates, which dip S.S.E. at 50°, and are directly overlaid by the fine-grained felspathic trap, which forms the base of the Green Slates.

NOTICES OF MEMOIRS.

I.—ON THE EXISTENCE OF ROCKS CONTAINING ORGANIC SUBSTANCES IN THE FUNDAMENTAL GNEISS OF SWEDEN.

THREE papers relating to the occurrence of certain vegetable substances in the Fundamental Gneiss of Sweden, have recently been communicated to the Royal Academy of Sciences at Stockholm.¹

The *first* of these papers, by M. Igelström, which describes some beds of bituminous gneiss and mica schist that occur interstratified in common reddish granite-gneiss at the western part of the high and precipitous Nullaberg, was noticed in the *GEOLOGICAL MAGAZINE*, Vol. IV. (1867) p. 160.

M. Igelström considers that the Gneiss and Mica Schist of the Nullaberg must be ranked among the Sedimentary and Fossiliferous Strata.

In the *second* paper M. Nordenskiöld points out the principal ingredients in these bituminous rocks of Nullaberg,—they are a greyish-white orthoclase and silver-white mica, mingled with variable portions of a carbonaceous or coal-like substance. This carbonaceous substance is very brittle, and the rock is therefore more friable than common gneiss. The grains of orthoclase break along the cleavages of the felspar, and the fracture of the rock is thus crystalline.

He regards the rock as probably due to the solidification and crystallization of a clay-like sediment, consisting of organic substances and inorganic matter, of the same constituents as the common felspar; and he remarks, as a phenomenon not at all improbable, that a change in the relative position of the atoms, *i.e.* a crystallization in a solid mass tending to a disposition of its molecules, according to the best conditions of equilibrium, took place *without*

¹ L. J. Igelström, On the occurrence of thick beds of bituminous gneiss and mica schist in the Nullaberg, parish of Ostmark, province of Wermland, in Sweden.—A. E. Nordenskiöld, Note on the mineral character of the rock.—F. L. Ekman, Chemical analysis of the rock.—Translated from communications read to the Royal Swedish Academy of Sciences at Stockholm.

the aid of water or heat¹ during the immense time that has elapsed since the Gneiss period. M. Nordenskiöld does not attempt any explanation of the way in which this change was effected.

M. Ekman, in the *third* paper, gives the result of analyses of various specimens of Nullaberg rock, which show it to be essentially a potash-felspar, with a little apatite, traces of manganese and copper, phosphoric acid and chlorine, besides the organic matter and carbonate of lime.

Whether this Fundamental Gneiss of Sweden is the equivalent of that in the Hebrides and of the Laurentian rocks in Canada and elsewhere, is a point not discussed in these papers.

Lithologically the Swedish beds appear very similar to the Laurentian Gneiss, containing graphite, described by Sir W. E. Logan, and which without doubt was originally a sedimentary rock. So long ago as 1846 M. Elie de Beaumont announced the sedimentary nature of the Swedish gneiss,² while the recorded discovery by Prof. Sismonda³ of an Equisetum in gneiss (of Jurassic age), would leave no doubt about the original aqueous origin of the rock.—H. B. W.

II.—TRANSACTIONS OF THE EDINBURGH GEOLOGICAL SOCIETY. VOL. I. Parts I. and II. 1868. 8vo.

THESE Parts contain the papers read before the Edinburgh Geological Society between November, 1866, and May, 1868. Among the more important of these communications, the following may be mentioned :—On the Carboniferous Strata of Carluke, by J. R. S. Hunter; On the Geology of the Coasts of Antrim and Londonderry, by T. Smyth; On the old Red Sandstone of Scotland, by J. Powrie, F.G.S., etc.; On the Superficial Deposits at the South Esk, by Dr. J. C. Howden; On the Evidences of Glacier Action in Galloway, by W. Jolly.—There are numerous illustrations accompanying these papers, some of which have previously been noticed in the GEOLOGICAL MAGAZINE—the last report (of a meeting on April 2nd, 1868,) was published in the number for May last year.

The following papers were read on April 16th, 1868 :—

1. Observations on the Miocene Beds of Greenland. By Robert Brown, F.R.G.S.

Extending over a very limited area, these strata are composed of a great variety of beds of sandstone, alternating with lignite, and capped by shales of various descriptions. In all the sandstones and shales vegetable impressions are found, but it is only in the thin layers of a hard clay-slate, impregnated with iron, that they retain their impressions very distinctly. All these strata are cut across by trap-dykes, which in some places stand out bare and wall-like from the denuded softer rocks through which they protrude.

The author protests against the way in which Professor Heer has been making species and genera out of the fossils discovered in these

¹ It may be noted that Dr. T. Sterry Hunt has urged the presence of carbon in the state of graphite, *unoxidised*, in metamorphic rocks, as a proof that a temperature of ignition was not required for metamorphism.—Vide *GEOL. MAG.* Vol. I. p. 202.

² *GEOL. MAG.* Vol. I. p. 156.

³ *Ibid.* Vol. II. p. 239.

Miocene Beds, though perhaps in placing too much importance on slender characteristics he does not stand alone; and he is glad to observe that Mr. Carruthers is doing the *synthetic* to other botanists' *analytic* subdivision of fossil species.

2. Brief Notes on the Precious Stones and Pearls of Scotland. By A. M. Cockburn.

Although poor in the more precious gems, Mr. Cockburn remarks that Scotland can boast of her jaspers, pebbles, agates, pearls, and of fine specimens of quartz; the moss agates are peculiarly suitable for certain styles of setting. Cairngorm stones are found in great abundance in the matrix of the granite on the top and sides of the Cairngorm Hills, in Aberdeenshire and Banffshire.

Amethysts and garnets may be ranked among the Scottish gems. The former is now becoming scarce; the latter is found in large quantities at Elie Point, and along the sands on the east coast of Fife.

Fine and large specimens of pearls are found in the rivers Teith, Forth, Dee, Don, Earn, Tay, Tweed, and the rivers of Ross and Sutherlandshire.

3. Remarks on Two Flints from Jubbulpore, Central India, and on the Flint Implements discovered there by the late Lieut. D. Swiney, R.E. By James Haswell, M.A.

The principal part of the collection (numbering 977 pieces) is now in the British Museum, and was described by Mr. John Evans, F.R.S., F.S.A., in a paper read before the Society of Antiquaries, 19th of January, 1865.

REVIEWS.

I.—UNDERGROUND LIFE; OR, MINES AND MINERS. By L. SIMONIN. Translated, adapted to the present state of British Mining, and edited by H. W. BRISTOW, F.R.S. Illustrated with 160 engravings on wood, 20 maps geologically coloured, and 10 plates of metals and minerals in chromolithography. 8vo. pp. 522. London: Chapman and Hall. 1869.

THIS is a work of a popular-scientific character, somewhat similar, both as regards the style in which the subjects are treated and in the kind of illustrations, to the volumes of Hartwig, Figuier, and other writers of that class.

The woodcuts are excellent specimens of art, but in many instances the subjects chosen for illustration appear to us quite unnecessary to the text. Such are the pictures of a stable in a mine, a consultation in a mine, a Californian gold-finder prospecting the ground, miners at prayer, etc.; while the pictures of explosions and accidents in mines might with advantage have been dispensed with, as they are eminently calculated to give one the horrors. We were somewhat surprised to find M. Simonin remark that "in no instance has any merely fanciful design been admitted." Under "fanciful," we should certainly include the woodcut of the Indian miner of Lake