

Ceratopyge Limestone are a distinct equivalent of the English Skiddaw.

Conophrys can hardly be separated from the *Shumardia* of Billings (Pal. Foss. Canada, vol. i. p. 92), which occupies a somewhat similar, perhaps a little higher horizon. To the same genus probably also belongs the *Battus pusillus* of Sars (Isis, 1835, p. 334, t. viii. fig. 2 = *Agnostus* or *Olenus pusillus*, Kjerulf), which occurs near Christiania together with *Ceratopyge forficula*.

As to *Lichapyge*, it cannot have any affinity to *Paradoxides*, and hardly to *Lichas*. I little doubt that it is most nearly allied to *Remopleurides*, if not a true *Remopleurides*. In some species of *Remopleurides*, as *R. dorsospinifer*, Portl., it is very usual to find the pygidium united with the two hindmost thoracal segments. The fossil described as *Lichapyge* would have almost the same shape, if the terminal limb had two denticles on either side.

The subgenus *Platypeltis* seems to be more nearly related to *Niobe* than to the genuine *Asaphi*. Also *Niobe* is characterized by not having the hypostoma forked.

G. LINNARSSON.

GEOLOG. SURVEY OFFICE, STOCKHOLM, March 4th, 1878.

GEOLOGICAL MAP OF SCOTLAND.

SIR,—Since the publication of my review of Prof. Geikie's Geological Map of Scotland, it has come to my knowledge that the vast mass of new detail inserted thereupon in the areas south of the Grampians, instead of being due to a digest of Survey work, is in truth the result of the author's recent personal investigations. The map has been the constant occupation of his leisure hours for many years, his summer holidays being generally given up to journeys for its extension and improvement. Even the remarkably minute mapping of the Old Red and Volcanic series of Fife and Forfar, the trappean belt of the Solway, etc., noted by us for especial commendation, was completed by himself before the Survey moved into those districts. Though this deprives the map of anything like an official character, it adds much to its general reliability. It is indeed highly satisfactory to feel assured that all the new work is by the same hand, and that consequently the details throughout are as trustworthy as those within the areas already covered by the Survey. Looked upon as the simple product of individual original research, the map is a monument of rare geologic skill and energy. The author is to be congratulated on having, single-handed, accomplished his task with a perfection and completeness that—however widely views may differ as to the expediency of his new systematic arrangements—has charmed all those whose opinion is worthy of a moment's consideration.

CHAS. LAPWORTH.

ST. ANDREWS, March 20th.

DR. CARL MAYER ON THE ITALIAN TERTIARIES.

SIR,—In the last number of the "Bolletino del R. Comitato Geologico d'Italia" there are again several important papers on the Italian Tertiaries, but that of Dr. Carl Mayer calls for special atten-

tion. Some few years ago Dr. Mayer published a paper, "Ueber die Nummuliten-Gebilde Ober Italiens," in which he correlated the Lower Tertiaries—which have in this peninsula their most important extension in the north-east, as in the Vicentine, and the present may, to a certain extent, be looked upon as a continuation of that communication.

This is a translation of a note on a coloured map of the north-western parts of Italy, which was presented to the Geological Society of France in 1877, and refers to the Miocene and Pliocene formations which occur in Central Liguria.

According to Dr. Mayer these Miocene and Pliocene beds, from the Ligurian to the Astian, have here a thickness of 22,000 to 23,000 feet. When we consider how much more largely the last two étages of the Tertiaries are developed in the South of Italy, we do indeed see that the relative length of the Tertiaries has been but imperfectly appreciated. Nor, in considering the Cainozoic period, as a whole, should it be forgotten that the Lowest Tertiaries are less developed in Italy than in many places, and that, to get an idea of the time during which Eocene formations were being deposited, we must look to India.

Prof. Mayer is now willing to increase the calculation as to time of some of his étages, and thinks, for instance, he can now allow us as a minimum for the Messinian 40,000 years instead of 25,000. This may be satisfactory as far as we think it has any signification; but we must say that we have but little sympathy with these attempts to fix even a minimum for each stage, until we are in possession of more facts. Prof. Mayer, however, gives us his ideas of time for each of his divisions.

These papers show the importance of Mayer's attempts to introduce a uniform nomenclature for the divisions of the Tertiaries, and his terms, if generally introduced, would prevent us finding Italian deposits called "Schlier," "Leithakalk," "Sarmatische stufe," etc.

A. W. WATERS.

TERMINAL CURVATURE IN WEST SOMERSET, ETC.

SIR,—You would oblige by finding space for a few remarks on a very controversial paper by Mr. Ussher, which has just appeared in the Quart. Journ. Geol. Soc. About ten years ago I communicated a paper to the Geological Society on what I called the Terminal Curvature of Slaty Laminæ (principally on the flat summit of Brendon Hill, Somersetshire), and suggested a number of causes for the consideration of geologists, *none of which I confidently advocated*. So far as I can remember, all the geologists who afterwards expressed their opinion on this and other instances of terminal curvature agreed with me in preferring the idea that ice in some form had been the moving agent, with the exception of Mr. Darwin, who stated that he had attributed somewhat similar phenomena in S. America to earthquakes. I will not occupy your valuable space by controverting all the objections which Mr. Ussher has brought forward to my suggestions; but on reconsidering the subject, I