ART. XVI.—*Note on the Occurrence of the Oriskany Formation on Parlin Stream, Maine*; by L. V. PIRSSON and CHARLES SCHUCHERT.

THE material which is the subject of this communication was collected by one of the writers (L. V. P.) while traversing this portion of Maine with his guide, and as Oriskany fossils occur here it has seemed worth while to put this on record and give a list of the species obtained, together with a mention of the exact locality and some additional observations which may be of future service in the study of the geology of this part of the state.

Parlin Stream is the outlet of Lake Parlin, which lies 20 miles southwest of Moosehead Lake, where Oriskany fossils have long been known to occur.

While the mere crossing of a country which is so heavily forested, as is this portion of Maine, affords little opportunity to gain much idea of its geology, the following facts were observed, in relation to this occurrence.

The fossils were found in loose, angular blocks of a much indurated shale or shaly sandstone of a dark green to brown color, weathering with a blackish chocolate-brown crust. They are seen on exposed bedding planes of the firmer material or in more weathered, cavernous, sandy fragments and they constitute a great part of the rock mass, like the so-called shell limestones of other places. These blocks occur on the west side of the large pool immediately below the partly burned lumbering dam, about a quarter of a mile above the falls on Parlin Stream. The locality is about two and a half miles from the outlet of Parlin Lake. This same locality was collected from by Gilbert van Ingen in 1889 (Bull. U. S. Geol. Surv. 165, 1900, p. 89).

The country in this locality is composed of heavily bedded, much indurated, or metamorphosed, strata which have been upturned. At Parlin Falls there is a good exposure of the beds. The falls are made by the stream passing downward over the inclined back of a heavy resistant bed. At this point the strata have a general east and west strike and dip northward at a considerable angle, perhaps 45°. Below the falls the stream has cut a very respectable canyon, whose exposures should afford a good opportunity for study of the formation. All the exposures weather with the blackish crust mentioned above.

While the material containing the fossils was not observed in place, it is quite certain from considerations of the local geology seen that it belongs in its immediate neighborhood,

and had suffered little transport. This is shown by the abundance of blocks, their large size, angular shapes, unworn condition and characteristic resemblance to the nearby rocks in place. It is presumed that they represent the debris of broken down beds of the immediate vicinity. The supposition that the blocks are local in origin is further supported by the rather noticeable absence in this neighborhood of the coarser material of glacial transport. Glacial sands and gravels containing pebbles or very small boulders are common, and in morainal forms, as in drumlins, etc., are rather frequent topographic features, but the larger glacial erratics, which are so striking a feature of the region farther south, were not observed in the stream beds, on the lake shores, or in other places where erosion might have brought them to the surface.

Toward the lower end of Lake Parlin there is a large intrusive mass of trap rock. It is exposed in outcrops on the road; large boulders of it are seen along the lake shore, and massive outcrops at several places. It rises into Parlin Mountain, where, as it was found at the north end and on the trail to Long Pond as it winds about the mountain, it is inferred that it forms the main upper portion of this eminence. No contacts were seen and its intrusive nature is inferred from the size and position of the mass, the nature of its jointing, and the petrographic characters of the rock. On a fresh surface of fracture it is a dark gray to green and of uniform and fine texture. Examination in thin section shows that it is a greatly altered diabase. Originally it consisted of plagioclase and a brownish augite with accessory iron ore and apatite, with occasional very fine, delicate micrographic intergrowths of quartz and orthoclase filling interstices between the plagioclases. The structure was the characteristic ophitic one, but the proportion of plagioclase to augite was large, making the rock one of feldspathic type.

From this condition the rock has been greatly altered; the augite has been changed into chloritic substance, which preserves the outlines of the ophitic fillings between the feldspars and contains in a few places still unaltered pieces of the unchanged augite. While this chloritic substance, for the most part, appears of the nature of ordinary green, pleochroic chlorite with low double refraction, it contains frequent minute bundles of radiant fibers of a more yellowish color and with rather high double refraction, which is suspected to be an iron-bearing serpentine. Some separated silica also is seen, but no formation of any carbonate was observed.

The feldspars are also altered and the original albite twinning so much obscured or obliterated that their character cannot be accurately determined, but they are thought to be

andesine-labradorite. They are also filled with infiltrated chloritic substance. The iron ore is changed to leucoxene and the apatite and micrographic intergrowths are the only unchanged constituents. The rock finally weathers with a brown crust of limonitic material. The mass is a large one and must be a prominent factor in the structure of the local geology.

The fossils collected by Mr. and Mrs. Pirsson on Parlin Stream are from the Moose River sandstone, one of the Oriskanian formations. The first good geologic account of this region dates back to 1861, when Charles H. Hitchcock determined the Oriskany sandstone here. In 1889, Van Ingen collected fossils along Parlin Stream for H. S. Williams, and in 1905 O. O. Nylander gathered other material for John M. Clarke. The latter has brought together all that is known about the Oriskanian of this area in his work, "Early Devonian History of New York and Eastern North America" (Mem. 9, N. Y. State Mus., 1909, pp. 52-90, pls. 12-21).

Below is given an annotated list of the Oriskanian fossils from Parlin Stream, just below the old dam above the falls, Somerset County, Maine, collected by Mr. and Mrs. Pirsson.

BRACHIOPODA.

Pholidops terminalis Hall. Two specimens.

Dalmanella drevermanni Clarke? Two small specimens.

Chonostrophia dawsoni (Billings). One large and two young specimens.

Leptocœlia flabellites (Conrad). Common.

Spirifer pirssonæ, n. sp.

Clarke did not name this form, but has it from Telos Lake dam, and Moosehead Lake, 7 miles north of Kineo. He states that the form is common and that he thinks it "will prove unlike any known to us." The interior resembles very much the common Oriskanian guide species, *S. purchisoni*, but as all of the specimens are mature, never attain to one-half the size of *S. purchisoni*, and have a smaller number of plications, it is here proposed to name the new form *S. pirssonæ*, after Mrs. Pirsson, who collected and presented to the Peabody Museum of Yale University an abundance of natural moulds. Further, the six plications on each side of the fold and sinus never attain the prominence or angularity of those in *S. purchisoni*. The species is based on the cotypes figured by Clarke in the work cited on Plate 20, Figures 9-12.

Spirifer, n. sp.

This common species gives the impression of being

closely related to *S. pirssonæ*, but although both are fimbriate Spirifers, they are clearly of different stocks. The two forms are not associated in the same layers. The species under discussion is more quadrate than the foregoing one, has a narrower ventral cardinal area, and therefore is also less thick shelled and less rostrate in these parts. It differs chiefly, however, from *S. pirssonæ* in having a wider and more flabellate ventral muscle field. As the material is hardly good enough to figure, the form is left unnamed for the present.

Meristella lata (Hall)? A single much squeezed example.
Rensseleria callida Clarke. Rare, and much smaller than the original material.

GASTROPODA.

Plectonotus derbyi Clarke. One specimen.
Tropidodiscus obeæ Clarke. One specimen.

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