

THE CAMBRIAN IN NORTHERN MAINE.*

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In a recent paper Edward S. C. Smith, the author,¹ described as a possible tillite a series "of grayish-green to grayish-red sandstones, reddish to green slates and conglomerate," occurring in Township 5, Range 8, Penobscot County, Maine. Speaking of the apparent absence of fossils, he stated: "Rather suggestive nodules in a layer of sandstone leads to the belief that metamorphism has destroyed their traces rather than that the series was ever barren of organic remains."

Masses of sandstone and slate were carried away in the course of collecting with the hope that they might yield recognizable fossils, and a subsequent laboratory study of the red slates has shown in abundance remains of that little known genus *Oldhamia* (*Murchisonites*). This genus was first described by Forbes² and later was described and figured by Kinahan,³ from the original locality in County Wicklow, Ireland, where they appear in greenish arenaceous and purplish argillaceous slates of Cambrian age. Since these papers appeared numerous others have been published discussing this peculiar genus.

In 1895 Walcott⁴ wrote a short paper mentioning the discovery of the genus *Oldhamia* in America in the Cambrian rocks of Farnham, Province of Quebec, and Rensselaer County, New York. Specimens from the former locality were too poorly preserved, according to Walcott, for exact identification, but those from New York State he called *Oldhamia* (*Murchisonites*) *occidens* sp. nv. Matthew⁵ has described *Oldhamia* from the lower Cambrian of Catons Island, N. B., and Howell,⁶ has reported *Oldhamia antiqua* from the lower Cambrian of Weymouth, Mass. It was Professor Howell who kindly consented to examine the writer's specimens from Maine

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¹Smith, E. S. C. "A Possible Tillite from Northern Maine," This Journal, 15, 61-67, 1928.

²Forbes, Edward, Jour. Geol. Soc. Dublin, 7, 1848.

³Kinahan, J. R. Trans. Roy. Irish Acad. 23, 1859.

⁴Walcott, C. D. "The Discovery of the Genus *Oldhamia* in America," Proc. U. S. Nat. Mus. 17, 1895.

⁵Matthew, G. F. Can. Rec. Sci. 8, 1900.

⁶Howell, B. F., Bull. Geol. Soc. Am. 33, 1922.

of which, unfortunately, only a few were available (Fig. 1). He considers the best classification for them at present is



Fig. 1. *Oldhamia* (*Murchisonites*) cf. *occidens*, Penobscot County, Maine. (2 x.)

Oldhamia (*Murchisonites*) cf. *occidens*, indicative of the lower Cambrian.

Dr. Rudolf Ruedemann of the New York State Museum, generously placed at the writer's disposal unpublished material

dealing with the New York *Oldhamia* and states⁷ that he considers *Oldhamia* a good Cambrian guide fossil.

So far as the writer is aware this is the first identifiable Cambrian form to be reported from the state of Maine. Hitchcock⁸ believed that certain rocks of the state were Cambrian but those in the Waterville area have been proved by Perkins⁹ to be of Silurian age. From his work in Aroostook County, Williams¹⁰ believed that Cambrian slates were present in the region but said: "Positive evidence of the age is wanting." Some of the formations in the Penobscot Bay and Rockland areas have been assigned to the Cambrian on stratigraphic grounds by members¹¹ of the United States Geological Survey. The oldest fossils actually found were, however, Silurian (Niagaran).

There seems to be a general agreement that *Oldhamia occidentis* represents the remains of some sort of a calcareous alga, and it is not the writer's purpose to enter into a technical discussion of the evidence therefor. To him it seems that the significance of the discovery lies in the fact that it furnishes definite evidence of the existence of a Cambrian, probably lower Cambrian, seaway in northern New England, and the close similarity of the New York and Maine specimens together with the fact that they both appear in reddish slates suggests that the seaway extended entirely across New England, including also eastern New York.

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⁷ Personal communication.

⁸ Hitchcock, C. H. Preliminary Report upon the Natural History and Geology of the State of Maine, 1861, and Second Annual Report upon the Natural History and Geology of the State of Maine, 1862.

⁹ Perkins, E. H. "A New Graptolite Locality in Central Maine," This Journal, 8, 223, 1924.

¹⁰ Williams, H. S., and Gregory, H. E. "Contributions to the Geology of Maine," U. S. Geol. Surv., Bull. 165, 1900.

¹¹ Smith, Geo. O., Bastin, E. S., and Brown, C. W. Penobscot Bay Folio, No. 149, U. S. Geol. Surv. Bastin, E. S. Rockland Folio, No. 158, U. S. Geol. Surv.