BUILDING STONE AND ROAD METAL.

NOTE ON A NEW VARIETY OF MAINE SLATE.

By T. Nelson Dale.

In September, 1905, the writer made a trip with Dr. George Otis Smith, of the United States Geological Survey, and Prof. Leslie A. Lee, State geologist of Maine, to a slate prospect said to have been opened in 1890 in the town of Forks, Somerset County, in central Maine, between Kennebec and Piscataquis rivers.

This prospect lies in the broad belt of Paleozoic slate which Prof. C. H. Hitchcock's geological map of 1885 shows as extending from the Kennebec to Schoodic Lake and beyond, and which includes the slate quarries of Brownville, Monson, and North Blanchard. The location of this slate deposit is about longitude 69° 57′, latitude 45° 16′, or about 18 miles west of the North Blanchard quarries, in the southwest corner of the town of Forks, about 3 miles northeast of Caratunk, over a mile about northwest of the hotel on Pleasant Pond, about half a mile from the Washington Schoolhouse, 1,090 feet above sea level, on Holly Brook, on land owned by Lawrence Hill. The nearest railroad is the Somerset Railway Extension at Mosquito Narrows, 6 miles distant.

The slate crops out in the bed of the brook, being exposed for a thickness of 30 feet or more across the cleavage. The excavation appears to have been from 10 to 15 feet deep. The cleavage strikes N. 55° E. and dips from steep northwest to 90°, but in the upper 10 feet there is a fold resulting in a steep southeast dip. The course of the bedding could not be determined, but the microscopic examination affords indications that it is nearly parallel to the cleavage.

The slate is bluish black, of fine texture and cleavage surface, with a luster not so great as that of the Brownville slate, but yet bright. It is graphitic, contains a very small amount of magnetite, has no argillaceous odor, does not effervesce in cold dilute hydrochloric acid, is quite soncrous, and is readily perforated. Neither the ledge nor the fragments exposed for fifteen years show discoloration.

Under the microscope the section shows a matrix of muscovite (sericite) with a brilliant aggregate polarization, proving it to be a mica-slate. The cleavage is fine and regular. The next conspicuous feature is the presence of about 52 lenses of pyrite to each square millimeter, measuring (in transverse section) from 0.02 to 0.06 mm. in length by 0.004 to 0.016 mm. in width. In sections parallel to the cleavage these lenses have a very irregular outline and are often as broad as long. They account for the limonitic staining on cleavage surfaces of water-soaked specimens. Quartz is abundant but minute. No carbonate could be detected. A few tourmaline prisms up to 0.11 mm. in length occur. Some scales of chlorite with interleaved muscovite measure up to 0.09 mm. Occasional zircon fragments and aggregations of rutile crystals appear.

The constituents of this slate, arranged in the order of their abundance, appear to be muscovite, quartz, chlorite, pyrite, and graphite, with accessory tourmaline, zircon, and rutile.

This slate at Pleasant Pond, the nearest important topographic feature, represents a different quality of black slate from either the Brownville or the Monson slate, having nearly as much luster and nearly as fine a cleavage as the former, yet without its abundance of magnetite, and being without the dull and roughish surface of the Monson slate. It would prove suitable either for roofing or mill-stock purposes.

Another ledge of similar slate has been exposed by trenching, about a third of a mile away, near the road and Mr. Hill's house, but the slate here shows some false cleavage, at least at the surface. Should that feature continue into the mass the slate would have little or no commercial value. This feature was not characteristic of the Holly Brook outcrop.

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