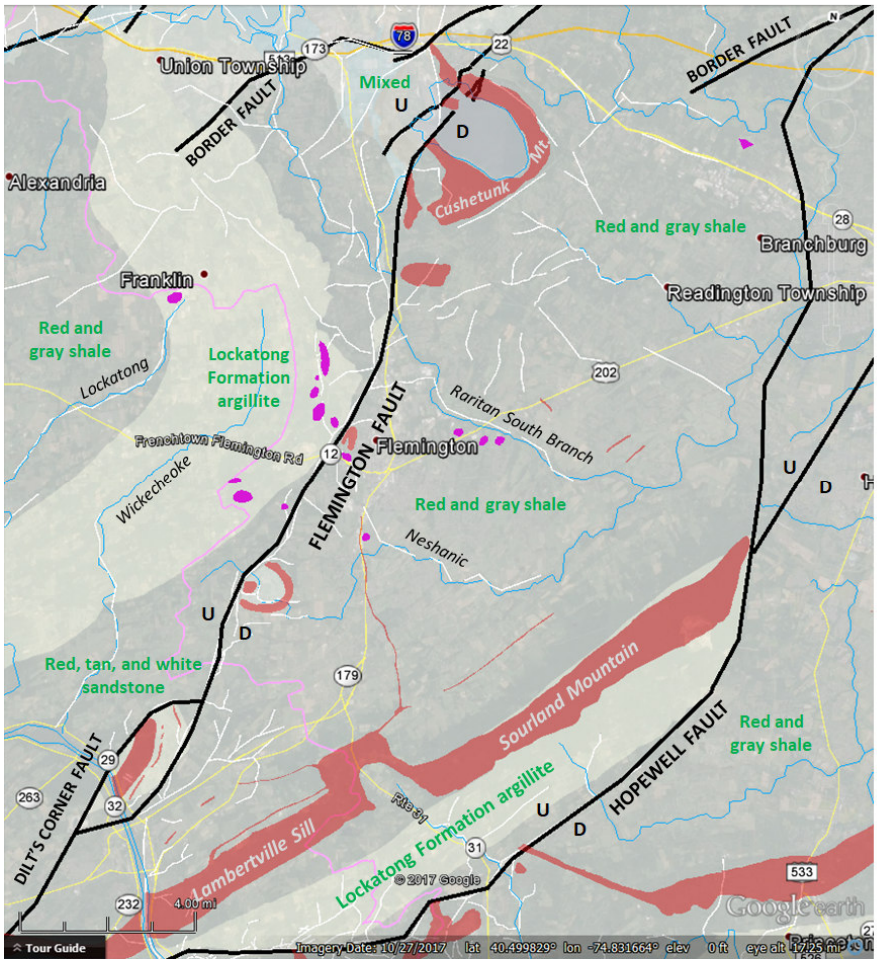
American Indian Argillite of Hunterdon County
by Gregory Charles Herman, 2018 for the Hunterdon County Historical Society

Argillite is the most common stone material represented in the HCHS collection of Native American artifacts, especially those of local origin. Argillite is a light- to dark, variously colored, hardened mudrock having red, purple, brown, green, and blue varieties. The hardness of argillite exceeds that of red shale and younger mudrock occurring in the same region from having been at one time deeply buried near the bottom of a thick pile of lake sediment infilling a down-warped tectonic fault block named the Newark Basin. The basin is filled along its base and margins by coarse-grained detritus (sandstone and conglomerate) near Clinton and Trenton but finer-grained mudrock in the basin center around Flemington. Argillite is comparatively hard to the softer and predominately reddish brown shale, siltstone, and mudstone underlying Hunterdon's Neshanic Valley and Mercer Counties' Hopewell Valley.



EXPLANATION

U / D — Major geological fault (U; up-thrown and D; down-thrown fault blocks)

Creeks and rivers

Indian villages noted in 1913-14.

200-million year igneous rocks

Note: Generalized geology of the Flemington area displayed using Google Earth. Geology adapted from Drake and others, (1997). White lines are fracture traces modified from Herman (2015).

References:

Drake , A. A., Jr., Volkert, R. A., Monteverde, D. H., Herman, G. C., Houghton, H. F., Parker, R. A., and Dalton, R. F., 1996 Bedrock geological map of northern New Jersey: U.S. Geological Survey Miscellaneous Investigation Series Map I-2540-A, scale 1:100,000, 2 sheets.

2015 Herman, G. C., Neotectonics of the New York Recess, *in* Herman, G. C., and Macaoay Ferguson, S., Neotectonics of the New York Recess: 32nd Annual proceedings and field guide of the Geological Association of New Jersey, Lafayette College, Easton, Pa., p. 80-151 (16.0 MB)

Argillite owes its hardness to recrystallization of limey mud into interlocked, microscopic carbonate and mica crystals formed during *lithification* of the Lockatong Formation from deep burial, compaction, dewatering, and thermal cooking (van Houten, 1960). Because argillite is in part chemical sedimentary rock containing carbonate (dolomite) cements and lacking free quartz, it is comparatively softer than the many varieties of quartz including chert, jasper, smoky, clear and crystalline forms.

Henry Kummel's report on the Newark system (1898) provides a useful description of the Lockatong Formation as including "...hard, massive, black and bluish-purple argillites, which break sharply in any direction with a marked conchoidal fracture, but never split into thin layers of which afford slabs nine or ten feet in diameter and three or four inches thick."

Lockatong argillite will vary in hardness depending upon the depth of burial and the chemical composition of each sedimentary bed. Personal tests conducted on the hardest argillite taken near the base of the Lockatong Formation in Flemington returned a score of 5 on the Moh's hardness scale that ranks diamond, the hardest mineral, at 10, quartz at 7, steel commonly around 5 to 6, and talc at 1. The popularized 'blue jingler' variety is a very hard variety having a distinctive high-pitch ring when struck by tilling blades, other rocks, or rock hammers. As reported by Schrabish (1917) when referring to a dark blue argillite Indian artifact buried four inches below a colonial campsite at Pluckemin, NJ, ""blue jingler" is not native to Somerset County, but occurs chiefly in the mountains district northward and west of Flemington, Hunterdon County. It was extensively quarried by the red man, having been highly prized by them because of the excellent material it furnished, in lieu of flint, quartz, jasper, for the manufacturer of arrow heads and spear points." Argillite is therefore an abundant, comparatively hard, relatively homogenous and isotropic rock that can be shaped and molded in any direction and was commonly crafted from dimensional blocks and splinters of bedrock into sharp, durable tools and weapons by the American Indians of Hunterdon County and surrounding areas. The engaged enthusiast of such history is referred to Didier (1975) and Mercer (1897) for further information regarding the quarrying and use of argillite by prehistoric natives of the Hunterdon region.

References

Didier, M.E., 1975, The Argillite Problem Revisited: An archeological and geological approach to a classical archeological problem: *Archaeology of Eastern North America, vo*l. 3 p. 90-101.

Henry B. Kümmel, 1897, The Newark System of New Jersey: The Journal of Geology Vol. 5, no. 6, p. 541-562.

Schrabisch, Max, 1917a , General Knox's artillery park, Pluckemin: *in* Honeyman, A. V. D., (ed.) Somerset County Historical Quarterly, Vol. VI., p. p. 161-168.

van Houten, F. B., 1960, Composition of Upper Triassic Lockatong Argillite, West-Central New Jersey: The Journal of Geology, vol. 68, no. 6, p. 666-669