

All are invited to attend the monthly meeting of the
Nittany Mineralogical Society
Wednesday, May 16, 2012

Geologic and Mining History of Serpentinites in Pennsylvania and Maryland

by Stephen Shank, Pa. Geologic Survey

*Our May meeting will be held Wednesday the 16th in the room 114 auditorium of
Earth & Engineering Sciences Building on the west side of the Penn State campus in State
College, PA. Maps are available through our web site.*

6:30 to 7:30 p.m.: Social hour, refreshments in the lobby

*7:30 to 8:00 p.m.: announcements, questions, answers;
door prize drawings*

about 8:00 p.m.: featured program

*The event has free admission, free parking, and free refreshments, and is open to all –
Bring your friends and share an interesting evening.*

The varied geologic history of the serpentinites in southeastern Pennsylvania and Maryland has resulted in a wide range of mineral and stone resources. Fractional crystallization of a basaltic magma resulted in chromite ore and ultramafic dunite and peridotite cumulates. Later low-grade metamorphism altered the ultramafic rocks to serpentinite. Emplacement in and reaction with quartz-rich metasediments, intrusion of pegmatites, hydrothermal alteration, and weathering produced additional mineral deposits including talc, asbestos, magnetite, feldspar, corundum, and magnesite.

Mining and quarrying span the time period from the pre-Columbian era to the present. Indians quarried and carved soapstone for use as cooking vessels and ornaments. Chromite was discovered in 1810 and under the guidance of Isaac Tyson, Pennsylvania and Maryland became the largest producers of chromite in the world until the mid-19th century. Sporadic, minor production continued until World War I. The chromite was used in the chemical industry for the production of pigments (chrome yellow) and dyes. The serpentinite region was also the major source of magnesite for magnesia and Epsom salts in the early nineteenth century. Talc and soapstone were used for refractory linings, ceramics, washtubs and as filler for paint. In addition to mineral production, serpentinite has been quarried for aggregate and for building and decorative stone. Building stone was widely used in the Philadelphia area in the nineteenth century, but use quickly declined because it did not weather well. Decorative 'green marble' from Cardiff, Md. was quarried until the early 1970s. Today serpentinite is quarried for use as crushed stone.



Map section showing serpentinites in the PA/MD State Line area, from USGS Bulletin 1082-K, 1960, Chromite and other Mineral Deposits in Serpentine Rocks of the Piedmont Upland, Maryland, Pennsylvania, and Delaware.