

Pipestone Voices

Pipestone, sometime called "catlinite" is a soft red to mottled fine-grained material that carves well. Native Americans use this material extensively in ceremonial pipes and other objects. The material itself, as well as the sites in which it is found have great religious significance to them.

Early last summer I visited Pipestone National Monument in southwestern Minnesota. In one of the quarries, an elderly Native American was working with hammer and chisel on the hard quartzite that overlies the valuable pipestone. His grandson was watching him. I asked the grandson if he would allow a photograph. His grandson said no, and that I shouldn't stand and watch for long either. His grandfather would stop working and wait until I was gone. Strangers affected his meditation with the rock. His grandson said, "The rocks talk to him. He will study the rock and it will tell him which piece to move next. He may work for half an hour on a small rock, then be able to move many large pieces of rock rapidly." I left thinking that I had had similar experiences, studying a rock with a fine fossil or beautiful crystals and having a sudden inspiration as to how to work the rock to retrieve the specimen. I've also struck a rock knowing that it was the absolute wrong thing to do and having the specimen shatter to worthless fragments before my eyes. To what extent the mystical enters into this is up to each to judge on his or her own.

Pipestone also "talks" to geologists in more prosaic ways. Its mineral content and occurrence allow us to piece together a detailed picture of its formation. At Pipestone, Minnesota, it is part of the a formation called the Sioux Quartzite. The Sioux Quartzite was deposited about 1.6 billion years ago by a series of braided rivers, flowing across wide floodplains. The environment is not unlike that of the Red River Valley today. Most of the time the rivers deposited sand and gravel. After flooding, however, the rivers left deposits of clay on the floodplain as the waters receded. Most of the time, this material was rapidly eroded away. But some times, patchy deposits of this were buried under sand and preserved. The entire package of sand, gravel and clay was buried and metamorphosed. The sand and gravel formed quartzite and the clay and silt lenses formed the pipestone.

Pipestone consists of a fine-grained intergrowth of sericite, kaolinite, diaspor, hematite and pyrophyllite. Quartz grains are also present, but the more quartz, the harder the pipestone is to carve. Sericite is a fine-grained mica. Kaolinite is an aluminium-rich clay mineral. Diaspor is an aluminum hydroxide. Pyrophyllite is an aluminum silicate. These minerals tend to be very soft. The minerals forming pipestone did not all form at the same time. The sediment originally likely contained mostly clay minerals, plus quartz

and feldspar. The metamorphism caused the feldspar to decompose and the clay minerals to form the pyrophyllite and sericite. Later weathering and interaction with ground water formed the kaolinite and diaspor from the sericite and pyrophyllite. It is this mix of minerals that results in pipestone's color, carvability and other desirable properties.

Pipestone is indeed a unique material. Its beauty and the beauty of the items carved from it speak to us all

- Dr. Bill Cordua, University of Wisconsin-River Falls

References:

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Murray, Robert A., 1968, Pipes on the Plains, Pipestone Indian Shrine Asso., 41 pp.