



Chert



Geological Survey and Resource Assessment Division fact sheet number 11

6/2002

Chert, prized by Native Americans but despised by many farmers, is one of Missouri's most common rocks. It has all the characteristics which can make a stone both hated and hunted, coveted or cursed.

Chert is also a rock of many names and disguises. Few people other than geologists actually call it chert, which is the name generally applied to the stone when it's color is white, tan, or light gray. Red, brown, reddish-brown and yellowish-brown varieties are called jasper. Black and dark gray specimens are known as flint. Mottled and pink types of chert are called Mozarkite, while some banded varieties have found a home in the agate family.

Despite appearance, all forms of chert have the same basic composition. Chert is a hard, brittle, sedimentary rock composed of finely crystalline quartz and its chemical base is silica (SiO₂). It is the presence of impurities that give the stone colors other than white.

It is the stone's hardness and the way it breaks that made it invaluable to Native Americans. The Indians used chert to make arrowheads and scraping and cutting tools because it breaks with a curved (conchoidal) or shell-like fracture, leaving edges as sharp as broken glass. The Indians used chert of every color, but artifact collectors generally call the stone flint. Although 17th century long-barreled muskets used varieties of natural flint for their striker, modern gas burners and cigarette lighters do not use natural flint. Their "flints" are actually special alloys which contain elements that emit a brilliant hot spark when scratched.

Missouri's 19th century tillers of the soil cursed chert because it dulled their plows; they had no other use for this rock, which seems almost everywhere underfoot in Missouri. That is because this almost non-soluble rock is embedded in and between layers of soluble limestone and dolomite, the common sedimentary rocks of Missouri.

Chert occurs as nodules, lenses, stringers, and irregular masses. As the softer, soluble host rocks limestone and dolomite are eroded away, durable residues of chert are left behind to wash off hills and slopes into streams and rivers where they form gravel bars and cover streambeds. These and other "clean" rocks, which floor so many Ozark streams, is partly why Ozark streams often look so clean and pure.

Although gravel operations often excavate chert from Ozark streams and crush it for use as an aggregate in road construction, the stone will quickly wear out a crusher because it is harder than steel.

Chert also occurs as a concretion. The concretions are rounded or globular chunks that have grotesque shapes. When the concretions are banded, they can be mistaken for petrified wood. When they have the shape of bones, eggs, cantaloupes or potatoes, they are often mistaken for fossils. People have even been known to call these "pseudo" fossils, stone cannonballs and petrified peach pits.

