



# KNIFE RIVER FLINT

## Prized Knapping Stone of the Northern Plains

By Gene Gade

No man's land on a World War I battlefield? Impact craters on Mars or the Moon? An abandoned bombing range? From the air, certain pastures near the Knife River in central North Dakota are as pockmarked as any of the above. However, these pits are not the result of violence or astronomical cataclysms. They are really hundreds of small mines used by Native Americans to quarry a precious resource over a period of at least 11,000 years.

What resource? Native Americans were digging for nodules of a dark brown rock, variously described as caramel or root beer colored, and well known to archaeologists and geologists as Knife River Flint (KRF). KRF was one of the most sought-after materials used to make tools and weapons and was traded over a vast area of the continent.

Artifacts fashioned from KRF include Clovis points made-



**Aerial photo of Knife River Flint quarries.**

more than 10,000 years ago and KRF implements have been found thousands of miles from the quarries...from Montana on the west, Alberta on the north, New Mexico on the south and New York state in the east. Clearly, KRF was a valued commodity in a very large and ancient trade network.



**A 10,000+ year-old Clovis Point made from Knife River Flint that was found in southern Iowa.**

### What's special about Knife River Flint?

Chemically, flint is a type of quartz. The primary compound in flint and related minerals is silicon dioxide a.k.a. silica, one of the most common compounds in the earth's crust. Silica is slightly soluble, so it often dissolves in water, percolates through sedimentary rocks and precipitates where there are voids in the surrounding rock, forming hard nodules of various sizes.

Flint is usually formed within a chalky sediment. Like other forms of silica used to make tools, flint is hard...about 7 on a scale where 10 is hardest. It is also brittle and fractures into long, thin, cores. When struck by a skilled "knapper", flint and its lithic cousins in (chert, chalcedony, jasper, agate, etc.), form curved chips called "conchoidal fractures" and can have very sharp edges. That's why they make good arrow points and blades. Due to minute impurities, Flint and similar minerals usually have distinct colors and sometimes contain tiny fossils. Often flints are fairly dull and opaque, but some have a shiny luster and are translucent.

Knife River Flint has properties in spades that make it a very desirable tooling stone. Plus it's distinctive and beautiful.



**This point demonstrates the sharp edges and translucent properties of Knife River Flint. The brown flecks in the stone are fragments of tiny fossils.**

## Where did the flint come from?

Nobody knows for certain where Knife River Flint was formed because the parent rock has not been identified with certainty. Most likely it was embedded in rock derived from a peat bog that existed about 50 million years ago. The strata in which it formed were probably part of the Killdeer Mountains. The flint-bearing rock was apparently carried away by glacial ice or water and deposited in the gravel along what became the Knife River drainage. Chunks of KRF with diameters of two feet have been found, but most nodules are much smaller. They are distributed in a relatively small stretch of the Knife River valley, but quarrying has been very intense in several small areas along the flood plain. The largest quarry has been designated a National Historic Site. Another is in a National Wildlife Refuge.

## Knife River Flint in the trade network

An impressive trade network linked many parts of North America hundreds of years before Europeans entered the continent and began trading for furs and other goods. In what is now the Southwest US, pueblo Indians at Chaco Canyon and other sites carried on extensive trade extending in several directions, especially to Mexico and Central America.

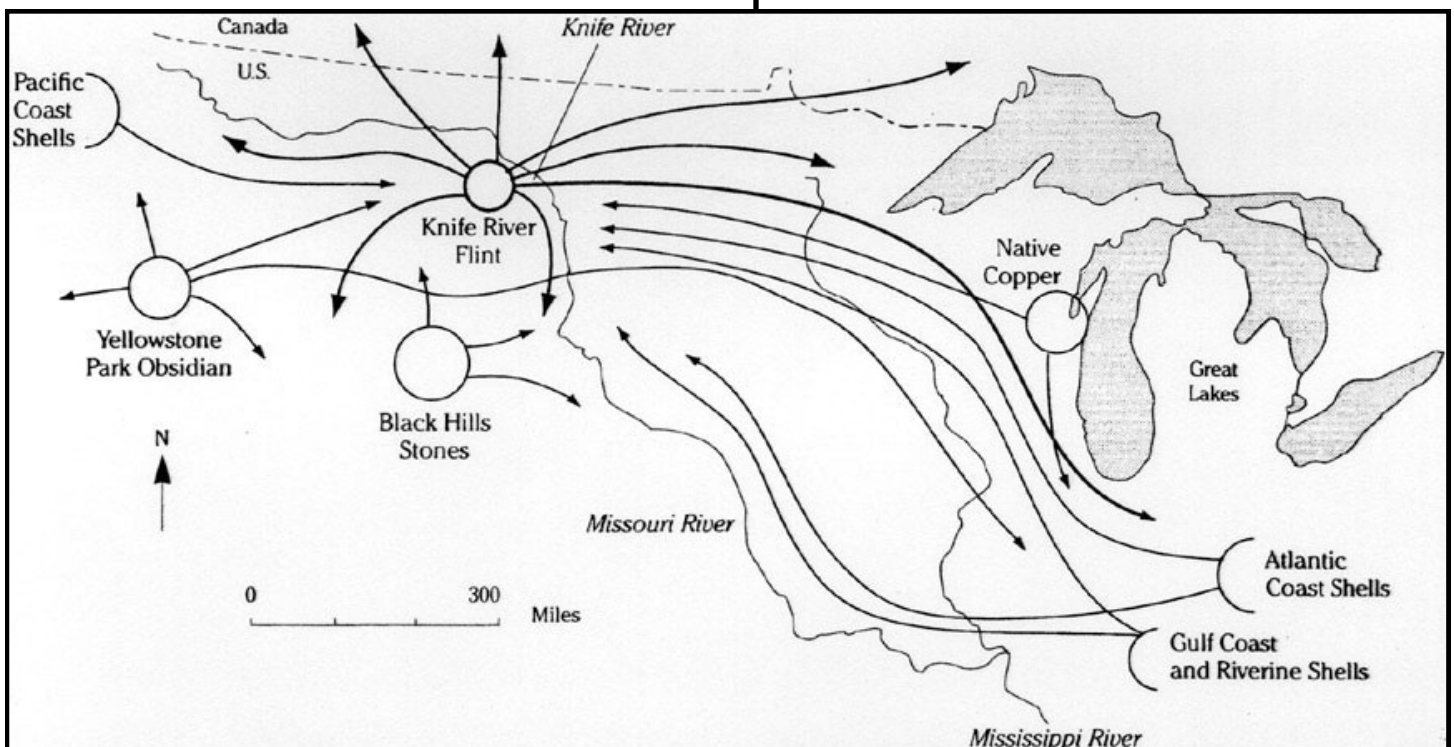
In the Northern Plains, Mandan and Hidatsa Indians were the great entrepreneurs. From their earthlodge villages

along the Middle Missouri River, the Mandans and Hidatsas often traded part of their abundant corn, bean and squash products for buffalo meat and hides with the hunting tribes that surrounded them. More than that, they became the middle men and importers where tribes throughout the region came to acquire goods that did not occur where they lived. The Mandan/Hidatsa trade network extended well beyond North Dakota. Mollusk shells from the Pacific Northwest, Gulf of Mexico and even the Atlantic Coast are found in excavations of Mandan villages. Tribes along the Great Lakes were beginning to mine and smelt copper which also became a trade item.

What durable resource of their own did the Mandan and Hidatsa have to trade? Knife River Flint!

## What's this got to do with the VBJ?

Not surprisingly, Knife River Flint is found among the bones at the Vore Site. About 7 per cent of the artifacts at the VBJ are made from KRF. While other types of stone from less distant quarries are dominant, the presence of KRF raises intriguing questions for archaeologists. KRF is so distinctive and the area where it was mined is so restricted, there is no question of where it originated. However, it's not certain who brought it to the VBJ. (continued next page)



Knife River Flint as a trade commodity—(Library of Congress)



**An arrow point made from Knife River Flint recovered from excavations at the Vore Buffalo Jump**

Pairing modern tribes with prehistoric stone tools is not exact science. At best, it's inferential/circumstantial "evidence". Having acknowledged that, what inferences can be made about KRF and the VBJ?

Start with what's known. The Hidatsa lived in large villages at the confluence of the Missouri and Knife Rivers and probably the dominant tribe along the latter during the period of Vore Site use. They are almost certainly

among the tribes that quarried and /or traded the famous flint.

In the late-1500's the Hidatsa had a major family feud. The schism was significant enough that some portions of the tribe moved away from the central farming area along the Missouri and shifted their economy toward nomadic buffalo hunting. As they adapted to the mobile life on the Plains, the breakaway group developed its distinctive identity. They maintained a trade relationship with their farming cousins, but they continued to adapt to the tipi-dwelling hunting culture. They referred to themselves as "the people of the long-beaked bird", possibly referring to cranes as a spiritual totem. However, other tribes, referred to them (perhaps in a derogatory way) by the name of another bird species. They became known as Crows, and that name is still applied to them.

It's known from oral history, supplemented by archaeology, that the Crows migrated toward the Black Hills and that they were dominant in the region during much of the 1600's. The artifacts of Knife River Flint that are found at the Vore Site are mostly from that century. From archaeological sites such as one along the base of the Bighorn Mountains, the Crows are known to have conducted communal buffalo jumps. If they did buffalo jumps where the Plains meet the Black Hills, they may very well have used the Vore Site. So, the inference is that the ancestors of the Crows may well have brought Knife River Flint to use at the VBJ. Additional research is needed to test such inferences and there's no better place to do the archaeological component than at the Vore Buffalo Jump.