
"Geologic" Curiosities in North Dakota

by John P. Bluemle

North Dakota has its share of features that may or may not have something to do with geology, but which are in any case commonly associated with geology. Some of them are really more related to anthropology or history, but that's because many people lump all of these disciplines together. I'd like to take a look at just a few of the many things that have been misunderstood about North Dakota geology over the years. I'll also offer some suggestions about what they really are.

"Bottomless Pits" – Awhile back, a person from Hope, North Dakota sent me an article from the July 30, 1896 issue of the Hope Pioneer newspaper. The article describes *"that famous Mud Springs, in the Sheyenne bottom."* The mud spring is "about 15 miles south of Hope, across on the other side of the river" (as nearly as I can tell, that would probably place it beneath Lake Ashtabula today). The writer says the spring *"has been sounded fifty feet down, and no bottom found."* He went on to say: *"During the summer months it is full of nice clean ice below the mud, which is about four feet deep and very sticky with pure but salty water below the mud."*

In this case, the Hope Pioneer writer doesn't offer an explanation for the Mud Springs. He just describes them. Over the years I've heard of a number of very deep or "bottomless" pits in various places, mainly in eastern North Dakota. Most of them are located at places where a well was drilled to the Dakota Formation, which is an artesian (pressurized) aquifer that underlies most of North Dakota ("artesian" is a word derived from the French "Artois," a region in northern France where flowing wells were once common). Large numbers of wells were drilled to the Dakota in much of eastern North Dakota in the late 1800's in search of a water supply. Many of these wells flowed salty water to the surface and in some of them the water was initially under considerable pressure. In some cases it was impossible to control the wells after they were drilled and they continued to flow indefinitely. Some of them are still flowing, although at much slower rates than when they were drilled. Because there was a continual upward flow of water from these wells, they gradually broadened into deep pools at the surface (deep, but not really "bottomless").

There are also a number of natural seeps in eastern North Dakota where slightly salty groundwater is escaping to the surface. Kelly Slough, just east of Grand Forks, is an example. Lake Ardoch, between the towns of Ardoch and Warsaw, is another.

Burial Mounds – In another article dated August 13, 1896 from the Hope Pioneer, the writer commented on a picnic held at a place known as Sander's Grove or *"the*

mounds," southeast of Cooperstown. Part of that article reads as follows: *"Now just a word about those mounds. Much has been said about their construction; how they came there, and what they are; and many of us differ in our opinion, but the writer believes that they were built there by man, or men, long, long, ago."*

The mounds southeast of Cooperstown. The mounds described in the Hope Pioneer are in the same area along the Sheyenne River that our geologists collected the fossil bones of a mosasaur in 1996. Several large hills (the Pioneer writer's "mounds") were within sight of the fossil excavation. When I walked over to look at them, I found that they are actually entirely natural erosional features, carved from shale and shaped by water that flowed down the Sheyenne River Valley at the end of the Ice Age. In fact, there is almost no limit to the possible shapes that erosion can cause naturally.



The mounds southeast of Cooperstown

Another place where a human, man-made origin has been attributed to a naturally eroded feature is at Fort Ransom. There, a pyramid-shaped hill has been promoted over the years as a man-made feature. It is not. Rather, it is just a hill that kind of looks somewhat like a pyramid if you view it from the proper angle. I was there a couple of years ago and climbed to the top of the hill to look at the metal statue of a Viking on top.



Ancient “Runestones” – Also at Fort Ransom, close to the site of the old fort, are several large glacial erratics. Some of the erratics have markings on them that have been interpreted to be a kind of ancient runic writing of Scandinavian origin. The markings, at least the ones I’ve seen on these boulders, are not man-made. Rather, they are cupped-out depressions formed when rocks being carried by the glacier were rubbed across the surface of rocks underlying the flowing ice. Similar “striations” are often found on glacial erratics, especially limestone boulders. I’ve seen rune and Ogham stones in Sweden, Ireland, and Scotland and I know that similar stones have often been reported from North America.



Straited limestone boulder at Fort Ransom

The Kensington Stone from Minnesota was especially interesting, as it provided an account of “8 Swedes and 22 Norwegians” on an exploration journey from Vinland westward. “We had our camp by 2 rocky islets one day’s journey north of this stone. We were out fishing one day. When we cam home we found 10 men red with blood and dead. AVM save us from evil. We have 10 men by the sea to look after our ships, 14 day’s journey from this island. Year 1362.” The quote is a translation of the message on the Kensington Runestone by Erik Wahlgren (1958).”

Alas, the whole thing was a hoax. However, other rocks such as Writing Rock in Divide County, are almost certainly genuine petroglyphic rocks. Many of the other stones with so-called ancient inscriptions that I’ve seen in North Dakota are, like those at Fort Ransom, natural features, not messages from very early European explorers or ancient, non-native people.

Mooring Stones – I’ve also seen some large boulders in the Fort Ransom area many years ago that had cylindrical shaped holes drilled in them. Some people have suggested that these are “mooring stones,” shaped by the Vikings when they sailed their ships up the Sheyenne River. Some of the legends I’ve heard from people in the Fort Ransom area claim that Vikings sailed their ships up the Red River of the North (or even up Lake Agassiz) and thence up



Writing Rock - Glacial striae and chattermarks on a boulder in the Fort Ransom area.

the Sheyenne River (if they sailed up Lake Agassiz, it had to be no more recently than about 8,000 years ago because that’s the last time the lake flooded eastern North Dakota. I find that especially hard to believe).

I’ve also seen similar “mooring stones” in the Turtle Mountains, at fairly high elevations. Again, Viking ships, this time navigating glacial Lake Souris, supposedly sailed into the Turtle Mountains. This idea is even more far-fetched than the Lake Agassiz sailors because, to get a ship into the Turtle Mountains would require a lake flooding much of North Dakota.

My own assumption has always been that the holes were drilled in the rocks to accept an explosive charge. The rocks were blasted into smaller pieces, either to make it possible to move them off the fields or to make it possible to use the pieces for building homes or other structures. I remember my grandfather telling me that identical holes, which he showed me, were chiseled into boulders for that reason – this on his farm in northeast Iowa where I grew up.

Just one more non-geological observation: I think it’s interesting that, in most cases, these so-called “man-made” features are promoted as something done by Vikings or some other race of people of European origin. Once it was decided that the feature was man-made, then it was also obvious (to white European settlers and their descendants anyway) that mere Native Americans couldn’t have done the job; it had to be white men. I’m not sure what this says about our [mainly white, European-male-oriented] thought processes. Maybe nothing. Maybe that they never heard about Cahokia near St. Louis or any of the various Maya engineering feats. Or maybe just that the Native Americans in North Dakota had more important things to do.

Many other natural features in North Dakota are misunderstood and I could go on indefinitely, but it’s time to end this discussion. But ask me sometime about the castle, built by dinosaurs 70 million years ago, and now eroding out of the ground near Freda, North Dakota!