

3-ton geological puzzle



Peter Liddell / Seattle Times

Geologist Greg W. Behrens peers into the mysterious hole in Okanogan County. In the background another geologist, Mike Lowry, inspects the hole's plug, whose sides have been eroded by the hooves of cattle.

Cookie cutter? Eerie force uproots big divot

by Hill Williams
Times science reporter

Somehow, in a way that baffles geologists, a massive chunk of earth has been plucked from a remote plateau in North Central Washington and put down, right side up, 73 feet away.

There is no evidence that humans had anything to do with it. Neither are there marks of machinery. The piece of earth, which remained largely intact during its move, is estimated to weigh at least three tons.

"All we know for sure is that this puzzle piece of earth is 73 feet away from the hole it came out of," said Greg W. Behrens, a geologist with the Bureau of Reclamation at Grand Coulee Dam.

The displaced chunk is an irregular pear shape, 10 feet long and 7 feet wide. Its thickness varies from two feet at one end to about 18 inches at the other.

The shape and thickness of the puzzle piece exactly match the hole that was left behind.

The mystery site is next to a wheat field on a farm operated by Fred Timms and his sons. Two of the sons, Rick and Pete, discovered the displaced earth on Oct. 18 while riding in the area rounding up cows.

They believe the event occurred sometime after mid-September when they were last there harvesting wheat.

Adding a bit of intrigue is the fact that there was a small earthquake in the area

during that monthlong period, at 8:24 p.m. Oct. 9. The quake, measured at 3.0 on the Richter scale, was felt in towns in the area but not at the Timm farmhouse a few miles from the mystery site.

The University of Washington pinpointed the quake's epicenter about 20 miles southwest of the displaced earth, and about four miles deep. But a UW scientist ruled out the possibility that the quake somehow could have popped out a piece of earth.

"Very, very unlikely," said Stephen D. Malone, a university geophysicist. "If the earthquake had done that, it would be the most dramatic and obvious thing ever reported that I'm aware of."

The Timms, excited by the discovery, called Don Aubertin, director of mining for the Colville Indian Tribe. The mystery site is on the Colville reservation in Okanogan County.

"There had been quite a roar with the earthquake," Aubertin said. "so we wondered if perhaps a meteorite fragment had impacted and ripped out a piece of earth."

Aubertin asked Bill Utterbach, a geologist retained by the Colvilles, to visit the scene. Utterbach's inspection quickly ruled out the meteorite possibility.

"There was no sign of impact," Aubertin said. "The hole was not a crater. It had vertical walls and a fairly flat bottom. It was almost as though it had been cut out with a giant cookie cutter."

But, Aubertin pointed out, even a "giant cookie cutter" couldn't have left the hole the

way Utterbach found it. Roots that had led to the vegetation in the puzzle piece dangled from the vertical walls of the hole, indicating they had been torn apart rather than cut.

There was no sign on the ground that the displaced earth had been dragged or rolled. But Utterbach did find something that added to the mystery.

"You'd think that, whatever the cause, the chunk would have traveled in a straight line," Aubertin said. "But Utterbach found where pieces had dribbled from the chunk as it moved. The dribblings traced an arc from the hole to where the chunk was found."

One possibility is that, if the chunk rose and fell in an arc as it moved, a stiff wind could have distributed the "dribblings" in a curve.

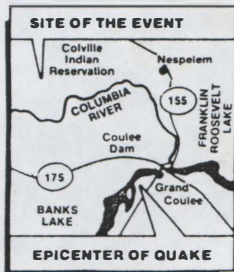
Behrens said the dense root mass in the puzzle piece probably helped hold it together. The chunk, as it was found, was rotated counterclockwise about 20 degrees in comparison to the orientation of the hole it left behind.

In the weeks since the event, the Timms' cattle have trampled the displaced chunk, destroying evidence of its remarkable fit with the hole.

The event occurred in an area with an interesting geological history. The plateau is 2,350 feet above sea level. The mystery site is in a small hollow, probably scraped out in the plateau's bedrock by the ice sheet that covered the area thousands of years ago.

The wheat field is dotted with huge boulders left by the melting ice sheet. Known locally as "haystack rocks," some are bigger than haystacks. Near the mystery site is a larger depression, described by Behrens as a "kettle," a geologists' term for a place where a mass of ice was buried and caused the ground to collapse as it melted.

It is an eerily fitting setting for what is apparently an unexplained natural phenomenon.



Robert Massa / Seattle Times

Map shows where chunk of earth was hurled through the air and epicenter of an earthquake last month.

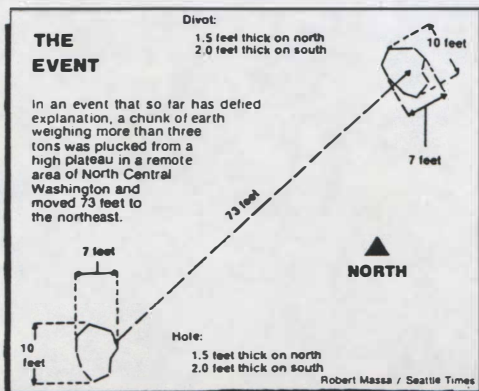
Behrens wondered if the earthquake's seismic waves in the bedrock had triggered concentric surface waves in the soil. If the waves converged, they might have ejected a piece of earth where they focused, he mused.

The UW's Malone agreed that focusing can occur. But it could not explain the source of the tremendous energy required to pluck out a piece of earth weighing tons and move it 73 feet.

"It really is a puzzle," Aubertin said. "None of us has come up with a plausible explanation."

Lindsay McClelland of the Smithsonian's Scientific Event Alert Network said he is not aware of previous reports of similar occurrences. But he was interested in this one.

"Be sure to let me know if you find out what caused it," he said.



Robert Massa / Seattle Times