



Grand Mound AND THE Muskrat

A Model of Ancient Cosmology on the Rainy River

DAVID MATHER

GRAND MOUND, located in the floodplain of the Rainy and Big Fork rivers on Minnesota's northern border, is the state's largest American Indian earthwork. For more than 2,000 years, it has been a regional monument, sacred place, and cemetery. With the rounded diamond shape of its massive, 25-foot-high body and its roughly 200-foot-long, low-lying tail, it is also a symbol of ancient cosmology, perhaps representing a world-creation story.

The big mound stands within an archaeological site that also contains smaller earthworks and the deeply buried layers of an ancient fishing village. Acquired by the Minnesota Historical Society in 1970, the site as a whole has been variously known as the Smith site (21KC3), the Laurel Mounds, and Grand Mound Historic Site. Laurel pottery was first identified and described here in the 1930s and has since been recognized as an important archaeological marker over a vast area of the northern midcontinent.¹

Originally listed in the National Register of Historic Places in 1972, Grand Mound was awarded the higher designation of National Historic Landmark in 2011—one of only 25 in Minnesota. This second listing recognizes the importance of the site as a whole in North American archaeology, as well as the magnificent symbolic architecture of the Grand Mound itself.²

Grand Mound had been known since the nineteenth century as an enormous but otherwise typical burial mound, the “undisputed king of Laurel mounds,” according to archaeologist Edward N. Lugenbeal. It was therefore a shock for the audience at the 1995 Ontario Archaeological Society conference when MNHS site manager Michael K. Budak and Canadian archaeologist C. S. Reid revealed a new dimension of the place that we all thought was so familiar. Their presentation, “Grand Mound and the Serpent,” announced discovery of the earthwork's tail and recognized Grand Mound for the first time as an effigy.³

Grand Mound had been known since the nineteenth century as the “undisputed king of Laurel mounds.”

I build on Budak and Reid’s discovery here, although my interpretation respectfully differs from theirs. Instead of linking the Grand Mound’s tail with serpent imagery, I consider the totality of the mound—the body and tail together—as an effigy representing a muskrat, the Earth Diver of ancient legend, who brought up mud so the flooded world could be magically created anew. I present this idea as an archaeological model, which is a means to connect abstract theories with known data.⁴ The result is not a claim about what did or did not happen in the past. Rather, it is a way of exploring this intriguing possibility for Grand Mound within the regional context of archaeology, culture, landscape, and environmental history.

HISTORICAL INTEREST in Grand Mound began in the nineteenth century, as digging by antiquarians and looters damaged this and other earthworks along the Rainy River. After local resident Fred Smith bought the site containing Grand Mound to protect it, archaeologists from the University of Minnesota investigated two of the small mounds in 1933 and 1956. By the late 1960s, University of Wisconsin archaeologists recognized that the layer-cake stratigraphy of the village area held more promise for learning about the past and focused their attention there. By that time, the archaeological site as a whole (earthworks and village) was known as the Smith site.⁵

The archaeology of the Smith



Visitors on the Grand Mound, early 1900s. A trench left by looters is visible at right.

site spans at least 5,000 years of American Indian history, but the focus of most investigations has been the two periods when the mounds were built and primary use of the site occurred: the Middle and Late Woodland traditions, as represented by Laurel and Blackduck pottery, respectively. Layers with Laurel pottery (Middle Woodland) date from about 200 BCE to 650 CE. Above those are layers with Blackduck and other Late Woodland pottery, dating from about 650 to 1400 CE.⁶ Many archaeologists believe that the two traditions are culturally related, despite the change in pottery style, and that this entire period shows a continuum of use at the site.

Burial mounds and ceramics are diagnostic traits of the Woodland Tradition as a whole. Mounds and Laurel pottery first appeared on the Rainy River at the beginning of the Middle Woodland through contact, most likely via an extensive North American trade network with the Hopewell Culture of present-day Ohio. From

there, the spiritual practices of mound building emanated, being adapted by intervening groups according to their own traditions. Thus, while the Middle Woodland Tradition on the Rainy River was connected in important ways to that of southern Minnesota, Illinois, Ohio, and everywhere in between, it was also an independent and unique entity.

In some areas of the Smith site, deeper (older) levels without ceramics demonstrate American Indian use of the site for fishing in the spring, a tradition that continued through the later periods of mound building. Stone tools from the pre-Laurel component were also found on the higher

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FACING: Grand Mound, standing 25 feet tall, about 1980

In world-creation (or re-creation) stories from many parts of the world, the Earth Diver plays a heroic role in the aftermath of a global flood.

terrace above the floodplain, where the visitor's center was built.⁷

Because of its large size, Grand Mound itself is generally assumed to be from the Laurel period, as those mounds are typically much larger than Blackduck mounds. However, the diagnostic artifacts from the mound's outer layers, exposed either by antiquarian pot hunters or burrowing animals, are primarily Blackduck in age. It is likely, in my opinion, that the origins of Grand Mound are Laurel but that construction, or at least use, continued in later centuries. Because of the symmetry of the effigy as a whole, I believe that the tail was part of the original intent.

Budak and Reid's investigation of the tail involved surface mapping, which showed that it tapers down quickly from the mound's body and then gradually decreases in height over its roughly 200-foot length. They confirmed that it is a constructed

part of the mound by taking a series of three one-inch-diameter soil cores along the center of the tail, corresponding to three cores outside of it. The deeper layers of dark soil within the tail showed that soil had been piled up at that location. The tail was built upon a natural ridge of floodplain soils, but its relatively straight line can be differentiated from the curving ridge in LiDAR (aerial laser sensing) imagery. This orientation, along with the coring results and the obviously constructed juncture of the tail with body of the mound, demonstrate that the tail is not a natural landscape feature.⁸

MUSKRATS, aquatic rodents native to North America, are common in Minnesota. They have fat, furry bodies, pointy noses, and long, thin tails. By far the largest of the taxonomic subfamily that includes

voles and lemmings, adult muskrats typically weigh about three pounds. Their total body length is around 28.5 inches, of which approximately one-third is the tail.⁹ Muskrats are perhaps "grand" when compared to most other rodents, but they are nonetheless small animals and it may be surprising to think of them as the inspiration for a giant effigy mound. This model proposes, however, that the Grand Mound effigy was not meant to be the small animal itself but, rather, was built to represent a big idea.

In world-creation (or re-creation) stories from many parts of the world, the Earth Diver plays a heroic role in the aftermath of a global flood. In these stories, some mud must be retrieved from deep under the water so that dry land can be magically created. Always a diminutive creature such as an insect or diving duck, the Earth Diver succeeds when stronger animals have failed and hope is fading. Oral traditions of a muskrat as the Earth Diver are known from Algonquian-speaking groups including the Ojibwe and Cree, as well as Siouan speakers including the Dakota.

Edward Benton-Benai tells an Ojibwe version in *The Mishomis Book*. The Creator has caused a global flood to purify the earth. Waynaboozhoo, the legendary spirit of the people, finds a log floating on the surface of the water and gradually gathers



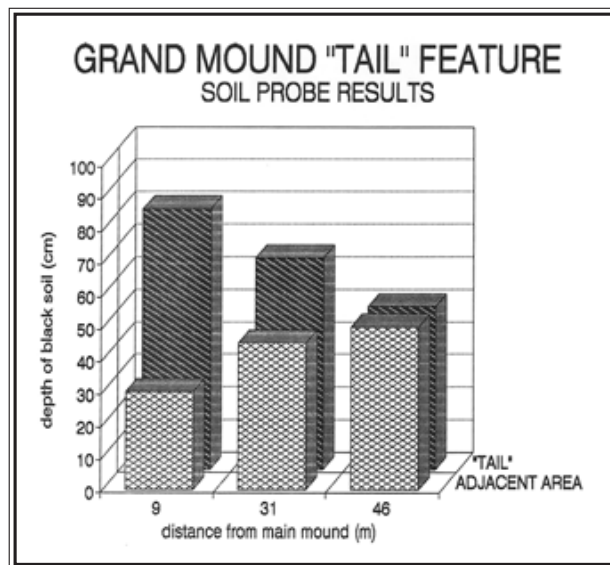
Replica Laurel and Blackduck pots (left to right), diagnostic of the Woodland Tradition, made by former Grand Mound site manager Mike Budak

the animals to him. He tries to swim down to the bottom to retrieve some earth to remake the dry land, but the water is too deep and he is unsuccessful. One by one, the animals volunteer to try: first the loon, then the grebe, the mink, the otter, and the turtle. The other animals scoff when the muskrat tries, but he ultimately succeeds at the cost of his life. With the mud that the muskrat retrieves, the earth is remade on the turtle's shell as a small island that grows and grows.¹⁰

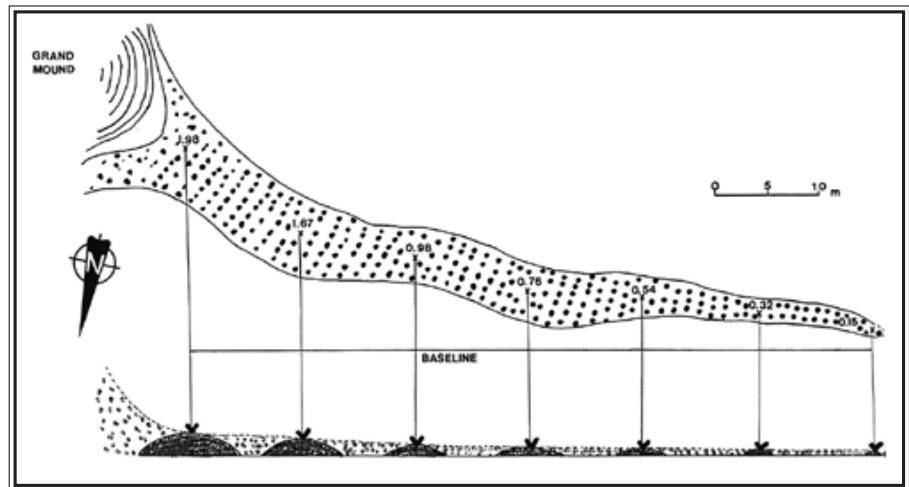
Folklorist Richard Dorson presents a slightly different version of the story, told to him by an Ojibwe elder on Michigan's Upper Peninsula in 1946, with the animals being first the loon, then the otter and, last, the successful muskrat. He prefaces it with the observation, "Listening to a living tale of the Deluge and Creation gives one a queasy feeling. Here is Genesis before anyone wrote it down."¹¹

In a Cree version recorded by George Nelson in the early-nineteenth century, the earth is flooded in a battle between the culture hero and supernatural underwater lynxes. The otter is sent first to look for mud. It is unsuccessful and dies, but is brought back to life. The muskrat is then asked to try. "Come my little brother, go thou, thou art small and very active, art fond of water, and goeth to great depths—thy reward shall be that of the otter." A cord is tied to his foot so that he can be pulled back. He dives and comes up dead, but he has a little mud in his paws and mouth. He is revived and tries again. This time he brings a mouthful of earth and "a good deal more in his hands which he held pressed to [his] breast." The hero re-makes the world from this ball of mud, blowing it in all directions.¹²

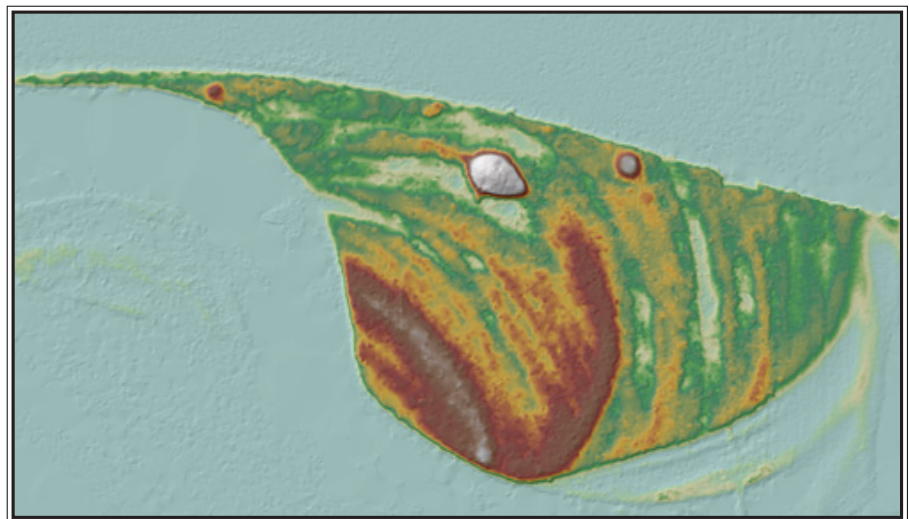
A Dakota version was told to Amos Oneroad in the early-twentieth century by elders in his community at Sisseton, South Dakota. It begins as Wakan Tanka descends a rainbow to



Mike Budak's presentation of soil core results confirming that the tail is not a natural landscape feature



Budak's map of the tail; the height profiles at bottom show the taper.



LiDAR (aerial laser sensing) map, revealing the tail differentiated from the natural ridge

the surface of the sea. From his lower ribs, he creates two Unktehi, under-world panthers. They in turn create several animals: the loon, otter, grebe, and the muskrat. These animals each try to swim to the bottom of the sea to retrieve primordial mud so the land can be made. All die in the attempt but are revived by the Unktehi. Only the muskrat is successful, and the sediment it brings is spread to the west by the Unktehi. They all swim in that direction and finally reach land. Once there, the animals are transformed into people, and the Unktehi instruct them in the mysteries of the Medicine Dance.¹³

Other versions of the Earth Diver story are known from across North America, Asia, and eastern Europe and may be related to world-creation stories from other parts of the globe. While these stories vary greatly in details, their common elements may point to deeply ancient connections between groups who later developed

differences in language and culture as they moved around the world. The Earth Diver itself is always a small animal. All versions that I'm aware of from the North American midcontinent feature the muskrat in that central role.¹⁴

Muskrat bones have been found in the archaeological layers of the Smith site, as well as other area sites; not surprisingly, these animals were well known to residents of the Rainy River when Grand Mound was constructed.¹⁵ Also, bones indicating ceremonial muskrat burials have been found in Middle Woodland mounds in southern Minnesota and western Illinois, built at the time when the tradition of mound building arrived from the Hopewell Culture heartland of present-day Ohio. The Earth Diver story appears to have been an important aspect of Hopewell cosmology.¹⁶

It is not known if muskrat burials are present in the Grand Mound or

other earthworks of the Smith site, but I suspect the practice was more common than archaeologists have recognized. Most mound excavations occurred in the late-nineteenth and early-twentieth centuries before modern archaeological methods were developed, so small bones would likely have been overlooked. Many excavations of that time did not collect animal bones at all, and those that were recovered often were not identified.

Those early excavations more frequently documented another form of Earth Diver symbolism, however: black, "special soils associated with wet, mucky, lake bottom or riverside locations" that had been intentionally gathered and transported to construct layers within some earthworks. In this way, the Earth Diver story was reenacted in building a mound and, symbolically, each mound repre-

Muskrat in winter



With the mud that the muskrat retrieves, the earth is remade on the turtle's shell as a small island that grows and grows.

sented the creation of the earth. While not limited to Middle Woodland mounds, this trait is best known from earthworks of that period.¹⁷

Together, the muskrat burials and wetland-soil layers indicate that inclusion of Earth Diver symbolism was a widespread practice in Middle Woodland mound construction, when Grand Mound was likely begun.¹⁸ In at least some cases, the animal representing the Earth Diver was a muskrat.

Musk rats themselves build mounds, constructing their dome-shaped houses of vegetation and mud that rise above the surface of shallow water. They also bring sediment up from the bottom during the winter, and deposit it on the surface of the ice. These aspects of muskrat behavior show why they are a natural candidate for the Earth Diver role, and in that context, perhaps even an inspiration for burial mound construction. Benton-Benai wrote: "The Creator has made it so that muskrats will always be with us because of the sacrifice that our little brother made for all of us many years ago when the Earth was covered with water. The muskrats do their part today in remembering the Great Flood; they build their homes in the shape of the little ball of Earth and the island that was formed from it." Because of its role as the Earth Diver, *Wazhashk* the muskrat is now seen as a symbol of Ojibwe cultural survival.¹⁹

AS THE LARGEST in the state, Grand Mound was long seen as

the prototypical example of a burial mound. That was a mistake, as discovery of the tail first indicated. This revelation is broadened when further considering the mound's size, form, and landscape position. In truth, Grand Mound is no more typical of other Minnesota earthworks than the state capitol is of other Minnesota buildings. Grand Mound stands alone and, with the Earth Diver story, its unique qualities are the foundation for this interpretive model.

For size, Grand Mound is not just big, it is enormous—staggeringly large—measuring about 140 feet in length and 100 feet in width. The volume of its 25-foot-high body alone is around 15 times greater than the average size of other Minnesota earthworks.²⁰ It is bigger than the largest mound downstream on the Rainy River at Long Sault Rapids, which archaeologist W. A. Kenyon called "the most spectacular prehistoric native monument in all of Canada."²¹

Regarding form, with one exception, Grand Mound has no direct parallels. It is not a large conical mound (archaeologists' term for round, dome-shaped mounds), the most common form of ancient earthwork. Some "compound" mounds are conical with linear appendages or ramps, but Grand Mound is unlike those. Some linear mounds are hundreds of feet long, but again, Grand Mound's tail is different. Grand Mound is a three-dimensional representation rather than a profile outline, the form more commonly identified as an effigy mound, such as the Marching Bears or Thunderbirds of Wisconsin's

Driftless Area (and contiguous parts of Iowa and Minnesota).²²

The only earthwork with a somewhat similar form to Grand Mound that I've seen recorded is the Westbourne Mound near Lake Manitoba in Canada, about 300 miles northwest of Grand Mound. Archaeologist E. Leigh Syms has described it as an effigy of "a 10 foot high muskrat with a long tail."²³ There are differences—the Westbourne Mound is considerably shorter than Grand Mound, while its tail is twice as long—but the two appear to share the same general traits. The age of the Westbourne Mound's origin is not securely known, although it contains burials under limestone slabs, which bring to mind the stone crypts that are often considered a trait of the Middle Woodland Tradition.²⁴

Little is known about the internal structure of Grand Mound, but antiquarian E. McColl's 1883 account suggests the Middle Woodland use of black, wetland soils described above.

The inner part of the mound was black earth mixed with ashes and having the appearance of being thoroughly mixed together with water and subjected to considerable heat, so that any pebbles found therein were burnt. Above this mixture there is a covering from 1½ feet to 2 feet of clay, and covering the clay there is from 5 feet to 6 feet of black earth, which had neither been mixed with ashes nor subjected to the action of fire.²⁵

Considering the source of this black earth brings us to the final

point: landscape position. Most mounds were built on high elevations, overlooking lower areas.²⁶ This is such a prevalent trend that archaeologists who encounter a fine view during a survey often start looking around for mounds. In some cases, mounds were built right on the edge of higher landforms, where they are clearly visible from below and appear even more prominent from that perspective.²⁷

The expected location for mounds at the Smith site would be up on the higher terrace, where the visitor's center is located, but the reality is the opposite. Grand Mound was built on a floodplain, in a location that is still occasionally inundated. It is not even at a high point within the floodplain. Rather, it is close to the water, between the active river channels and a marshy abandoned channel of the Big Fork River. More than size, perhaps more than even its form, this is the most unusual aspect of Minnesota's most prominent ancient earthwork.

JUST AS MUSKRAT BIOLOGY provides an obvious North American candidate for the Earth Diver role, Grand Mound's vicinity is an ideal setting for the flood story. This watery connection is apparent at the site itself and perhaps even more so at a regional level.

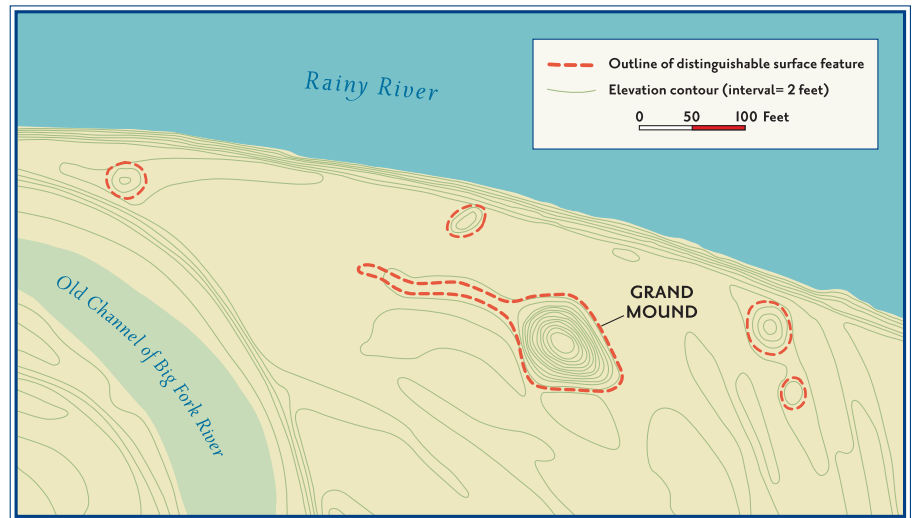
Grand Mound is one of a network of ancient mound and village sites along the roughly 90-mile course of the Rainy River. Of these, Grand Mound (the Smith site) and the mounds in Canada at the Long Sault Rapids are the most prominent. At Long Sault, the mounds overlook a natural landing at the base of the rapids, where generations of visitors have created a unique prairie opening in the forest.²⁸

At Grand Mound, the choice of location is not so obvious, except

that all mounds on the Rainy River were built at natural cataracts—river confluences or rapids—where sturgeon and other fish spawn in the spring. This relationship is not a coincidence. Those concentrations of fish at the end of the long winter were a life-saving resource, bringing people to congregate at these places for thousands of years before the first mounds were built. The floodplain layers at the Smith site and neighbor-

ing Hannaford site are rich with fish bones.²⁹

It is not known precisely why this location was chosen for Grand Mound, a mound unlike all the others. Perhaps the decision was related to a dream or vision from a community leader or a significant event that is unrecorded in history. We do know, however, that the site was a wet area of meandering river channels from about 5,900 to 2,250 years ago,



Grand Mound in relation to the Rainy River and abandoned channel of the Big Fork River



Regional context: Grand Mound and other features, both natural and constructed.

On a regional level it is clear, even today, that this is a place where water has become land.

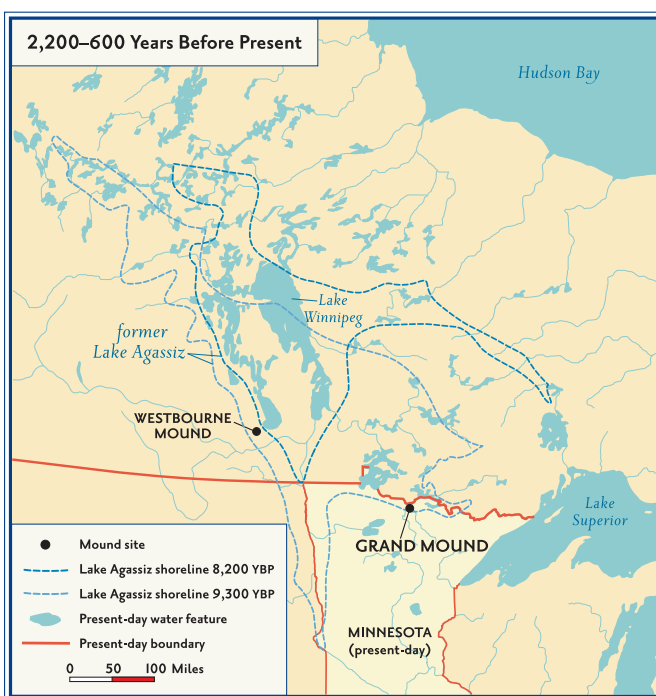
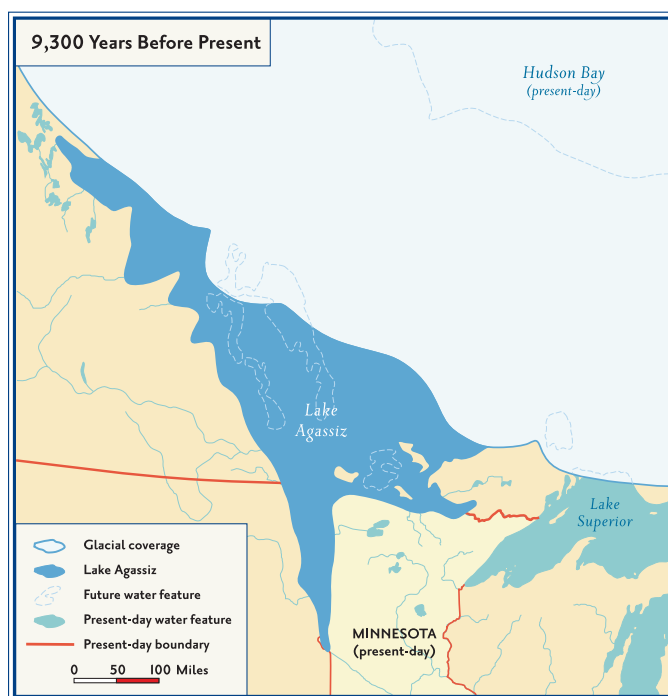
at which point a change in hydrology caused the floodplain to start building upward.³⁰ The date of this change is remarkably close to the beginning of the Middle Woodland Tradition around 2,200 years ago, as marked by the first appearance of Laurel ceramics in this area. There were older, higher, and drier parts of the river valley all around, so it appears that it was a conscious decision to begin this mound on newly formed earth. As the construction continued for centuries—until approximately 600 years ago—the surrounding levels of the village built up naturally through silt and clay sediments deposited in successive floods, creating a remarkable archaeological palimpsest of Rainy River history.

As described above, black, wetland soils were used in Middle Woodland

mounds to represent the Earth Diver story, and it appears from McColl's 1883 description that black soil is present in Grand Mound as well. Moreover, in the context of the mound's floodplain location, one could claim that Grand Mound is actually the ultimate example of an Earth Diver mound because the whole earthwork was made from wetland soils. Like at Long Sault Rapids, there may be borrow pits (low spots left when soil was removed) adjacent to Grand Mound, but these areas do not compare with the scale of the earthwork.³¹ I suspect that much of the soil used to build Grand Mound came from the Grand Mound Oxbow, the marshy former channel of the Big Fork River southwest of the mound, or mud from the Rainy River's bank in low water.³²

The Earth Diver story can be seen as an intriguing component of Grand Mound and the Smith site as a whole, but I also believe that the connection may go much farther than that. Grand Mound is within the basin of a vast, ancient lakebed. On a regional level it is clear, even today, that this is a place where water has become land.

Minnesota was most recently covered by glaciers during the Wisconsin Glaciation, from about 75,000 to 12,000 years ago. As the climate warmed at the beginning of the present interglacial period, the Laurentian ice sheets melted and retreated to the north. In their wake was an enormous meltwater lake now known as Glacial Lake Agassiz, its area larger than all of the Great Lakes combined. The shoreline shifted over thousands of years as the ice margins changed



Before and after: Glacial coverage and Lake Agassiz (left), and the region about 7,000 years later, a giant lakebed where Grand Mound and other Woodland Tradition earthworks were constructed. Present-day landmarks superimposed on both views.

and new drainages periodically appeared. Living remnants of Glacial Lake Agassiz include Lake of the Woods, Red Lake, Lake Manitoba, and Lake Winnipeg. Another legacy is the expansive peatlands of northwestern Minnesota.³³

Glacial Lake Agassiz occasionally stabilized long enough to form beaches. The closest of these to Grand Mound is a ridge about 20 miles to the south, which formed during the giant lake's Emerson Phase, about 10,000 to 9,200 years ago. As this part of the glacial lake retreated, the Rainy River formed in its basin, flowing westward into the "new" Lake of the Woods. Over time, the river cut down through the lakebed and built up its floodplain from redeposited lake-bottom clay and silt. This process created a strip of rich upland soils along the margins of the river, while areas inland (also within the Lake Agassiz basin) have remained wet and

boggy.³⁴ With Grand Mound a notable exception, this higher level of the natural levee was where burial mounds were typically constructed.

While the presence of Grand Mound within the lakebed but near this ridge could be seen as a coincidence, it is noteworthy that the Westbourne Mound occupies a similar position relative to the ridge about 300 miles away. This is a large distance, but it is still within the Laurel world, as indicated by the distribution of archaeological finds.³⁵

The Westbourne Mound's tail leads to the edge of a dry oxbow channel of the Whitemud River. Similarly, Grand Mound's tail extends toward the Rainy and the old channel of the Big Fork River. I like to imagine these two giant muskrats climbing out of their marshes, near the western and southern shores, respectively, of Glacial Lake Agassiz. The edges of the giant lake may have always been good

habitat for real muskrats. They unquestionably became so once it began to drain.³⁶

American Indians have lived continually around or within the boundaries of the glacial lake since it had water, but about 7,000 years passed between the end of the lake's Emerson Phase and the time when Laurel mound building began.³⁷ I do not discount the possibility that direct knowledge of the lake could be passed down through so many generations (although 7,000 years is unquestionably a long time). I am more intrigued, however, with another possibility: that American Indians of the Middle Woodland and related periods interpreted their landscape as a place that had once been underwater and

Periodically inundated setting of Grand Mound, 1970. The mound is near the bank of the Rainy River (left) in the muskrat-like landform created by the flooded abandoned channel and Big Fork River.



Visiting Grand Mound

Once part of the Minnesota Historical Society's network of historic sites, Grand Mound closed to the public in 2002, though protection and preservation have continued. Now, the Society is discussing ways to make the site publicly accessible again.

Over the past year MNHS staff members have met many times internally, with our Indian Advisory Committee, and with members of the International Falls community. Response to the idea of re-opening the site has been very positive, but much work remains. Community engagement will continue, resources need to be reallocated,

new interpretation created, and physical improvements to the site completed. We do not yet have a grand opening date, but we're hopeful and excited that in several years you will be able to walk the trails at one of our most important historic places, and MNHS will again have a network of 27 historic sites across the state. For more information and updates, stay tuned to www.mnhs.org and MNHS mailings.

—Ben Leonard, manager of
community outreach and partnerships

correctly identified a span of Glacial Lake Agassiz. Perhaps some saw it literally as a place where the Earth Diver story occurred, or perhaps it was always seen as an allegory. Either way, it was a place where the Earth Diver had a special resonance. When the Middle Woodland practice of mound building reached the Rainy River, this older tradition achieved even greater synergy with the Earth Diver symbolism of Hopewell spirituality.

Successful hunter-gatherers are experts at reading and interpreting their landscape, drawing on cultural traditions often referred to as traditional ecological knowledge. Recognition of the beach levels of a glacial lakebed over such a large distance would be an impressive testimony to this indigenous science. It was traumatic for nineteenth-century European geologists to first recognize the existence of ancient glacial landforms because they contradicted cultural traditions of the Biblical flood described in Genesis. Swiss naturalist Louis Agassiz was among the first to promote the "Glacial Theory," and Minnesota geologist Warren Upham later named the glacial lake in his honor.³⁸ In contrast, the American Indian builders of Grand Mound and the Westbourne Mound may have

seen their homeland's former lakebed in terms of their own ancient story of the global flood. In that sense, this model is an archaeological interpretation of cosmology connected to an ancient analysis of glacial geology.

GRAND MOUND is the center of the interpretive model presented here: a muskrat effigy representing the Earth Diver, the little hero who helped re-create the world after a global flood. In this model, the Earth Diver story is spectacularly represented in the region's American Indian earthworks, inspired by Earth Diver cosmology brought north from the Hopewell heartland and blended with already ancient indigenous Earth Diver traditions. Also in this model, the legacy of Glacial Lake Agassiz provided a unique and more direct connection with the Earth Diver story than was present in other parts of the Hopewellian world.

It is useful and interesting to explore these ideas, but it is also important to remember that the model is not a historical truth. It is an interpretive idea, focused on a single theme. In building it, I've interwoven a theory of the ancient Earth Diver connection with archaeological data,

such as pottery styles and dates, and observations about Middle Woodland earthworks as well as ethnographic accounts of Earth Diver stories, glacial geology, and biological information about muskrats.³⁹

Grand Mound was built over the course of many centuries, and countless generations lived nearby during that time and later. I seriously doubt that all of those people shared a single view of what the Grand Mound "meant," and it would be arrogant for us today to believe we know what they thought. This model is simply one possibility, which allows us to explore aspects of the deep history of this place.

Ancient, complex, and mysterious, Grand Mound did not become a National Historic Landmark because of an interpretation. Rather, it warrants that status because (among other reasons) the site's great history and integrity make such interpretations possible. More important, just as the muskrat *Wazhashk* is a symbol of cultural survival, the ancient earthworks of the Rainy River endure.⁴⁰ With proper protection and care, as practiced in Ontario by the Rainy River First Nations community at Kay-Nah-Chi-Wah-Nung Historical Centre, they will always remain for the benefit of future generations. ▣

Notes

I am grateful to Barbara Howard, Sarah Beimers, and my other State Historic Preservation Office (SHPO) colleagues for their support. Over many years, this research has benefited greatly from conversations with Elisse Aune, Rose Berens, Mike Budak, Kevin Brownlee, Bill Clayton, Patricia Emerson, Grant Goltz, Mary Graves, Christy Hohman-Caine, Stacey Jack, Lee Johnson, Jim Jones Jr., Jim Leonard II, Erika Martin Seibert, Vergil Noble, Ed Oerichbauer, Jeff Richner, Bill Ross, James Stoltzman, Leigh Syms, Matt Thomas, Annie Wilson, Sherry Wilson and Willie Wilson, among many others—thank you! Many thanks also to John Crippen and the Minnesota Historical Society (MNHS) historic sites department and to Ben Leonard for enjoyable recent adventures at Grand Mound.

1. Michael K. Budak, *Grand Mound* (St. Paul: Minnesota Historical Society Press, 1995), 9–15.

2. Elden Johnson, “National Register of Historic Places Documentation Form: The Laurel Mounds,” and David Mather, “National Historic Landmark Nomination: Grand Mound” (Washington, D.C.: U.S. Dept. of Interior, National Park Service, 1971 and 2006, respectively); Mather, “Grand Mound is a National Historic Landmark: Minnesota Archaeology and the National Register of Historic Places in 2011,” *Minnesota Archaeologist* 70 (2011): 84–112.

3. Edward N. Lugenbeal, “The Archaeology of the Smith Site: A Study of the Ceramics and Culture History of Minnesota Laurel and Blackduck” (PhD diss., University of Wisconsin, 1976), 5; Michael K. Budak and C. S. Reid, “Grand Mound and the Serpent,” presented at the 22nd Annual Meeting of the Ontario Archaeological Society, Thunder Bay, 1995, copy in SHPO, MNHS. The discovery occurred after Budak’s book, *Grand Mound*, was published. Correspondence in MNHS historic sites department files indicates that Budak hoped to update the site’s exhibits and interpretive materials, but this was not possible before the site was closed to the public in 2002. He did, however, reroute the walking trail to go around, rather than over, the tail.

4. The Earth Diver story appears in many American Indian cultures and on other continents. For one example, see Edward Benton-Banai, *The Mishomis Book: The Voice of the Ojibway* (Hayward, WI: Indian Country Communications, 1988), 29–34. Guy Gibbon, *Anthropological Archaeology* (New York: Columbia University Press, 1984), 47, describes the modeling process as a “playful, creative interlude in which processes are simulated and assumptions tried out; no commitment needs to be made that this is what necessarily happened in the past” (emphasis in original).

5. For more detail on the archaeology of this important site, see Budak, *Grand Mound*; Lugenbeal, “Archaeology of the Smith Site”; Mather, “National Historic Landmark Nomination”; James B. Stoltzman, *The Laurel Culture in Minnesota* (St. Paul: Minnesota Historical Society,

1973). For more context on the archaeology of the Rainy River and Woodland Tradition, see Guy Gibbon, *Archaeology of Minnesota: The Prehistory of the Upper Mississippi River Region* (Minneapolis: University of Minnesota Press, 2012), 113–43, 181–201; W. A. Kenyon, *Mounds of Sacred Earth: Burial Mounds of Ontario* (Toronto: Royal Ontario Museum, 1986), 41–72; J. V. Wright, *A History of the Native People of Canada*, vol. 2, 1,000 B.C.–A.D. 500 (Hull: Canadian Museum of Civilization, 1999), 725–80.

6. In northern Minnesota, including the Rainy River, where the Early Woodland Tradition is not present, these periods are often called Initial and Terminal Woodland. I retain the Middle/Late terminology because I am discussing connections with regions where those terms apply.

Dates of archaeological periods are approximations, usually based on interpretations of a few radiocarbon tests and related archaeological data. The dates used here follow Budak, *Grand Mound*. The most recent overview of the historic contexts in this region proposes slightly different spans of time and includes the Late Woodland; Constance Arzigian, “National Register of Historic Places Multiple Property Documentation Form: The Woodland Tradition in Minnesota” (Washington, D.C.: U.S. Dept. of Interior, National Park Service, 2012).

7. Douglas A. Birk and Douglas C. George, “A Woodland Survey Strategy and Its Application to the Salvage of a Late Archaic Locality of the Smith Mounds Site (21KC3), Koochiching County, Minnesota,” *Minnesota Archaeologist* 35/3 (1976): 1–30.

8. Budak and Reid, “Grand Mound and the Serpent.”

9. Paul Errington, *Muskrat Populations: Population Dynamics on an Important Species* (Ames: Iowa State University Press, 1963), 3–31; Gale R. Willner et al., “*Ondatra zibethicus*,” *Mammalian Species* 141 (1980): 1–8; Evan B. Hazard, *The Mammals of Minnesota* (Minneapolis: University of Minnesota Press, 1982), 97–99; Jason Abraham, “Modern-Day Trappers,” *Minnesota Conservation Volunteer*, Jan./Feb. 2007, 38–45.

10. Benton-Banai, *Mishomis Book*, 29–34.

11. Richard A. Dorson, *Blood-Stopppers and Bear-Walkers: Folk Tales of Immigrants, Lumberjacks & Indians* (Cambridge: Harvard University Press, 1952), 42–48. See also Victor Barnouw, *Wisconsin Chippewa Myths & Tales and their Relation to Chippewa Life* (Madison: University of Wisconsin Press, 1977), 38–40.

12. Jennifer S. H. Brown and Robert Brightman, “*The Orders of the Dreamed*,” *George Nelson on Cree and Northern Ojibwa Religion and Myth*, 1823 (St. Paul: Minnesota Historical Society Press, 1988), 47 (emphasis in original).

13. Amos E. Oneroad and Alanson B. Skinner, *Being Dakota: Tales & Traditions of the Sisseton & Wahpeton*, ed. Laura L. Anderson (St. Paul: Minnesota Historical Society Press, 2003), 188–89.

14. For muskrat as Earth Diver in Ioway cos-

mology, see Lance Foster, “The Ioway and the Landscape of Southeast Iowa,” *Journal of the Iowa Archaeological Society* 43 (1996): 1–5. For widespread occurrence of the story, see Yu. E. Berezkin, “‘Earth Diver’ and ‘Emergence from Under the Earth’: Cosmogonic Tales as Evidence in Favor of the Heterogenic Origins of the American Indians,” *Archaeology, Ethnology and Anthropology of Eurasia* 32 (2007): 110–23; Elli Kaija Kōngäs, “The Earth-Diver (Th. A. 812),” *Ethnohistory* 7/2 (1960): 151–80; Alan Dundes, “Earth-Diver: Creation of the Mythopoeic Male,” *American Anthropologist* 64/5 (1962): 1032–51.

15. Lugenbeal, “Archaeology of the Smith Site,” 356; Paul W. Lukens Jr., “The Vertebrate Fauna from Pike Bay Mound, Smith Mound 4, and McKinstry Mound 1,” in *Laurel Culture in Minnesota*, 37–45; Darcy Morey, Carl Falk, and Holmes Semken Jr., “Vertebrate Remains from the McKinstry Site,” in *The McKinstry Site (21KC2): Final Report of Phase III Investigations*, ed. M. M. Thomas and D. Mather (Maple Grove: Loucks & Associates, 1996), copy in SHPO; George Rapp Jr. et al., *Final Report: Hannaford Data Recovery Project* (Duluth: Archaeometry Laboratory, 1995), 193–218, copy in SHPO; David Arthurs, *Archaeological Investigations at the Long Sault Site: A Stratified Habitation and Burial Station on the Rainy River in Northwestern Ontario*, Ontario Ministry of Citizenship and Culture, Report 7, 1986, 69; David Mather, “Zooarchaeology at the Rainy Lake City Saloon: Historic, Woodland and Archaic Components at 21KC13, Voyageurs National Park,” *Minnesota Archaeologist* 67 (2008): 43–62.

16. Kent Bakken et al., *Mitakuye Owes, All My Relations: Authentication, Recovery and Reburial at the Lincoln Mounds for the Bloomington Central Station Project*, Bloomington, Minnesota (St. Paul: Summit Envirosolutions, 2006), 71–72, copy in SHPO; Lynn M. Alex, *Iowa’s Archaeological Past* (Iowa City: University of Iowa Press, 2000), 98–100; Joel W. Martin, *The Land Looks After Us: A History of Native American Religion* (Oxford: Oxford University Press, 2000), 18–21. See also Brian M. Fagan, *Ancient North America: The Archaeology of a Continent*, 4th ed. (New York: Thames & Hudson, 2005), 435–56; Gibbon, *Archaeology of Minnesota*, 123–28.

17. Robert L. Hall, *An Archaeology of the Soul: North American Indian Belief and Ritual* (Urbana: University of Illinois Press, 1997), 8, 18 (quote), 23. See also Robert C. Mainfort Jr., *Pinson Mounds: Middle Woodland Ceremonialism in the Midsouth* (Fayetteville: University of Arkansas Press, 2013), 205; Christopher Carr, “Scioto Hopewell Ritual Gatherings: A Review and Discussion of Previous Interpretations and Data,” in *Gathering Hopewell: Society, Ritual, and Ritual Interaction*, ed. C. Carr and D. T. Case (New York: Kluwer Academic/Plenum Publishers, 2005), 463–79.

18. American Indian earthworks were built for more than two millennia, and their symbolic architecture is complex and diverse. My focus is on one aspect of a much larger cultural tradition.

19. Peter Marchand, "Between Ice and Hard Times," *Minnesota Conservation Volunteer*, Jan./Feb. 2005, 18–25; Hazard, *Mammals of Minnesota*, 98; Benton-Benai, *Mishomis Book*, 34; Brenda J. Child, *Holding Our World Together: Ojibwe Women and the Survival of Community* (New York: Viking, 2012), 28, 121.

20. Budak, *Grand Mound*, 28, estimates that it contains about 90,000 cubic feet of soil—approximately 5,000 tons. My comparison with other mounds is based Constance M. Arzigian and Katherine P. Stevenson, *Minnesota's Indian Mounds and Burial Sites: A Synthesis of Prehistoric and Early Historic Archaeological Data* (St. Paul: Office of the State Archaeologist, 2003), 65. Earlier sources—George Bryce, *Among the Mound Builders' Remains* (Winnipeg: Historical and Scientific Society of Manitoba, 1904), 45, and Newton H. Winchell, *Aborigines of Minnesota* (St. Paul: Minnesota Historical Society, 1911), 369, incorrectly list the height as 45 feet. Lugenbeal, "Archaeology of the Smith Site," 5, and Budak, *Grand Mound*, 12, 28 explain that 45 feet is the distance along the slope from the edge of the mound to the summit but the vertical height is 25 feet.

21. Kenyon, *Mounds of Sacred Earth*, 1. Long Sault is a conical mound about 113 feet in diameter and 24 feet high. Arthurs, *Archaeological Investigations*, 21, states that it is "dwarfed by the truly monumental proportions of Grand Mound."

22. Robert A. Birmingham and Leslie E. Eisenberg, *Indian Mounds of Wisconsin* (Madison: University of Wisconsin Press, 2000), 109–36; James L. Theler and Robert F. Boszhardt, *Twelve Millennia: Archaeology of the Upper Mississippi River Valley* (Iowa City: University of Iowa Press, 2003), 127–29. Dakota elders have identified a profile-effigy mound at Diamond Bluff, Wisconsin (across the Mississippi River from Red Wing), as a muskrat, referring to the Earth Diver story; Michael P. Bergervoet, "A Monument Mosaic: Merging Indian Oral Tradition and Scientific Method" (MS thesis, Minnesota State University—Mankato, 2008), 68–70.

23. E. Leigh Syms, *Aboriginal Mounds in Southern Manitoba: An Evaluative Overview* (Parks Canada, 1978), 35. Syms writes, "There is some danger of imaginative individuals seeing animal forms in irregular, geometric forms, but I have been impressed with the muskrat-like appearance of the Westbourne Mound (#160) every time I have visited it"; *Aboriginal Mounds*, 43. I greatly appreciate my 2007 visit to this mound with Dr. Syms.

24. Westbourne is an accumulative mound, built in stages over a long period of time; Syms, *Aboriginal Mounds*, 40, 82. Disturbance by looters revealed artifacts that Syms identifies with the Devil's Lake-Sourisford Burial Complex (Late Prehistoric—more recent than Laurel). Arzigian and Stevenson, *Minnesota's Indian Mounds*, 473–75; Birmingham and Eisenberg, *Wisconsin's Indian Mounds*, 85; Sigrid Arnett, Geoff Jones, and David Maki, "National Register of Historic

Places Documentation Form: Indian Mounds Park Mound Group" (Washington, D.C.: U.S. Dept. of Interior, National Park Service, 2013).

25. E. McColl, Aug. 7, 1883, quoted in Winchell, *Aborigines of Minnesota*, 375.

26. Arzigian and Stevenson, *Minnesota's Indian Mounds*, 142.

27. On siting at Long Sault Rapids, see Arthurs, *Archaeological Investigations*, 19. Other Rainy River mounds with this position include the single mound by the sturgeon hatchery at Manitou Rapids and McKinstry Mound 1 at the Little Fork River.

28. Rainy River First Nations, *Kay-Nah-Chi-Wah-Nung: Guide to Medicinal, Edible and Traditional Plants* (Stratton, ON: Kay-Nah-Chi-Wah-Nung Historical Centre, 2006), 1; Arthurs, *Archaeological Investigations*, 19; David Mather, "The Place of the Long Rapids," *Minnesota Conservation Volunteer*, May/June 2011, 28–39.

29. Budak, *Grand Mound*, 13–14; Lugenbeal, "Archaeology of the Smith Site," 655; Rapp et al., *Hannaford*, 196.

30. Edwin R. Hajic, "Geoarchaeology of Phase III Excavations," in *McKinstry Site (21KC2)*, 6.11–6.12. Hajic investigated a number of locations along the Rainy River, including the Smith site, and based his chronology on radiocarbon dates and analysis of layers revealed by deep geological cores. Geomorphology is the study of landforms and their geological history. Geoarchaeology examines archaeological sites in the context of geology.

31. Arthurs, *Archaeological Investigations*, 21. During flooding in June 2014, I noticed an area of deeper water on the north side of the mound toward the Rainy River, which could be an ancient borrow pit.

32. James K. Huber, *Results of a Paleoeological Study of Grand Mound Oxbow Lake, Koochiching County, Minnesota* (Duluth: Archaeometry Laboratory, 1995), 3, SHPO; Rapp et al., *Hannaford*, 39–40. This study provides a useful analysis of vegetation change at the Smith site.

33. Richard W. Ojakangas and Charles L. Matsch, *Minnesota's Geology* (Minneapolis: University of Minnesota Press, 1982), 105–10; H. E. Wright Jr., Barbara A. Coffin, and Norman E. Aaseng, eds., *The Patterned Peatlands of Minnesota* (Minneapolis: University of Minnesota Press, 1992), 9–11.

34. A. F. Bajc, *Quaternary Geology: Rainy River—Fort Frances Area* (Toronto: Ontario Geological Survey Report 286, 2001), 28. These drier soils contribute to a microhabitat with elms, oaks, and related vegetation, described at a smaller scale along the Wawig River, which also flows through marshy lakebottom of Glacial Lake Agassiz; Jon Nelson, *Quetico: Near to Nature's Heart* (Toronto: Natural Heritage Books, 2009), 103–09.

35. Wright, *History of the Native People*, 725–80; Grace Rajnovich, *Reading Rock Art: Interpreting the Indian Rock Paintings of the Canadian*

Shield (Toronto: Natural Heritage/Natural History, 1994), 47; Ronald J. Mason, *Great Lakes Archaeology* (New York: Academic Press, 1981), 284–92.

36. For muskrats and their habitat in the Glacial Lake Agassiz basin of northern Minnesota, Manitoba, and Ontario, see Errington, *Muskrat Populations*, 410–19.

37. Matthew Boyd, "Paleoindian Geoarchaeology of the Assiniboine Delta of Glacial Lake Agassiz," *Canadian Journal of Archaeology* 31/3 (2007): 198–221; Michael A. Magner, "The Lake of the Woods/Rainy River Late Paleoindian Complex: An Initial Assessment from the Rainy River Region of Minnesota," *Minnesota Archaeologist* 60 (2001): 87–98.

38. Fikret Berkes, *Sacred Ecology: Traditional Ecological Knowledge and Resource Management*, 3rd ed. (New York: Routledge, 2012); Warren Upham: *The Glacial Lake Agassiz* (Washington: U.S. Geological Survey Monograph 25, 1896).

39. The model could be taken farther, as there are other effigy earthworks on the ridge in Manitoba and, nearby on the Rainy River, McKinstry Mound 2 was also built in the floodplain. Syms, *Aboriginal Mounds*, 56; Lloyd A. Wilford, "The Prehistoric Indians of Minnesota: The McKinstry Mounds of the Rainy River Aspect," *Minnesota History* 31 (Dec. 1950): 231–37. I have focused on Grand Mound and, secondarily, the Westbourne Mound, as the most obvious examples of muskrat/Earth Diver mounds.

40. Child, *Holding Our World Together*, 28, 121.

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