Chapter 4
Smudge Pits and Hide Smoking[1]

From the American Southwest, famous for its pottery, we move to the shores of Lake Superior where the performance-based approach is used instead to explore the function of pit features. These features, given wide notoriety by Binford (1967) in his New Archaeology-type analysis employing analogical reasoning, played an important role in the contact period occupation of Grand Island's Lake Superior shoreline.

Grand Island

Grand Island is located just off the shore of Lake Superior near the present-day town of Munising (Fig. 4.1). The island, the largest on the south shore of Lake Superior, has 35 miles of shoreline and is roughly 7 miles long and 3 miles wide, and covers about 13,600 acres (Roberts 1991:26). The island has two interior lakes, one of which (Echo Lake) is quite large, about a mile in length and a half mile in width. The north side of the island is dominated by sandstone cliffs that are similar to the Pictured Rocks National Lakeshore located on the mainland just east of the island. The southern shore, however, consists of shallow sand or pebble beaches that are protected from the lake's wind and high waves. There is evidence that people have taken advantage of the island's diverse resources from the Archaic Period to the present (Dunham and Anderton 1999).

Not only does the island provide a variety of flora and fauna but there is a historically used sugar maple groove, and the shallows off the south shore are one of the most productive fisheries in this part of Lake Superior. Moreover, the protected bay between the mainland and the island is easily commutable by small boat except in extreme conditions. It is no surprise, therefore, that the earliest Euro-American settlers chose this place for a homestead and trading post, which had been the location for Native Americans for thousands of years (Dunham and Branstner 1995).

[1] This chapter is cowritten by John G. Franzen and Eric C. Drake

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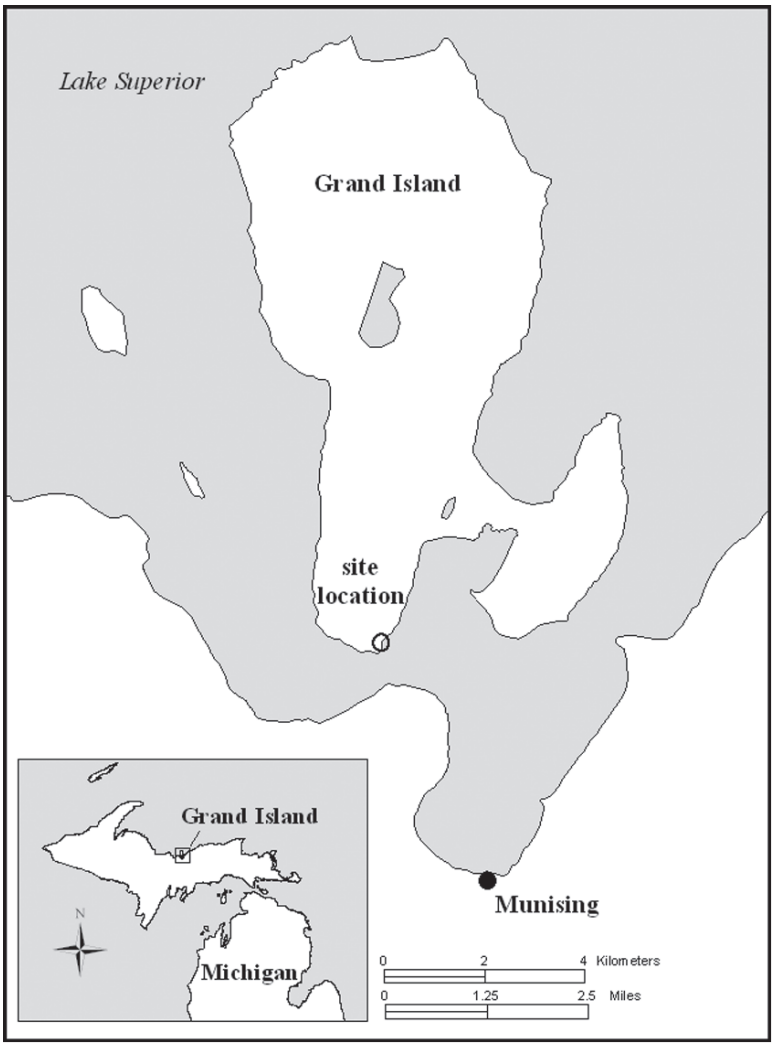


Fig. 4.1 The location of the Grand Island and the site of *Gete Odena*

Gete Odena: Historic Accounts

From the red deer's hide Nokomis
Made a cloak for Hiawatha,
From the red deer's flesh Nokomis
Made a banquet in his honour.
All the village came and feasted,
All the guests praised Hiawatha
(Longfellow 2000:25)

Longfellow's famous book-length poem, *The Song of the Hiawatha*, was based on Ojibwe (*Anishinabeg*) lore collected by Henry Rowe Schoolcraft during his two decades as Indian Agent stationed at Sault Ste. Marie, the important community during the early historic era located in the St. Mary's rapids approximately 140 miles east of Grand Island. From 1822 to 1841, Schoolcraft collected oral histories from the Native Americans that passed in and out of the active trading post. This work was facilitated in large part by his marriage to Jane Johnston, daughter of John Johnstone, one of the most active traders on Lake Superior. Jane's mother was Ojibwe, *Ozhow-Guscodoy-Wayquay* (Woman-of-the-Green-Valley), which gave Schoolcraft easier access to the local Native Americans and permitted him to collect countless stories about their customs, ceremonies, music, and history (Mason 1997).

Schoolcraft's introduction to Lake Superior came about in 1820 when he was asked to join the Cass Expedition. Lewis Cass was then Governor and Superintendent of Indian Affairs of the Michigan Territory, and he organized a trip to explore the southern shore of Lake Superior. Schoolcraft was hired as the geologist and mineralogist and he wrote and published *The Narrative Journal* the following year (Schoolcraft 1821; Williams 1992). This is a detailed account of not only the landscape and mineral resources but of the Native Americans whom they encountered. On 18 June 1820, the group left Sault Ste. Marie following the south shore of Lake Superior and by 21 June they had reached what is now the Pictured Rocks National Lakeshore, which consists of remarkably sculpted 50- to 200-ft sandstone bluffs that rise up from the lake. At about the terminus of Pictured Rocks as you travel west is Grand Island, where the group spent the night.

Here they camped "in a large, deep, and beautiful bay, completely land-locked" (Williams 1992:109,415–416). This is certainly what we call today "Murray Bay," and their camp was either at or very near the location of our excavation project. Schoolcraft goes on to report that "Here we found a village of Chippeway Indians, who, as soon as we landed, came from their lodges to bid us welcome" (Williams 1992:109). That night the camp was the location for dancing, singing, and storytelling. One of the stories was that of the now infamous 13 warriors who traveled to battle with the Sioux after the Grand Island band had been accused of not participating fully in the frequent skirmishes between the two tribes. According to several accounts (see Williams 1992), the Grand Island group engaged the Sioux against all odds and was determined to fight till their death. As they did not want their courage to go unreported, they had the youngest warrior watch the battle from a hidden location where he could witness the event and then report it to their people. The Schoolcraft party was told this story by the young surviving warrior. So impressed was the group that Doty, also a member of the party, published an account of the exploit, "Tale of the Thirteen Chippewas," in the *Detroit Gazette* the following year (Williams 1992:445–446 reproduces the entire *Gazette* article). Although not recorded by any member of the Schoolcraft party, according to local legend the young warrior was "Powers of the Air" who is believed to be represented in a stone carving located on the mainland just 10 miles west of the island. Loren Graham, current occupant of Grand Island's North Light and island historian, has written a popular book that suggests, based on collected oral histories, that the so-called

"Face on the Rock" was made by a member of Schoolcraft's group during a short layover (Graham 1995). Although neither Schoolcraft nor any other member of the party mentions the carving, which is still visible but now badly eroded, this story is deeply embedded in local oral tradition.

Schoolcraft did not say anything else about Grand Island during this trip, but he did on many occasions in later years, as part of his duties as Indian Agent, report on the Grand Island band living on the island. For example, he reports that in 1822 Grand Island had 46 Native Americans (Schoolcraft 1851:102), in 1836 he noted that the Grand Island band consisted of 62 members, and in 1839 he reports that Grand Island had a total of 59 people (7 men, 8 women, and 44 children) (Schoolcraft 1853; see Roberts 1991:49).

About 6 years after the original Schoolcraft and Cass trip, they visited Grand Island again, and this time their journey was recorded by Thomas McKenney. They traveled the south shore of Lake Superior and camped at about the same spot, McKenney believed, that was used by the original Schoolcraft party (McKenney 1959). He mentions an abandoned Ojibwe camp.

> Near our tent I found the frame of a large lodge, and just back of it, the kind of frame on which the Indians dry their fish. It is built over a square hole in the ground, of about six feet by three, where the fire is built. Near the lodge was a pole of a about thirty feet high. At its top hung some badges of the superstition of these people. It was an offering for the sick! From those offerings, we inferred a child had been the subject of their anxieties. Near the top of the pole is a small cap, suspended by a small string – to which is attached, also, a strip of fur. Below these is a little child's covering, not more than ten inches by twelve, with no sleeves, with a feather from the wing of a hawk suspended from near the shoulder-straps. Below, there is a piece of red and white ribband, and ten feet below all, hangs a small hoop, tied round with wattap, which confines to it a parcel of white feathers. (McKenney 1959:362)

Gilman (1836:55) visited the same island location in the fall of 1835 and "found ourselves in the midst of a deserted Indian village." He reports finding the villagers camped on the other side of the island.

A number of other individuals traveled the south shore during this period and many make note of Grand Island (see Castle 1987; Roberts 1991). These accounts and the ones noted earlier, though sketchy, tell us several important things about the native groups on the southwest shore of the island during the period from 1820 to 1840. First, it was a relatively small group. The most accurate estimates were likely made by Schoolcraft and the numbers ranged from 46 to 59 people. Second, many of visitors to the island report the village as "recently abandoned," sometimes with still standing structures. This is in agreement with the notion that the historic and prehistoric groups in the region had a flexible settlement pattern (see Martin 1989, 1999). The location, at best, would have been occupied during the spring through fall but not necessarily on a regular basis. Some of the travelers came to the island during what would have been the prime time for site occupation, only to find it abandoned. The site was clearly occupied on a seasonal basis and not necessarily each year. Third and finally, the southwestern edge of Murray Bay seems to be the consistent location for the historic Native American settlement, which is confirmed by archaeological evidence (Dunham and Anderton 1999; Dunham and Branstner

1995; Skibo et al. 2004). The documents reviewed by Roberts (1991:52–53) suggest that the historic Ojibwe village was located from the sand bluff, on which the Jopling Cottage was constructed (now owned by the Carlsons), to the low-sandy south end of the island. This is a distance of only about 200 m, and our site is located within this zone.

Gete Odena: Williams Era

Abraham Williams, the first permanent white settler on Lake Superior, built his house on Grand Island beginning in 1840 or 1841 at or immediately next to the same historic Ojibwe settlement. Unfortunately, Williams kept no diary, but the evidence of his 33 years in the island is everywhere as some of his structures still stand today. Much of what we do know about this era comes from the work of Castle (1987) who interviewed, in 1906, the 78-year-old daughter of Abraham Williams. Mrs. Trueman Walker Powell, the former Anna Marie Williams, was 12 years old when she arrived on the island and her words provide a vivid account of the early years and the relationship between her father and the local Ojibwe band. According to Mrs. Powell, their family was invited to live on Grand Island by *Omonomonee*, who was "the last chief that had much authority over this tribe" (Castle 1987:32). We take the name "*Gete Odena*," which means "ancient village," from the Williams' era. The Ojibwe settlement on the island at the time was referred to as the *Gete Odena*, near which Williams built his home.

Our site, which is within 100 m of one of the homes built by Williams, may be the *Gete Odena* as we have a strong Late Woodland occupation at the site, but it was also occupied during the historic period prior to and even after the arrival of Williams. Thus, the descriptions provided by Powell are especially relevant to this discussion. Powell notes that the Ojibwe lived on the island only in the summer and describes their village:

> Saplings were set into the ground at regular intervals and their tops were tied together to make a roof.…This framework was covered with square mats which lapped one over the other, and which were made of the long leaves of the "cat-tails" woven on a woof of tough roots. The bark of the basswood tree were also used. These mats were practically indestructible, and possessed the further advantage of being easily removed and set upon another framework…In the center of every lodge was an open fire. Around the sides were the beds, made of furs flung on hemlock boughs. (Castle 1987:36)

Williams was a "man of parts" (Roberts 1991:96). He was a blacksmith, cooper, carpenter, farmer, fisherman, and trader. The Williams family arrived on the island at the end of the most productive fur trade period. The Ojibwe in the region had contact with the French traders beginning in the 1600s followed by the British and then Americans. By the early 1800s, the prized beaver had started to become scarce and the major fur trading activity moved west (Bishop 1974:11–12). There continued, however, active trade in other fur-bearing animals such as muskrat, marten, moose, and deer. Williams involved himself immediately in this trade and was successful in

taking business away from the American Fur Trading outposts on Lake Superior.[2] Williams also obtained fish from the locals, which he put into barrels he made on Grand Island. In the 1850s, it was reported that Williams was producing each season several hundred barrels of fish, each holding about 200 pounds (Roberts 1991:102).

Besides trading with the local Ojibwe, Williams also hired them for various activities. Although there is little direct evidence that Williams employed the Ojibwe, one only needs to look at his accomplishments to envision that he must have had a group of locals employed most times. Besides building numerous structures on Grand Island, he also built a sawmill on the mainland, worked as a carpenter in the newly founded city of Marquette, built hundreds of barrels each winter, farmed, operated a blacksmith shop, supplied firewood for the steam ships on Lake Superior, and operated a brisk trade with the Ojibwe in furs, fish, and various other items. Although his wife and children were working on these projects, there is some evidence that Native Americans were hired as well. Brotherton (1944:198–203) visited the island in 1853 on a steamship and notes, "Indians in the employ of Williams began loading dry hardwood cut in four foot lengths as fuel for out steam boilers." Clearly, Williams and the local Ojibwe developed a symbiotic relationship in which the locals provided Williams with furs, fish, and labor, and Williams turned a handsome profit from the transactions as well as providing the Ojibwe with the trade goods they desired. This was such an important relationship during this period that once Williams left the island the Native Americans did as well. Williams died in 1873, and the 1880 census lists no Native American on the island (Roberts 1991:62). The Native Americans, as well as Williams' descendants who stayed in the area, moved to the mainland.

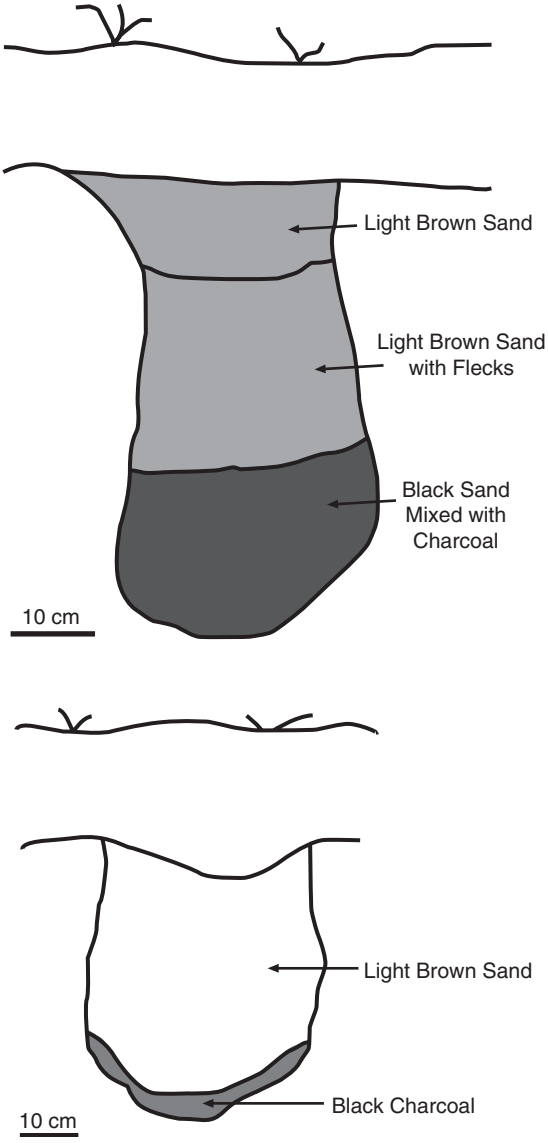
Gete Odena: Smudge Pits

Several dozen features were exposed during two excavation seasons, and six of them were unique pit features that were consistent in both morphology and content. The exact forms of two of the pit features are not known because they were truncated by later disturbance. The content of these features, however, was identical to the other four and thus we think that they functioned in the same manner.

The pits had a mean maximum width of 36 cm and a mean maximum depth of 46 cm. As seen in Fig. 4.2, three of the pits are slightly bulbous in profile. The base of each pit has a layer of charred, half-burned fuel that was in such a good state of preservation that in some cases pine cones were still intact and needles could be identified. Each pit was filled with sandy, mottled soil (light brown through dark brown in color) with flecks of charcoal.

[2] The American Fur Company Traders on Lake Superior complained to their superiors that Williams was trading whiskey to the Ojibwe, which was in violation of the 1842 Treaty of La Pointe (Roberts 1991: 57)

Feature 3 has a slightly different shape and fill sediment. The sides of this pit are straighter and the fill, though still quite mottled in appearance, has a much darker micro-strata. We suggest that this pit was reused as least once and possibly several times. When initially dug, it may have had the same bulbous shape as the other three pits, but after one or more reuses, the sides gradually became straight. The bulbous shape, with a narrowing at the midsection, would not hold up long in the sandy soil as it dried. Collapsing walls were an ongoing problem during excavation,



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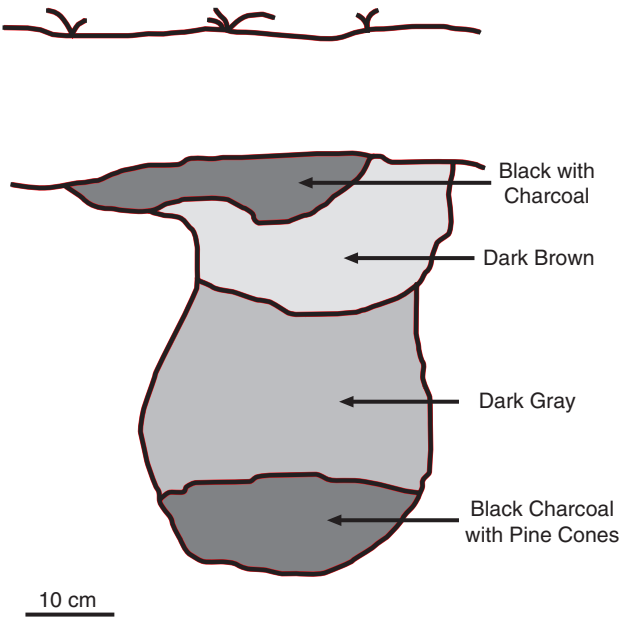

Fig. 4.2 (continued) Profile drawings of representative smudge pits found at *Gete Odena*, each showing charred material at the base

which suggests to us that the shape of the bulbous pits could not be maintained without being filled in soon after use. The walls of such a pit would tend to become straighter through time and with repeated contact with arms and hands during preparation of the smudge fire. Supporting this multiple use argument is the denser, thicker, carbonized layer at the base of Feature 3.

Performance-Based Analysis

Binford (1967) elevated similar pit features to considerable fame as he used them to demonstrate analogical reasoning with ethnographic sources. He excavated 15 of these features at a Mississippian site excavated as part of the Carlyle Reservoir project in southern Illinois (Binford et al. 1964). The pits had a mean width of about 27 cm and a depth of 30 cm. The fill of these pits is remarkably similar to what was found at *Gete Odena*, the base of the features had charred, and carbonized organic matter and the remainder of the pit fill had a grayish loam soil that demonstrates "intentional filling of the pit contents" (Binford 1967:38). One notable difference between the Mississippian pits and those found at our site is that the former often contained remnants of corn cobs as part of the carbonized fill. The botanical analysis from *Gete Odena*, to date, has not recovered any evidence of corn, which would preclude its use as smudge material. The pits at our site are also slightly larger than

those recorded by Binford. This could be the result of slightly different functions, but it also may be because the sandy soil at *Gete Odena* lends itself to easy digging even with one's bare hands. In the original archaeological report, Binford et al. (1964:17) suggested that the features were smudge pits that could have been used to keep away mosquitoes.

Not satisfied with this explanation, Binford in his later paper on analogy (Binford 1967) did an ethnographic search and found 13 groups, ranging form the Plains to the Southeast and Great Lakes, with a reported use of similar features. In all cases, the pits were used to smoke hides. Binford then concluded, based on the similarity in form, size, and content between the prehistoric and ethnographic cases, that the 15 features from his site were used to smoke hides. Spector (1975) identified almost identical features at the late-eighteenth-century Winnebago site in southeastern Wisconsin. Charred corn cobs were also found at the base of each of the pits.

Munson (1969) suggests that Binford's functional interpretation of the smudge pits was too narrow. In fact, he cites several ethnographic cases in which similar pits were used to smudge pottery, not smoke hides. He does not suggest that Binford's smudge pit argument was incorrect, only that it may be too narrow. Binford (1972:53–58) counters Munson's argument by agreeing that it is indeed possible to smudge pots using pits (and there is some ethnographic cases to back this up), but the most common way to smudge pottery does not involve using a pit. He then argues that the strongest argument, based on analogical reasoning, can still be made for hide smoking, instead of pottery smudging or any other use of smudge pits.

The Binford and Munson debate is interesting because it demonstrates how the New Archaeology began to grapple with the use of analogy and hypothesis testing in their quest to reconstruct prehistoric activity. We argue, however, that while ethnographic analogy does indeed play a critical role in understanding the function of features or artifacts, an equally important step is a performance-based analysis of the features themselves.

Performance Analysis of the Features

As noted previously, performance characteristics are the characteristics an artifact or feature must possess in order to perform its function. Performance characteristics and the associated technical choices can be inferred by isolating the attributes of the feature or artifact. This is a theory of artifact or feature design that answers the question, "Why was this feature made in this way?" Isolating the technical choices along the feature's entire life history provides the clues to understand performance characteristics. In this case, we can infer these technical choices by the stratigraphic information, pit contents, and other contextual information. There are two performance characteristics that we can infer from the technical properties of the pits: oxygen deficiency and ease manufacture.

Oxygen Deficiency

The life history of these features begins with the need for a pit. Individuals have lots of options at this point that are governed by the function of the pit, the soil type (rocky, sandy, etc.), the time they want to invest in the project, and the available tools for excavation. The formal properties of the pits can be used to infer the technical choices made by those who dug and used the pit. Each pit has a relatively narrow mouth that would mean that only one arm could be used for excavation by hand or with the help of a simple scoop. The mean maximum depth is about 50 cm, which is about as deep as a pit can be dug by hand. A smoky fire could be built on the ground or in a shallow, basin-type pit, but they chose to dig a relatively deep, narrow pit. A fire at the base of such a pit would create an oxygen-deficient environment – a smoky, smoldering, flameless fire. Hilger (1992:132) observed smoking hides on the La Pointe Reservation in which a metal bucket was used instead of a pit. The bucket functioned adequately for smoking the hides but it had to be monitored carefully so that the flames would not erupt and burn the hide. Careful monitoring of this type would not be necessary if smudging were done in the deep, narrow pits at *Gete Odena*.

The content of the pits also provides important clues to their choice of fuels. Dry wood, grass, or other dry fuel would be readily available, but they chose, in this case, pine bows and cones. Ritzenthaler and Ritzenthaler (1983:82) note that the ideal smudge fuel would be "rotten pine or poplar, or in some cases, Norway pine cones," and Hilger (1992:132) observed white-pine and Norway pine cones being used. At the base of each of the *Gete Odena* pits were charred cones and pine twigs that still maintained their structural integrity. In an oxygen-rich environment, even green bows and cones will combust.

Ease of Manufacture/Expediency of Manufacture

The sandy soil matrix at the site would make it possible for a person to dig a pit of this type in a matter of minutes. What is more, the unstable sandy soil would not permit these pits to be left open for long without caving. The stratagraphic evidence suggests that the pits were dug, used, and filled within a short period of time, likely in the same day. As mentioned earlier, the bulbous shape of the pits could not be maintained if the pit was left open for any length of time. In addition, the great quantity of unburnt matter at the base of the pits suggests that pits may have been filled immediately after use while the smudge was still smoldering. Ritzenthaler and Ritzenthaler (1983:82) report that coloring of hide over a smudge pit would take only about 15–20 min per side. With the exception of Feature 3, which had the straight sides and deeper charred layer, it is quite likely that the pits were used just once. When one or more hides were ready to be smoked (they could be sewn together and smoked at the same time), a pit was dug, pine cones and other smudge material was put in the base, and a few burning coals were added to start the

smudge. After roughly half an hour, the hide was removed and the dirt was tossed back into the pit to extinguish the fire and cover the hole.

The above performance-based analysis suggests only that the pits were well suited to create a smudge fire on an as-needed basis. They are easy to make and easier to fill up when done. The question remains, however, What were these pits used for? To answer this we turn to contextual clues, faunal data, and the ethnographic record.

There is no evidence among the Ojibwe that they smudged the interior of their vessels. Moreover, the single C14 date run on a cone from the pit along with other contextual information suggests that the pits were used somewhere between 1810 and 1850. Although this was prior to or immediately after the arrival of Abraham Williams, there is no evidence that traditional handmade pottery was made at this time. The mouths of the pits at our site are also too big for the standard Late Woodland vessel. Munson (1969) found some ethnographic support for smudging pots over a pit, but this is clearly the exception worldwide. The typical pattern is to remove a hot pot from the fire and place it directly over combustible material.

We do, however, have ethnographic cases among the Ojibwe for smoking hides using very similar features (Buffalohead 1983; Densmore 1979; Hilger 1992; Johnstone 1990; Ritzenthaler and Ritzenthaler 1983). Figure 4.3 shows photos taken by Densmore (1979) in the early twentieth century.

> If several hides were to be smoked, they were sewn together in such a manner that they formed.…(a) conical shape.….A hole was dug about 18 inches in diameter and 9 inches deep. Over this a framework was constructed that resembled a small tipi frame. The hide was suspended above the framework and drawn down over it…A fire had previously been

Fig. 4.3 Photos of an Ojibwe woman smoking a deer hide (Bureau of American Ethnology, Bulletin 86, Plate 75)

made in the hole, Zozed using dry corncobs for the purpose. This fire smolders slowly, the smoke giving to the hide a golden yellow color. (Densmore 1979:164–165, Plate 75)

Other Supporting Evidence

Supporting the hide-smoking argument is the large number of hide-bearing animal remains identified during the faunal analysis, which includes beaver, deer, muskrat, wolf, marten, otter, and moose (Skibo et al. 2004). Although we cannot make a direct correlation between the bones recovered and the construction of the smudge pits, the patterns in the faunal material are striking and may be of some note. During the 2001 and 2002 seasons, a total of over 1,400 pieces of bone were recovered (see Skibo et al. 2004 for a complete discussion). A total of 89.6% of the bone came from mammals. The vast majority of the mammal bone was too small and fragmentary for species identification. Beaver was the most common animal bone identified (42 pieces), though the bones represented just 3 MNI. The most surprising result was the small number of fish bones recovered. Just two sturgeon, two whitefish, two Walleye, and one Channel catfish were identified, and there were only 30 total fish bones identified. For comparison, at the Juntunen site, 85% of the recovered bone came from fish (McPherron 1967), whereas fish make up just 2% of our collection. This is surprising because the site is located at a classic location for a Great Lake's fishing village, and just off shore of the island is one of the most productive fisheries in the south shore of the lake. The overall distribution of bone species along with the presence of the smudge pits, discussed earlier, certainly supports the notion that this section of the site was involved in hide processing during historic period.

Why Smoke Hides?

Ritzenthaler (1949; see also Ritzenthaler and Ritzenthaler 1983) discusses what he calls the "tanning process." After the skin has been removed from the deer it can be sold as a "green" hide, or the hide can be processed further. When Ritzenthaler (1949) recorded the process, a tanned hide could get up to double the price of a green hide. The men shoot the deer and remove the hide but women did the remainder of the process, which first involves removing the hair. This was done on a "beaming" pole, which is simply a smooth peeled log. The hide is placed on the pole and the hair is removed with a scraper, which was a cylindrical piece of wood imbedded with a blunt table knife (Ritzenthaler 1949). After the hair is removed the hide is soaked in a solution of warm water and dried deer brains, which had been initially prepared by boiling in a frying pan. If brains are not available then egg white is used. Holes are then cut into the edges of the hide

and it is attached to stretching frame. The hide is stretched and then allowed to dry on the rack. The smoking process involves sewing the edges of the hide together to form a "cylindrical bag" (Ritzenthaler 1949:11–12). The group observed by Ritzenthaler also sewed a piece of cloth onto the bottom of the hide that was then attached to the metal smudge bucket. This additional cloth was needed to keep the hide from burning, which would be unnecessary if a smudge pit was used. The hide is then smoked for about 15 min per side, which is a process called "*sowagige'akwans*" (Hilger 1992:132). Ritzenthaler (1949:13) also notes that the summer hides are preferred for this process because they are thinner and tougher. The best months are July and August.

Historical evidence provides a context for the possible abundance of smudge pit features in early-nineteenth-century Ojibwe settlements. By the 1830s, beaver and other fine furs such as marten, fisher, and otter were relatively scarce, and muskrat and deer dominated the inventories of traders south of Lake Superior (Gilman 1974:18). These inventories often specify that deerskins received from Native Americans were processed (smoked). Although deerskins were much less valuable than less common species, the American Fur Company would still purchase deerskin at prices that precluded a profit just to keep them away from competitors and maintain trading relationships (Peake 1954:246–247). An early-nineteenth-century XY Company trader in northern Wisconsin mentions trading for "dressed deerskins" (presumably stretched and smoked), as do western traders of the same period (Curot 1911:412; Work 1914:269).

Smoking of deerskin was essential when used for making moccasins because this enabled them to remain soft despite repeated wetting and drying. In fact, based on a survey of ethnographic and ethnohistoric literature, Richards (1966) concludes that "smoking was more important in northern (wetter and colder) regions and moccasin hides were the most likely recipients." George Catlin (1985) observed the process in the northern plains and notes that "heated smoke; and some chemical process or other, which I do not understand, the skins thus acquire a quality which enables them, after being ever so many times wet, to dry soft and pliant as they were before, which secret I have never yet seen practiced in my own country." The influx of nonnatives who needed footgear into the area, as well as the emerging broader market for Indian craft items, may have actually increased the incidence of deer hide procurement and processing during the early nineteenth century. Shoes, boots, and imported leather are absent in surveyed trade good inventories from this period, which are dominated by textiles, so moccasin leather would have been needed for both home use and trade (Michigan Pioneer Historical Society 1985; Johnston 1822; Kinzie 1932; Thwaites 1910). The combined depletion of beaver populations and possible increased demand for tanned deerskin could explain why smudge pits are conspicuous at *Gete Odena*, as well as contemporary sites such as the Cater Site (Beld 2001). Kinzie (1932:13–14) lists various items brought in for trade in northern Wisconsin c. 1830, and includes smoked deerskins, moccasins, and hunting pouches. She also describes the outfitting of a typical *voyageur* as including "one or two smoked deerskins for moccasins" (Kinzie 1932:229). It is notable that traders

in the Southeastern USA during this same period commonly obtained deerskin for export. The mid-eighteenth-century trade between the French and Creek Indians in what is now Alabama, according to Waselkov (1992:37), was dominated by the trade of deerskins. Up to 60,000 deerskins were shipped to France from the "French Louisiane" in 1860. Three types of skins were traded. The first, referred to as "dressed skins" discussed earlier, were "stretched, scraped on both sides, treated with deer brains, and finally smoked" (Waselkov 1992:37). Skins with the hair intact were used by French tanners to produce "Moroccan grain leather," whereas skins that had been scraped but not stretched or smoked were made into parchment for binding books.

Conclusion

Gete Odena was occupied seasonally from for over 600 years. The function and use of the site no doubt varied considerably over these years, but this chapter focused on the late-eighteenth and early-nineteenth-century occupation. During this period, a number of smudge pits were constructed presumably used to smoke hides (likely deer). A performance-based analysis of the pits suggests that they were likely single-use features designed to create a smoking fire in an oxygen-deficient environment. The dominance of large mammal bones from the site, instead of fish, also suggests that this site was used in part for the processing of large game. Historic and ethnohistoric sources also suggest how these features were used and why the smoking of deer hides became increasingly important during this period. Besides the fact that other more valuable fur-bearing animals were scarce during this time, there was an increased demand among immigrants to the area for smoked deer hides that could be used for making moccasins, coats, and leggings.