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CONNOISSEURS OF CAVIAR

by

Mona Thompson

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Most of the published works concerning the Woodland burial mound complex of the Rainy River District of northern Minnesota and contiguous Ontario pertain to defining the culture history of this region. More specifically, they have focused on the intra and inter site variability of ceramic types (Wilford 1955, Stoltzman 1973, 1974, Lugenbeal 1978). These studies have defined a detailed culture history of the Middle (Laurel) and Late Woodland (Blackduck) phases of this region. Currently, the information which has been published on the burial mound complex have shed little light on the economic, social and political systems of the prehistoric peoples of the Rainy River District.

The information available on the subsistence practices of these peoples suggests a hunting and gathering economy with a high degree of seasonal mobility. The political organization characteristic of this type of economy is usually portrayed as an egalitarian one (Service 1964). However, the presence of burial mounds implies a more complex social, political, and economic system than would be associated with a hunting and gathering economy and an egalitarian political organization.

Describing the Hopewellian mound complex in the midwest, Martin, Quimby, and Collier (1947:277) state ... burial mounds imply a social structure capable of organizing a co-operative labor project on a large scale. Albert Spaulding implies that a complex social organization and an efficient economic base would have been necessary for the development of the burial mound complex of the Adena culture (1955:19-20). This effective economic base was, during Adena times, a mixed hunting-gathering and maize agriculture economy. Later, during the Hopewellian tradition, the economic base shifted to one of more intensive maize agriculture. If we assume that the rise of burial mound complexes reflect a more complex form of social organization than is possible under a hunting and gathering subsistence base then the burial mounds associated with the Woodland tradition of the Rainy River District present us with a special problem. It has been shown (Yarnell 1964:128) that this region was unsuitable for effective maize agriculture. If, in this region, maize agriculture is ruled out as a resource which has the potential for large scale group integration then an alternate resource must be sought.

James Stoltzman (1973:6) in the introduction to The Laurel Culture in Minnesota, suggests the possibility that the mounds in the Rainy River District could be related to the spring spawning of sturgeon. If indeed these mounds are located at prehistoric sturgeon fisheries then sturgeon fishing could be the economic basis responsible for large scale group co-operation and a more complex form of social organization necessary for the rise of the burial mound complex in northern Minnesota and contiguous Ontario. The possibility that these mounds are located at sturgeon fisheries and that sturgeon fishing could be the catalyst for the development of these burial mounds is the subject of this paper.

Support for the above hypothesis will be examined with reference to at least four data sources, each of which will be discussed in the following pages. The ecological and environmental data will be used to create an overall view of the subsistence patterns which would have been necessary in order to survive in this area. A discussion of the physiology and behavior of the lake sturgeon provides an introduction into the possibility of this fish as a potential food resource for a large group of people, while the ethnohistoric records provide documented evidence of the use of the lake sturgeon as a food resource by the historic Chippewa. Lastly, the archaeological reports from various Laurel sites will be discussed as they reflect the subsistence-settlement aspects of the people of the Laurel culture.

Environmental and Ecological Data

The habitat in which a people live is one of the factors to which their culture adapts in certain respects, that is, natural environment offers limits to and influences culture (Yarnell 1964:146).

Extreme northern Minnesota and the adjacent areas of Ontario lie within the Canadian Biotic Province (Dice 1943). The Province is characterized by the uneven topography of a heavily glaciated country. Gravelly hills (morains) and ridges, sandy outwash plains, swamps and bogs, rock outcroppings and glacial lakes are the abundant topographic features (Cleland 1966:9). The soils of this region are usually the product of cool, moist forests and are sandy, rather infertile, usually very shallow and underlain by a silty clay (Cleland 1966:9).

The climate of this region is characterized by cool summers and severe winters. The mean annual temperature is about 37° F (McAndrews 1966:15). Moisture is distributed fairly evenly throughout the entire year with the mean annual precipitation between 22 and 23 inches (McAndrews 1966:15). The winters are usually characterized by a snowfall of between 4-10 feet which remains on the ground throughout the entire winter season. The summers are dominated by cool temperatures and unpredictable summer thunderstorms. The average frostless season is approximately one hundred days (Yarnell 1964:127).

Potzer (1964:312-250) has described the forests of this region to be a product of the modifying effects of the large water masses which they surround. Potzer (1964:213-250) calls this floral formation a Lake Forest Formation. The native forest is a mixed conifer-hardwood forest with much of the lowland region dominated by bogs, and covered with ferns, tamaracks, black spruce, white, red and jack pine, white birch, aspen, basswood, balsam poplar, sugar maple and other deciduous trees. Wild fruits, nuts and vegetables, including blueberries, blackberries, strawberries, cranberries, wild grapes, currants, acorns, hickory nuts, arrowhead tubers, bulrush, and wild rice are products of this region.

Before the onset of heavy lumbering there dwelled a great variety of game and fur-bearing animals. These included the moose, woodland caribou, beaver, muskrat, raccoon, various squirrels, snowshoe and cottontail rabbits, woodchuck, fisher, mink, martin, and otter. The whitetailed deer which is common in this region today seems to have been a late migrant into the area.

A variety of fowl inhabit the Rainy Lake region including various species of aquatic fowl (duck, swan, loon, and heron), ground dwelling fowl (grouse), and a variety of song birds. Fowl, however, may not have played a major role in the food inventory for the Laurel culture because this region does not lie along a major flyway (Luken 1973:38).

Cleland (1966:94) along with Fitting (1970:98) have emphasized, perhaps the most important resource available to the peoples of this area was fish. Rostlund (1952:303) estimates that the Lake Forest region was capable of producing 400 to 600 pounds of fish per average square mile per year. Whitefish, pike, lake trout, sucker and sturgeon were the most abundant food fish of this area. As will become evident in this paper the most important fish and one of the most valuable food resources for the prehistoric Laurel people was the lake sturgeon.

The Rainy Lake chain is a unique area for archeological studies in that the environment has remained remarkably stable for about 3000 years. Based upon palynological evidence from Weber Lake (Fries 1962) and Myrtle Lake (Janssen 1968), both situated within the mixed conifer-hardwood forest of northern Minnesota. Approximately 2400 years ago a possible climatic shift in the form of a warming trend seems to have taken place in this area. Pollen and faunal analysis from various Laurel sites indicates that these people dwelled in a natural habitat almost identical to the one observed by the first Europeans to arrive in this area during the late seventeenth century (Stoltman 1973:6).

Life within the Canadian Biotic Province during Laurel times must have depended upon an intense procurement of the various seasonal resources. A reasonable subsistence-settlement pattern would include the hunting of moose, woodland caribou, bear, and various small mammals during the winter months from approximately November to March, maple sugar gathering in early March, and fishing, gathering wild fruits and vegetables in early spring through late summer and the harvesting of wild rice in early fall. From the archaeological record we have no direct evidence for either the gathering of wild rice or the harvesting of maple sugar by the Middle Woodland people in the Rainy Lake area. A review of the environmental data verifies the presence of both of these food sources during that time period (Fries 1962). In order for this environment to support a viable population on a yearly basis an intense knowledge and utilization of the available resources by the prehistoric peoples would have been necessary. There was a plentiful supply of food resources to support and sustain a breeding population but at certain times of the year, notably early spring and late fall, the utilization of any and all resources is necessary for population survival. This is because

during these times, as the ice begins to either breakup or begins to form, a population is left virtually immobile and the procurement of a resource which does not require long-range movements is the best response for the group. Those resources which are nucleated and therefore require little or no long-range movements are sturgeon fishing, maple sugaring and possibly hunting beaver, hare, and other small animals. Although the environment may not determine all aspects of a people's behavior it certainly limits and influences their patterns of subsistence and settlement.

LAKE STURGEON - *Acipenser fulvescens* Rafinesque, Rock Sturgeon, Nah-Way of the Red Lake Chippewa

Gill nets are narrow gauged because the lake sturgeon are running small this year. They are not those sharp-eyed, shark-nosed 300 pound monsters which used to challenge the spear of the Ojibwa (Houston 1972).

The lake sturgeon and the sturgeon family as a whole represents relics of some of the early bony fishes. Many of their structures are quiet primitive indicating their long history. They possess a more or less prolonged shovel-shaped snout under which is a sucker-like mouth with thick lips. The mouth is well adapted for working over the bottom where they pick up small animals for food (Eddy 1957:34). They have five rows of bony scales which cover their body and which consequently make them easy to spear.

The range of the lake sturgeon included the drainages of the Red River of the North, Hudson Bay and the St. Lawrence and southward in the Mississippi to northern Alabama and Missouri. They are found in Lake Superior but only around comparatively shallow waters and in the vicinity of the Apostle Islands (Eddy 1957:34). The lake sturgeon is the only sturgeon found in Minnesota. They frequent the shoal waters in the lakes of northern Minnesota and southeast Manitoba and southwest Ontario. At one time they were found in Lake Pepin, St. Croix, Snake, Cross, Rainy and Kettle Rivers, Lake of the Woods, Rainy Lake, and its tributaries (Eddy and Underhill 1974:32-33). They were remarkably abundant at one time in Lake of the Woods and Rainy River. Commercial fishermen considered the sturgeon an undesirable fish and many thousands were recklessly destroyed before a demand for their flesh and eggs was created. An example of their numbers can be seen from the following figures taken from commercial fishing reports for Rainy River. In "1893 the catch in American waters amounted to 1,300,000 pounds. By 1903 the sturgeon catch had dwindled to 45,239 pounds" (Eddy 1957:128).

Lake sturgeon survive best in lakes which are more or less infertile with much rocky bottoms. The water is usually soft and low in mineral content. The bottom of these waters are often cold with warm surfaces. These lakes are confined mostly to the border region, from Lake of the Woods through the Superior National Forest (Eddy 1957:39).

Lake sturgeon can reach lengths up to eight feet and may weigh up to 300 pounds. Weights of 100 or more pounds are unusual in inland lakes where the average weight of an adult sturgeon ranges from 50 to 100 pounds. Sturgeon are quite important as the flesh is excellent for food and rich in oil and the eggs are used for caviar. Their flesh is white, flaky, and very desirable, especially when smoked. It is said that unsmoked sturgeon, not favored by most people, when properly prepared and properly cooked, is excellent (Scotts and Crossman 1973:7-8).

Although lake sturgeon live and feed in the shallow bottoms of large lakes and rivers they spawn in rivers with a swifter flow of water (Slastenenko 1958:29-30). Optimum spawning temperatures appear to be between 55.4°F and 64°F. Sturgeon generally leave lakes for their spawning migration not long after the spawning rivers are free of ice, and sometimes move under the ice. Migrations seldom if ever exceeds 250 miles, but feeding ceases for the whole of the spawning period. They spawn in depths of 2-15 feet and in areas of swift water or rapids often even at the foot of low falls that prevent further migrations (Scott and Crossman 1973:7-8). Favorite spawning beds were formerly at the Long Sault or Soo Rapids on the Rainy River, where at one time they arrived in great numbers as early as April 5 and often continuing until the middle of June (Eddy and Surber 1947:127). It has been noted that sturgeon may also spawn in the shallow waters of some large lakes, but this is an exception to the rule (Langler 1952). Seasonal movements, other than spawning migrations, are not well known, but thought to consist of a move from shallow waters when these warm, into deeper water, a return to the shoals in autumn and a return to moderate depths in winter (Scott and Crossman 1973:7-8).

Sturgeon may have been available food sources for the Laurel people throughout the entire year, but they are particularly abundant during early spring and summer. Sturgeon leave the larger lakes in early spring and ascend the swifter tributaries to their well-known spawning grounds. The size and quantity of these fish render them a most desirable resource for people living in this area. They may be taken in large numbers by nets and spears in certain rivers, and at a time when other food resources were at a minimum in the Lake Forest regions.

Ethnohistorical Reports of Chippewa (Ojibwa) Sturgeon Fishing

Fisheries permitted settled populations; the fisheries were the villages (Hickerson 1962:81).

The importance of sturgeon as a food resource to the Chippewa who occupied the territory once inhabited by the Laurel people is revealed by a review of the ethnohistorical literature. Some examples from the literature of sturgeon fishing among the Chippewa will be presented.

Alexander Henry, a well-known English fur trader, was taken captive by the Chippewa after he survived the Indian massacre of the English at Fort

Michilinackinac in early June of 1763. Henry spent approximately twelve months with the family and describes his year with a rather adequate account of the Chippewa subsistence pattern. After overthrowing the fort, Wawatam and his family, along with Henry left this area, partially because of the scarcity of food and moved to St. Martin Bay, then on to St. Martin Island. Henry says "our object was to fish for sturgeon, which we did with great success; and there, in the enjoyment of a plentiful and excellent supply of food, we remained until the twentieth of August" (Quimby 1962:222).

Again, referring to the Chippewa of the Great Lakes area Hickerson (1962:81) states that the main support for the existence of these groups in aboriginal, as well as early historic times, were the fisheries. Hickerson adds, "the importance of the fisheries to the proto-Chippewa cannot be stressed too much" (Hickerson 1962:81). Hickerson believes that if it were not for the fisheries there would have been no human life in the northern Great Lakes region under aboriginal conditions. He sees a one-to-one correspondence between sturgeon fisheries and villages; the fisheries were the villages because the abundance of sturgeon provided a stable resource for a large group of settled people. A famous sturgeon fishery was located near the mouth of the Ontanangon River, which enters Lake Superior. This particular fishery was known to the Jesuits who said of it ... very extensive fishing for sturgeon is carried on day and night from Spring until Autumn; and that is where the savages go to lay their provisions (J.R. 54:151). Of this same area Henry Schoolcraft says in 1765 "that a month's subsistence for a regiment, could be taken in a few hours" (Williams 1953:120-121). No doubt that the sturgeon fisheries were of great importance to the Chippewa in the Great Lakes region.

Frances Densmore (1959:42) describes how the Chippewa of Red Lake process and prepare fish. She says that a large fish was selected which was rich in oil, the intestines were turned, and the roe were fried in grease and seasoned with maple sugar. The eggs were boiled or fried with the fish. She does not give the name of this fish but from her description it is highly possible that this fish was sturgeon.

Again, Hickerson (1967:51) reports for the Chippewa of Rainy Lake that the fisheries were extremely important, and in the long run essential to the subsistence of Indians and traders alike. Fish were caught in large numbers at their spawning grounds in spring (sturgeon), summer (trout, and early winter (whitefish). There were favorite fisheries which were occupied yearly by the Chippewa of this area. These fisheries were located along Rainy River, especially at Kettle Falls, near the junction of Rainy and Big Fork Rivers. Kettle Falls was a great sturgeon fishery and it is reported that the Chippewa at the rapids below Rainy Lake killed large numbers of sturgeon with dragnets and spears. Hickerson (1967:51) adds "it is clear that the late winter movements of the band were directed by the spring sturgeon fishing, and that fishing was located away from their usual winter trapping territory."

Archeology of Laurel Sites

The Rainy River is ideally suited for the extensive exploitation of lake sturgeon from early April until mid-June when huge numbers of these immense fish swim from Lake of the Woods upstream to spawn (Eddy and Surber 1947:127).

Before beginning a discussion of the Laurel sites of the Rainy Lake area an overall view of the patterns of subsistence and settlement of the Middle Woodland peoples will be examined as extracted from the archeological record. As mentioned earlier, the Laurel culture extends from Saskatchewan through to at least Summer Island in Lake Michigan. Location of most large Laurel sites appears to be concentrated adjacent to some type of large water system, mostly large lakes and their tributaries. These sites usually produce large artifact assemblages and can be viewed as large habitation sites of possible unrelated families (Janzen 1968:102). These large sites appear from the analysis of fauna remains, to be largely connected with fishing since fish bones, harpoons, and some net impressed pottery are found throughout the midden fill. The smaller sites consist of only a very few artifacts and are viewed as small one-to-two family camps. In general, it can be said that the Middle Woodland people of the northcentral United States practiced a hunting-gathering subsistence pattern with more emphasis upon fishing in the sites further north (Laurel) because of the scarcity of game within the Canadian Biotic Province (Cleland 1966).

In comparing Rainy River Laurel with earlier foci from surrounding areas the most noticeable change is the increase in fish bones. The sites of the Rainy River Laurel culture appear to range in size from one to three acres and are located at favorable fishing locations (Cleland 1966:66). Along with the presence of fish bones, another common characteristic of the Rainy River Laurel is the presence of the conical harpoon which according to Janzen (1968:98) may be a horizon marker for this period. It is estimated that between 30 and 40 harpoons have been found on Minnesota Laurel sites. These artifacts are most likely related to sturgeon fishing, and this is supported in the archeological record where sturgeon are the most frequent faunal remains.

The information on the Laurel culture of the Rainy Lake region overwhelmingly comes from the excavation of burial mounds. At least 20 Laurel burial mounds are located on tributaries of Rainy Lake and in particular on Rainy River. The abundance of fish bones from the mound fill of at least three of these mounds attests to the extensive use of these animals by the people who lived there (Luken 1973:37). Fish bones accounted for 56% of the total non-human bone material. Of these fish bones the majority were sturgeon. Examination of the other non-human bones indicates that the majority of mammal bones recovered from these mounds were those of beaver and moose, with many other species represented in smaller quantities. The paucity of bird remains from these sites indicates that these animals were obviously not an important food source for these people. Of the bird remains recovered most represent aquatic species -- the loon, the swan, and three species of duck. According to the analysis of mammal bones the season of occupation of these mounds was probably related to early spring and summer, maybe extending

until late summer and early fall. The quantity of sturgeon and other fish remains, along with the presence of migratory fowl, almost assures a spring and early summer occupation of the mound sites.

The bone artifact assemblage from these mounds also reflects the importance of fishing to the Laurel people in the Rainy Lake region. Conical antler harpoons are one of the most abundant group of artifacts apparently associated with fishing. These harpoons are made from the tip of moose antlers. The harpoons are conical with socketed bases and perforations through the sides between the base and the tip. The design of these conical harpoons would allow the taking of large fish such as sturgeon (Webster 1973:106). Along with the 37 conical harpoons recovered from these three mounds also recovered were four unilaterally barbed harpoons and one toggle headed harpoon. There is little doubt that the spearing of some large fish was of primary importance to those people occupying these sites.

Lastly, on looking at the archeological data, the specific locations of these 20 burial mounds will be examined. Extensive surveys of the Rainy Lake chain (Gibbon 1977) have failed to locate any mounds in the lacustrine region. All mounds thus far located are situated on the tributaries of Rainy and surrounding lakes. Of the 20 mounds thus far identified, 18 are located on Rainy River. Twelve of the mounds are located at the Long Sault Rapids (Armstrong Mounds, see Figure 6), four at the confluence of Rainy and Little Fork Rivers (Smith Mounds, see Figure 6), and two at the confluence of Rainy and Big Fork Rivers (McKinstry Mounds, see Figure 6). The other two mounds are also located on tributaries of lakes in northern Minnesota. The Armstrong Mounds cover an area of 1.5 miles and stretch the length of a series of small rapids, an ideal location for sturgeon spawning beds. The McKinstry and Smith Mounds also lie close to a set of rapids (Kettle Falls Rapids) and are located at the exact location of the great sturgeon fisheries of the Chippewa Indians of Rainy Lake as described by Hickerson (1967:51). All of these mounds are either located at ethnohistorically documented sturgeon fisheries or, given what we know of the behavior of lake sturgeon, would be ideal locations for the procurement of large numbers of sturgeon as they spawn.

Conclusion

The subsistence-settlement pattern of the Laurel culture of northern Minnesota was dominated by the seasonal availability of resources. This suggests an economy based upon the dispersal of the group into smaller family units during the winter months for the procurement of woodland caribou, moose, and small mammals such as hare. During the warmer summer months these isolated family units would coalesce into villages for the purpose of exploiting a locally abundant food resource. Sturgeon fishing was a subsistence resource which could generate a cohesive force of this kind. During the spawning season a reliable and abundant source of food would be available and a stable village life could be supported. It is doubtful that any other resource could match the potential food resource of sturgeon and thus act as a catalyst for the formation of the large mound sites within the Laurel culture of northern Minnesota and contiguous Ontario.

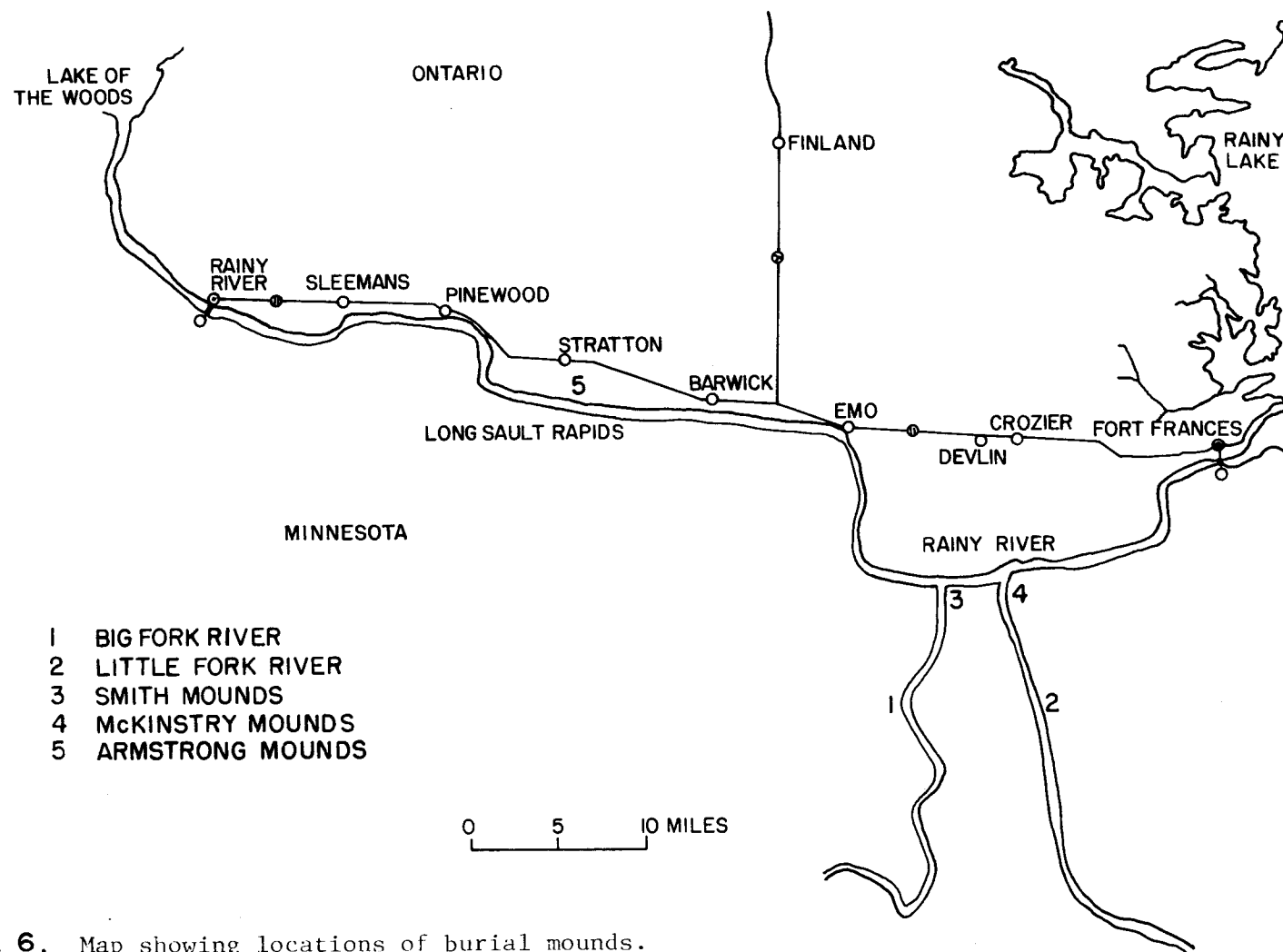


FIGURE 6. Map showing locations of burial mounds.

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