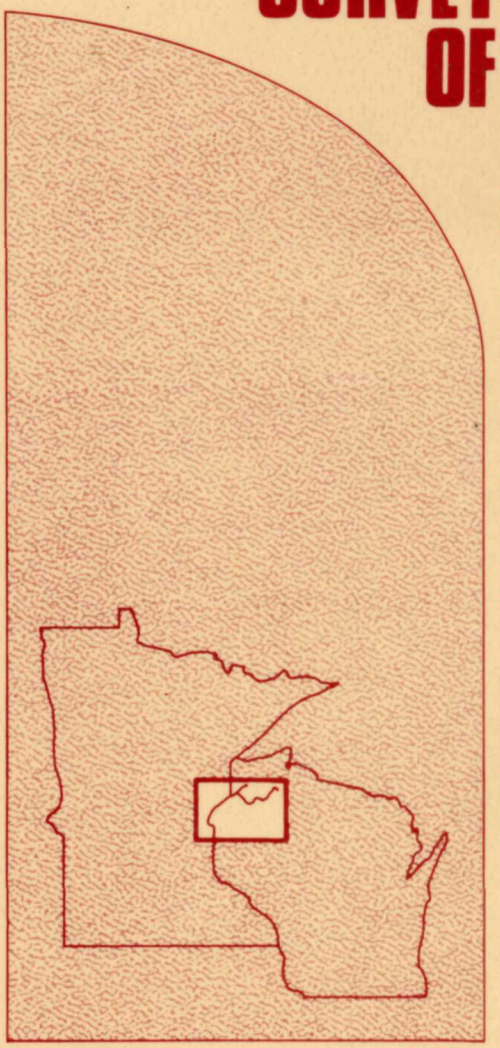
AN ARCHEOLOGICAL SURVEY OF THE ST. CROIX NATIONAL SCENIC RIVERWAY

PHASE II



REPORT NO. 1897

AN ARCHEOLOGICAL SURVEY OF THE ST. CROIX NATIONAL SCENIC RIVERWAY

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ABSTRACT

In 1977 Commonwealth Associates Inc. conducted a Phase II Archeological Survey of the St. Croix National Scenic Riverway. The survey provided a 40 percent sample of the study area, drawn from 18 separate environmental subunits. A total of 60 sites were located; these sites represented 41 historic and 19 prehistoric components. As a result of this sample, and that of the 1976 Phase I survey, over 63 percent of the entire riverway has been evaluated. In addition, a total of 137 sites have been located in the riverway, including 103 historic sites and 42 prehistoric sites. Based on the 63 percent sample, the projection of sites indicates that as many as 220 sites may be located within the riverway. Most of these sites will be historic in nature.

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CHAPTER 1

INTRODUCTION

On April 13, 1977 Commonwealth Associates Inc. submitted to the National Park Service, Midwest Archeological Center, Proposal No. 62-047-P03 to undertake a Phase II Archeological Survey of the St. Croix National Scenic Riverway in Wisconsin and Minnesota. A fully executed Contract No. CX-6000-6-A060 was received and acknowledged on May 12, 1977 by the Jackson Office of Gilbert/Commonwealth. Fieldwork was undertaken from July 25-August 30, 1977 by a six-person field party.

The Principal Investigator, Dr. James E. Fitting, was responsible for project organization and development of the research design. Fieldwork and report preparation were conducted under the direct supervision of Donald J. Weir. C. Stephan Demeter and Stephen R. Claggett served as historic site specialists with Weir and Jeffrey C. Kimball as prehistoric site specialists. Other members of the field party included John G. Franzen and Christine Paulsen. Finally, Curtis E. Larsen provided significant input to the evaluation of geology of the St. Croix River area, and Woolworth Associates Inc. provided information on the historical background of the area.

The Phase II survey of the St. Croix National Scenic Riverway provided survey coverage of an additional 43 percent

of the entire study area. This survey covered approximately 27,000 acres of the riverway. As a result of both Phase I and Phase II, over 63 percent of the riverway has been surveyed. During Phase II, 60 additional archeological sites were located and inventoried; 41 of these are considered historic and 19 prehistoric.

The Phase II survey concentrated on those areas that would provide a stratified proportional sample in order to evaluate the predictive model developed during the Phase I survey and report. This report discusses, in detail, survey methodology, survey results, predictive model evaluation and management recommendations. Also included are revised sections pertaining to the historical, archeological and geological background of the St. Croix River area.

CHAPTER 2

GEOLOGICAL BACKGROUND

The St. Croix River and its tributary, the Namekagon, lie within the Superior Upland, a subprovince of the Canadian Shield. This upland is related geologically to the Lake Superior Region, the framework of which was formed in Late Precambrian time when folding, faulting and outflow of lavas combined to form a synclinal basin. Subsequent filling of the basin by sandy sediments took place during the latest Precambrian and earliest Cambrian periods. Precambrian rocks underlie the major length of the St. Croix and Namekagon Rivers. These range in type from sandstones, shales and conglomerates in Washburn, Douglas and Bayfield Counties, to gabbros and basalt in Burnett County,Wisconsin. The lower few miles of the St. Croix Valley is underlain by Cambrian sandstone and shale. While these more resistant rocks are found outcropping along the riverbed, especially in Burnett County, the major contributor to the landscape has been glacial action.

An interplay between glacial ice lobes and glacial lakes has given rise to the present arrangement of the river systems. For example, northern Wisconsin and the Upper Peninsula of Michigan,as well as eastern Minnesota,have been affected by the Superior Lobe of the Late Wisconsin continental glacier which advanced southwestward along the Lake Superior Basin.

Central Minnesota, on the other hand, was more often affected by the Des Moines Lobe of ice which advanced from northwest to southeast. The existing glacial landforms in the project area belong to the Woodfordian and Greatlakean substages of the Wisconsin glaciation. Thus, the deposition of these sediments can be dated between ca. 20,000 and 11,000 B.P. During the past 11,000 years, dissection of the land surface has occurred in keeping with post glacial climates.

The St. Croix Valley, in particular, reflects the glacial history of the past 14,000 years. The river is confined to a broad trough, the Minneapolis Lowland, scoured out by the Superior Glacial Lobe which advanced into eastern Minnesota ca. 14,000 (Wright and Ruhe, 1965). Retreat of this lobe to the vicinity of Duluth and the readvance of the Des Moines Lobe across Minnesota at approximately 13,000 B.P. gave rise to an anomaly. While the movement of the Des Moines Lobe was dominantly from northwest to southeast, a small portion of the ice expanded into the preexisting lowland left by the Superior Lobe. Ice advanced to the northeast and up the lowland to the present town of Pine City Wisconsin, where its maximum is marked by the Pine City Moraine. This glacial advance, identified as the Grantsburg Sublobe by Wright & Ruhe (1965), was a major influence on the later environmental character of the area. For example, meltwater from the Superior

Lobe drained to the southwest into the Minneapolis Lowland where it was ponded behind the Pine City Moraine. The resulting glacial lake has been termed Lake Grantsburg. It received abundant clastic sediments from Superior Lobe meltwaters. Subsequent draining of the lake left a broad sandy plain referred to by Wright and Ruhe (1965) as the Hinckley Sandplain. Most of the St. Croix River is confined to this sandplain.

The present channel of the St. Croix is also related to glacial advances and meltwater flow. Glacial ice retreated from Minnesota and Wisconsin by ca. 12,000 B.P., and spruce forest developed over much of Wisconsin. A later lobe of ice spread into the Lake Superior Basin about 11,800 B.P. This ice front seems to have extended a few miles south of the present shoreline of Lake Superior so that only portions of northwestern Wisconsin and the Upper Peninsula of Michigan were affected (Farrand 1969). The maximum extent of this ice front is marked by a sequence of end moraines in Douglas and Bayfield Counties.

Evenson et al (1976) have referred to this later advance as the Greatlakean Substage. The melting, and concomitant retreat, of the ice front into the Lake Superior Basin gave rise

to a series of pro-glacial lakes. The highest of these was glacial Lake Duluth, which attained an elevation of about 1008 feet. This elevation was sufficient to allow lake water to overflow the recently deposited end moraines and to form two outlet channels. The westernmost drained to the Mississippi via the present Kettle River in Minnesota. The easternmost, and the outlet with the greatest longevity,was located at Solon Springs in Douglas County. Waters from this outlet eroded the present course of the St. Croix until new and lower outlets were opened to Lake Michigan by the rapidly retreating ice front. At this time, ca. 11,300 B.P. (Farrand, 1969), the Solon Springs outlet ceased to function and the St. Croix River became dependent upon its own watershed for runoff. During the few hundred years that the St. Croix served as an outlet for Lake Duluth it scoured a deep valley through basalt and various sedimentary rocks. While these are masked from view by later fluvial sediments over much of the area, the extent of erosion is still visible near St. Croix Falls where the river channel is sharply restricted by basalt outcrops (Chamberlin 1905).

In summary, the geologic processes that have combined to form the St. Croix Valley range from volcanic activity to glacial-fluvial agents. The area through which the river passes can be generally divided into three subareas. These are characterized first by uplands consisting of glacial end moraines, next by sandy lowlands which mark the extent of glacial

lake beds and outwash plains and,finally,by surface exposures of erosion resistant Precambrian basalts. Uplands predominate in the headwaters of the St. Croix and Namekagon Rivers. These are visible from the topographic expression in Figure 1. Similarly they are reflected by soil type in Figure 2 where the Iron River, Gogebic, and Kennan soil types of Wisconsin relate to underlying poorly sorted glacial tills. This subarea also relates well to the extent of the Great Lakes Pine Forest shown in Figure 3.

The sandy lowlands are equally well-defined. In Wisconsin this subarea is largely confined to Burnett and Polk Counties. The soil types,too,reflect the geologic history. Figure 2 shows that Omega, Vilas, and Hiawatha soils predominate in this zone. Here soils have developed on sandy outwash plains and glacio-lacustrine sediments. Once again, the vegetation reflects past deposition patterns. Sandy lowlands have a maple- basswood forest cover (Figure 3).

Finally, the resistant bedrock subarea is represented by the St. Croix Dalles, which separates Chisago County, Minnesota and Polk County, Wisconsin. This zone comprises only a small portion of the river system but provides much of the more spectacular scenery. It is less well-defined by vegetation type, or by soils. This is chiefly due to the presence of a blanket of glacial deposits which covers the near surface bedrock in the vicinity. Thus, soils and vegetation here more realistically reflect the overlying sediments.

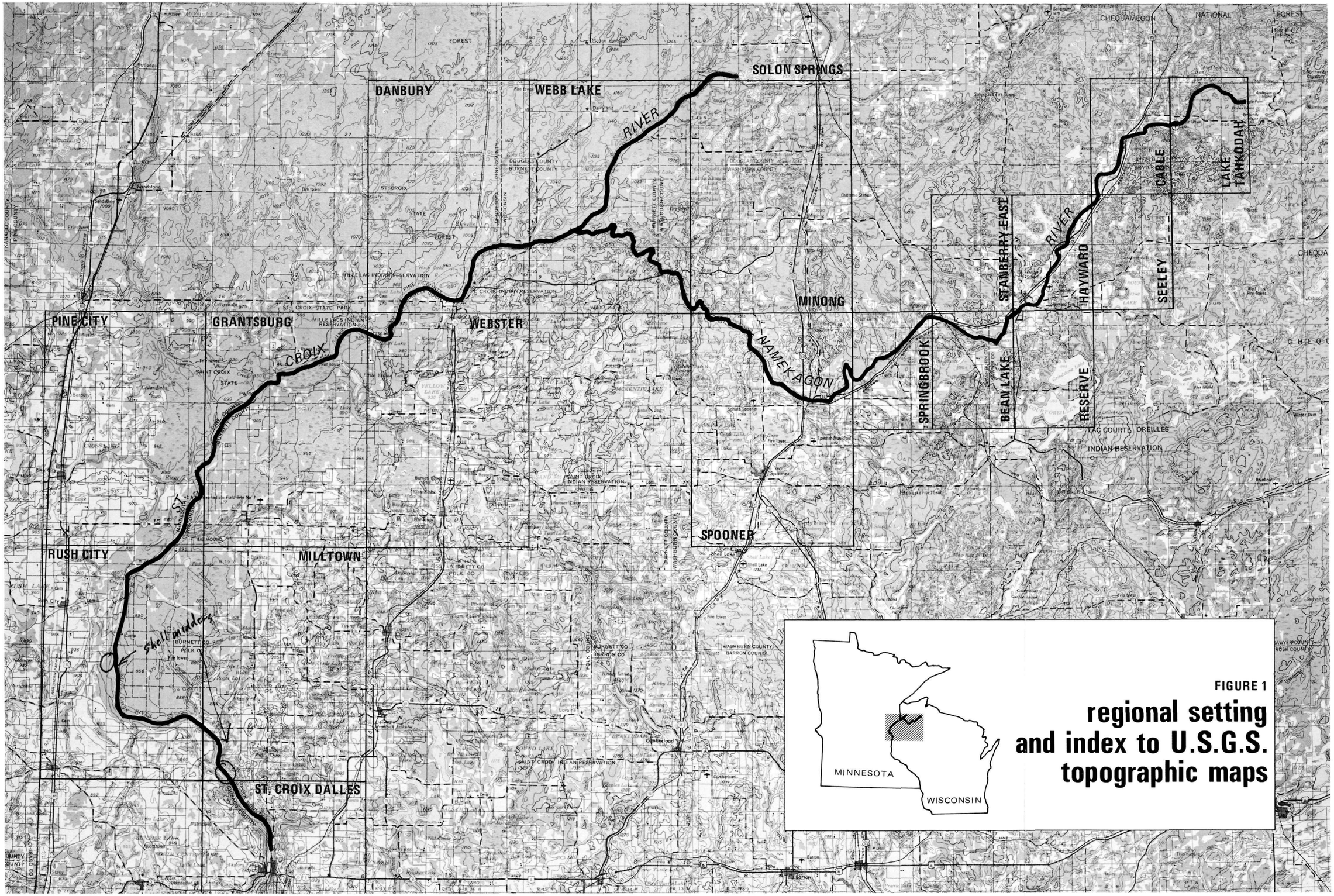
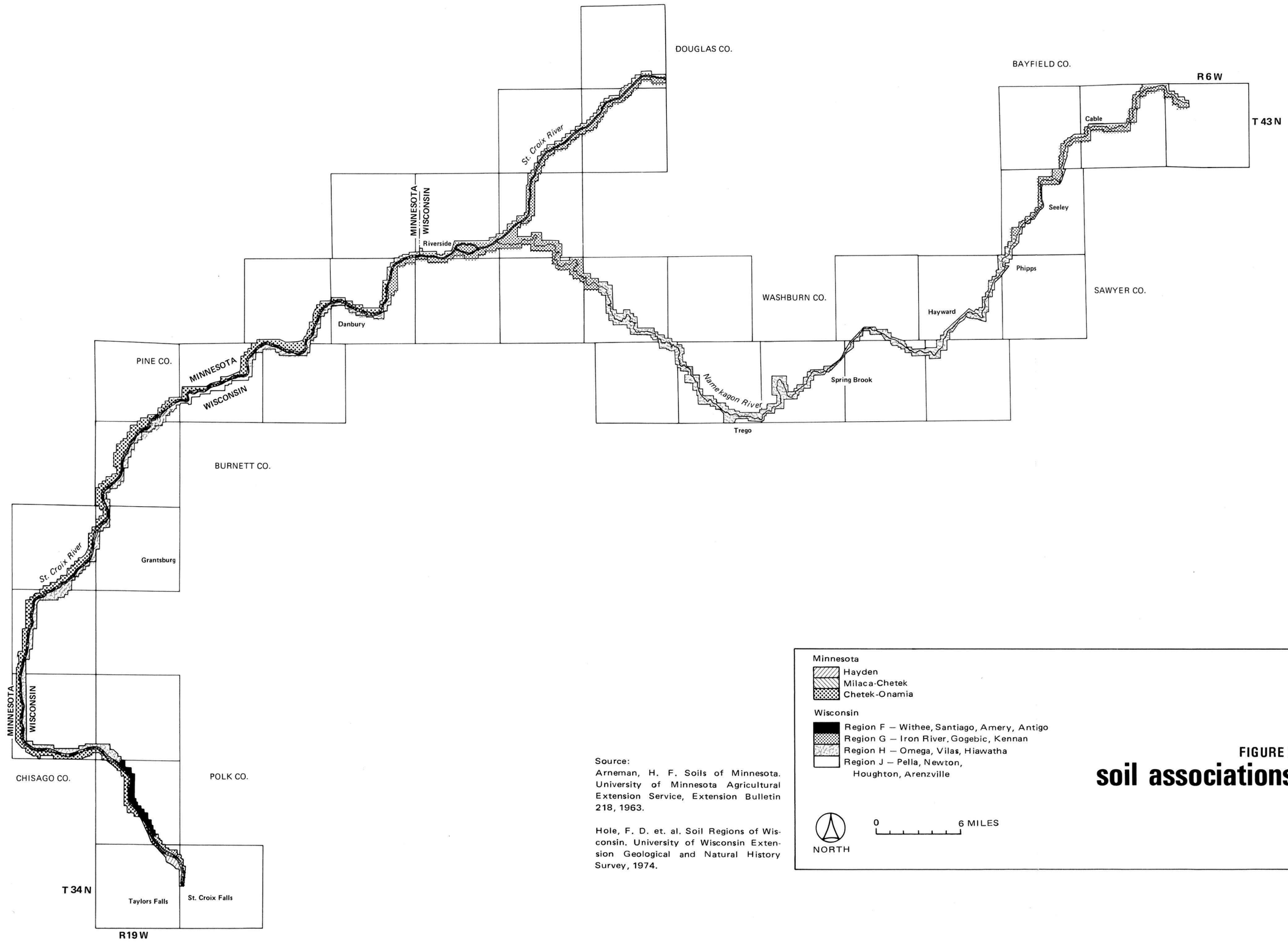


FIGURE 1

regional setting and index to U.S.G.S. topographic maps



Source:
Arneman, H. F. Soils of Minnesota. University of Minnesota Agricultural Extension Service, Extension Bulletin 218, 1963.

Hole, F. D. et. al. Soil Regions of Wisconsin. University of Wisconsin Extension Geological and Natural History Survey, 1974.

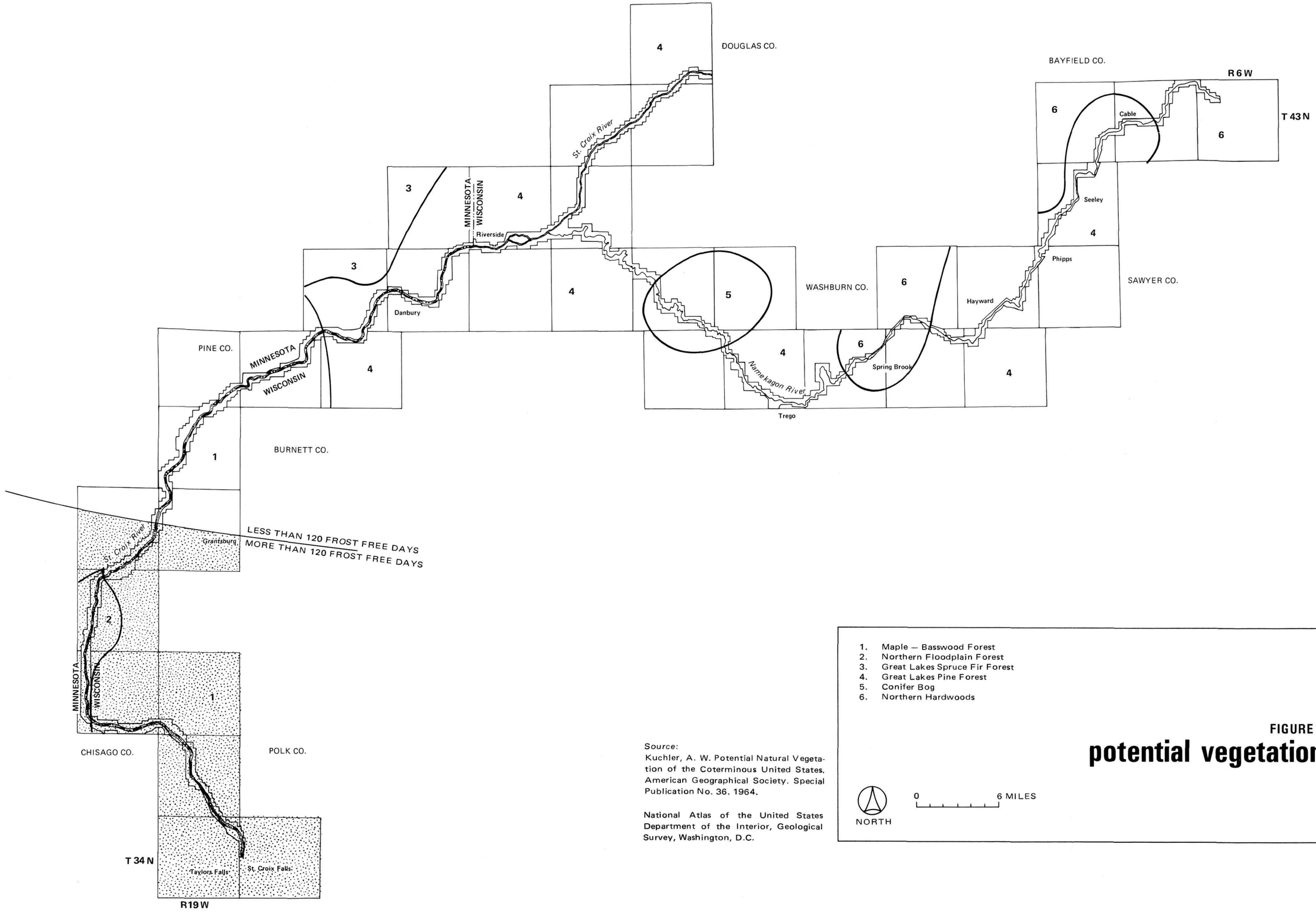
Minnesota
- Hayden
- Milaca-Chetek
- Chetek-Onamia

Wisconsin
- Region F — Withee, Santiago, Amery, Antigo
- Region G — Iron River, Gogebic, Kennan
- Region H — Omega, Vilas, Hiawatha
- Region J — Pella, Newton, Houghton, Arenzville

NORTH

0 6 MILES

FIGURE 2
soil associations



1. Maple – Basswood Forest
2. Northern Floodplain Forest
3. Great Lakes Spruce Fir Forest
4. Great Lakes Pine Forest
5. Conifer Bog
6. Northern Hardwoods

NORTH

0 6 MILES

FIGURE 3

potential vegetation

Source:
Kuchler, A. W. Potential Natural Vegetation of the Coterminous United States. American Geographical Society. Special Publication No. 36. 1964.

National Atlas of the United States Department of the Interior, Geological Survey, Washington, D.C.

CHAPTER 3
PREHISTORIC BACKGROUND

Prior to this archeological survey, very little information had been accumulated on the prehistoric period of the St. Croix Riverway. The purpose of this multi-staged study is to provide data on such resources along the riverway. The following background report capsulizes the information as it existed before the 1976 survey.

PALEO-INDIAN

Due to the presence of glacial activity in the area, human occupation did not begin until ca. 10,000 B.C. Paleo-Indian groups entered the area hunting mastodon, mammoth, bison, and caribou while following the retreating ice front northward. The environment in which the Paleo-Indian groups existed was similar to that of a tundra or open boreal forest. The climate was colder and moister during this period of human occupation and forests consisted of spruce and fir.

Clovis and Folsom fluted points, similar to those found in association with extinct ice age animals in the southwest, are the most characteristic artifacts of the early Paleo-Indian period. No fluted point sites have been reported from the St. Croix and Namekagon Riverways. However, they have been found in Wisconsin, in areas north of the study area. These glacial deposits were left by melting ice about

9,000 B.C.; thus, the recovered artifacts post-date that time (Quimby 1960). Fluted points dated later than 8,500 B.C. have also been found on the lake bed of glacial Lake Oshkosh. This evidence, along with evidence from other portions of the Great Lakes, indicates that fluted points were employed by Paleo-Indian groups in the upper Great Lakes region from 10,000 B.C. to 7,000 B.C. (Quimby 1960). Therefore, it is reasonable to suggest that fluted points could be found along the riverway. However, of the over 100 fluted points found in the upper Great Lakes Region,most have been surface finds. An undisturbed Paleo-Indian component would be unexpected.

The lack of substantial site data makes it difficult to recreate the lifestyles of the Paleo-Indians. Environmental and scant artifact data indicate that these people were nomadic hunters that probably lived in shelters made of poles and skins. Almost nothing is known of their social or religious practices.

Nomadic hunters still occupied the area from 7,000 to 4,500 B.C. Quimby refers to them as Aqua-Plano, and unfluted lanceolate point types such as Scottsbluff, Plainview, Brown's Valley and Eden were utilized. Points of this type have been found associated with bison and extinct bison remains. Again,no sites of this type have been recorded along the riverway.

Toward the end of the Paleo-Indian period, fluctuating temperatures and changing floral and faunal resources combined to trigger a shift in the formerly successful nomadic big game hunting subsistence pattern, as an influx of more pine species followed the increasing warmer conditions. Technological and food gathering changes took place in response to the introduction of mixed deciduous and coniferous forest and to the related woodland animal species.

ARCHAIC

The Archaic period witnessed a continued warming trend. During this time, the large Pleistocene mammals had become extinct and smaller woodland species were hunted in their place. New food resources were experimented with as well, and an increasing emphasis was placed on plant foods. The concomitant technological change resulted in the manufacture of mortars, pestles, and axes for the processing of wild foods and wood.

The formalized patterning of the year into seasonal units which yielded specific resources was also taking place. Ultimately, distinct regional Archaic subsistence patterns arose. In the north,a hunting-gathering adaptation was still attuned to large mammals, but was accompanied by seasonal fishing. In the southern part of the region, the collection of wild food plants became an important aspect of the subsistence economy.

An extensive trade network, reaching from Lake Superior to the Gulf of Mexico, arose during the Late Archaic period. During this time, Lake Superior copper from Isle Royale and the Keweenaw Peninsula was mined and traded for exotic southern items. Locally, the use of certain exotic items in association with elaborate burial ceremonialism gave rise to regional Archaic complexes often referred to as the Old Copper (3,000 - 500 B.C.) and Red Ochre (1,000-500 B.C.) manifestations.

The Old Copper culture appeared in Wisconsin around 3000 B.C. and was concentrated in the upper third of the state. However, one of the richest sites, the Osceola Site (Ritzenthaler 1946), is located on the Mississippi River in Grant County, Wisconsin. The Old Copper culture derives its name from the fact that great use was made of copper tools such as knives, awls, fishhooks, projectile points, adzes and axes as well as ornaments. The native copper that exists in the Upper Great Lakes area , which was employed in the manufacture of these artifacts, was either cold hammered, or heated and hammered (Wittry 1951). Small copper deposits also occur along the Snake and Kettle Rivers. These were probably quarried by people living at Petaga Point, in Mille Lacs Kathio State Park, Minnesota (Bleed 1969).

The Osceola Site (Ritzenthaler 1946) was the first site discovered in which copper artifacts occurred in situ along with other lithic artifacts in a mass burial. The burial technique employed here was that of the bundle burial, in which the body of the deceased was kept on a scaffold until the flesh had disintegrated. Later, the bones were gathered together and interred in the ground as a unit. The discovery of charred bones indicates that partial cremation was also practiced.

The Red Ochre culture, so named for the occurrence of burials capped with powdered red ochre, existed from 1000-500 B.C. Burial sites are generally small, containing only a few individuals interred in a flexed position. These frequently occur in southeastern Wisconsin. Small caches of turkey-tail points and long ceremonial blades, as well as large caches of ovate trianguloid knives and points, are often found in association with these burials. The Red Ochre culture could represent a transitional phase from Old Copper to Early Woodland, as evidenced by its occasional association with mounds and Early Woodland pottery (Ritzenthaler and Quimby 1962).

WOODLAND

While basic subsistence and trade patterns continued, the manufacture of ceramics and domestication of plants mark the beginning of the Woodland period by ca. 500 B.C. The domestication of plants was dependent upon local growing conditions and,where climate prevented the intensive cultivation of plants, the Archaic subsistence patterns remained viable.

Early Woodland occupations appeared between 500 and 100 B.C. and the Middle Woodland lasted from around 100 B.C. to A.D. 500. Gibbon and Caine(1976) have identified a St. Croix Phase, a transitional period between Middle and Late Woodland, from A.D. 500 to A.D. 800. Salzer's 1974 report on the Wisconsin North Lakes Project combines Early and Middle Woodland occupations into what he calls the Nokomis Phase. Salzer's study is based on sites located in the northern portion of Wisconsin, east of the central portion of the state.

Using Salzer's description of Early and Middle Woodland as closest to what archeologists would expect to encounter along the St. Croix Riverway, the earlier Woodland cultures would be marked by small, crude, pottery vessels made of sandy clays and tempered with crushed granitic rock. These have slightly constricted necks and thick walls with

square or flat tips. The entire surface is decorated with a paddle, wrapped with predominantly S-twist cords. Over this base are horizontal rows of broad, finger-trailed lines. Other vessel forms occur with decorations consisting of cord marks, shallow punctates, dentate stamping and cord wrapped stick and string impressions. Some of the styles are similar to the Havana tradition vessels and those of the Black Sand Complex in Illinois. No specific projectile points were identified. Most of the points were made of exotic materials including cherts, silicified sandstone, Knife River chalcedony and a red chert from Barron County, Wisconsin. Other lithics in the assemblage included knives, and what appear to be projectile points worked into knives, endscrapers, sidescrapers, ovate plano-convex multiple purpose bifaces and drills.

A distinctive feature of the Nokomis Phase is a greater use of copper than one would expect to find in sites of this date. The tool assemblage consists of awls, fish-hooks,flat-stemmed projectile points, small chisels, punches, rolled beads and copper waste. Cairn-type hearths found at these sites supplied heat for the early metallurgists.

In general, the Early Middle Woodland in north-central Wisconsin reflects an increase in population, more intensive utilization of the area, heavier reliance upon trade and an important copper industry (Selzer 1974). Trade items appear to come from the south and east and possibly from the Laurel complex in northern Minnesota. In turn, copper tools are found in southern areas. Influence from the Hopewellian cultures, with their major culture centers in the Central Mississippi, Ohio and Illinois river valleys, began spreading north and probably reached the Great Lakes area by 100 B.C.

Through time, there was an increasing involvement with the Hopewell Interaction Sphere, which was a widespread network of trade and burial ceremonialism. This included construction of burial mounds, manufacture of ceremonial pottery and importation of exotic trade items such as obsidian from Wyoming, and shell ornaments from the Gulf of Mexico. Expanding from the Illinois Valley, the main migration route of Hopewell peoples into Wisconsin was up the Mississippi River. The duration of the Hopewell period is relatively short (100 B.C.-A.D.500).

The abundance of information on Hopewell culture is derived from their conical mounds and related occupation sites. Hopewell art and material wealth was lavished upon the dead. Deceased persons of high rank were buried in subfloor pits,

occasionally lined with logs or bark. Bodies were buried in an extended or flexed position with a diverse range of tools, utensils, pottery, pipes and other ceremonial objects. Conical mounds were erected over these grave pits. The elaborate nature of Hopewell ceremonialism is indicative of a social organization that included class structure, division of labor, and specialized artisans, as well as means by which cooperative work projects like the construction of mounds could be organized (Quimby 1960).

After about A.D. 500, the influence of Hopewell culture had substantially diminished. Subsequent cultures seemed to have been diversified outgrowths of a more general Early and Middle Woodland base. The St. Croix Phase is described as a transitional phase between Middle and Late Woodland dated from A.D. 500 to A.D. 800 (Gibbon and Caine 1976). This phase has been identified from 22 excavated sites found between northwestern Wisconsin, and across eastern and central Minnesota to the Red River Valley. Fifteen of these sites are multicomponent habitation sites and several are single component burial sites. Most of the St. Croix Phase sites, excluding the burial sites, are found on streams near lake outlets. Some are found on points jutting into small lakes which have streams flowing through them or on the northern shores of lakes (Gibbon and Caine 1976). These locations are conducive to wild rice gathering,fishing and hunting waterfowl.

Diagnostic artifacts consist of well-made isosceles triangular and small side-notched projectile points. Pottery vessels have straight to slightly excurvate rims, unthickened lips, slight to moderate orifice constriction, moderate flaring in the body and subconical bases (Gibbon and Caine 1976). Cord roughening occurs on the body surface and decorations applied to the rim, consisting of bands of horizontal or oblique stamping applied with a dentate stamp, a comb stamp or a stick firmly wrapped with cord. The dentate stamping, general vessel shape and occurrence of exotic materials reflect carry-overs of Middle Woodland characteristics. The sites are larger, more frequent and have a greater range than earlier Middle Woodland sites.

The early Late Woodland culture has been dated from A.D. 800 to A.D. 1200 (Gibbon and Caine 1976) and includes two complexes: the Kathio Phase located within the southern boundary of the Carolinian-Canadian transition zone in eastern Minnesota, and the Blackduck Phase located north of the Kathio. The latter would be expected to occur more frequently in the St. Croix Riverway study area. Blackduck pottery is grit-tempered, cord-marked pottery with twisted cord or cord wrapped stick impressions. Both Kathio and Blackduck are associated with conical and linear mounds. Salzer reports that burial mounds are found in his study area for the first time during this period (Salzer 1974). Pottery described

as Blackduck has been identified from the Lower Tamarack Village site along the St. Croix River. The people relied on hunting and gathering for subsistence with emphasis placed on gathering wild rice. Houses dated to this period indicate a degree of sedentism not found at earlier sites.

Mississippian sites, constituting a northern extension of the Mississippian culture, extended into Minnesota and Wisconsin during this time. These settlements were few and were based on the cultivation of maize and beans. Blue Earth sites, a phase of the Mississippian,have been found along the Mississippi and St. Croix Rivers, in the lower St. Croix area. None have been found in the upper St. Croix or Namekagon areas.

An Upper Mississippian cultural group appeared in Wisconsin around A.D. 800 and settled along the Mississippi River in the west and around Lake Winnebago in the east. This eastern group eventually had contact with Europeans in historic times, and are generally identified with the Winnebago tribe (McKern and Ritzenthaler 1946).

A final migration of prehistoric peoples into Wisconsin took place around A.D. 1000. This Middle Mississippian group probably moved north from the settlement that produced the Cahokia Mounds near east St. Louis, Illinois.

Aztalan ceramics, projectile points, and other items are extremely similar to those from Cahokia Mounds. The village occupied a 21-acre area and was surrounded by a 12-foot high stockade with towers set at 80-foot intervals (Quimby 1960). The village was dominated by two large mounds fashioned in the form of truncated pyramids. Like Hopewell, the Middle Mississippian culture was based upon an agricultural economy supplemented by hunting and fishing.

The Middle Mississippian Aztalanians occupied a temporal position contemporary with the Effigy Mound culture which developed in Wisconsin about A.D. 800 and lasted until A.D. 1300. Effigy mounds are almost entirely limited to Wisconsin, occurring principally in the southern half of the state. The mounds are low mounds of earth, usually no less than four feet high and often several hundred feet long. They are shaped to represent various animals and birds, and occurred in groups of low circular and linear forms. The dead were placed in pits and covered by the mounds. In the animal and bird effigy mounds, the burials were placed at focal points such as the head or heart. Presumably, the effigy mounds bore a religious significance representing totem symbols or effigies of animals associated with various groupings of Indians (Rowe 1956).

During the Mississippian period also, the Clam River culture flourished near the St. Croix Riverway. This group similarly had elaborately prepared burial mounds and a subsistence economy that focused on hunting, gathering wild plants and, as implied by its name, intensive use of aquatic resources. The St. Croix River and its tributaries provided more than adequate large animals, aquatic fowl and wild rice to sustain good-sized settlements.

CHAPTER 4
HISTORICAL BACKGROUND

The period of initial European penetration into the western Lake Superior region dates to the opening of the seventeenth century. While Etienne Brule is generally credited as having been the first Frenchman to explore the area in 1623, he is probably only one of many unnamed traders and explorers who actually traversed the region prior to the establishment of French claim over the Great Lakes in 1669. As early as 1658 Pierre Esprit Radisson and Medart Chouart Sieur de Groseilliers had entered the St. Croix area from Lake Superior and appear to have traded with the Santee Dakota or Eastern Sioux in the vicinity of the Snake River and Knife Lake (Brower 1901:119; Foilwell 1956:10).

The first documented exploration into the interior area was made in 1679 by Daniel Greysolon Sieur du Lhut. He was assigned the task of attempting to make peace between the Dakota and Chippewa, and to search for minerals, furs and the source of the Mississippi. Du Lhut crossed into Duluth Bay (named after him), proceeded south, on the Brule River, crossed the Brule-St. Croix portage and continued down the St. Croix River to the Mississippi. He returned to Lake Superior by way of the Wisconsin-Fox River route. This is the earliest account of Europeans entering the St. Croix River area.

In 1683 du Lhut built a supply post, Fort St. Croix, at the portage route from Lake Superior to the Mississippi via the St. Croix River (Nute 1949). This would place it in the

vicinity of modern day Solon Springs. It was the earliest fort in interior Wisconsin, but proved to be inaccessible to the Dakotas because of the invading Chippewa. In 1695 Pierre Charles Le Suer built a trading post for the Dakota on Prairie Island on the lower reaches of the Mississippi River. This established the St. Croix as a communication and supply route for trading posts throughout Minnesota. There are also references to a trading post built at Taylors Falls in 1700, but research has failed to reveal its location (George 1973).

During this period Le Suer reported that the St. Croix was inhabited by the "Songasquitons" (Santee Dakota), while the Bois Brule River was held by the "Ondebatons" or Ojibwa groups which were then entering the region (Bower 1900:92). Beginning in the mid-seventeenth century the Objibwa began to move westward due to the pressure of Iroquois expansion in the east. The encroachment of the Ojibwa into the St. Croix region fostered a conflict situation with the Dakota which lasted over a century and virtually eliminated any meaningful attempts on the part of the French to establish more than nominal control over the region's fur resources. Aided by the acquisition of French firearms, the Ojibwa drove the Dakota out of both Mille Lacs in 1745 and Sunrise Prairie in 1745 (Brower 1900:82).

In 1767, four years after the cessation of the French and Indian War, a British expedition under Captain Jonathan Carver explored the St. Croix region. Among the Objibwa settlements they encountered at that time were "Rice Village" on the Yellow River and another occupied by the"Stoney Creek" band to the south of Chippewa Lake. While Carver referred to the St. Croix in his map of 1769, the Bois Brule was identified as "Goddard's River" and the Namekagon as "Tute's Branch" or the "Copper Mine Branch" (Bower 1900). Several years after Carver's expedition passed through the area the Dakota were driven from the St. Croix in a battle which took place at the portage of St. Croix Falls in 1770. While no longer able to maintain permanent settlements in the region, the Dakota continued to utilize the lands adjacent to the St. Croix for winter hunting (Neill n.d.:53).

A number of small trading operations were established along the upper St. Croix drainage during the late eighteenth century. These include a post occupied by Michael Cadotte on the Namekagon River between 1784-1785, and another operated by James Porlier during the winter of 1792-1793 at Taylor's Falls (Grignon 1857:244).

In 1793 the Northwest Company of Montreal asserted its economic influence in the St. Croix region by building a post known as Fort St. Louis at Superior, Wisconsin. In 1796

Jonathan Sayer, the director of this establishment, had a secondary wintering post built at the mouth of the Yellow River (Hudson Bay Records, F Series). This remained the primary post for the supplying of the Folle Avoine district of the Northwest Company for the next ten years.

In 1807 the Yellow River post passed into the possession of the Southwest Company. Shortly after 1820 the American Fur Company occupied the post and continued to operate it until 1834 when a new post was built at Yellow Lake (see Mrs.Stephen Vach of Pine City Minnesota for site of Danbury post).

In 1819 the Columbia Fur Company under Kenneth McKenzie built a four cabin complex to the south of Taylor's Falls, probably in what is now the Interstate Park. This post apparently was established primarily to trade with the St. Croix Chippewa at Minda's Village, called "Quailtown," at St. Croix Falls. The Columbia Fur Company was later absorbed (1827) by the American Fur Company (Taliaferro Papers: MHS). It was probably those buildings that Henry R. Schoolcraft and Captain James Allen burned on their expedition down the St. Croix in 1832. Schoolcraft and Allen noted the trading post and Indian village at the mouth of the Yellow River and the Chippewa village at the mouth of the Snake River (Mason 1958).

The American Fur Company controlled the fur trade on the St. Croix until 1845. In 1837 the firm concluded a private treaty with the St. Croix Chippewa for all of the pine trees on the St. Croix and Snake Rivers. Joseph Brown was sent to Taylor's Falls to direct logging and trading operations on the St. Croix in 1837-1838. He established a post on a creek to the south of Taylor's Falls and logged off the area around Clam Lake.

In 1837 the United States acquired most of the lands adjacent to and northwest of the St. Croix through the Treaty of St. Peters, which also established a reservation at Pokegema Lake for the Chippewa. Before the treaty was ratified in Congress in 1838, John Boyce of Virginia began cutting lumber at the mouth of the Snake River. He was chased away by the Pokegema Band of the Chippewa but continued his operations at the mouth of the Kettle River in 1839.

In the spring of 1838 Franklin Steele chartered the steamboat, Palmyra, and built a sawmill at the Falls of the St. Croix. He and his partners soon began logging the Snake River region (MHSC, 1905:648). In the fall of that year Lewis Judd and David Hone arrived at St. Croix Falls and poled their way by flat boat to the mouth of the Kettle River where they began logging operations. As members of the Judd

Walker and Veazie Lumber Company they also constructed a sawmill at Marine, Minnesota during the winter of 1838 (MHSC 1901: 297-298). Within a year Elam Greeley built a competing sawmill on the Sunrise River.

W. W. Spaulding began a cooperative effort with the American Fur Company in 1845 to dig copper from the glacial drift at the mouth of the Snake and Kettle Rivers. Another mine also was started north of Taylor's Falls by W. H. C. Folsom, but no large ore deposits were ever located.

In the 1850's the St. Croix Lumberman's Dam and Boom Company began to build log dams at the mouths of all major tributary streams along the St. Croix River. These dams held back the spring melt water until it was released to drive the logs over St. Croix Falls and to Stillwater for sawing. The main partners in this enterprise were Samuel McClure and Jacob Bean. The last dam was built at the mouth of Wolf Creek in 1868. In 1869 the St. Croix Dam and Boom Company turned its attention to building wooden dams across the St. Croix, Namekagon and Totogatic rivers. In 1896 the company built its last dam on the American River in Wisconsin.

In February of 1878 the Surveyor General of Minnesota visited logging camps on the Totogatic and Namekagon Rivers. Sauntry and Tozer; Judd, Walker and Veazie; G. Y.

Johnson; Nelson and Long all had camps on the Totogatic River. Judd, Walker and Veazie and F. Jones had camps on the Namekagon River (WPA Records, MHS). The former concern, now designated as the Marine Company, built a town called Veazie on the Namekagon in 1877. Twenty miles below Riverside is St. John's landing, named after lumberjack Ed St. John who organized the location as a gathering place for the lumberjacks who were working in the forest (Dunn 1965:277). Once the land was logged off, it was usually sold to farmers who were moving into the region.

In 1879 the firm of Hayward, Laird, Norton and Weyerhauser built their first log dam at NE 1/4,Section 26, T40, R7W. In 1881 the company was reorganized as the North Wisconsin Lumber Company. Two years later Anthony J. Hayward built a sawmill and a dam on the Namekagon River in Section 27, T41N, R9W. In 1885 he built a log dam above the small company town of Hayward. The Hayward area was later (1896) logged by the Knapp, Stout and Wilson Company of Menominee, Wisconsin as well.

During the 1870's John Martin and Issac Staples built a sawmill at Rusheba, Minnesota, and a cabin at Amador for Staple's men. In 1883 Staples built a log dam on Straight Creek in Polk County and began logging the Snake River region.

In 1873 the Socrates Nelson Lumber Company of Stillwater was purchased by Louis Torinius and William Chalmer. G.A. Torinius was logging on Totogatic Creek in 1887 and two

years later W. Chalmers was reported to be logging on the Yellow River. By 1891 Chalmer's crew was operating at Spring Brook in Washburn County where he also built a log dam.

During this period David Tozer and William Sauntry purchased extensive tracts along the St. Croix and the Namekagon which were exploited for their lumber resources. In 1891 Sauntry began logging the Tamarack River and built dams in Burnett and Douglas Counties. Four years later Sauntry and Musser also built a dam on the American River. Shortly after the turn of the century the Weyerhauser Companies purchased major holdings in several of these smaller logging companies, consolidating their control over the St. Croix regional economy. Musser-Sauntry Land Logging and Manufacturing Company, David Toser and Company, Kaiser and Williams and F. McKey sold their holdings in Douglas, Bayfield, Burnett and Washburn Counties in December of 1906. Within a month Weyerhauser had also purchased interest in land controlled by Laird, Norton Company in the same counties.

Wooden logging dams and mills also were built by smaller logging companies. In 1875 Canute Anderson constructed his first sawmill and logging dam in Section 7, T38N, R19W, and ten years later built a second dam on Wood Creek, Section 28, T38N, R18W. The Peterson brothers were reported to have built logging dams on Wood Creek in 1879 and on the Trade River in 1891. Frederick Peterson operated on the Trade River in 1887.

Many other small companies operated in the region before the close of the logging era which occurred about 1915.

Many ghost towns existing in the vicinity of the St. Croix and Namekagon Rivers were built along roadways established in the 1850s. These include such places as Sunrise, Amador, and Rusheba. Others such as St. Croix, Randall and Stewart were located along railroad lines. In the 1880's the NPRR built a line to transport logs from Grantsburg to Stillwater. The Chicago, St. Paul, Minneapolis Railroad constructed a line in 1881 to Stinnett, later called Stewart, for the St. Croix Dam and Boom Company. The Soo Line Railroad crossed the St. Croix in T41N, R15 near the Second Mille Lacs Reservation.

Through the treaty concluded at La Pointe in 1854 the Chippewa relinquished their claim to all remaining lands on the St. Croix and its tributaries. However, by the 1870's a number of families, constituting what was to eventually become known as the "Lost Tribe of the St. Croix," returned to the area and settled near the Lower Tamarack and Crooked Rivers. While they retained many traditional cultural patterns, the new socioeconomic conditions fostered by the logging industry had a definite impact upon their lives. Garden farming, hunting, trapping and fishing continued to be important economic activities, but many Chippewa also worked at logging camps, especially during the winter season.

In the 1870's some members of the "Lost Tribe of the St. Croix" intermarried with the Mille Lacs band and returned to the area in T41, R16 and 17 and continued to live along the St. Croix until 1934. At that time the Indian Department organized six new reservations in six counties in Wisconsin for these "lost Chippewas" to live in. Many tar-paper shacks and cemeteries along the St. Croix River near the Lower Tamarack and Crooked Rivers belonged to these landless people.

With the coming of the railroads, many of the river towns were abandoned, with the exception of those tied to lumbering and ferry boat landings. A few ferry landings existed into the 1920's in some places along the St. Croix.

In the 1920's and 1930's private tree farmers and conservation groups began buying land along the St. Croix River. Counties purchased tracts for county forests and parks and wayside parks were established by the state of Minnesota along the St. Croix and Namekagon. In 1935 the State of Minnesota took the first step which led to the formation of St. Croix State Park and Chengatona State Forest (Dunn, 1965: 281).

Northern States Power Company has also purchased some of the land along the river in the last twenty years. The National Park Service, administering this newly designated wild and scenic river, has acquired much of the land along the St. Croix and Namekagon Rivers for public purposes. This land, which has undergone so many different types of exploitation, will thus revert at last to an appearance and use reminiscent of its historic past.

CHAPTER 5

SURVEY METHODOLOGY

The 1977 Phase II survey methodology was based almost entirely on the study methodology developed for the 1976 Phase I survey. Prior to the Phase I survey, the entire St. Croix River was divided into 18 different environmental subunits based on seven soil associations, five vegetation types and two climatic zones (Commonwealth Associates Inc. 1977). The Phase I survey consisted of a stratified disproportionate 20 percent sample of the St. Croix Riverway. Based on this sample, a predictive model was developed which predicted a total site projection of 326 (Commonwealth Associates Inc. 1976).

The objective of the Phase II survey was to sample each of the identified environmental subunits, ultimately surveying approximately an additional 40 percent of the entire St. Croix Riverway. This survey was undertaken in such a manner as to provide a uniform 60 percent sample of each of the identified subunits, thereby providing a statistically reliable sample to test the predictive model developed during the 1976 Phase I survey (Table 1).

Sample areas had to be adjusted to access availability, and permission to survey as much land as possible was acquired before the actual survey started. These lands

TABLE 1
1977 Survey Summary

Environmental Subregion	No. Total Acres	1976 No. Acres Surveyed	1977 No. Acres Surveyed	Total No. Acres Surveyed	Percent Surveyed	1976 No. of Sites	1977 No. of Sites	Total No. of Sites	Sites No. Acres Surveyed	Projected Total Sites
1	2,203	622	777	1,398	63%	1	0	1	.0007	2
2	19,393	5,177	6491	11,668	60%	21	17	38	.0032	63
3	9,652	1,909	3,938	5,847	61%	15	14	29	.0049	48
4	1,926	486	983	1,469	76%	2	6	8	.0058	10
5	2,969	641	1,364	2,005	68%	1	2	3	.0014	4
6	477	63	270	333	70%	0	0	0	0	0
7	2,233	266	1,316	1,582	71%	2	0	2	.0012	3
8	2,291	111	1,269	1,380	60%	4	0	4	.0028	7
9	5,056	584	2,452	3,036	60%	1	1	2	.0006	3
10	2,844	489	1,271	1,760	62%	7	3	10	.0056	16
11	1,142	175	967	1,142	100%	1	0	1	.0008	1
12	2,776	228	1,458	1,686	61%	3	2	5	.0029	8
13	3,089	653	1,218	1,871	61%	7	2	9	.0048	15
14	1,908	216	931	1,147	60%	2	4	6	.0052	10
15	2,526	493	1,053	1,546	61%	8	8	16	.0100	26
16	1,200	211	512	723	60%	1	1	2	.0027	3
17	479	79	216	295	62%	0	0	0	0	0
18	680	182	280	462	68%	1	0	1	.0021	1
	62,844	12,585	26,766	39,350	63%	77	60	137		220

*Weighted Mean: This is a different value from the less exact value derived from the combined 1976 and 1977 total survey which is 219.

included those held in ownership or easement by the National Park Service, those in ownership by Northern States Power, those in private ownership where permission to survey was given, and those lands owned by the states of Minnesota and Wisconsin where prior authorization was received. The actual survey resulted in an approximate 43 percent sample of the entire riverway with samples within each individual environmental subunit ranging from 60 percent to 100 percent (Figure 4).

Base maps for the Phase II survey consisted of 1 inch = 660 feet, segment maps provided by the Superintendent of the St. Croix National Scenic Riverway and 7 1/2 and 15 minute USGS topographic maps. These maps were used to identify sample area and ownership. In addition, the maps were used to plot all site locations.

The actual Phase II field survey was undertaken between July 25, 1977 and August 30, 1977. The six-person field team consisted of three two-person field parties, each consisting of a prehistoric and historic site specialist. Each separate survey team was fully equipped with a field vehicle and all necessary field equipment. In addition, the survey was split into two subphases, the first of which concentrated on the riverway north of the bridge at Grantsburg. During this subphase the field team was headquartered at the town of Trego, which served as a central field office from which daily team efforts were coordinated.

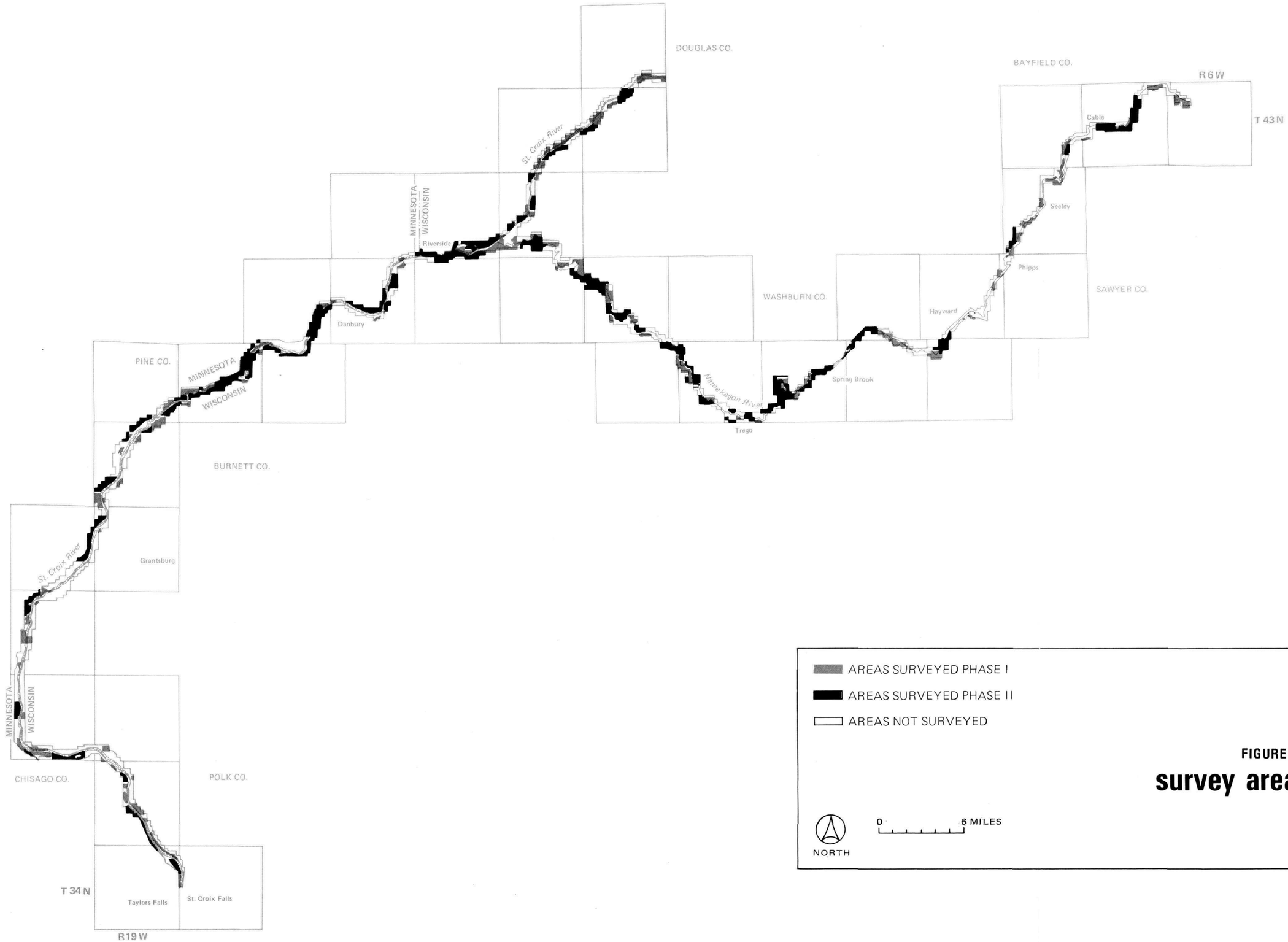


FIGURE 4

survey area

The area north of Grantsburg was divided into approximately three equal subdivisions. These correspond roughly with: 1) the Namekagon River from Trego northeast to Namekagon Lake, 2) the Namekagon River west to the confluence with the St. Croix River and the St. Croix River from Riverside northeast to the dam at Gordon, and 3) the St. Croix River from the bridge at Grantsburg northeast to Riverside. Each field team was assigned one of these subdivisions and concentrated its daily survey efforts within it. It was found that this greatly facilitated the survey effort by allowing each field team to become extremely familiar with the survey area assigned to it. This resulted in a substantial saving in the time necessary to locate sample areas and allowed each field team to become familiar with local individuals who were extremely helpful during the course of the survey.

The second subphase of the Phase II field survey concentrated on the St. Croix River from St. Croix Falls north to the bridge at Grantsburg. During this subphase the survey teams maintained a field headquarters in the town of Taylor's Falls from which daily field activities were coordinated. For ease and economy of the survey, the area from St. Croix Falls to the Bridge at Grantsburg was divided into approximately two equal survey units. A field team was assigned to each of these units and concentrated its survey efforts within it.

Actual field techniques consisted of running parallel compass transects at approximately 50 meter intervals across all sample areas. In areas where ground cover prevented adequate visibility, shovel testing was implemented. This consisted of approximately 1 by 1 foot test squares every 50 meters along the compass transect. Sites were identified by either the presence of material on the surface, occurrence of features or other unnatural disturbances. If cultural material was located on the surface, a determination was made of site parameters by observing and recording the areal distribution of cultural material present. If cultural material was located by shovel testing, test pits were extended laterally in the four cardinal directions until cultural material was no longer visible. All open and exposed areas such as roads, trails, riverbanks and tree falls were carefully checked for any possible evidence that might indicate the existence of significant cultural resources. For each archeological site located, a Commonwealth archeological site form was completed, and black and white photographs were taken. Each site located was plotted on both USGS topographic maps and NPS segment maps. Where cultural material was present, a collection was made of diagnostic material for later analysis at the archeology laboratory at Commonwealth Associates.

The archeological site numbers used during the Phase II survey were consistent with those used during the 1976 Phase I survey (Commonwealth Associates 1977). This

numbering system was based on ownership tracks contained on the NPS Land Acquisition Plats. For example, a site with the number 18-117-2 refers to the second site located on tract 117 on the Land Acquisition Plat No. 18. Each numbered tract contains information as to property owner and number of acres. This system was designed in order to facilitate the location of identified sites, adding new sites in sequence for updating ownership status as the project progresses. In addition, during the Phase II project a state site number was assigned to both the sites located during Phase I and those located during the Phase II portions of the project (Table 2).

Field conditions during the 1977 Phase II survey had severe effects on the methods and techniques employed during the survey. Weather conditions were extremely wet as opposed to the Phase I survey when conditions were very dry. While this made surveying in the woodland environment extremely uncomfortable, it did not affect the actual survey. However, the survey was affected by the July 4, 1977 storm that hit the area of the St. Croix and Namekagon River. This storm resulted in the uprooting of numerous trees which made access and survey in certain areas extremely difficult. For example, in the areas of the St. Croix Park, survey had to be abandoned because of the difficulty in locating sample areas and, if areas could be located, the difficulty of shovel testing when 70 to 80 percent of the trees were down.

TABLE 2
SUMMARY OF ARCHEOLOGICAL SITES-PHASE II

CAI Site No.	State Site No.	Identity	Possibility of Destruction	Environmental Subunit	National Register Eligibility	Recommendations
03-103-1		Prehistoric Campsite	None	2	Yes	Test Excavations
03-151-1		Historic Mining Area	None	2	Yes	Historic Documentation
03-158-1		Log Cabin	None	2	No	None
03-156-1		Stone Structure	None	2	No	Protection
03-159-1		Wing Dams	None	2	No	Protection
03-164-1		Stone Dam	None	2	No	Protection
03-182-1		Wing Dams	None	2	No	Protection
03-183-1		Dam and Dump	None	2	No	Protection
03-197-1		Cabin and Mine	None	2	No	None
04-165-1		Structural Depressions	None	2	No	Historic Documentation, Protection
04-165-2		Railroad Grade	None	2	No	Historic Documentation, Protection
07-104-1		Prehistoric Campsite	None	3	Yes	Test Excavation
07-104-2		Historic Wing Dam	None	3	No	Protection
13-126-1		Prehistoric Campsite	None	3	Yes	Test Excavation
13-138-1		Prehistoric Campsite	None	3	Yes	Test Excavation
13-141-1		Prehistoric Campsite	Yes-existing road	3	Yes	Test Excavation
14-110-1		Prehistoric Campsite	Yes-Power Line Construction	3	No	None
14-110-2		Prehistoric Campsite	None	3	No	None
15-102-1		Historic Sheet Dump	None	4	No	None
15-102-2		Historic Sheet Dump	None	4	No	None
15-140-1		Structural Depression	None	4	Yes	Test Excavations
16-122-1		Sheet Dump	None	4	No	None
16-122-2		Log Ramp	None	4	No	Protection
16-123-1		Sawmill Remains	None	4	No	Protection
17-123-1		Lithic Scatter	None	3	Yes	Test Excavation
17-123-2		Structural Depression	None	3	No	None
17-126-1		Prehistoric Campsite	None	3	Yes	Test Excavation

TABLE 2 (Cont'd)
SUMMARY ARCHEOLOGICAL SITES PHASE II

CAI Site No.	State Site No.	Identity	Possibilty of Destruction	Environment Sub Unit	National Register Eligibilty	Recommendations
17-126-2		Lithic Scatter	None	3	Yes	Test Excavations
18-108-1		House Foundation	Recent Logging Activities	3	No	None
18-108-2		Historic Scatter Prehistoric Campsite	Logging Activities	3	Yes	Test Excavations
23-134-1		Structural Depression	None	5	No	None
24-112-1		Structural Depression	None	3	No	None
24-123-1		Rock Alignment	None	2	Yes	Further Investigation
25-107-1		Structural Depression	None	5	Yes	Historic Documentation Test Excavation
27-105-1		Historic Dump	None	2	No	None
30-115-1		Logging Dam	None	2	No	Protection
31-107-1		Logging Dam	None	2	No	Protection
33-108-1		Prehistoric Campsite	Summer Resorts	2	Yes	Test Excavations
33-132-1		Sluice Dam	None	2	No	Protection
44-109-1		Historic Find Spot	None	10	No	None
45-147-1		Stone Dam	None	9	No	Protection
46-141-1	21-PN-22	Prehistoric Campsite	None	10	Yes	Test Excavations
46-142-1		Cellar Depression	None	10	Yes	None
48-108-1		Structural Depression	None	12	Yes	Historic Documentation Test Excavation
48-108-2		Concrete & Cobble Foundation	None	12	No	None
48-109-2		Railroad Right-of-way	None	14	No	Protection
48-115-1	21-CH-28	Structural Depression	None	15	No	None
48-115-2		Prehistoric Campsite	None	15	Yes	Test Excavations
48-115-3		Sheet Dump	None	15	No	None
49-157-2		Fieldstone Foundation	None	14	No	None
49-159-1		Wing Dam	None	14	No	Protection
50-108-1		Structural Depression	None	14	Yes	Historic Documentation Test Excavation

TABLE 2 (Cont'd)
SUMMARY ARCHEOLOGICAL SITES - PHASE II

CAI Site No.	State Site No.	Identity	Possibility of Destruction	Environmental Subunit	National Register Eligibility	Recommendations
51-102-2	21-CH-27	Prehistoric Shell Midden	None	15	Yes	Test Excavations
51-102-3	21-CH-25	Prehistoric Shell Midden	None	15	Yes	Test Excavations
51-102-4	21-CH-26	Prehistoric Shell Midden	None	15	Yes	Test Excavations
51-102-5		Structural Depression	None	15	Yes	Historic Documentation Test Excavation
52-102-3	21-CH-24	Prehistoric Campsite	Yes-Parking Lot	13	Yes	Test Excavations
55-111-2		Stone Cribbing	None	13	No	Protection
56-103-2	21-CH-23	Prehistoric	Recreation Activities	13	Yes	Test Excavations
56-112-1		Historic	None	16	Yes	Test Excavations

While these problems may have biased our samples in favor of areas more easily accessible, we were still able to adequately sample all 18 environmental subunits.

CHAPTER 6

SITE DESCRIPTIONS

Site No. 03-103-1

Site No. 03-103-1 is located in Bayfield County, Wisconsin, T43N, R7W, in Section 15, SE 1/4, NW 1/4, NE 1/4 (Figure 5). The site is located 30 feet southwest of the Namekagon River, covering an area 20 feet by 10 feet in extent.

Prehistoric cultural material recovered from the site included approximately 50 fragments of fire-cracked rock (not collected), six flakes, a quartzite cobble identified either as a hammerstone or bi-pitted mano, and a red banded chert endscraper.

Site elevation is 1340 feet with a norway pine, balsam, spruce and elder vegetation cover and with dark brown loamy soils. The site condition is undisturbed and may prove to be important to the understanding of the area's cultural sequence. Therefore, this site should be considered to be of National Register quality until further investigations have determined the exact site parameters and temporal placement and level of significance.

Map has been removed from the electronic edition in an effort to protect sensitive cultural resources.

Site No. 03-151-1

Site No. 03-151-1 is located in Bayfield County, Wisconsin, T43N, R7W, in Section 20, NE 1/4, NE 1/4, NE 1/4 (Figure 6). The site is located approximately 350 feet south of the Namekagon River.

This is the site of a historic mining area 300 feet by 300 feet in extent. It is situated in an area characterized by igneous rock outcrops, shallow sand and gravel,with a vegetation cover of jack pine, white pine and aspen. Site elevation is 1330 feet.

The site is composed of a series of trenches, pits, and an open shaft filled with water. A small tinware bowl was recovered. According to Mr. and Mrs. Clarence Carow, long-time residents in the area, the mine was already abandoned in 1917 when Mr. Carow arrived in Cable. Emma Carow was born and raised on a farm near the mine area and recalls that the mine was abandoned when, as a child,she played near the shaft entrance.

Due to the uniqueness of this site, it should be considered eligible for nomination to the National Register until further research including historic documentation has determined its exact significance.

Map has been removed from the electronic edition in an effort to protect sensitive cultural resources.

Site No. 03-158-1

Site No. 03-158-1 is located in Bayfield County, Wisconsin, T43N, R7W, in Section 20, SE 1/4, NE 1/4, at an elevation of 1340 feet (Figure 6).

The site is an early twentieth century log cabin which is in a state of collapse and decomposition. The cabin is approximately 12 feet by 16 feet and is situated 1/4 mile south of the Namekagon River. The site is located in a gently rolling area of cleared fields and white pine, with sandy and gravelly soils predominating.

Due to the recent nature and present condition of this site, it is unlikely that it would qualify for the National Register.

Site No. 03-156-1

Site No. 03-156-1 is located in Bayfield County, Wisconsin, T43N, R7W, in Section 20, NE 1/4, NW 1/4, NE 1/4 (Figure 6).

The site is located at an elevation of 1330 feet, along the edge of an open field also vegetated with white pine and birch, in sand and gravelly soil. It is a nineteenth century historic site consisting of a pile of glacial or river cobbles, parallel to the Namekagon River and about 10 feet south of it.

Although the site appears to be undisturbed, a site of this type is unlikely to be eligible for nomination to the National Register. Nevertheless, its location and structural qualities may be important for a full understanding of the cultural development of the Namekagon River.

Site No. 03-159-1

Site No. 03-159-1 is located in Bayfield County, Wisconsin, T43N, R7W, in Section 20, NW 1/4, NE 1/4, at an elevation of 1310 feet (Figure 6).

The site is a series of five historic wing dams which predate 1907. These are located in the Namekagon River at a point where the river is shallow and the banks low. The surrounding vegetation is composed of elders and swamp conifers. The five wing dams, associated with logging activities, are constructed almost entirely of river cobbles and collectively occupy an area 40 feet by 150 feet in extent.

The wing dams are in a state of decay and, while they may be important for a full understanding of the development of logging activities on the Namekagon River, it is unlikely that they would qualify for the National Register.

Site No. 03-164-1

Site No. 03-164-1 is located in Bayfield County, Wisconsin, T43N, R7W, in Section 20, NW 1/4, NW 1/4, NE 1/4, at an elevation of 1320 feet (Figure 6).

The site is a stone dam constructed with glacial and river cobbles. The dam extends into the Namekagon River from its north bank, measuring 10 feet by 40 feet. Surrounding vegetation is composed of white pine, spruce and balsam, in light brown sands.

While sites of this type should be considered important for the understanding of the settlement and development of the Namekagon River area, it is unlikely that it would qualify for the National Register.

Site No. 03-182-1

Site No. 03-182-1 is located in Bayfield County, Wisconsin, T43N, R7W, in Section 21, NE 1/4, NE 1/4, NW 1/4, at an elevation of 1330 feet (Figure 6).

The site consists of a series of five wing dams in the Namekagon River. These nineteenth century structures are eroded, but otherwise undisturbed, occupying an area 300 feet by 75 feet. The dams are constructed of cobbles and are approximately 10 feet by 30 to 40 feet in dimension. The three structures located on the west bank of the Namekagon River and the northernmost structure on the east bank are in better condition than the second dam on the east bank.

While sites of this type are important for a full understanding of the settlement and development of the Namekagon River area, it is unlikely that it would qualify for the National Register.

Site No. 03-183-1

Site No. 03-183-1 is located in Bayfield County, Wisconsin, T43N, R7W, in Section 21, NW 1/4, NW 1/4,NE 1/4, at an elevation of 1340 feet (Figure 5).

This is the site of a historic logging dam and dump, approximately 50 feet by 10 feet in extent. Situated on the south bank of the Namekagon River, the area is vegetated with elders along the bank in organic muck and gravel.

Only a small sample of the artifacts observed were collected. Artifacts were found in the river and on the shore where the dam begins and include wire nails, mammal bones, milk glass, bottle glass (with seams extending the full length), window glass, glazed earthenware, a pocket knife and miscellaneous wire and metal.

While the site appears undisturbed and may be important to an understanding and reconstruction of the logging era, it should not be considered eligible for the National Register.

Site No. 03-197-1

Site No. 03-197-1 is located in Bayfield County, Wisconsin, T43N, R7W, in Section 20, NW 1/4, NE 1/4, at an elevation of 1340 feet (Figure 6). This is the site of a nineteenth century collapsed cabin and mining area approximately 100 feet by 200 feet in extent.

The site area is situated approximately 650 feet south of the Namekagon River and is vegetated with aspen, white pine and jack pine. Open-top cans and wire nails were observed at the site but not collected. The collapsed wood frame cabin is constructed with wire nails and may be associated with a mining pit about 10 feet square and as deep, located 200 feet west of the cabin.

Due to the recent nature of this site, further investigation is unlikely to yield significant information important to the understanding of settlement and development of the Namekagon River. Therefore, this site should not be considered eligible for nomination to the National Register.

Site No. 04-165-1

Site No. 04-165-1 is located in Bayfield County, Wisconsin, T43N, R8W, in Section 26, SE 1/4, SW 1/4, SE 1/4, at an elevation of 1290 feet (Figure 6). The site is composed of three structural depressions, a sheet dump, and a wooden structure dating to the early nineteenth century. These could possibly be the remains of a sawmill.

The site area is approximately 400 feet by 500 feet in extent, situated on a level area on high ground about 450 feet east of the Namekagon River. The vegetation is that of a cleared field with encroachments of jack, red, and white pine, in sand and gravel soil.

The sheet dump measures 30 feet by 20 feet, located on the edge of an open field and woods. Material collected includes tin cans, galvanized buckets, enamelware, broken glass and a kerosene lantern. The structural depressions were accompanied by similar cultural debris. The remains of a wood frame structure and 15 foot by 30 foot rectangular structural depressions are also located in the site area.

Although the site is in an apparently undisturbed state, due to the recent nature of the site it is unlikely that it would qualify for the National Register. However, it may be important for a complete understanding of the development of the Namekagon River area and should be protected from future development.

Site No. 04-165-2

Site No. 04-165-2 is located in Bayfield County, Wisconsin, T46N, R8W, in Section 26, SE 1/4 and NE 1/4, at an elevation of 1280-1290 feet(Figure 6). This is the site of a railroad grade 0.9 miles long and 10 feet wide. The grade closely follows the east bank of the Namekagon River through an area vegetated with white pine, red pine, spruce and balsam.

In many areas the grade is quite visible with tie depressions approximately 24 inches apart, borrow pits and six trenches 5 feet to 10 feet wide, which are usually located on the east side of the grade. East of the grade, where it passes

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Site 04-165-1, is a large depression approximately 100 feet in diameter, which may have been a mill pond. The determination of the railroad grade's date may be facilitated by the fact that growing within the grade are some large pines. Circumferences of 65 and 69 inches were measured for red pines, and 51 and 60 inches for white pines.

A site of this nature is important to a total understanding of the settlement and development of the area, but it is unlikely that it would qualify for nomination to the National Register. This site should be protected from further development.

Site No. 07-104-1

Site No. 07-104-1 is located in Sawyer County, Wisconsin, T42N, R8W, in Section 31, SE 1/4, SW 1/4, NE 1/4, at an elevation of 1230 feet (Figure 8). This is the site of a prehistoric campsite approximately 50 feet by 30 feet in dimension.

The site is located on a sandy point 50 feet east of the Namekagon River in an area vegetated with white pine, red pine, birch, spruce, and maple in gold-brown sandy soils.

Material collected from the site includes several dozen fragments of mammal bone, probably deer, and small pieces of fire-cracked rock found together 6 inches below the surface. Four flakes were also recovered, none of which shows evidence of utilization.

The site is undisturbed and should be considered eligible for nomination to the National Register, pending further investigations to determine exact site parameters and significance.

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Site No. 13-126-1

Site No. 13-126-1 is located in Sawyer County, Wisconsin, T41N, R9W, in Section 32, SW 1/4, SE 1/4 at an elevation of 1150 feet (Figure 11). The site is characterized by a scattering of chipped stone debitage and fire-cracked rock, extending over a 10 foot by 15 foot area, on a level bank overlooking the Namekagon River. The area is vegetated with jack pine, red pine and birch.

Artifacts collected from the site include a basalt flake knife, a basalt scraper, four quartzite cobble fragments and several small flakes. The area also contains various recent artifacts including glass, clay skeet fragments, and recently used hearths.

This site should be considered eligible for nomination to the National Register until further research, including test excavations, has determined the likelihood of recovering significant information as to the function and temporal placement of the site.

Site No. 13-138-1

Site No. 13-138-1 is located in Sawyer County, Wisconsin, T40N, R9W, in Section 5, SW 1/4, SE 1/4, NW 1/4, at an elevation of 1150 feet. This is the site of a small flake scatter, 10 feet by 5 feet in extent, where chipped stone debitage and small bone fragments were located. The flake scatter occurs 50 feet east of the Namekagon River in an area vegetated with red pine, white birch, red oak and aspen in coarse, gold-brown sandy soils.

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The lithic debris is also located near an old concrete slab foundation. Since the prehistoric component of the site is in an undisturbed state, extensive testing may result in the recovery of significant cultural material. Therefore, it should be considered eligible for nomination to the National Register until proven otherwise.

Site No. 13-141-1

Site No. 13-141-1 is located in Washburn County, Wisconsin, T40N, R9W, in Section 5, NE 1/4, SE 1/4, NE 1/4, at an elevation of 1150 feet. The site is a small concentration of chipped stone and fire-cracked rock scattered over an area 20 feet in diameter. It is situated in a gently rolling to flat area of green fields and pine forests overlooking the Namekagon River (Figure 11).

The fire-cracked rock extends beyond the area of chipped stone, but it is difficult to determine the significance of fire-cracked rock in the absence of other more diagnostic material. A testing program could determine the existence of significant information important to an understanding of the prehistoric sequence for the Namekagon River. This site should, therefore, be tentatively considered eligible for nomination to the National Register.

Site No. 14-110-1

Site No. 14-110-1 is located in Washburn County, Wisconsin, T40N, R10W, in Section 11, NE 1/4, NE 1/4, NE 1/4, and Section 2, SE 1/4, SE 1/4, SE 1/4. Chipped stone and fire-cracked rock were recovered from an area approximately 200 feet by 75 feet in extent. The site is located on the south bank of the Namekagon River, at an elevation of 1150 feet, in an area vegetated by aspen and red pine (Figure 11).

The major portion of the site is located beyond the limits of the survey area. The remainder , within the study area, has been previously disturbed by the construction of a power line. It is unlikely that further research will result in the recovery of significant information, ruling out the consideration of the site for nomination to the National Register.

Site No. 14-110-2

Site No. 14-110-2 is located in Washburn County, Wisconsin,T40N, R10W, in Section 2, SW 1/4, SE 1/4, SE 1/4, at an elevation of 1150 feet. The site occurs on a level bank overlooking the Namekagon River in an area vegetated by red pine and aspen.

A small quantity of chippage was recovered from the exposed root system and attached soil of a single windfall. Shovel testing yielded some fire-cracked rock distributed

over a 100 foot by 50 foot area but no additional cultural material was recovered. Further research is not likely to yield significant information, and the site should not be considered eligible for nomination to the National Register.

Site No. 15-102-1

Site No. 15-102-1 is located in Washburn County, Wisconsin, T41N, R10W, in Section 33, NW 1/4, SE 1/4, NE 1/4, at an elevation of 1120 feet. The site is a partially eroded sheet dump, 40 feet by 20 feet in dimension, located on the south bank of the Namekagon River in the vicinity of an open field and aspen forest (Figure 11).

The site is associated with an excavated or eroded trench leading to the river. Materials were observed on the bank above the trench, in the trench, and in the river as well. Modern ceramics were collected and other miscellaneous modern refuse was observed.

Due to the recent nature of the cultural material recovered from this site, it is unlikely that additional research will result in the recovery of significant cultural information. Therefore, the site should not be considered eligible for nomination to the National Register.

Site No. 15-102-2

Site No. 15-102-2 is located in Washburn County, Wisconsin, T41N, R10W, in Section 33, NW 1/4, SE 1/4, NE 1/4

at an elevation of 1120 feet. This is the site of an undisturbed sheet dump, approximately 30 feet square. It is situated in swamp hardwoods at the edge of a cleared field on the south bank of the Namekagon River.

Several modern clear glass bottles were collected from the site. A wide range of miscellaneous modern refuse including enamelware, auto parts, tin cans, horse teeth and a cross-cut hand saw blade were observed as well.

Due to the recent nature of these observed materials, it is unlikely that further investigation will uncover significant cultural resources. Therefore, the site should not be considered eligible for nomination to the National Register.

Site No. 15-140-1

Site No. 15-140-1 is located in Washburn County, Wisconsin, T40N, R10W, in Section 6, SW 1/4, NW 1/4, SE 1/4, at an elevation of 1100 feet (Figure 12). This is the site of two nineteenth century structural depressions, situated atop a sandy terrace being eroded by the Namekagon River. Profiles of the depressions are revealed in the cut bank. A portion of a trench, approximately 3 feet wide and 2 feet deep, is still extant, and charred wood eroding out of the bank indicates the structures may have burned. Cut nails, window glass, and a green glass bottle were recovered as well. The bottle was found 100 feet south of the structural depressions, so, overall, the area under consideration is 100 feet by 50 feet in extent.

Additional research is required at this site to accurately determine its significance. Therefore, the site should tentatively be considered eligible for nomination to the National Register, pending reexamination and/or testing of the site.

Site No. 16-122-1

Site No. 16-122-1 is located in Washburn County, Wisconsin, T40N, R11W, Section 14, SE 1/4, NE 1/4, at an elevation of 1100 feet (Figure 12). The site is a nineteenth century sheet dump located on a terrace 75 feet southeast of the Namekagon River. Aspen, red pine, jack pine, and oak are the predominant tree species in the area. The dimensions of the site are approximately 50 feet by 30 feet, but parts of the site are covered by windfalls resulting from the July 4, 1977 storm.

Several four-piece molded glass bottles were collected, in addition to ceramic sherds. Tin cans, ash and clinker piles, a galvanized steel bucket, and numerous other metal and glass fragments were also observed.

Due to the recent nature of this site, however, it is not likely that additional research would yield significant information. Therefore, this site should not be considered eligible for nomination to the National Register.

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Site No. 16-122-2

Site No. 16-122-2 is located in Washburn County, Wisconsin, T40N, R11W, in Section 14, NE 1/4, NE 1/4. The site is located directly adjacent to the Namekagon River, and is actually the remains of a structural feature cut directly into the river bank. This feature appears to be a ramp that has been excavated to form a landing on the river. As it is probably associated with logging activities, the feature could have served as a log slide or log landing cut into the river bank to minimize the steepness of the natural bank in this area. It descends approximately 20 vertical feet (from 1290 feet to 1270 feet) over a 70 foot distance and is 20 feet wide at the top. The feature could also be associated with a nearby mill site (Figure 12).

Although a structural feature of this nature is important for a full understanding of the development of logging activities, it would not qualify for nomination to the National Register.

Site No. 16-123-1

Site No. 16-123-1 is located in Washburn County, Wisconsin, T40N, R11W, in Section 14, SE 1/4, NE 1/4, at an elevation of 1110 feet. Situated on a sandy knoll, approximately 200 feet southeast of the Namekagon River in an area vegetated by oak, red and jack pine, the site appears to be the relatively recent (twentieth century) location of a sawmill. Currently,

the site is overgrown with young pine and oak trees, but in some areas, sawdust is still visible where it has not been completely obscured by the vegetation. Sawn lumber and posts from a structure on the site are decomposing, but still recognizable. The site parameters are approximately 200 feet by 50 feet.

Whereas a site of this nature may contribute to a fuller understanding of the logging industry's development, the recency of the site argues against its eligibility for nomination to the National Register (Figure 12).

Site No. 17-123-1

Site No. 17-123-1 is located in Washburn County, Wisconsin, T40N, R11W, in Section 20, NW 1/4, NW 1/4. The site of a prehistoric lithic scatter eroding out of a sandy knoll adjacent to the Namekagon River, it is situated within the existing road right-of-way of Town Road 2-12, at an elevation of 1070 feet. The present vegetation is a pine-oak association with sandy soil predominating. The lithic scatter consists of three quartzite and one basalt unretouched flakes, recovered from a 20 foot by 10 foot area. Test excavations at this site may uncover information important to the reconstruction of prehistoric activities in the area. Accordingly, the site should be considered eligible for nomination to the National Register, pending further investigations (Figure 13.

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Site No. 17-123-2

Site No. 17-123-2 is located in Washburn County, Wisconsin, T40N, R11W, in Section 20, NW 1/4, NW 1/4 (Figure 13). The site is a small structural depression, approximately 8 feet by 10 feet, and 4 feet in depth. This eroding feature is situated on a sand bank adjacent to the Namekagon River, at an elevation of 1070 feet. A nail and tin can were the only artifacts found in association with the depression. Consequently, it is unlikely that additional research would be fruitful; the recency of the site does not suggest its eligibility for nomination to the National Register.

Site No. 17-126-1

Site No. 17-126-1 is located in Washburn County, Wisconsin, T40N, R11W, in Section 19, NE 1/4, SE 1/4 (Figure 13). This site is a lithic scatter, approximately 50 feet by 20 feet in extent eroding out of a sandy bank adjacent to Town Road 2-12, west of the Namekagon River at an elevation of 1085 feet. Three quartz chips, a chert flake and one chert pebble fragment were surface collected, as well as several pieces of fire-cracked rock.

Additional research including test pitting is necessary in order to determine the existence of significant information. Therefore, this site should tentatively be considered eligible for nomination to the National Register.

Site No. 17-126-2

Site No. 17-126-2 is located in Washburn County, Wisconsin, T40N, R11W, in Section 19, SE 1/4, NE 1/4 (Figure 13). The site is a lithic scatter approximately 30 feet by 10 feet in extent, eroding out of a sandy bank overlooking the Namekagon River at an elevation of 1080 feet. Vegetation in the area consists primarily of pine and oak. A biconvex quartz biface and a quartzite flake were recovered from the site area as well as a small amount of fire-cracked rock. The existence of significant information should be determined by further investigation and the site should tentatively be considered eligible for nomination to the National Register.

Site No. 18-108-1

Site No. 18-108-1 is located in Washburn County, Wisconsin, T40N, R11W, in Section 31, NE 1/4, NW 1/4. The site is a house foundation measuring 30 feet by 20 feet, consisting of an 8 inch wide continuous concrete strip embedded with river cobbles. The foundation is situated atop a sandy terrace high above the Namekagon River at an elevation of 1080 feet. Although the area was formerly vegetated with jack pine, the site has been disturbed by recent logging operations and presently low shrubs and brush predominate. Recently cut jack pine stumps found growing within the foundation exhibited 35 to 40 annual growth rings.(Figure 13).

A wide assortment of melted glass, ceramics and wire nails were recovered from the site, and the abundance of melted glass suggests that the structure may have been occupied when it burned.

Due to the recent nature of the site, however, it should not be considered eligible for nomination to the National Register.

Site No. 18-108-2

Site No. 18-108-2 is located in Washburn County, Wisconsin, T40N, R11W, in Section 31, NE 1/4, NW 1/4 (Figure 13). The site is a surface scattering of nineteenth century historic material. This occupies an area 50 feet by 30 feet in extent. The site is on a high, sandy bank overlooking the Namekagon River and is eroding out of a road cut at an elevation of 1080 feet. The area was vegetated with jack pine but has since been disturbed by logging activities.

Materials collected include bone fragments, an iron spoon, an enamelware cup and numerous coal fragments. A quartz flake, indicative of prehistoric activity, was also encountered. Further research is required at this site in order to adequately assess its significance. Therefore, the site should tentatively be considered eligible for nomination to the National Register.

Site No. 23-134-1

Site No. 23-134-1 is located in Washburn County, Wisconsin, T41N, R13W, in Section 28, SW 1/4, NE 1/4 (Figure 14). This is the site of a twentieth century structural depression, approximately 15 feet by 20 feet in extent. It is situated on a slope leading to the Namekagon River at an elevation of 1000 feet, in an area characterized by mixed hardwoods and light brown sandy soil.

Shovel testing of this site produced such cultural materials as wire cut nails, cast iron parts and sheet metal.

Due to the recent nature of this site it is unlikely that it would qualify for nomination to the National Register.

Site No. 24-112-1

Site No. 24-112-1 is located in Washburn County, Wisconsin, T41N, R13W, in Section 8, SE 1/4, SW 1/4 (Figure 16). This is an early twentieth century structural depression, measuring 22 feet by 25 feet. It is situated north of the Namekagon River in an area characterized by mixed pines and light brown sandy soils, at an elevation of 960 feet.

The structural depression may have been a root cellar but appears to have been used as a dump. Due to the nature of this site, there is a low potential for the recovery of significant information and it would not qualify for nomination to the National Register.

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Site No. 24-123-1

Site No. 24-123-1 is located in Washburn County, Wisconsin, T41N, R13W, in Section 7, SE 1/4, SE 1/4 (Figure 16). It is situated on a high bank of the Namekagon River, at an elevation of 1000 feet in an area dominated by mixed pines in light brown sandy soils.

The site is an unidentified rock alignment, 10 feet by 4 feet, with what appears to be two circular depressions at each end which might be hearths. Further investigation is needed in order to determine the possibility of recovering significant information. Therefore, this site should be considered eligible for nomination to the National Register until further research indicates otherwise.

Site No. 25-107-1

Site No. 25-107-1 is located in Burnett County, Wisconsin, T41N, R14W, in Section 12, NE 1/4, NW 1/4 (Figure 16). It is situated on the west bank of the Namekagon River at an elevation of 940 feet, in an area characterized by mixed hardwoods in light brown sandy soil.

A shell button, pieces of pearl ware and milk glass were recovered from within the immediate vicinity of an existing cottage and may indicate an earlier occupation. In addition, there is a structural depression 15 feet to the north, but only modern artifacts were found to be associated with it.

Additional research including historical documentation and test pitting is needed to evaluate the existence of significant information at this site. Therefore, it should tentatively be considered eligible for nomination to the National Register until further research has indicated otherwise.

Site No. 27-105-1

Site No. 27-105-1 is located in Douglas County, Wisconsin, T44N, R13W, in Section 35, SW 1/4, NE 1/4. It is situated adjacent to Town Road 7-13, in an area of mixed hardwoods and light brown sandy soils, at an elevation of 1020 feet(Figure 15).

The site appears to be a small nineteenth century historic dump. Several pieces of green bottle glass were collected. Shovel tests failed to locate additional cultural material, however. Further investigations are unlikely to be productive and this site should not be considered eligible for nomination to the National Register.

Site No. 30-115-1

Site No. 30-115-1 is located in Douglas County, Wisconsin, T43N, R14W, in Section 33, NE 1/4, SE 1/4, NE 1/4, at an elevation of 940 feet (Figure 16).

The site is a logging-era dam and check dam, 35 to 40 feet long, constructed of river cobbles. Although the site is important for a full understanding of the development of the logging industry on the St. Croix River, due to the nature of the site it is highly unlikely that it would qualify for nomination to the National Register.

Site No. 31-107-1

Site No. 31-107-1 is located in Burnett County, Wisconsin, T42N, R14W, in Section 9, NW 1/4, NW 1/4, at an elevation of 940 feet. This is the site of a historic logging dam in the St. Croix River. The dam is 150-175 feet long on the east bank, 300 feet long on the west bank of the river, and is constructed of river cobbles (Figure 16).

Whereas the site may be important to understand the development of the St. Croix area, it is unlikely that it would be eligible for nomination to the National Register.

Site No. 33-108-1

Site No. 33-108-1 is located in Burnett County, Wisconsin, T42N, R15W, in Section 25, NW 1/4, SE 1/4 (Figure 16). It is situated at the confluence of the St. Croix and Namekagon Rivers, at an elevation of 900 feet. Vegetation in the area consists of mixed pines, with dark brown alluvial soils predominating.

This is the reported location of the historic Dogtown Village, as reported by Henry Rowe Schoolcraft and Arnie Long, Park Manager. Mr. Long recalls that prehistoric material was located during construction of the cottages presently in existence at this location. The survey recovered additional material including five quartz chips, five quartz flakes and a retouched quartz flake which could be a bifacial tool fragment. Additional testing is needed at this site in order to determine the existence of significant information. Therefore, the site should tentatively be considered eligible for nomination to the National Register.

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Site No. 33-132-1

Site No. 33-132-1 is located in Burnett County, Wisconsin, T42N, R15W, in Section 27, SE 1/4, SW 1/4 (Figure 16). This is the site of a historic sluice dam approximately 175 feet long, east-west, in the St. Croix River. The dam is constructed of river cobbles and is probably associated with logging activities. While a site of this type might provide a fuller understanding of the nature of logging activities on the St. Croix River, it is highly unlikely that it would qualify for nomination to the National Register.

Site No. 44-109-1

Site No. 44-109-1 is located in Burnett County, Wisconsin, T39N, R19W, in Section 9, NE 1/4, SE 1/4 (Figure 19). This is the site of an isolated find of four crockery sherds found eroding out of a bank on the edge of a creek not indicated on any topographic or segment map. The findspot is in an area of mixed pines, at an elevation of 850 feet. It is highly unlikely that additional research will uncover significant information, and the site should not be considered eligible for nomination to the National Register.

Site No. 45-147-1

Site No. 45-147-1 is located in Pine County, Minnesota, T39N, R19W, in Section 30, NW 1/4, SW 1/4. This is the site of a stone dam and/or foot bridge, measuring approximately 12 feet by 3 feet (Figure 20).

The vegetation in the area is that of swamp hardwoods, with silty soil predominating; site elevation is 800 feet. The structure is built of river cobbles which were piled across Redhorse Creek, a small tributary of the St. Croix River, to form either a small dam, footbridge or both. A barrel hoop was observed 50 feet from the structure.

This is an area where four historic depressions were reported by an informant but no man-made depressions were observed. It is unlikely that further investigations at this site will be fruitful,and it is not recommended for nomination to the National Register.

Site No. 46-141-1 (21 PN 22)

Site No. 46-141-1 is located in Pine County, Minnesota, T38N, R20W, in Section 24, NE 1/4, SW 1/4. The site is possibly an undisturbed Woodland period campsite or village, approximately 300 feet by 50 feet in extent. This is situated in an open field located on a natural levee, adjacent to the St. Croix River,at an elevation of 800 feet (Figure 20).

Material surface collected from this site includes several flakes, two grit-tempered pottery sherds, six bone fragments and two fragments of mussel shell. Additional research, including

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testing, is called for at this site, and it should be considered eligible for nomination to the National Register.

Site No. 46-142-1

Site No. 46-142-1 is located in Pine County, Minnesota, T38N, R20W, in Section 24, NE 1/4, SW 1/4 (Figure 20). This site is a cellar depression, approximately 15 feet by 10 feet in dimension. It is situated in an open field, at the base of a river terrace, at an elevation of 800 feet. The St. Croix River lies roughly 1000 feet to the east.

Cultural material collected from the site consisted of wire nails and fragments of stoneware. Due to the apparent recent nature of this site, it is not eligible for nomination to the National Register.

Site No. 48-108-1

Site No. 48-108-1 is located in Burnett County, Wisconsin, T37N, R20W, in Section 4, NE 1/4, SE 1/4 (Figure 21). This is an apparently undisturbed structural depression, 15 feet by 20 feet, situated on the banks of the St. Croix River,at an elevation of 800 feet. The area is vegetated with mixed hardwoods,and light brown sandy soils predominate.

Shovel testing yielded a metal spoon, glass fragments, and a small catlinite tomahawk measuring 1-3/4 inches by 1-1/4 inches. Additional research,including testing, in order to ascertain the site's temporal classification and significance is recommended. Therefore, it should tentatively be considered eligible for nomination to the National Register.

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Site No. 48-108-2

Site No. 48-108-2 is located in Burnett County, Wisconsin, T37N, R20W, in Section 4, NE 1/4, NW 1/4, SW 1/4, at an elevation of 800 feet. This is the site of a concrete and cobble foundation approximately 12 feet by 6 feet in extent. It is not likely that this site is eligible for nomination to the National Register (Figure 21).

Site No. 48-109-2

Site No. 48-109-2 is located in Burnett County,Wisconsin, T37, R20W, in Section 8 at an elevation of 800 feet (Figure 21). Running through an area of mixed hardwoods, 48-109-2 is a late nineteenth-early twentieth century abandoned railroad right-of-way which follows a north-south orientation along parcel 48-109. Portions of the right-of-way are presently being used as a road.

Although sites of this type help to provide a better understanding of the development of the St. Croix River area, the site is not eligible for nomination to the National Register.

Site No. 48-115-1

Site No. 48-115-1 is located in Chisago County, Minnesota, T37N, R20W, in Section 5, NW 1/4, SE 1/4 (Figure 21). This is the site of a foundation and cellar depression, approximately 25 feet by 15 feet in dimension. The foundation is constructed of stone masonry. These structural features are situated on a grass and weed covered floodplain of the St. Croix River., at an elevation of 790 feet. Limited shovel testing in the area failed to produce any cultural material. Additional research

at this site is unlikely to be productive and it should not be considered eligible for nomination to the National Register.

Site No. 48-115-2 (21-CH-28)

Site No. 48-115-2 is located in Chisago County, Minnesota, T37N, R20W, in Section 5, NE 1/4, SE 1/4. The site consists of a flake and bone scatter over a 40 foot by 20 foot area in an open field on the St. Croix River floodplain. It lies at an elevation of 790 feet and has been eroded by rodents and vehicles (Figure 21).

Unretouched basalt and quartz flakes, as well as several fragments of deer bone, were surface collected from the site. Further investigation of this site may yield significant information important for an understanding of the prehistoric sequences in the area. Therefore, the site should tentatively be considered eligible for nomination to the National Register.

Site No. 48-115-3

Site No. 48-115-3 is located in Chisago County, Minnesota, T37N, R20W, in Section 5, SE 1/4, NE 1/4. This is the site of a sheet dump, approximately 50 feet by 75 feet. It is situated 200 feet north of the St. Croix River, at an elevation of 790 feet. Vegetation in the area is a combination of open grassy field and elders (Figure 21).

The site consists of a sheet midden of historic debris from which numerous specimens of bottle and window glass were collected, as well as ceramic sherds, and chinking fragments. Given the recent nature of the material recovered, it is not likely that additional research will yield significant information, and the site should not be considered eligible for nomination to the National Register.

Site No. 49-157-2

Site No. 49-157-2 is located in Burnett County, Wisconsin, T37N, R20W, in Section 20, NE 1/4, NW 1/4 (Figure 21). The site consists of a fieldstone foundation measuring 14 feet by 14 feet by 20 feet by 15 feet. Situated on the banks of the St. Croix River at an elevation of 800 feet, the foundation is filled with modern refuse. The former site of the Rush City Ferry, the structure may have been associated with the ferry. Due to the recent nature of this site, further research is not called for, nor is the site eligible for nomination to the National Register.

Site No. 49-159-1

Site No. 49-159-1 is located in Burnett County, Wisconsin, T37N, R20W, in Section 20, NE 1/4, NE 1/4 (Figure 21). The site is a wing dam, 120 feet by 5 feet, situated between the banks of the St. Croix River and a small island. River cobbles and portions of the log cribbing are extant. While logging-era sites of this type are important for a

complete understanding of the development of the St. Croix River, it is highly unlikely that it would qualify for nomination to the National Register.

Site No. 50-108-1

Site No. 50-108-1 is located in Polk County, Wisconsin, T36N, R20W, in Section 7, NE 1/4, SW 1/4 (Figure 21). The site is a structural depression, measuring 14 feet by 16 feet, situated on the banks of the St. Croix River, at an elevation of 800 feet. No cultural materials were recovered from the depression. Located approximately 25 yards to the south in Lagoo Creek is the remains of the south in Lagoo Creek is the remains of a small cobble dam measuring 10 feet by 4 feet. Further investigation is necessary in order to determine the significance of this site. Therefore, it is recommended that this site be tentatively considered eligible for nomination to the National Register.

Site No. 51-102-2 (21-CH-27)

Site No. 51-102-2 is located in Chisago County, Minnesota, T36N, R20W, in Section 18, NW 1/4, NE 1/4 (Figure 21). This is the site of a prehistoric shell midden, measuring 300 feet by 50 feet. It is situated in an open field on a natural levee adjacent to the St. Croix River at an elevation of 775 feet.

Shovel testing uncovered mussel shells, chipped stone and burnt bone. Additional research at this site, including

test excavating, is likely to yield valuable information. Therefore, this site should be tentatively considered eligible for nomination to the National Register.

Site No. 51-102-3 (21-CH-25)

Site No. 51-102-3 is located in Chisago County, Minnesota, T36N, R20W, in Section 18, SW 1/4, NE 1/4 (Figure 21). This is an undisturbed prehistoric shell midden, measuring 100 feet by 60 feet. It is situated on a natural levee, approximately 100 feet west of the St. Croix River at an elevation of 770 feet. The vegetation in this locale consists of lowland hardwoods, with brown, loamy soils predominating. Mussel shells and chipped stone have been recovered from the midden, which is 4 inches thick and lies 5 inches below the surface. Further investigation is likely to yield significant information important to an understanding of the prehistoric sequence for the area. Therefore, the site should be tentatively considered eligible for nomination to the National Register.

Site No. 51-102-4 (21-CH-26)

Site No. 51-102-4 is located in Chisago County, Minnesota, T36N, R20W, in Section 18, SW 1/4, NE 1/4 (Figure 21). This is a prehistoric shell midden, measuring 40 feet by 10 feet. It is situated on a natural levee, approximately 100 feet west of the St. Croix River at an elevation of 770 feet. The vegetation in this locale consists of lowland hardwoods, with brown, loamy soils predominating. Mussel shells

were observed in the midden, which is 4 inches thick and lies 5 inches below the surface. Additional research at this site is likely to yield significant information, and it should tentatively be considered eligible for nomination to the National Register.

Site No. 51-102-5

Site No. 51-102-5 is located in Chisago County, Minnesota, T36N, R21W, in Section 18, NW 1/4, NE 1/4 (Figure 21). The site is a complex of three historical structural depressions occupying an area 200 feet by 50 feet in extent. The dimensions of the individual structural depressions are: depression no. 1: 35 feet by 20 feet; depression no. 2: 10 feet by 10 feet; depression no. 3: 20 feet by 30 feet. All the depressions vary in depth from 3 feet to 6 feet.

This site is located in an open field on a natural levee adjacent to the St. Croix River. Materials observed at the site include stoneware and brick fragments as well as cut nails. Further investigation at this site including test excavation and historical documentation is likely to yield significant information. Therefore, it should be tentatively considered eligible for nomination to the National Register.

Site No. 52-102-3 (21-CH-24)

Site no. 52-102-3 is located in Chisago County, Minnesota, T36N, R20W, in Section 32, SW 1/4, NE 1/4 (Figure 21). This is the site of a small prehistoric village or

campsite, measuring approximately 30 feet by 10 feet in extent. It is situated on a terrace above the Sunrise River, a tributary of the St. Croix River, in an area vegetated by mixed hardwoods, with sandy loam and gravel soils.

Cultural materials collected from the site include two quartz tempered cord-marked sherds, several quartz and quartzite flakes, as well as bits of shell and fire-cracked rock. The site has been disturbed by bulldozing activities associated with a parking lot, but significant portions of the site may still be undisturbed. In addition to the material collected from the parking lot, quartz flakes were also collected from the road following the river to its mouth. Further investigations in the form of test pitting are necessary in order to determine the presence of undisturbed portions of the site. Therefore, the site should be tentatively considered eligible for nomination to the National Register.

Site No. 55-111-2

Site No. 55-111-2 is located in Chisago County, Minnesota, T35N, R19W, in Section 4, NW 1/4, NW 1/4 (Figure 22). The site consists of a series of stone piers which may have been associated with Nevers Dam. These are located in the St. Croix River, at an elevation of 750 feet, and are situated within an area approximately 600 feet by 250 feet. Wooded cribbing is still visible in at least one pier. Although this site should be considered important because

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of its probable association with Nevers Dam, it is unlikely that a site of this type would qualify for nomination to the National Register.

Site No. 56-103-2 (21-CH-23)

Site No. 56-103-2 is located in Chisago County, Minnesota, T35N, R19W, in Section 27, SW 1/4, NE 1/4, and NW 1/4, SE 1/4 (Figure 22). This is a Woodland Period shell midden, approximately 200 feet by 50 feet in extent. The midden is eroding out of a bank of the St. Croix River and has been disturbed by recreational use. Situated at an elevation of 760 feet in an area characterized by mixed hardwoods and black humus over brown sandy loam soils, the midden is most visible in profile at the northwest end of the site where 4 to 5 inches of shell are covered by 6 to 7 inches of black sandy loam. Cultural materials collected from the site include mussel shells, burnt bone, grit-tempered ceramics, and a quartz flake. Further testing of this site is necessary to determine the significance of the existing cultural material. Therefore, the site should tentatively be considered eligible for nomination to the National Register.

Site No. 56-112-1

Site No. 56-112-1 is located in Polk County, Wisconsin, T35N, R12W, in Section 22, NE 1/4, SW 1/4 (Figure 22). This is the site of an historic sheet midden approximately 250 feet by 75 feet in dimension. It is situated on a high ridge

overlooking the St. Croix River, at an elevation of 880 feet, in an area vegetated by mixed hardwoods and brown, sandy loam soils. Scattered historic debris usually associated with sheet middens such as glass, crockery, and ceramics was collected, but no structural remains could be located. The site exists partly in a disturbed cornfield, but additional testing is necessary in the undisturbed portions of the site in order to ascertain its relative research value. Accordingly, this site should tentatively be considered eligible for nomination to the National Register.

Map has been removed from the electronic edition in an effort to protect sensitive cultural resources.

CHAPTER 7

CULTURAL MATERIAL

LITHICS

Prehistoric material assemblages from sites located along the riverway are limited in terms of both quantity and variety of lithic materials and tool forms. Lithic tools or debris were found at 18 prehistoric sites and were analyzed according to materials, morphology, possible functions, and methods of manufacture. A total of 101 lithic items were collected at the 18 sites; only six recognizable tools are included in that number (Figure 24 and Table 3). Judging from the meager amount of tools and debris found during the 1977 field survey, it appears that our initial evaluations of low site and population densities for the St. Croix and Namekagon are justified. It must be reemphasized, however, that our recovery rates for any artifactual materials are biased by the difficulty of identifying sites in heavily vegetated environments.

Four major lithic material categories were used to classify the St. Croix collections. These were chert (or similar cryptocrystalline structured rocks), quartz, quartzite, and basalt. No attempts have been made to specifically identify the primary sources for these materials, but it can be argued that most items were derived from glacial pebbles or cobbles or from localized outcrops. Little evidence exists for interregional trade or transportation of more "exotic"

FIGURE 24

PREHISTORIC ARTIFACTS

	Site Number	Description
A.	03-103-1	Endscraper
B.	33-108-1	Retouched Quartz Flake
C.	13-126-1	Basalt Knife
D.	03-103-1	Ground Bipitted Cobble

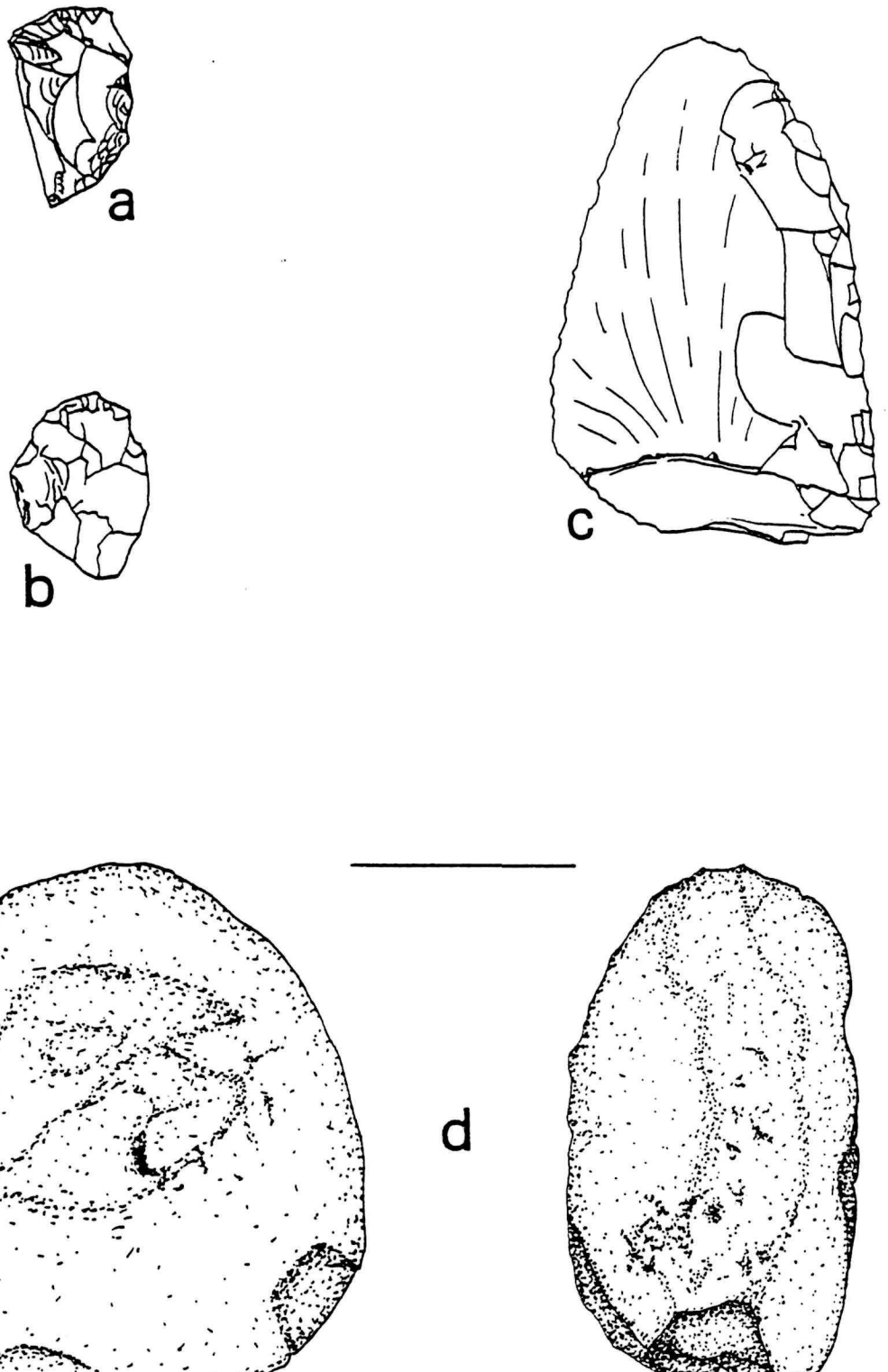


FIGURE 24

prehistoric artifacts

TABLE 3
LITHIC MATERIAL DISTRIBUTION

	03-103-1	07-104-1	13-126-1	13-141-1	13-138-1	14-110-1	14-110-2	17-123-1	17-126-1	17-126-2	18-108-2	33-108-1	46-141-1	48-115-1	51-102-2	51-102-3	52-102-3	56-103-2	Total
Flint																			
Endscraper	1																		1
Flake Tertiary		1		1		1			1				2						6
Flake Secondary		2																	2
Pebble Fragment									1										1
Quartzite																			
Flake Secondary	1							2								1			4
Cobble Fragment			4																4
Chips			3		3			1								1	4		12
Pebble Fragment				3							1								4
Pebble Fragments with Cortex				2															2
Cobble	1																	1	2
Flake Tertiary																	1	2	3
Quartz																			
Retouched Flake												1							1
Cobble Fragment												2							2
Flake Primary	1																		1
Flake Tertiary	4	1																	5
Chips			4				2		5			5	4	2	7				29
Pebble Fragment				6		1													7
Biface										1									1
Flake Secondary										1	1	4		2		2			10
Basalt																			
Flake Knife			1																1
Scraper			1																1
Flake Secondary						2		1					2	2	1				8
Flake Tertiary							1									1			2
Flake Shatter																	1		1
Total	8	4	13	12	3	4	3	4	7	2	2	12	8	6	8	5	6	3	110

materials, which is a little surprising, considering that the rivers exist as natural avenues of communication and travel.

Manufacturing techniques are fairly difficult to isolate, due in part to the small sample we had to analyze. No definite tool preforms were identified and little evidence exists for the use of either intentional thermal alteration or careful platform preparation to improve "knappability" or control flake removal patterns. A significant number (53) of the collected items were identified as pebble or cobble fragments, or chips (especially quartz and quartzite). These may or may not be by-products of tool manufacturing activities; exact deviation is probably impossible to ascertain, especially for the coarser grained materials.

As shown in Table 3, all items were classified according to technological and/or morphological characteristics. Flakes were identified as accurately as possible according to a processual, linear material reduction model (cf. Shafer 1974). The majority of flakes appear to have been produced by the technique of direct percussion with a hard hammer. No utilized flakes were found in the collections, nor did we find any formalized cores or hammerstones.

The six recognizable tool forms that were found during the 1977 season include: an endscraper formed on a secondary flake of reddish chert (Figure 24, A); a thick quartz flake retouched along a 17.6 mm edge; one crude bifacial tool (projectile point?); one basalt flake knife (Figure 24,C); and a sidescraper formed by unifacially retouching a large secondary flake of basalt. In addition, Site 03-103-1 produced an edge ground bi-pitted cobble of dark grey quartzite (Figure 24, D). Similar cobbles have been found in the eastern United States and identified as multi-purpose tools for grinding and pounding, and as anvils for the bipolar production of pieces esquillees (Chapman 1975:162 and MacDonald 1968:69,85, 105).

No firm cultural/historical assignations can be made for the sites found during the 1977 survey, based on the recovered lithic assemblages. The few tools that were found appear to be fairly ubiquitous components of any prehistoric tradition in the area. Several of the sites also produced mussel shells and animal bone fragments, but whether these occurrences are midden deposits or not must remain a moot question until further research is conducted.

PREHISTORIC CERAMICS

A total of seven prehistoric pottery sherds were collected during the 1977 St. Croix Riverway field season. On this basis and assuming ceramics as definitions for Woodland and later traditions, we may assign post-Archaic dates to sites 46-146-1, 52-102-3 and 56-103-2. All sherds were fired in reducing atmospheres and are tempered with grit (5) or crushed quartz particles (2).

Site 46-141-1 produced a grit-tempered sherd fragment with a smoothed interior (10YR6/4); it appears to be thermally fractured. The same site yielded another grit-tempered sherd, 7mm thick and weighing only 1.7 gm. Interior color is 7.5YR4/2 and exterior is 10YR3/3; no exterior surface treatment is discernible.

All three sherds from site 56-103-2 were grit-tempered and ranged in thickness from .6 to 7.8mm ($\bar{x}$ = 3.7 mm). Two exhibit plain exteriors and the third is finished with overlapping cord marks 1.3 mm wide (average). Exterior sherd colors range from 10YR4/2 to 10YR5/3 and interiors from 10YR3/2 to 10YR4/2. Mean sherd weight is only 2.7 gm.

Site 52-102-3 ceramics differed from the others in that the sherds are tempered with crushed quartz aplastic rather than just sand or grit. Both sherds are cord-marked

with closely spaced, parallel markings which average 2.1 mm in width. Mean sherd weights and thicknesses are 3.7 gm and 5.2 mm, respectively. Exterior sherd color on both items is 10YR5/3 and interiors are 10YR4/2, indicating that these two body sherds may be fragments of the same vessel.

Ceramics from the prehistoric sites found during the 1977 season are fairly non-diagnostic as to established cultural/temporal periods, much like the lithic assemblages described previously. Without larger samples it remains impossible to more accurately place the three sites within the Woodland period.

GLASS

The glass sample recovered during the survey may be divided among two major categories consisting of vessel and flat glass varieties. The former includes both those specimens which can be distinguished as either bottles, jars and other container forms and also a number of curved glass sherds which are unidentifiable as belonging to more specific vessel categories. Those items identified under the heading of flat glass consist of uncurved glass sherds which, among other things, may represent glass originally utilized for windows, mirrors, and clock faces. An additional category for miscellaneous glass sherds has also been established and includes specimens which have been extensively damaged by fire or constitute artifact types represented in the collection by only a single example (Table 4).

The largest artifact category comprising this portion of the analysis consists of vessel glass, which accounts for approximately 55 percent of the total glass sample. With few exceptions these specimens can be identified as being representative of bottle forms. The following descriptive analysis segregates the collected sample according to both color ranges and certain functional and technological variables directly related to vessel form. In dealing with vessel glass, the largest portion of the collection is composed of numerous bottle forms, some of which are intact, while others are represented by fragmentary sherds.

TABLE 4
GLASS DISTRIBUTION

VESSEL GLASS	03-183-1	04-165-1	15-102-1	15-102-2	15-140-1	16-122-1	18-108-1	24-112-1	25-107-1	27-105-1	48-108-1	48-115-3	56-112-1	Total
Brown						1						1		2
Blue													2	2
Clear	1	3		5		2						9	3	23
Green		2			1					6				9
Violet							1							1
Milk			1				1		1					3
FLAT GLASS					22			5				3		30
Miscellaneous							1				2			3
TOTALS	1	5	1	5	23	3	3	5	1	6	2	13	5	73

Brown vessel glass was collected during the survey from two sites, 16-122-1 and 48-115-3. The latter specimen consists of a single bottle sherd, while an intact bottle form was recovered from the former. This specimen is a machine made cylinder shape 13 cm in height and 4.7 cm in diameter. Its base is marked with a dot-in-diamond motif placed over a "W" and the numeral "11". This mark may be indicative of the consolidation of the Whitney Glass Works as a division of Owens Bottle and Owens Illinois in 1918. The plant, which was located in Glassboro, New Jersey, closed in 1937 (Touluse 1972:519-24). These specimens are far too fragmentary to provide any meaningful information relative to vessel form or manufacturing technique.

Clear glass bottle sherds form the bulk of the vessel varieties (58 percent) collected during the survey. Within this category at least three separate varieties of glass can be distinguished through visual examination. These include a clear glass which exhibits a greenish tint due to compositional impurities in the silica additives. Glass of this type was commonly utilized throughout the nineteenth and early twentieth centuries for the manufacture of common bottles and cylinder blown window or flat glass. In the contemporary literature of the mid-nineteenth century it is generally referred to as "german green" (Gallitian 1852:2236). Only three examples of this clear glass variety were recovered during the survey from sites 16-122-1,

48-115-3 and 56-112-1. The former of these specimens represents an intact rectangular bottle of four piece mold manufacture dating no earlier than the post-1904 period (Munsey 1970:40). This bottle measures 21.5 cm in height, and its basal dimensions are 7.3 cm by 4.8 cm. A centrally positioned circular cutoff on the base is embossed with the letter "S" and also with what appears to be an "8" which is partially obliterated by the cutoff scar. The example recovered from 48-115-3 is represented by a fragmentary bottle sherd cylindrical in shape, while that associated with 56-112-1 represents the side of a rectangular paneled bottle with an embossed script, "Gha..."

Another clear glass variety recognized during the survey consists of those specimens which exhibit a pinkish to amethyst coloration due to the oxidation of manganese additives with exposure to the ultraviolet rays of the sun. The use of this element as a decolorizing agent in the manufacture of clear glass is generally attributed to the 1880-1915 period. At the opening of World War I the North American glass industry was forced to adopt selenium as a substitute decolorizing element (Munsey 1970:55).

Among the examples of this glass collected during the survey were three sherds recovered from 48-115-3. One of these

specimens represents a bottle mouth and neck segment of hand manufacture. Another sherd exhibits an embossed label identifying it as a wine bottle or jug. This script is partially obliterated, but reads in part as follows: "A.M.S..../ 1907/ 249 HEN.../ MINNEAPOL.../ MINN./ CALIFORNIA/ WINE DEP.../ ...TAR...S..."

An intact specimen was recovered from 04-165-1. This bottle measures 25 cm in height, 7.4 cm in base diameter, exhibits a ten sided paneling of the body and neck and a threaded mouth. The bottom of the base possesses a circular suction cutoff scar indicative of a post-1904 period of manufacture. This vessel style can tentatively be identified as representing a probable catsup bottle.

The most numerous of the bottle varieties listed under the clear glass category are those which exhibited no discernible discoloration due to oxidation. The use of a selenium decolorizing agent in glass manufactured during the c. 1915-1930 period generally results in the acquisition of a slight amber tint when subjected to ultraviolet rays; none of these specimens exhibit any indication of discoloration. The fact that a non-reducing arsenic substitute for selenium was adopted by the American glass industry during the early 1930s may suggest these specimens as dating to this later period. However, other

factors such as the amount of selenium included in the glass composition and the context of deposition must also be considered.

A single rectangular wide mouth screw-top bottle was recovered from 03-183-1. This specimen measured 8.3 cm in height and 4.4 cm by 3.2 cm at the base, and was apparently manufactured through the automatic machine technique developed by Owens in the post-1903 period. The base is embossed with the Owens Illinois Glass Company logo, but lacking the "I." Between 1929 and 1954 bottles produced by this company were marked to designate the plant of manufacture, year of manufacture and mold details (Toulouse 1972:403). This specimen was accordingly produced in plant "12," in the year "7" (possibly 1936) and was associated with mold detail "2".

Two additional clear glass bottles were recovered from 04-165-1. These included a screwtop, long necked form with an octagonally faceted body. This specimen is of four piece mold manufacture and as with the above bottle represents an article of machine production. A centrally positioned plunger or kick-up mark on the bottom of the base denotes a probable 1930-1940 period of manufacture (Munsey 1970:41).

The other clear bottle collected from the site is a paneled rectangular of four piece mold manufacture. This example is 15.4 cm in height and measures 6 cm by 3.4 cm in

basal dimensions. It is embossed on one panel with the product named "WATKINS," and an additional embossing on the bottom of the base, "CONTAINER/MADE IN U.S.A." The base further exhibits a circular cutoff seam commonly associated with machine produced bottles during the c. 1904-1930 period.

A total of five clear glass bottle specimens were associated with 15-102-2. All of these were of a four piece mold technique of manufacture and date within the c. 1910-1940 period. Included in the sample were two fragmentary specimens represented by a bottle top and a base. The former consists of the mouth, neck and shoulder zones of what was apparently a cork top whiskey bottle which exhibits machine-blownseam features (Munsey 1970:45). The base segment represents an octagonally paneled catsup bottle measuring 6.3 cm in diameter and exhibits an embossed product mark along the bottom, "HJ HEINZ CO/PATD," encircling the glass manufacturer's mark which identifies it as being a product of the Owens Bottle Company of Toledo, Ohio (Toulouse 1972:393). This mark, the circle-in-square, was used by the company during the 1911-1929 period (Figure 25).

Three intact bottles were also collected from the site. Among this group was a small cork top cylinder shaped specimen measuring 8 cm in height and 3.3 cm in diameter. This bottle

FIGURE 25

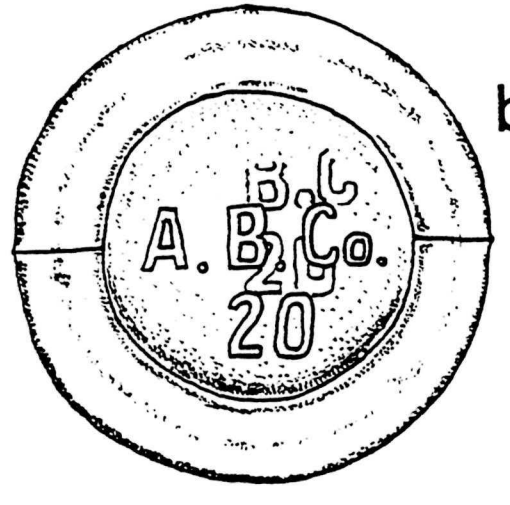
GLASS ARTIFACTS

Glass

	Site Number	Description
A.	15-140-1	Bottle; Merchant's Gargling Oil Company, Lockport, New York.
B.	04-165-1	Bottle base; American Bottle Company, Chicago, Illinois.



a



b

FIGURE 25

glass artifacts

was machine-blown and exhibits a bottom I-in-diamond manufacturer's logo which identifies it as a product of the Illinois Glass Company produced during the 1916-1929 period (Toulouse 1972:264). In addition, a paneled, screwtop mustard bottle measuring 10 cm in height and 7 cm in base diameter was also collected. This container is embossed along the shoulder with the legend "It's FRENCH'S" and exhibits a bottom embossing of the numeral "10" encircled by the legend "DESIGN PAT'D/FEB-23-1915."

A single pharmaceutical bottle was also recovered from 15-102-2. This example is a rectangular paneled bottle of four piece mold manufacture measuring 20.8 cm in height and 7.6 cm by 4.1 cm in its basal dimensions. The bottle mouth is adapted to the metal crown cap variety of seal introduced in 1892 (Lorrain 1968:42). One panel is embossed with the legend "THE JR WATKINS Co./Reg. U.S. Pat. off.," while the base is marked with the glass manufacturer's logo P-in-Triangle, set below the letter "G."

A single machine-blown rectangular bottle measuring 11.2 cm in height and 3.6 cm by 2.8 cm in basal dimensions was collected from 16-122-1. This example posseses an embossed diamond shaped bottom mark set over the letter "I." This is apparently a product of the Diamond Glass Company of Royersford, Pennslvania. This company, which was organized

in 1888, has utilized the diamond motif to identify its products since approximately 1924 (Toulouse 1972:550).

The five clear glass examples collected from 48-115-3 included both one intact bottle and a single embossed base fragment. The former is a machine-blown rectangular shaped example with an elongated oval shaped base. Its overall dimensions are 20.6 cm in height and 8.5 cm by 5.4 cm. The mouth is adapted to a cork seal and an embossed label occurs on one side of the bottle. This script denotes both the variety of contents "LYDIA E. PINKHAM'S/MEDICINE" and the amount " 14 1/2 OZS."

The base fragment associated with this site is also embossed "KE.... MFG CO/SAND SPRINGS OKLA/PAT 5/AUG 31/1915." This script identifies the specimen as being a product of the Kerr Glass Manufacturing Company which operated out of Sand Springs from 1912 to 1946 (Toulouse 1972:306).

Two clear glass bottle fragments were also collected from 56-112-1. One example represented by a bottle neck and mouth segment exhibits mold seam pattern attributable to the automatic bottle machine developed by Owens in 1903.

Green glass bottle sherds were recovered from 04-165-1, 15-140-1 and 27-105-1. Those associated with the former site consist of two bottle base fragments. These include one example measuring 11.1 cm in diameter and exhibiting a machine-made valve mark commonly found on bottles manufactured during the 1930-1940 period (Munsey: 41). The other specimen measures 6.4 cm in diameter and represents one of several post-bottom mold varieties manufactured during the late nineteenth and early twentieth centuries. This specimen is embossed with the letters "A.B.Co/20", identifying it as a product of the American Bottle Company which operated out of Chicago from 1905 to 1916 (Toulouse 1972:30). The corporation had been formed through the amalgamation of several different glass works located in Illinois and Ohio, which may serve to explain the presence of the largely obliterated embossing "B.C./20" also found on this base (Figure 25,B). These initials probably reflect the transfer of molds to the American Bottle Company from one of the firms participating in its incorporation. In this case, the most likely association would be with the Ohio Bottle Company, or OBC, which operated out of Newark from 1904 to 1905 (Toulouse: 399).

A single green bottle was associated with 15-140-1. This example is rectangular in shape measuring 14.5 cm in height and 6.8 cm by 3.8 cm in its basal dimensions (Figure 25, A). The seam patterns indicate its manufacture in a post-bottom mold, the mouth having been applied by hand and adapted to cork seal. One panel of bottle is embossed "GARGLING OIL/ LOCKPORT, N.Y." This product was manufactured by the Merchant's Gargling Oil Company from about 1833 to 1900. Advertised both as a gargling oil and liniment, the product was recommended as being,

> ...good for Burns, Scalds, Rheumatism, Flesh Wounds, Sprains, Bruises, Lame Back, Hemorrhoids or Piles, Toothache, Sore Throat, Chilblaine, Chapped Hands, and many other diseases incident to man and beast
> - Yellow wrapper for animal and white for human flesh (Munsey:282).

The example collected from this site can be dated to a c. 1880-1900 context.

The six green glass sherds collected from 27-105-1 represent a wood mold blown case bottle. This specimen is olive green in color and the square shaped base measures 5.3 cm in diameter. The mouth is hand applied, a blob top presumably adapted to a cork seal. This variety of bottle was popular throughout the nineteenth century and was generally used as a container for bitters or other alcoholic beverages. This particular site is represented in total by the occurrence of these six sherds.

Other colored vessel glass examples recovered during the survey include a heavily burned example of violet colored glass collected from 18-108-1. This specimen is molded and presumably represents a compote or tray stand. A single milk glass, two-holed button measuring 1 cm in diameter was also associated with this site, apparently representing a collar button. A small milk glass jar measuring 6.1 cm in height and 5.7 cm in diameter was collected from 15-102-1. This example exhibits a square shaped base and is adapted to a screw top wide mouth seal. This variety of vessel was commonly associated with the marketing of cold creams and similar toiletry articles during the early part of the present century (Kresge 1913:61). In addition to the above examples, another milk glass sherd was recovered from 25-107-1. This specimen exhibits a ribbed or fluted molding over which a thin applique of yellow paint had been applied.

The three miscellaneous glass sherds listed in Table 4 presumably represent vessel sherds. However, their form has been extensively altered by burning.

A total of 30 flat or window glass sherds were collected from 15-140-1, 24-112-1 and 48-115-3. The largest portion of this sample, approximately 73 percent, was recovered from the former site. With the exception of a single

sherd, which measured 3.5 cm in thickness, the entire sample associated with 15-140-1 remained at a constant 2.5 cm in thickness. The five examples collected from 24-112-1 measured 1.8, 2.0, 2.1, 2.3 and 2.5 cm, while those associated with 48-115-3 ranged from 2.2 to 2.5 cm in thickness.

As an item of archaeological analysis, recent investigations of flat glass samples have concentrated upon their potential use as a dating mechanism (Walker 1971: 77-8; Grosscup and Miller 1968:36; Grosscup 1972: 13). The data presently available indicate that marked increases in the thickness of window glass begins to occur sometime during the mid-nineteenth century. Walker has suggested that a base-line can be established illustrating "an increase through time in the thickness of the thinnest glass used." His conclusions were: (1) that the presence of site utilization falls within an 1820-1840 context; (2) flat glass measuring 1.2 mm is associated with a pre-1845 period of use; and (3) that flat glass measuring 1.6 mm is indicative of a post-1845 period of initial site occupation.

An alternate method of analysis, suggested by Grosscup, is directed at determining the modal of composition of the recovered sample. Rather than attempting to establish a chronological correlate based on the occurrence of minimal thickness ranges, this approach seeks to establish what overall shifts in thickness ratios may have occurred through time. Although only a minimal amount of data is presently available for

comparative investigation, a generalized trend toward increased thicknesses has been recognized among sites dating to the mid and late nineteenth century.

The sherds associated with these three sites are encompassed within a thickness range extending from 1.8 to 3.5 cm, with the bulk of the sample, 78 percent, composed of specimens measuring 2.5 cm. This information is readily correlated with similar data collected from feature 6,a dry well, excavated at the Berrien Springs Jail site in southwestern Michigan. Approximately 80 percent of the flat glass recovered from this feature, dating to an 1890-1910 temporal context, fell within a thickness range from 1.8 to 2.5 cm. The largest segment, 32 percent, was composed of glass measuring 2.0-2.1 cm in thickness (Demeter and Lowery 1977:80).

The flat glass sample collected during the survey may thus suggest a continued trend towards greater thickness ratios occurring during the 1910-1940 period. It is impossible at this point, however, to demonstrate the postulate on the basis of such a small artifact sample available in this collection.

EARTHENWARE

The earthenware sample collected during this study phase consisted of only 53 specimens; the largest segment, 28 sherds, consisted of coarse, colored, bodies stone ware. These are listed in Table 5 as colored bisquit, semi-vitreous paste wares. The remainder of the sample was composed of white bisquit examples, the largest portion of which, 19 sherds, consisted of soft paste varieties.

In concert with the findings of the previous survey few, if any, of the earthenwares recovered during the present study appear to be assignable to a nineteenth century context. All examples may, in fact, be dated to the present century, largely falling within a c. 1910-50 temporal context.

Included in the soft white paste sample was a single cream colored glaze sherd recovered from 04-165-1. This specimen appears to represent a large sized mug form, consisting of a rim segment and a large portion of the vessel wall. As has been noted in the Phase I report, the technology for manufacture of this glaze variety had been developed in the English potteries by the mid-eighteenth century. Although extremely popular until about the opening of the nineteenth century, this glaze variety was shortly replaced as a dominant ceramic type by the Pearl glazed wares introduced during the last quarter of the eighteenth century. A brief revival in the

TABLE 5
EARTHENWARE DISTRIBUTION

	03-183-1	04-165-1	15-102-1	16-122-1	18-108-1	25-107-1	44-109-1	46-124-1	48-115-3	52-102-4	56-112-1	Total
WHITE BISQUIT												
SOFT PASTE												
Cream glazed		1										1
Pearl-white glaze											2	2
White glaze				3					1		3	7
Blue line					3							3
Decalcomania				1								1
Burned					5							5
VITREOUS PASTE												
White glaze					2							2
Painted			2						1			3
Decalcomania				2								2
COLORED BISQUIT												
VITREOUS PASTE												
Salt glaze	1									1		2
White slip glaze		3	3	1		1	3	2	7		4	24
Brown slip glaze											1	1
Unglazed									1			1
Total	1	4	5	7	10	1	3	2	10	1	10	54

popularity of cream colored glazed wares was noted by Ramsey as having taken place in the United States sometime prior to 1939 (Ramsey 1939:152). A number of such "Ivory body" dinner sets were advertised in the 1927 Sears, Roebuck Catalogue (Mirken 1970:915).

In addition, two pearl-white glazed sherds were recovered from 56-112-1. Both specimens exhibit a light bluish tint in glaze coloration and represent rim and handle fragments of a mug form. Other examples of this glaze variety were collected and identified in the Phase I report as pearl glazed wares. This appelation has been modified in the present analysis to pearl-white in order to differentiate these lighter toned wares from the earlier dating dark blue tinted varieties. While both forms should,by Hume's definition, be classified as pearl wares, during the past several years a great deal of confusion has surfaced as a result of Hume's identification of a white glaze variety which remains largely undefined (Hume 1969:97). Both wares exhibit a readily discernible bluish tint which is especially pronounced along the interior of the standing ring and other crevices where the glaze tends to puddle. Hume has identified this feature as being an indicative trait of pearl glazed wares (Hume 1971:320). The only feature which apparently serves as the criterion for distinguishing pearl and white wares is that the latter possesses a reduced

amount of cobalt additive to the glaze composition. While this served to modify the glaze color to a lighter shade of blue, wares of this type bear little resemblance to the "white" ware produced later in the nineteenth and twentieth centuries especially by the American pottery industry. These later wares are,in fact, of a much whiter hue and lack those impurities which tended to distinguish British manufactured white wares well into the late nineteenth century (Andem 1882:865). In order to discriminate between these two varieties of white ware, a separate glaze category identified as "Pearl-white" has been devised. Specimens identified under this heading exhibit a light bluish tinted glaze as opposed to the clear glaze composition associated with the generally later dating "white" wares.

Most of the white soft paste sherds recovered during the survey consist of the latter category mentioned above. These include seven undecorated sherds recovered from 16-122-1, 48-115-3 and 56-112-1; three cup and saucer fragments decorated with thin underglaze blue handpainted lines recovered from 18-108-1; a single bowl rim decorated in an overglaze decalcomania floral applique, and gold overglaze interior rim line recovered from 16-122-1. All of these specimens can be fixed within a temporal context dating to the first half of the present century and are probably all of American manufacture.

Of the entire white paste earthenware sample, only one specimen exhibited a manufacturer's mark which occurred on an undecorated white glazed sherd collected from 56-112-1. This consisted of a green underglazed printed mark depicting a crown and the initials "C.P.Co" (Figure 26,B). Similarly marked ceramics have been recovered during the Silcott excavations and date to the early part of the present century(Adams, Graw, Leonhardy 1975: 265). There were at least four potteries operating during the opening of the present century that employed these initials in identifying their productions. These include three American manufacturers: the Chittenango Pottery Company of Chittenango, New York (c. 1900); the Chester Pottery Company of Pheonixville, Pennsylvania (c 1894); and the Crown Pottery Company of Evansville, Indiana (c. 1895) (Kovel 1962: 31-2). The use of crown logo in conjunction with these initials would tend to lend some support for attributing this specimen as being a production of the latter factory.

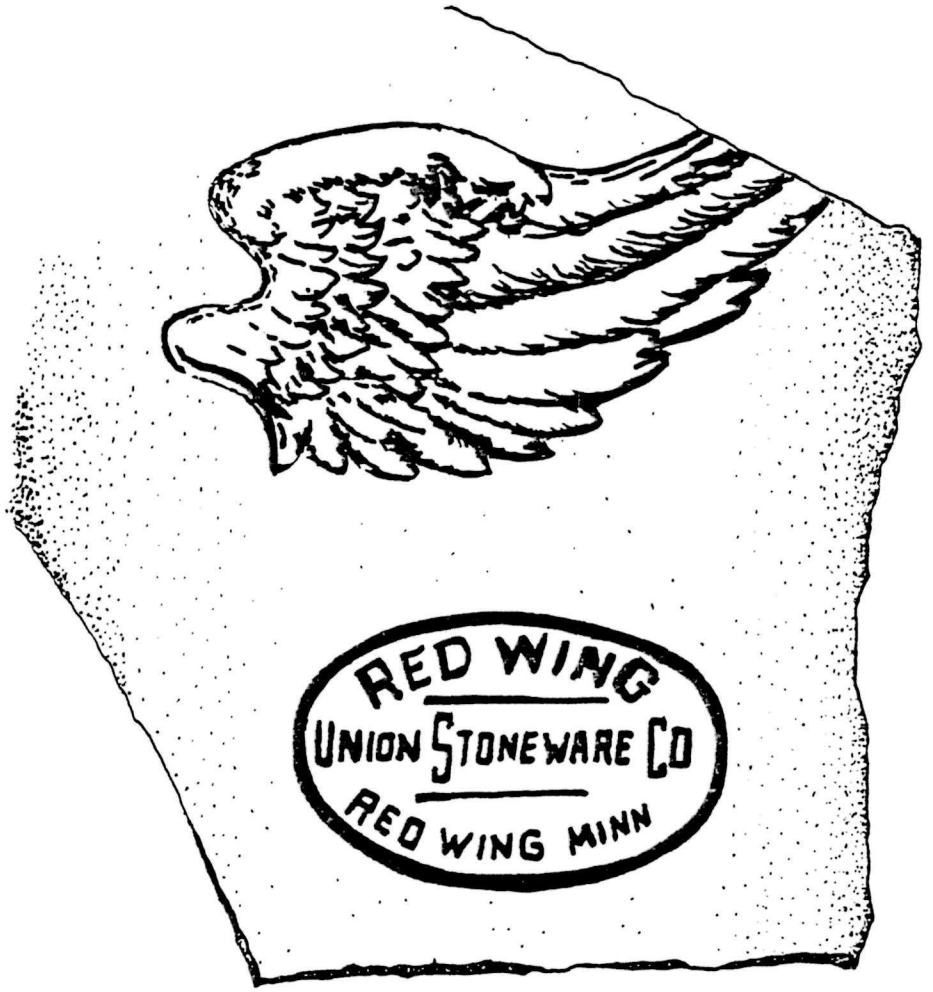
In addition to these specimens, a group of five badly burned soft white paste sherds were recovered from 18-108-1. Due to heavy fire damage these specimens can be only tentatively identified as representing white glazed wares. No evidence of decoration, beyond molded floral designs, are observable on any of these examples.

FIGURE 26

EARTHENWARE ARTIFACTS

Earthenware

	Site Number	Description
A.	04-165-1	Stoneware (White slip glaze); Union Stoneware Company, Red Wing, Minnesota.
B.	56-112-1	Whiteware (soft paste); probably a product of the Crown Pottery Company, Evansville, Indiana.



a

b



FIGURE 26

earthenware artifacts

The soft white paste wares comprising this sample presumably represent articles of American manufacture. During the post-World War I period, the position of foreign produced table wares sold in the United States witnessed a dramatic decline. By 1937 foreign wares accounted for only 17 percent of domestic consumption. This represented a little more than a third of its prewar position, which was estimated at approximately 45 percent (Newcomb 1947:233).

A total of seven vitreous paste, or porcelain, sherds were collected from four sites during the survey (Table 5). These included two white paste sherds associated with 18-108-1. The sherds represent a shaving mug upon which an overglaze hand-painted script in purple has been applied, apparently identifying its owner, "N.Y. Regu..." In addition to this specimen, three examples decorated in hand-painted motifs were recovered from 15-102-1 and 48-115-3. The two sherds associated with the former site represent a single bowl form decorated with a gold overglaze floral scroll and geometric designs and exhibiting a series of floral pattern glaze scars indicative of overglaze painting. The single sherd collected from 48-115-3 consists of a slightly damaged squat shaped container possessing a small appeture on a dome-shaped top. This specimen measures 4.8 cm in height and 7.1 cm square at the base. The vessel is decorated with one overglaze painted sea and junk motif in

pink, purple and black colors. The top of the container is painted in a light brown or buff color over which a raised black slip brush line has been added around the rim of the vessel's mouth. This piece is undoubtedly of Japanese manufacture and represents a variety of ware which became readily available in North America during the post-World War I period.

Throughout the first half of the present century, the domestic market for porcelain was almost entirely supplied through imported wares. Prior to World War I this trade appears to have been largely dominated by articles of German and French manufacture. During the war the German sources of production were eliminated from the domestic trade. The resulting void was quickly filled, however, through the expansion of the Japanese industry. Although subjected to increasingly higher tariff rates, these wares obtained a dominant position in the American market. This is due to the support given by the Japanese government to this home industry, coupled with the devaluation of the yen in 1931 and the existence of an increasing wage differential between American and Japanese workers. By 1937 it was estimated that approximately 88 percent of all porcelain imports into the United States were of Japanese manufacture (Newcomb 1947:233).

A small vitreous paste vase, represented by two sherds decorated in a pink and green floral decalcomania motif, was collected from 16-122-1. These fragments may be representative of the later range of cheap German porcelains which were generally decorated in this technique (Newcomb 1937:232).

The rest of the ceramic sample collected during the survey consists of course bodied earthenwares which nominally served utilitarian purposes either as kitchen duty wares or as storage vessels. Paste coloration for these sherds ranges from grey to tan, brown and yellow. Only one unglazed sherd, associated with 48-115-3, was recovered during the survey. This specimen may be of local production exhibiting an unglazed light yellow bisquit exterior and a brown slip interior. Two specimens, collected from 03-183-1 and 52-102-4, are finished with an exterior salt glaze. The former example exhibits a light colored yellow body over which both white exterior and brown interior slips have been applied. The exterior slip further exhibits a corrugated or orange peel effect characteristic of salt glazing. The specimen recovered from 52-102-4 possesses a gray paste body, a brown slip interior and a clear salt glazed exterior. A single brown slip exterior-interior glazed sherd was also collected from 56-112-1.

The dominant stoneware variety encountered during this phase of survey was a white slip glazed variety popular through

the late nineteenth and early twentieth centuries (Figure 26,A). Although contemporary advertisements refer to this ware as being "white", glaze coloration generally runs the gamut from an extremely light toned gray to a light bluish tint. This tendency may have led to designating such wares under the headings of "Bristol" or "Delph" glazed, the later appellation quite possibly taking into account the strong use of blue as a decorative applique (Kresge 1913:110).

With few exceptions the sherds collected during the survey exhibit a light gray toned interior-exterior slip glaze over a colored yellow body. However, variations in this form do occur. The five sherds collected from sites 44-109-1 and 46-142-1 exhibit a slightly bluish tone in glaze coloration. Two specimens collected from 04-165-1 are glazed with a light gray colored exterior and brown interior slips over a light brown colored body. This latter color variation may be due to paste composition or to differences in firing temperature such as might be related to kiln placement. This situation is further suggested upon examination of the three specimens recovered from 15-102-1. All three examples exhibit a variable paste coloration which appears to exhibit a brown tone ranging towards yellow along the outer portions of the vessel walls.

Among the specimens recovered from 15-102-1 was a single fragmentary example marked with a blue stenciled maple leaf decoration with the "WE..." placed within the motif. An additional sherd collected from 16-122-1 and a yellow bisquit was similarly decorated and marked with a partial script, ... "ARE Co."

METAL

This artifact class has been divided between two major categories consisting of those items which are either composed of iron, or utilize iron in alloy composition (ferrous), and those which do not (nonferrous). Only two buttons recovered from 15-102-1 form the latter group (Table 6).

As might be anticipated, the largest portion of the entire metal sample, approximately 59 percent, consisted of nails and nail fragments. The majority of these, 13 specimens, were of drawn wire composition, while only seven specimens were composed of the machine square cut variety. With the single exception of one specimen collected from 15-140-1, and measuring 7.8 cm in length, the square cut sample is represented by only fragmentary and heavily corroded examples. Among this group, one specimen recovered from 17-123-2 is flat, or rectangular, in cross section suggesting its probable use as a farrier shoe nail. The grain of these nails appear to generally follow thin lengths, a feature indicative of a post-1830 period of manufacture.

The wire nail sample recovered during the survey included only two fragmentary specimens associated with 03-183-1 and 48-115-3. The remainder of the sample consisted of relatively large flat headed varieties. These ranged in

TABLE 6
METAL DISTRIBUTION

FERROUS METALS:	03-151-1	03-183-1	04-165-1	15-102-1	15-102-2	15-140-1	16-123-1	17-123-2	18-108-1	18-108-2	23-134-1	48-108-1	48-115-3	52-102-4	Total
Nails															
Wire		1	2				4		3		2		1		13
Square cut						2								4	6
Flat								1							1
Spike													1		1
Hinge/Pintle						1					1				2
Spoon									1			1			2
Knife		1													1
Tinware	1		1		1			1					1		5
Enameled Ware			1							1					2
Lisence															
NON-FERROUS															
Buttons	—	—	—	2	—	—	—	—	—	—	—	—	—	—	2
Totals	1	2	4	2	1	3	4	2	4	1	3	1	3	4	35

size from as little as 6.5 cm (3 examples: 18-108-1) to as much as 12.6 cm (1 example: 23-134-1). Six examples, measuring 10.2/.5 cm in length, were collected from 04-165-1, 16-123-1 and 23-134-1. One specimen recovered from 04-165-1 measured 8 cm. No small headed finishing nails are included in the wire nail sample.

While wire nails were apparently being manufactured in the United States as early as the 1850s, it was not until about 40 years later that they began to achieve a dominant position over the square cut varieties. According to Nelson, some builders well into the present century continued to prefer the cut over the wire types (Nelson 1962). This phenomenon may be represented in the nail sample recovered from the Berrien Springs jail site in southeastern Michigan. In Feature 4 of this site, which dated to the c.1890-1910 period, less than one percent of the nail sample consisted of the wire variety (Demeter and Lowery 1977:96).

In addition to the above nail sample a single,spike was also recovered from 48-115-3. This specimen is of modern manufacture, being circular in cross section, exhibiting a flat head, and measuring 16.4 cm in length.

Two iron objects which appear to be of hand wrought manufacture were collected from 15-140-1 and 23-134-1 and are classified as hinge and pintle in Table 6 . The specimen recovered from the former site consists of a length of bar iron measuring 12 cm in length and 1.4 cm in diameter. One end of the bar has been flattened and looped as if for placement on a pintle. The opposite end is eyed in alignment with the up-down direction of the hinge loop. The specimen recovered from 23-134-1 can be tentatively identified as a pintle, and measures approximately 12.4 cm in length. The anchor portion of this specimen is rectangular in cross section and tapers to a point. That portion of the pintle utilized for hinge attachment exhibits a circular cross section, with the bend or elbow exhibiting a pinched or triangular form.

Two fiddle shaped spoons were collected from 18-108-1 and 48-108-1. Both exhibit heavy oxidization and are tin plated. The specimen recovered from the former site measures 15.2 cm, while the latter is 21 cm in length. This style of spoon was extremely popular throughout the early 1800s and continued to be manufactured into the present century. The 1913 Kresge catalogue offered both "plain pattern" spoons and forks of this style to its customers. These were advertised as being "dependable...for every day use" and cost five cents for two forks, table or desert spoons, or five cents for four teaspoons (Kresge 1913:98).

A knife handle - blade fragment collected from 03-183-1 is also similar to sets advertised by the Kresge Company. This specimen is of a riveted wood handle construction, with the distal end being fixed in place by a crimped steel handle guard. Items of this variety were offered by Kresge in knife and fork pairs costing 20 cents (Kresge 1913:97).

A total of five tinware artifacts were recovered as a result of the survey. This sample included three tin pressure sealed can forms, the lid of a snuff tin, and a small bowl form.

The latter object, collected from 03-151-1, measured 6 cm in height, 11 cm base diameter expanding to approximately 16.2 cm in rim diameter. The vessel walls are of two piece construction, being joined by two folded vertical seams. The base is similarly crimped, while the rim has been reinforced with a wire insert along the exterior wall.

The snuff lid, associated with 48-115-3, is of simple die stamped manufacture and measures 6.5 cm in diameter. The top of the lid is impressed along the margin "COPENHAGEN SNUFF," between which appear the overlapped initials "GW" within a diamond shaped cartouch.

Among the three tin cans collected during the survey, one example was recovered from 04-165-1. This specimen measures 11.7 cm in height and 8.5 cm in diameter. Both ends of the can are extant, one of which has been opened by a hand opener exhibiting a 3/4 circular cut along the inside of the seam margin. All seams have been mechanically folded and are unsoldered. In construction this can is of the same form of those presently in use. The modern variety of preserve can was first introduced by the Sanitary Can Company of New York in 1904. By the post-World War I period, it had generally replaced the earlier, open top forms (Clark 1977:18).

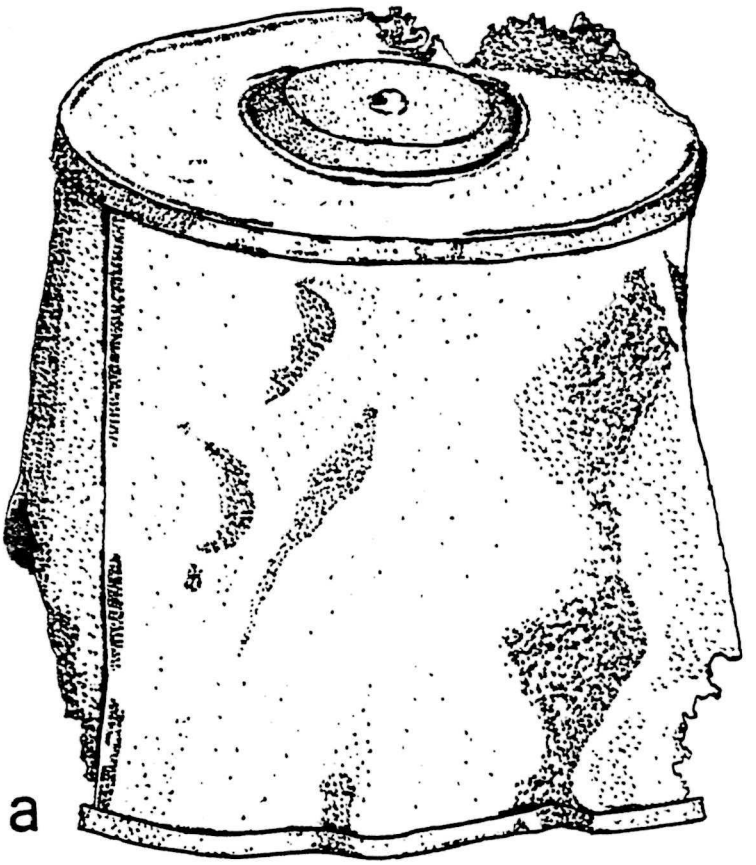
This latter variety is also represented in the artifact sample, being associated with 17-123-2. The specimen recovered from this site measures approximately 11.8 cm in height and 8.5 cm in diameter. Both end flaps are unfolded and have been soldered in place. A hole for insertion of foodstuffs is extant on the undamaged end of the can. After the filling process was completed, a circular disk was placed over the opening. During the boiling process, steam escaped from a small pinhole within the disk which was then soldered shut (Figure 27,A). A storage can of similar design had been patented as early as 1810 and continued to be used throughout the nineteenth century until being replaced by the modern machine pressed forms during the early part of the present century (Clark: 15).

FIGURE 27

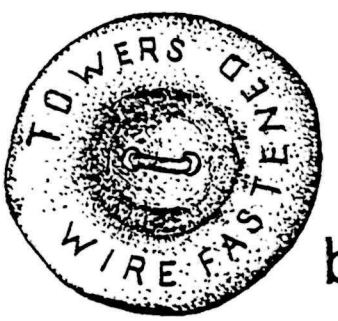
METAL ARTIFACTS

Metal

Site Number	Description
A. 17-123-2	Preserve Can
B. 15-102-1	Button; "Towers Wire Fastened,"



a



b

FIGURE 27

metal artifacts

Another specimen collected from 15-102-2 can be identified as a coffee can measuring 12.5 cm in height and 10.8 cm in diameter. This can is painted green with a gold and white stenciled label, "M.J.B./safety sealed/COFFEE." The accompanying instructions for coffee preparation and can storage have been largely obliterated by oxidation.

Besides the above tinplated wares a single enameled metal cup measuring approximately 11.5 cm in rim diameter was collected from 18-102-2. Scaling of the enamel surface on the cup exterior reveals a blue enamel which was utilized as a primary undercoating. Only a small part of this primary treatment remains exposed, along the exterior of the rim, as a blue line decoration. Items of this variety were utilized both as utilitarian and kitchen wares. The 1913 Kresge catalogue devotes a full page to these wares which are listed as "Genuine Swedish White Enamelware." All of the examples illustrated were offered at a cost of ten cents, a price which was double the expense of similar plain white earthenwares (Kresge: 107, 190). Because of the restrictions imposed by the McKinley Tariff of 1891, one can expect that most of these wares were marked as to the country of manufacture. Although the example collected during the survey has a damaged base, the author is aware of several other specimens which are marked with printed light toned blue printed circular

cartouch within which the legend "K.E.R." and "Sweden" appear in conjunction with an abstract pattern, possibly representing a pot lid and cup, containing the Swedish flag. Similarly decorated wares have been recovered from the Bill Wilson Store (45AS87A) at Silcott, Washington. A saucer form (I22B) described in the report exhibited a manufacturer's mark "$\frac{T}{S}$ GERMANIA" (Adams, et. al. 1975:141).

Included among the ferrous metal sample was a Wisconsin vehicle license plate collected from 04-165-1. This specimen is rectangular in shape, measuring 36 cm by 12.4 cm, and possesses an impressed inscription, "B95-816/WIS/24."

That portion of the collection made up of non-ferrous metals is composed of only two white metal buttons associated with 15-102-1. Both are of die stamped manufacture and finished with a black enamel veneer. The outer margin is marked by a stamped script "Towers/Wire Fastened" (Figure 27, B).

CHAPTER 8

CULTURAL HISTORY

One of the goals of the multi-stage St. Croix Scenic Riverway project is that of cultural history--a reconstruction of the sequence of cultural events placed within a space-time framework. In addition, the eventual goal of the project is to address the cultural environmental relationship interacting within the St. Croix River system, including the changing man-land relationships for both prehistoric and historic peoples.

The Phase II survey provided little information that would substantially alter the cultural history developed during the Phase I portion of the project. Of the 60 sites located nineteen consisted of small prehistoric sites. Little information can be known of them, except through additional investigation such as test excavations. Further study would produce the data necessary to address such a question as the prehistoric man-land relationships within the St. Croix River Valley. The historic sites(41) recovered tentatively date to the end of the nineteenth century and the early part of the twentieth century (c. 1910-1950). While these sites are important in understanding and reconstructing the complete history and development of the St. Croix River Valley, they, too, provided little information readily available for the reconstruction of the cultural history of the St. Croix River Valley.

Specifically, the Phase II survey failed to locate any evidence that might indicate the existence of Paleo-Indian occupation within the riverway. The earliest record of human occupation documented for the area is the Archaic Period. Of the 43 prehistoric sites located with the riverway, only four have been assigned to the Archaic Period. These include one site located during the Phase I survey (04-150-1) and three sites (03-103-1, 13-126-1, 17-126-2) located during the Phase II survey. All of these sites are located within the drainage of the Namekagon River and within an area characterized by Great Lake pine forests and sandy outwash plain soils.

The Archaic period within the St. Croix region is generally viewed as a period of normalization of the yearly seasonal cycle, which produced specific resource availability at critical times throughout the seasonal round of subsistence activities. The northern adaptation appears to be based on the hunting of large mammals with the addition of seasonal fishing. The four Archaic sites located to date probably reflect this northern adaptation with subsistence activity based on the hunting of large mammals that existed within the Great Lake pine forest and the utilization of the aquatic resources available within the Namekagon River during certain periods of the year. While further research is needed to test this contention, it may be possible to conjecture that the located sites may have been spring, summer, fall campsites involved

with fishing activities on the river. Within the same mode of thought one would expect Archaic sites located in the southern portion of the study area to have a seasonal subsistence activity with a heavier reliance on the collection of wild plant food associated with the maple-basswood and northern floodplain forest that characterized the southern portion of the river. To date, no site has been located that would support this contention.

Eleven of the 43 prehistoric sites located during the Phase I and Phase II surveys can be assigned to the Woodland period. Eight of these were located during the Phase I survey and three were located during the Phase II survey. Site 51-102-1 has been dated to the St. Croix Phase, or transitional period between the Middle and Late Woodland period; Site 37-120-1 has been assigned to the Black Duck Phase of the Early Woodland period. Four sites located during the Phase I study (36-107-5, 36-107-2, 21-135-1, 21-115-1) were assigned to the Late Woodland Period based on the recovered cultural material. Sites 40-104-1 and 49-102-1 have been identified as Woodland occupation according to Minnesota state record, but no diagnostic artifacts or material were recovered during survey of the sites. Three sites located during the Phase II survey can be tentatively assigned to the Late Woodland Period. Site 46-141-1 contained two grit-tempered sherd fragments; Site 52-102-3 contained two fragments of crushed

quartz temper, cord-marked sherds, and Site 56-103-2 contained two grit-tempered plain sherds and one cord-marked grit-tempered sherd. Forty-five percent (5) of the Woodland sites located were contained within an area of Great Lakes pine forest, 36 percent (4) were located in northern floodplain forests and 19 percent (2) were located in maple-basswood forests.

The remaining 28 sites inventoried during the Phase I and II surveys could not be assigned to any general or specific cultural or temporal period. Most of the sites were identified by a scattering of lithic materials; more research is needed in order to fully evaluate these sites and to make any judgments as to cultural or temporal affiliations.

The Phase II survey located 41 sites that have been assigned to the historic period. These sites combine with the Phase I historic sites for a total of 101 historic sites located within the riverway.

The earliest of these sites are associated with the exploitation of furs by various groups of Europeans. Fur trade was established on the Namekagon River in 1784 and later on the St. Croix River. Several sites associated with the fur industry were located during the Phase I survey (13-179-1, 51-102-1). No additional sites of this type were located during the Phase II survey.

With the decline of the fur industry within the study area, lumbering became increasingly important along both the Namekagon and St. Croix Rivers. The Phase I survey located 20 sites associated with lumbering activities. The Phase II survey located seven additional sites associated with the lumbering industry. These sites include eight which have been identified as logging camps. Fifteen sites have been identified as dams or rock alignments. One site is a dam and house site, while three sites have been identified as mills associated with the lumbering era. Most of the lumbering sites are located in the upper reaches of the riverway along the Namekagon and the northern portions of the St. Croix River. These sites are generally associated with lumbering of the Great Lakes pine forests, when the river was the primary means of transportation. Very few lumbering sites were located in the southern portion of the St. Croix Riverway where vegetation is primarily maple-basswood.

The recovered cultural material associated with the remainder of the sites located reflects an occupation of the riverway during the period from ca. 1850-1950. The majority of recovered cultural material falls primarily within the latter half of this range. These sites are largely represented by randomly dispersed midden concentrations which occur on shallow refuse pits as sheet deposits sometimes associated with structural depressions. The majority of the sites with a high artifact yield are assignable to a post-1890 context.

Historically, the economic strategy of this later period represents an initial intensification of lumbering activities followed by the development of the region's agricultural potential. Agricultural activities continued in the area until a post-1940 period when most of the agricultural lands were abandoned; the area reverted back to its natural stages and recreational activities increased. This settlement pattern led to a gradual increase in population densities and further elaboration of communication and transportation networks. The creation of new road networks and the further emphasis of the railroad system had the immediate effect of allowing a far greater transportation of imported and eastern manufactured goods into the area, a fact which is readily discernible in the archeological record.

Among the more apparent transitions which occurred during this period of population expansion is a marked increase in the amount and variety of ceramic tableware associated with the later sites. Prior to this period it was extremely probable that the preferred, or at least more readily available, table service consisted of the more durable and cheaper enameled metal ware and wooden wares. Such a pattern has been postulated for the economically and geographically isolated communities of early nineteenth century north central Ohio. It was also in evidence during surveys conducted by Commonwealth

Associates at the early twentieth century Finnish settlement of Johnswood on Drummond Island in northern Lake Michigan (Miller and Henry n.d., Weir and Demeter in 1975). Although significant amounts of enameled ware were observed during both the Phase I and Phase II surveys, relatively few examples were collected due to both difficulty in transport and the relatively meager amounts of information which such material presently offers. It should also be noted that the bulk of these wares recovered in the field were almost entirely associated with the post-1890 occupation areas. The fact that few examples were identified from earlier site areas seems to demonstrate a heavy preference for the use of wooden wares which may have been produced locally in conjunction with the lumber industry. It is highly unlikely that this type of material would remain preserved and show up in the archeological record. However, it is impossible to render any judgments relative to this problem solely on the bulk of negative archeological evidence.

The historic earthenware collected during the Phase I and II portions of the project appears to provide some evidence for sequential patterning of settlements. This patterning becomes particularly evident through the distribution of the semi-vitreous or iron stone-like ware which can generally be attributed to a pre-1900 context. The

Phase I survey located seven sites containing this type of material. The Phase II survey failed to locate any site with this type of material. The distribution of semi-vitreous material indicates a clear modal shift in the occurrence of soft white paste and semi-vitreous earthenware. A clear drop in the occurrence of the latter ceramic variety is indicated at those sites situated north of survey segment number 49. The high frequency of soft-white paste collected from most of the survey area is suggested for a later period of intensive land use which is attributable to a post-1900-1910 context.

TABLE 7
MISCELLANEOUS CULTURAL MATERIAL DISTRIBUTION

	07-104-1	18-108-2	46-141-1	48-115-1	51-102-1	51-102-2	56-103-2	Total
Faunal								
Mammal-Deer	89			5				94
Mammal-Unknown		2	6	6	2		1	17
Massal Shells			2		33	20		55
Pottery								
Grit-Tempered Plain			2				2	4
Grit-Tempered-Cord-Marked							1	1
Total	89	2	10	11	35	20	4	171

CHAPTER 9

PREDICTIVE MODEL

One of the goals of the Phase II survey was to provide a refinement and evaluation of the site location model developed as a result of the Phase I survey. The Phase I survey had a raw predictive figure of 468 sites. A careful examination of the reliability of the survey data and the specific biases of the Phase I survey resulted in a revision of this figure to 326.

The Phase I survey was not able to obtain a full 20 percent sample of all subregions, although a 20 percent sample was achieved for the entire study area. The goal of the Phase II survey was to obtain, at a minimum, an additional 40 percent survey of each subregion and an additional 40 percent sample of the entire study area. The results of this survey would provide, at a minimum, a 60 percent sample of each subregion. This would allow us to obtain a more accurate prediction of the total archeological population for the St. Croix River study area. As indicated, a number of problems existed with the Phase I survey, including unreliable sample sizes for at least two subregions (subregion No. 8 and No. 12). The Phase II survey was structured in such a manner as to compensate for these small sample sizes. A heavy survey effort was undertaken in these areas in order to bring each subregion to a minimum of 60 percent coverage. In reality,

sample size ranged from a low for subregions 2 and 14 of 60 percent to a high of 100 percent for subregion No. 11 (Table 1). The Phase I and Phase II surveys combine for a sample size of over 39,000 acres, or 63 percent of the entire riverway area.

The projected number of archeological sites based on the 63 percent sample is 220. This compares to an adjusted value of 326 as a result of the Phase I survey. This reduction of approximately 100 sites, or 35 percent, can be explained by a more accurate prediction due to the larger sample size, 20 percent vs. 63 percent.

As in the Phase I study, the subregions have been separated for planning purposes into areas of high, medium and low site potential. Areas of high site potential are subregions with a density of .010 to .0050 sites per acre, or approximately three to six sites per square mile. Subregions 4, 10, 14 and 15 are included in this group. Areas of medium potential consist of those subregions with .0021 to 0.0049 sites per acre or one to three sites per square mile. The projected average site density for the entire area is slightly more than two sites per square mile. Those subregions with a medium potential include 2, 3, 12, 13, and 18. Areas of low site potential are those which contain fewer than .002 sites per acre, or less than one site per square mile. Two subregions, 6 and 17, might be expected

to contain no evidence of human habitation. Subregion No. 11 was completely surveyed and only contains one site. Additional subregions with low site potential include Nos. 1, 5, 7 and 9.

A summary of these data by subregion potential is contained in Table 8. With a reliable sample in all subregions we can predict that 50 percent of all sites will be concentrated in 28 percent of the study area and 90 percent of all sites will be found in 70 percent of the study area.

The results of the Phase I and Phase II survey sample provide us with the means for making statements as to the total pattern of historic and prehistoric settlement along the St. Croix National Scenic Riverway. The area of highest overall site density is in maple-basswood or northern floodplain forest areas with productive soils, primarily in areas with more than 120 frost-free days. This area shows the highest density of pre-1900 historic sites and prehistoric sites associated with the Woodland Period. The areas with the lowest site density are marked by poorer soils, northern hardwoods or conifer cover, and are primarily located in areas of fewer than 120 frost-free days. Sites associated with this region consist primarily of historic sites related to lumbering activities and prehistoric sites associated with

TABLE 8
AREA POTENTIALS

	High Potential	Medium Potential	Low Potential	Total
Area Acreage	9,204	39,081	14,559	62,849
% Total Area	15	62	23	100%
Projected Sites	62	145	13	220
% Projected Sites	28	66	6	100%

the Archaic Period. Overall site density is greater in the lower portions of the Upper St. Croix River than in the upper portions. This is viewed as being consistent with the even greater site density that is known for the lower St. Croix area.

PREHISTORIC SITE DISTRIBUTION

The 1977 Phase II survey resulted in the location of 19 additional prehistoric sites within the St. Croix National Scenic Riverway (Table 9). Combined with the Phase I survey, this means a total of 43 prehistoric sites have been located within the riverway. The Phase II survey uncovered no evidence of large-scale prehistoric utilization of the riverway. Most of the sites located that produced evidence of prehistoric occupation yielded only scattered and non-diagnostic chippage. No evidence of Paleo-Indian occupation was located within the riverway. Three sites were tentatively considered Archaic. This determination was made on the recovery of few diagnostic materials and should be considered preliminary until further research can be undertaken to substantiate their temporal placement. Three sites were classified as Woodland on the basis of their producing prehistoric pottery. One Woodland site was identified on the presence of a shell midden but no cultural material was located. On the whole, the 1977 survey recovered very little diagnostic material, as did the 1976 survey. The lack of diagnostic material recovered is probably

TABLE 9

PREHISTORIC SITE POTENTIAL

Subregion	Total Acres	Area Sample 1976	Area Sample 1977	Total Area Sampled	Archaic Sites No.	Archaic Sites Projected	Woodland Sites No.	Woodland Sites Projected	Indeterminant Sites No.	Indeterminant Sites Projected	Total Prehistoric No.	Total Prehistoric Projected
1	2,203	622	777	1,398	0	0	0	0	0	0	0	0
2	19,393	5,177	6,491	11,668	2	3	0	0	3	5	5	8
3	9,652	1,909	3,938	5,874	2	3	2	3	12	20	16	26
4	1,926	486	983	1,469	0	0	0	0	0	0	0	0
5	2,969	641	1,364	2,005	0	0	0	0	1	1	1	1
6	477	63	270	333	0	0	0	0	0	0	0	0
7	2,233	266	1,316	1,582	0	0	1	1	0	0	1	1
8	2,291	111	1,269	1,380	0	0	2	3	1	2	3	5
9	5,056	584	2,452	3,036	0	0	1	2	1	2	2	4
10	2,844	489	1,271	1,760	0	0	1	2	2	3	3	5
11	1,142	175	967	1,142	0	0	0	0	1	1	1	1
12	2,776	228	1,458	1,686	0	0	0	0	1	2	1	2
13	3,089	653	1,218	1,871	0	0	2	3	0	0	2	3
14	1,908	216	931	1,147	0	0	0	0	0	0	0	0
15	2,526	493	1,053	1,546	0	0	2	3	5	8	7	11
16	1,200	211	512	723	0	0	0	0	1	2	1	2
17	479	79	216	295	0	0	0	0	0	0	0	0
18	680	182	280	462	0	0	0	0	0	0	0	0
Total	62,844	12,585	26,766	39,351	4	6	11	17	28	46	43	69

due in part to a combination of small sites with low artifact densities and the type of survey technique used to locate these sites in areas of dense vegetation.

The projected distribution of prehistoric sites in the study area, based on a combination of the Phase I and II survey data, is presented in Table 8. The survey information produced a projected site density of 69 prehistoric sites for the entire riverway or a site density of .001 sites per acre, which is just over one site per square mile.

The survey information and projected site distribution is significantly different from the total site distribution pattern for the riverway. Overall prehistoric site densities of the St. Croix study area are greater along the upper portions of the river. All Archaic sites and a majority of all prehistoric sites are located in areas of northern hardwood and Great Lakes pine forest, in areas with a growing season of less than 120 frost-free days. While the majority of prehistoric sites are located in the upper portion of the riverway, there are indications that a pattern may emerge where Woodland sites are located in the lower portions of the riverway in areas of potentially favorable agricultural soils, and a longer growing season. Over 75 percent of the projected Woodland sites are expected to be located in the lower portion of the study area.

Several general conclusions can be drawn from these data. The St. Croix was known to have been a buffer zone between groups with different adaptive patterns in the historic period and the same may have been true for the prehistoric period. This may account for the small number of prehistoric sites located within the riverway. The Phase I and Phase II surveys failed to locate any evidence that might indicate the existence of Paleo-Indian occupation within the study area. Archaic occupations are concentrated in the upper portion of the study area, primarily in subregions 2 and 3, the largest and second largest of the subregions. It is likely that these sites are transient summer season sites of groups with larger winter villages outside of the study area.

The majority of Woodland sites have been located in the lower portion of the riverway between St. Croix Falls and Grantsburg. These are probably village sites associated with the more favorable environmental conditions that exist in the lower riverway. Woodland sites located above Grantsburg are likely to be small sites associated with seasonal hunting or collecting.

HISTORIC SITE DISTRIBUTION

Historic archeological sites were found to be more numerous in the study area than prehistoric sites. Table 10 presents a summary of historic distribution, by site types

TABLE 10
HISTORIC SITE POTENTIAL

Subregion	Total Area	1976 Area Sampled	1977 Area Sampled	Total Area Sampled	Trading Posts		Logging Sites		Native American		Euro-American Settlement		Ferries and Bridges		Unique	
					No.	Projected	No.	Projected	No.	Projected	No.	Projected	No.	Projected	No.	Projected
1	2,203	622	777	1,398	0	0	1	2	0	0	0	0	0	0	0	0
2	19,393	5,177	6,491	11,668	0	0	19	32	2	3	8	13	1	2	3	5
3	9,652	1,909	3,938	5,874	1	2	6	10	0	0	6	10	1	2	0	0
4	1,926	486	983	1,469	0	0	2	3	0	0	4	5	0	0	0	0
5	2,969	641	1,364	2,005	0	0	0	0	0	0	2	3	0	0	0	0
6	477	63	270	333	0	0	0	0	0	0	0	0	0	0	0	0
7	2,233	266	1,316	1,582	0	0	0	0	1	1	0	0	0	0	0	0
8	2,291	111	1,269	1,380	0	0	0	0	2	3	0	0	0	0	0	0
9	5,056	584	2,452	3,036	0	0	2	3	1	2	2	3	0	0	0	0
10	2,844	489	1,271	1,760	0	0	0	0	0	0	0	0	1	2	4	6
11	1,142	175	967	1,142	0	0	1	1	0	0	4	4	1	1	0	0
12	2,776	228	1,458	1,686	0	0	0	0	1	2	2	3	0	0	0	0
13	3,089	653	1,218	1,871	0	0	2	3	0	0	5	8	1	2	0	0
14	1,908	216	931	1,147	0	0	1	2	0	0	2	3	0	0	1	2
15	2,526	493	1,053	1,546	1	2	1	2	0	0	6	10	2	3	0	0
16	1,200	211	512	723	0	0	0	0	0	0	1	2	0	0	0	0
17	479	79	216	295	0	0	0	0	0	0	0	0	0	0	0	0
18	680	182	280	462	0	0	0	0	0	0	0	0	0	0	1	1
Totals	62,844	12,585	26,766	39,351	2	4	35	58	7	11	42	64	7	12	9	14

and subregion, along with site density projection by subregion. The table includes information acquired during both the Phase I and II portions of the survey.

The survey resulted in the location of 102 sites with historic components. A total of 163 historic archeological sites are projected for the entire riverway under study. These projections amount to a density of .0026 sites per acre or almost two sites per square mile.

While the Phase I survey located the remains of two trading posts, the Phase II survey failed to locate any evidence indicating the existence of additional trading posts. A total of four trading posts are projected for the study area. Historic documentation has indicated the existence of six trading posts for the study area. Thus, the trading post projection is well within reason for the study area considering the Phase I survey covered areas where additional posts were reportedly located without finding any indications of their existence.

Historic sites associated with the lumbering era are among the most numerous archeological features in the study area. To date, 35 sites have been located of this type, and the projection of the location of 23 additional sites appears realistic. The majority of these sites are located in the upper portion of the study area in regions associated with a Great Lakes pine forest cover.

The Phase I survey located the remains of seven sites associated with Native American villages or cemeteries. The Phase II survey failed to locate any site of this type. A total site projection of 11 sites or four additional sites is realistic. These sites are again associated with the upper portion of the riverway in areas less favorable for occupation but ones which may have been more readily available to Native Americans. It is important to note a possible correlation between prehistoric and historic Native American sites. This may, in fact, reflect a traditional utilization of certain areas or a preference for site locations in certain micro-environmental settings not yet identified.

Euro-American settlements are the most numerous type of historic sites located along the riverway. A total of 42 Euro-American settlements have been located with a projected site density of 64 sites. These sites are concentrated in two areas, 1) near the logging sites in the upper portion of the riverway, and 2) below Grantsburg in more favorable agricultural localities. In addition, there appears to be a shift in the temporal placement of these sites. Earlier sites appear to be located in the lower portion of the study area with later sites located in the upper portion.

The Phase I survey located the remains of seven ferries and bridges. The Phase II survey failed to locate any additional ferries or bridges. This was a result of the fact that most of the areas with mapped roads leading to ferries and bridge sites were traveled or visited during the Phase I survey. A total site projection of 12 appears to be realistic for this type of site.

The category of "other sites"contains a variety of unique sites. While this cannot be predicted on any regular basis,the projected total of 14 of these sites seems reasonable.

As a result of the Phase I and Phase II surveys we have projected a total historic site distribution of 163 sites. This would include 4 trading posts, 51 logging sites, 11 Native American sites, 64 Euro-American settlements, 12 ferries and bridges, and 14 unique sites. These projections are based on a 63 percent sample of the entire riverway and there is no reason to believe that the projections are unrealistic.

The historic archeological sites located in the riverway appear to be distributed in different but predictable patterns according to site types. Trading posts are distributed evenly within the study area with one being located in

the upper portion and one in the lower portion of the riverway. Ferries and bridges are also fairly evenly distributed within the study area. There would have been no advantage in clustering sites of this type, and spacing might be expected as a rule. Sites associated with logging activities are concentrated in the upper portion of the riverway, in areas with the greatest natural potential for logging activities. Native American sites tend to be located in areas less favorable to agriculture, generally in the upper portion of the riverway. Euro-American sites have a bi-modal distribution, with one cluster in the upper portion of the river near the logging region and a second in the area of more favorable agricultural potential below Grantsburg. The unique sites follow a primarily random distribution.

CHAPTER 10

MANAGEMENT RECOMMENDATIONS

The Phase II archeological survey of the St. Croix National Scenic Riverway resulted in the location of 60 additional areas of archeological activities. Of these recorded sites, 41 contain a historic component and 19 a prehistoric component; one site (18-108-12) is multicomponet. While all sites recorded will be listed with the National Park Service and the respective states of Wisconsin and Minnesota, only 24 have been determined to meet criteria for eligibility to the National Register of Historic Places. This eligibility was based in part on a limited analysis of cultural material recovered during the course of the survey. Further analysis and investigations may result in a reevaluation of the eligibility of a number of located sites to the National Register.

It is anticipated that the final phase of the archeological investigations of the St. Croix National Scenic Riverway will involve extensive testing of those sites deemed eligible for the National Register of Historic Places. It is predicted that on the basis of these test excavations a number of sites identified during Phase I and Phase II of the survey will be excluded from the list of eligible sites. It must be remembered here that while a site may not meet the criteria for eligibility for the National Register, it may be extremely important for a full understanding of the settlement and subsequent development of the St. Croix River

area. A case in point is the site of Nevers Dam. Nevers Dam was built in 1870 by the St. Croix Dam and Boom Company and was actively used by the lumbering business until 1912. It was finally torn out in 1955 after being severely undermined by a spring flood. Many people have considered Nevers Dam "the largest pile-driven dam in the world" (Vezina 1975). An archeological survey of the Nevers Dam area in 1976 resulted in the following observation: "All remains of the dam itself are gone but a dike about one-quarter mile long still exists on the Minnesota side and a 200 foot long dike still exists on the Wisconsin side" (Commonwealth Associates, Inc. 1976). Based on the survey it was determined that Nevers Dam did not meet the criteria necessary for the placement of the Dam on the National Register of Historic Places (Federal Register Vol. 42, No. 183 September 21, 1977).

The archeological field team undertaking the Phase II portions of the St. Croix study revisited the site in 1977 and talked with such park authorities as Mr. Gustaf Hultman, Park Superintendent, and Mr. Arnie J. Long, District Ranger, concerning Nevers Dam. This further investigation has resulted in the following recommendations. While Nevers Dam does not meet National Register criteria, it should be recognized as an important historic site that is valuable for a complete understanding of the settlement and development of the St. Croix River area. Every attempt should be made to stabilize and preserve those portions of the Dam that remain for later considerations such as public display or educational exhibits.

Nevers dam is an important local site, and it would be in the best interest of the local people to have this site preserved for future generations.

The Nevers Dam situation points out a problem that exists throughout the entire length of the St. Croix National Scenic Riverway. Both the Phase I and Phase II surveys have located sites that do not meet National Register criteria but have been considered important for a full understanding of the cultural history of the St. Croix River area. The majority of sites that fall within this category are those associated with logging activities and consist of such sites as wing dams, stone dams, cobble alignments and a variety of other structures associated with logging activities. Again, these sites would not qualify under present criteria for inclusion on the National Register of Historic Places but are important when viewed from a local perspective. It is therefore recommended that those sites be identified in the preceding section of this report and the Phase I report and that they be protected from future development along the course of the riverway. In many cases these sites are heavily overgrown with vegetation and are obscured from view even from the river itself. It may be possible that these sites could be developed as educational exhibits for persons who utilize the river for recreational purposes. Sites such as cobble alignments, wing dams and sluices could be cleared of all vegetation without destroying the historical value of the sites, and be exposed and available

for the enjoyment of anyone utilizing the river for recreational purposes. In addition, sites of this type may be plotted on canoeing maps with a short description or narrative as to their function and role in the history and development of the St. Croix Riverway. In other words, it is our belief that, in addition to the sites identified in this report as important and eligible for the National Register, there exists a class of site that should be protected and possibly developed for use by the public. Any actual clearing activities of the type described above should be in coordination with Commonwealth to assure that the historical integrity of these sites are preserved.

Of the 60 sites located during the Phase II survey, 25 are potentially eligible for the National Register. None of these 25 sites are considered to be in imminent danger of destruction. Some danger of adverse impacts is foreseen because of the increased recreational use of the riverway over the past few years and the continued expansion of this use in the near future. Care should be taken in the placement of campsites and other proposed park improvements. The impact of occasional use by river campers is minimal; a monitoring or patrolling system should be developed that would monitor these sites to insure their continued preservation.

The Phase I survey and report uncovered several incidences of unauthorized excavations at sites. This does not appear to be

a problem with the sites located during Phase II survey. This is probably due to the fact that the areas surveyed during the Phase II survey were not as readily accessible as those surveyed during the Phase I survey. This inaccessibility and relatively dense vegetation cover on the majority of the sites serve as an adequate means of protection at this time. As the park develops and more people utilize these inaccessible areas for recreational purposes, plans will have to be developed to protect the more important of these sites.

Specific recommendations include the following: Sites 03-103-1, 07-104-1, 13,126-1, 13,138-1, 13-141-1, 15-140-1, 17-123-2, 17-126-1, 17-126-2, 18-108-2, 25-107-1, 33-101-1, 46-141-1, 48-108-1, 48-115-2, 50-108-1, 51-102-2, 51-102-3, 51-102-4, 51-102-5, 52-102-3, and 56-112-1 should be included in a program of test excavations that would further clarify such issues as cultural affiliation, temporal placement and final determination of National Register eligiblity. In addition, test excavations are necessary in order to answer cultural-historical and cultural-environmental questions important to the understanding of the man-land relationship in the St. Croix Valley area.

It is recommended that a number of sites, 25-107-1, 48-108-1, 50-108-1, 03-151-1 and 04-165-2, be subjected to additional historic research in order to adequately identify

them and to help make a final determination of National Register eligibility. This historic research should include a detailed archive and literature search of available local records including land records, land plats and tax records.

In addition,the National Park Service should attempt as soon as possible to acquire title to sites still in private ownership in order to insure the continued protection of the sites. All park development plans should be considered in light of the sites identified in this report and those previously identified in the Phase I report. Every attempt should be made to avoid those sites identified as needing protection or those sites identified as potentially eligible for the National Register. If avoidance is not possible or adverse impacts develop through recreational use of the park,adequate mitigation recommendations will have to be developed on an individual site basis.

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1971 The Illustrated Guide to Mason's Patent Ironstone China. Praeger Publishers, New York.

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1968 Excavations at Walker Tavern, Cambridge State Historical Park - 1968. Report submitted to the Michigan Department of Conservation.

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1974 The Kovel's Collector's Guide to American Art Pottery. Crown Publishing, New York.

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1968 "Debert: A Paleo-Indian Site in Central Nova Scotia. National Museum of Canada", Anthropological Papers, No. 16. Ottawa.

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1976 A History of the Hayward Lakes Region. Hayward, Wisconsin.

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n.d. "Clay Smoking Pipes Recovered from the Renaissance Center." Manuscript in author's possession.

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Mason, Ronald J.
1966 "Two Stratified Sites on the Door Peninsula of Wisconsin." Anthropological Papers, Museum of Anthropology, University of Michigan, No. 26.

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1963 "The Clam River Focus." Milwaukee Public Museum, Publications in Anthropology, No. 9.

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1946 "The Upper Mississippi Peoples." The Wisconsin Archeologist. Vol. 27.

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Miller George L. and Silas D. Hurry
n.d. "Ceramic Supply in an Economically Isolated Frontier Community: Portage County of the Ohio Western Reserve 1800 to 1825." Paper presented before the Ninth Annual Meeting (1976) of the Society for Historical Archaeology.

Miller, J. Jefferson and Lyle M. Stone
1970 Eighteenth Century Ceramics from Fort Michilimackinac. Smithsonian Institution, Washington, D.C.

Minnesota Historical Society
1901 Collections. Minnesota Historical Society Vol. 9.

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1974 "The Use of Sampling in Archaeological Survey." Memoirs of the Society for American Archaeology, No. 28.

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1970 National Atlas of the United States Department of the Interior, Geological Survey, Washington,D. C.

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1967b "Nineteenth Century Glazed Ceramics in Michigan and Elsewhere: Part II: Archaeological Evidence." Coffinburry News Bulletin, Vol. 14, No. 6, pp. 60-71. Michigan Archaeological Society, Wright L. Coffinburry Chapter.

1967c "Nineteenth Century Glazed Ceramics in Michigan and Elsewhere: Part III: Other Types of Evidence." Coffinburry News Bulletin, Wright L. Coffinburry Chapter.

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1960 Indian Life in the Upper Great Lakes, The University of Chicago Press, Chicago.

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1973 "Aboriginal Settlement Patterns in the Northeast." New York State Museum and Science Service Memoirs, No. 20.

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1946 "The Osceola Site, an Old Copper Site near Potosi, Wisconsin," The Wisconsin Archeologist, Vol. 22.

Ritzenthaler, Robert and George I.Quimby
1962 The Red Ocher Culture of the Upper Great Lakes and Adjacent Areas, Chicago Natural History Museum Fieldiana: Anthropology, Vol. 36, No. 4, Chicago.

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Roper, Donna C.
1974 "The Distribution of Middle Woodland Sites Within the Environment of the Lower Sangamon River, Illinois." Illinois State Museum, Reports of Investigations, No. 30.

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1956 The Effigy Mound Culture of Wisconsin, Milwaukee Public Museum. Publication in Anthropology, No. 3 Milwaukee.

Salzer, Robert J.
1974 "The Wisconsin North Lakes Project: A Preliminary Report." In: Aspects of Upper Great Lakes Anthropology. Minnesota Prehistoric Archaeology Series, No. 11, pp. 40-54.

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Sears, Roebuck and Company
1897 Catalogue. Photostatic reprint by Chelsea House Publishers (1976), New York.

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1974 "Lithic Reduction Strategies at the George C. Davis Site." Louisiana Archeology. No. 1. Louisiana Archeological Society. Lafayette.

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1953 "Minnesota Potteries from Pioneer Craft to Modern Industry." Minnesota History, Vol. 33, No. 6, Madison.

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1972 "Evolution and Horizon as Revealed in Ceramic Analysis in Historical Archaeology. Conference on Historic Site Archaeology. Forum 6, Part 2, Sect. 1, pp. 71-116. University of South Carolina, Columbia.

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1973 "The Larel Culture in Minnesota." Minnesota Prehistoric Archaeology Series, No. 8.

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1974 "Roster of Excavated Prehistoric Sites In Minnesota to 1972." Minnesota Prehistoric Archaeology Series, No. 7.

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Toulouse, Julian H.
1972 Bottle Makers and their Marks. Thomas Nelson Inc., New York.

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1970 The National Atlas of the United States of America. Department of Interior, Washington, D. C.

Vezina, Rosemarie
1975 Nevers Dam...The Lumbermen's Dam. St. Croix Falls, Wisconsin. Reprint.

Walker, John W.
1971 Excavation of the Arkansas Post Branch of the Bank of the State of Arkansas. National Park Service. Office of Archaeology and Historic Preservation, Southeast Archaeological Center.

Weir,Donald and C. Stephan Demeter
1975 Archaeological Survey of the Drummond Island Lorain-Mini-Chain Site. Report prepared for the Ninth Coast Guard District.

Wilford, Lloyd A.
1955 "A Revised Classification of the Prehistoric Cultures of Minnesota." American Antiquity, Vol. 21, No. 2, pp. 130-142.

Wittry, W. L.
1957 "A Preliminary Study of the Old Copper Complex," the Wisconsin Archaeologist, Vol. 37.

Winchell, N. H.
1911 The Aborigines of Minnesota. Minnesota Historical Society.

Wright, H. E. Jr. and R. V. Ruke
1965 "Glaciation of Minnesota and Iowa," in H. E. Wright and D. G. Frey (ed.) The Quaternary of the United States, Princeton University Press, Princeton, pp. 29-61.

Wright, Joseph R.
1973 1970 Census of Population: Characteristics of the Population. Vol. 1,Department of Commerce, Bureau of the Census. Washington.

JAMES E. FITTING
Manager – Human Resources Planning

Background in cultural and human resources management planning, archeology, anthropology, history and historic preservation including positions in universities, museums and government.

EXPERIENCE: **Gilbert/Commonwealth since 1975**

1977 to Present — Manager-Human Resources Planning, Environmental Systems Division, responsible for overall supervision of land use planning, social and economic and cultural resources studies for industrial and governmental clients.

1975-77 — Supervisor-Cultural Resources responsible for directing a group of professionals involved in cultural resources evaluations including literature searches, field evaluations, test excavations and historical, archeological and anthropological planning on more than 70 projects throughout the United States.

1972-75 — **State of Michigan**
State Archeologist responsible for organizing first meeting of state archeologists in Washington, D.C.; served as a member of the Michigan Intergovernmental Environmental Review Committee; and was a contributor to the State Historic Preservation Plan.

1964-72 — **Case Western Reserve University, University of Michigan and Wayne State University**
Instructor, Research Assistant, State College Fellow, Museum Curator, Assistant Professor, Professor and Chairman of the Anthropology Department in these institutions.

Involved in research projects in eastern and southwestern U.S., Guatemala and the Virgin Islands. Principal investigator for 24 research and training grants and cultural resources management contracts between 1963 and 1975.

EDUCATION:
B.A., Division Social Science (with High Honor), Michigan State University, 1960
M.A., Anthropology, University of Michigan, 1962
PhD., Anthropology, University of Michigan, 1964

(Continued)

CERTIFICATION: NASDS Scuba Certification, 1973
Society of Professional Archeologists; Accreditation in Field Research, Collections Research, Theoretical, Library and Archival Research; Archeological Administration; Cultural Resources Management and Teaching (1976) and Museology (1977).

SOCIETIES:
Society for American Archeology
Society for Historical Archeology (Board of Directors 1976-79)
American Anthropological Association (Fellow)
Eastern States Archeological Federation
American Institute of Nautical Archeology
American Society for Conservation Archeology
National Trust for Historic Preservation
Council on Abandoned Military Posts
Approximately 20 State and Local Historical and Archeological Societies

PUBLICATIONS: (Over 100 books, monographs, articles, chapters and reviews in the fields of archeology, anthropology, history and planning).

Editor of THE MICHIGAN ARCHEOLOGIST, CASE WESTERN RESERVE UNIVERSITY STUDIES IN ANTHROPOLOGY, SOUTHWESTERN NEW MEXICO RESEARCH REPORTS and MICHIGAN HISTORY DIVISION, ARCHEOLOGICAL SURVEY REPORTS. Served on the editorial committees of ABSTRACTS IN ANTHROPOLOGY, BULLETIN OF THE TOLEDO ABORIGINAL RESEARCH CLUB and the Smithsonian Institution HANDBOOK OF NORTH AMERICAN INDIANS.

"Environmental Potential and the Postglacial Readaptation in Eastern North America," *American Antiquity*, Vol. 33, No. 4, pp. 441-5, 1968.

"Settlement Analysis in the Great Lakes Region," *Southwestern Journal of Anthropology*, Vol. 25, No. 4, pp. 360-77, 1969.

"The Archeology of Michigan: A Guide to the Prehistory of the Great Lakes Region," The Natural History Press, 290 pages, 1970. Revised and enlarged paperback edition published by Cranbrook Institute of Science in 1975.

"The Schultz Site at Green Point: A Stratified Occupation Area in the Saginaw Valley of Michigan," *Memoirs of the Museum of Anthropology, University of Michigan*, No. 4, 329 pages, 1972.

"The Development of North American Archeology" published simultaneously by Doubleday-Anchor (paper) and University of Pennsylvania Press (hardcover) 319 pages, 1973.

DONALD J. WEIR
Archeologist

Background in archeological research, test excavation, survey, mitigation, historical literature search and report preparation with particular emphasis on power generation facilities, pipelines, national parks and historic sites, levees, harbors, reservoirs, etc. for utility, commercial, and governmental clients.

EXPERIENCE: **Gilbert/Commonwealth since 1974**

1975 to Present — Project Archeologist responsible for survey, excavation, mitigation, and report preparation for such typical projects as: ± 230 kV transmission line project for Cooperative Power Association/United Power Association (CPA/UPA); historic battlefields, county jails; Louisville Lake Reservoir, Madrid Bend Levee and Underwater Survey of Detour Harbor for the U.S. Army Corps of Engineers; Nicolet National Forest and Upper Choptank Watershed for U.S.D.A.; Foote Wash and No Name Wash, St. Croix Scenic Riverway for the National Park Service; transmission line for Pennsylvania Power and Light Company; Erie Nuclear Plant for Ohio Edison Company; East Bend Station for Cincinnati Gas and Electric Company; and pipelines for oil companies.

1975 — Project Manager on the archeological survey, historical literature search and report preparation for the Loran Chain Site for the U.S. Coast Guard in Chippewa County, Michigan.

1974 — Project Archeologist on archeological and historical literature search for an environmental report for 130 miles of pipeline routing for Mobil Pipeline Company; and field survey and report preparation for construction of I-275 for the Michigan History Division.

1971 — **Foundation for Latin American Anthropological Research**
Field Assistant during excavations of classical Mayan ruins at Lake Yaxha, Guatemala, including underwater recovery of materials in the lake, site mapping, excavations and student instruction.

1968-70 — **Michigan State University, E. Lansing, Michigan**
Museum Assistant involved in research of archeological material of Michigan, specifically in the northern part of the state. Field work in Traverse Corridor area and at the O'Neil site.

EDUCATION: B.S. (with honors), Social Science – Anthropology, Michigan State University, 1970
Graduate courses toward a Master's Degree, Anthropology, 1975–present

(Continued)

CERTIFICATION: YMCA SCUBA Certification (1965)

SOCIETIES: Michigan Archeological Society
Society for Historical Archeology
Society for American Archeology
American Society for Conservation Archeology

STEPHEN R. CLAGGETT
Historical Archeologist

Background of professional experience in prehistoric and historic archeology including record search, surveys excavation, preparation of reports and mitigation plans.

EXPERIENCE: **Gilbert/Commonwealth since 1976**

1976 to Present — Historic Archeologist/Field Supervisor responsible for field surveys, testing and report preparation for Cooperative Power Association/United Power Association (CPA/UPA) 230 kV lines in North Dakota. Federal projects included surveys for Madrid Bend Levee and Cairo (Illinois) Pumping Stations for Memphis Corps of Engineers; St. Croix National Scenic Riverway, Pennsylvania Highway 209 relocation and Falls Lake Reservoir for National Park Service; Nez Perce National Forest and Nicolet National Forest Surveys for USDA National Forest Service; and for Loran-C site for U.S. 9th District Coast Guard.

1975-76 — **I. W. Bernheim Foundation, Louisville, Kentucky**
Consulting Archeologist responsible for survey, testing and report preparation (Bernheim Forest).

1974-75 — **Wake Forest University, Winston Salem, North Carolina**
Archeology Lab Assistant responsible for teaching artifact analysis, photography and cartography, field survey and report preparation.

1969-74 — **Centre College of Kentucky, Dansville, Kentucky**
Archeologist/Field Supervisor responsible for supervising excavations and student training in archeological techniques.

EDUCATION: B.A., (History), Centre College of Kentucky, 1973
M.A., (Anthropology), Wake Forest University, 1978

SOCIETIES: Michigan Archeological Society
Committee on Michigan Archeology
Society for American Archeology
American Anthropological Association
Kentucky Archeological Association

PUBLICATIONS: "Seriation of Archaic Projectile Points from North Central Kentucky," M.A. Thesis, Wake Forest University, 1977

"An Archeological Survey of Bernheim Forest, Bullitt and Nelson Counties, Kentucky," 1977

(Continued)

"An Archeological Evaluation of the Proposed Southeast Sewer Projects Bluegrass and Clearview Subdivisions, Richmond, Kentucky," 1976

"An Archeological Survey of the Taylor County, Kentucky Airport," 1975

Co-Author with J. N. Woodall, "An Archeological Survey of the Great Bend Area of the Yadkin River," North Carolina State Department of Archives and History, 1977

C. STEPHAN DEMETER
Historical Archeologist

Background in archeology and archival research with special emphasis on environmental reports for power facilities.

EXPERIENCE:

1974 to Present — **Gilbert/Commonwealth since 1974**
Historical Archeologist responsible for research and field investigations related to environmental reports for power system projects.

1973-74 — **Detroit Historical Society, Detroit, Michigan**
Project Director of archeological salvage program conducted at the Renaissance Center.

1972-73 — **U.S. Army Corps, Detroit District, River Rouge, Michigan**
Project Director of archeological surveys of the River Rouge flood control zone (Section B) and the Pointe Mouillee disposal site.

1971-72 — **Michigan Archeological Society**
Project Director of archeological salvage project conducted at the West Ridge/Gibraltar Site (0 wn 11)

EDUCATION:

B.A., Anthropology and History, Wayne State University, 1971
M.A., Anthropology, Wayne State University, 1978

SOCIETIES:

Michigan Archeological Society
Society for Historical Archeology

PUBLICATIONS:

"Archeological Survey of the River Rouge Flood Control Project," (Section B), U.S. Army Corps of Engineers, Detroit District, August 1972

"Archeological Survey of the Pointe Mouillee Disposal Site," U.S. Army Corps of Engineers, Detroit District, December 1972

"Archeological and Historical Investigations of the Berrien Springs Jail Site," *Michigan Archeologist*, Vol. 23, Nos. 2 and 3 1977.

JEFFREY C. KIMBALL
Archaeologist

Background in surveys and excavation projects specifically in highway salvage.

EXPERIENCE:	**Gilbert/Commonwealth since 1976** Archaeologist in Land Planning Services Department involved in surveys, field testing and excavation projects, artifact analysis and report preparation.
1974-76	**Michigan State University Museum** Field supervisor for survey and excavation projects including highway salvage projects in Michigan.
1973	**State University of New York, Binghamton, N.Y.** Field supervision of highway salvage survey and testing in New York.
1972	**Michigan State University** Salvage excavations at the Pine River Channel Site.
1972	**Lehman College** Field Assistant at the Late Archaic Site in New York.
1971	**Michigan State University** Field Assistant in excavation projects in northwestern Michigan.
1970	**Clarion College** Field Assistant in excavations at a Late Woodland site in Pennsylvania.
EDUCATION:	B.A., Anthropology, Lehman College (CUNY), 1972 M.A., Anthropology, State University of New York, Binghamton, New York, 1975
SOCIETIES:	American Anthropological Association Society of American Archaeology Michigan Archaeological Society

CURTIS E. LARSEN
Archeologist

Background in archeology (both research and teaching), geology, and industry including assignments in Saudi Arabia, the Persian Gulf area, Puget Sound, and the Great Lakes Region.

EXPERIENCE: **Gilbert/Commonwealth since 1977**

1977 to Present — Archeologist responsible for project management and report preparation on domestic and foreign projects for a variety of governmental and industrial clients.

1976 (5 months) — **University of Aarhus, Denmark, Institute of Prehistoric Archeology**
Research and studies of museum collections.

1976 (5 months) — **Department of Antiquities, Saudi Arabia**
Environmental Archeologist involved in assessing the archeological materials of Hofuf Oasis, Wadi Sahaba, and the Jabrin Oasis in eastern Saudi Arabia.

1975-76 — Research on the island of Bahrain in the Persian Gulf.

1974-75 — **University of North Carolina, Department of Sociology/Anthropology**
Instructor in undergraduate courses in Archeology.

1973-75 — **Illinois State Geological Survey, Urbana, Illinois**
Geologist responsible for preparing a documentation of the long-term fluctuations in level of Lake Michigan discernable by geologic methods, as part of a coastal management study.

1972-73 — **Lake Michigan Federation, Chicago, Illinois**
Geologist responsible for preparing an erosion study of the high bluff portion of the Illinois shore of Lake Michigan between Waukegan and Wilmette.

1968-70 — **Western Washington State College, Bellingham, Washington**
Geologist responsible for using the test boring data from the campus to develop a geologic map relating local geological structure to unknown subsurface conditions below college property.

1966-68 — **Shannon & Wilson, Inc., Seattle, Washington**
Geologist responsible for supervising test borings for proposed buildings, landslide investigations and various land-use projects; prepared maps and reports.

(Continued)

1964-66	**The Boeing Company, Seattle, Washington** Involved in manpower forecasting and workloads for tooling shop in Commercial Airplane Division.
1963-64 (part-time)	**University of Illinois, Department of Geology** Involved in departmental research assignments while a student.
1961-63 (part-time)	**Illinois State Geological Survey, Urbana, Illinois** Technical Assistant with Educational Extension.
1960-61 (part-time)	**University of Illinois, Department of Geology** Involved in departmental responsibilities while a student.

EDUCATION: B.S., Geology, University of Illinois, 1964
Postgraduate studies in geological oceanography, University of Washington, 1966-67
M.A., Anthropology, Western Washington State College, 1971
Ph.D., Anthropology, The University of Chicago, 1978

PUBLICATIONS: "The Mesopotamian Delta Region: A Reconsideration of Lees and Falcon,", Journal of the American Oriental Society, Vol. 95, No. 1, pp. 43-57, 1975. Also in Kraft, J. C., "Coastal Environments and Archeology," Dowden, Hutchinson and Ross, Inc., Stroudsburg, Pa. 1976.

"Prehistoric Levels of Lake Michigan-Huron: Their Potential in Shoreland Planning," published in Proceedings of the Lake Michigan Shoreland Planning Conference, Lake Michigan Federation, Chicago, pp. 169-195, 1973.

"An Investigation into the Relationship of Change in Relative Sea Level to Social Change in the Prehistory of Birch Bay, Washington," M.A. thesis, Western Washington State College, 1971.

"The Relationship of Relative Sea Level to the Archeology of the Fraser River Delta, British Columbia," published in Abstracts of the 1972 Annual Meeting, Geological Society of America, Minneapolis, 1972.

"Shoreline Emergence and Human Occupation in Northwestern Washington," 24th Annual Meeting, Northwest Anthropological Conference, Moscow, Idaho, 1971.

JOHN G. FRANZEN
Archeologist

Background in archeological and historical research, lithic technology and environmental impact evaluation in midwestern and far western United States.

EXPERIENCE: **Gilbert/Commonwealth since 1977**

1977 to Present — Archeologist/Consultant on projects in Idaho and other midwestern and western states.

1976-77 — **Idaho State University, Pocatello, Idaho**
Laboratory Assistant responsible for lithic analysis and report preparation.

1976 — **Northern Michigan University, Marquette, Michigan**
Research and Teaching Assistant; Director of Archeological Field School.

1973-74 — Field Assistant for Field Program in Upper Peninsula. Field Director for Michigan History Division survey programs in Upper Peninsula.

1972 — **Mackinac Island State Park Commission, Mackinac Island, Michigan**
Field Archeologist.

1971 — **Michigan State University, East Lansing, Michigan**
Field Archeologist for excavations in northern Michigan.

EDUCATION: B.A. (with honors), Anthropology, Michigan State University, 1972
M.A., Anthropology, Idaho State University, 1978

SOCIETIES: Society for American Archeology

PUBLICATIONS: "An Evaluation of the Archeological Resources of the Western Upper Peninsula," *Michigan History Division, Archeological Survey Reports*, No. 3, 1973

"An Archeological Survey of Chippewa County, Michigan," *Michigan History Division, Archeological Survey Reports*, No. 5, 1975

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ALAN R. WOOLWORTH

WOOLWORTH RESEARCH ASSOCIATES

PRESENT POSITION . . .

In addition to his consulting actvities with Woolworth Associates, Mr. Woolworth serves as Chief Archaeologist with the Minnesota Historical Society in St. Paul, Minnesota. Prior to becoming Chief Archaeologist in 1969, he served with the Minnesota Historical Society as Chief of the Museum and Historic Sites Department in 1967 and 1968 and as Museum Curator for the Society between 1960 and 1967.

EXPERIENCE SUMMARY . . .

Between 1957 and 1960, Mr. Woolworth was Curator of Exhibits at the Dearborn Historical Museum in Dearborn, Michigan. From 1952 through 1957 he was Staff Archaeologist for the State Historical Society of North Dakota.

His archaeological field experience dates back to 1949 and he has since participated in many field projects in Nebraska, North Dakota, and most recently, in many areas within the state of Minnesota. He has also conducted ethnohistorical research on Indian Land Claims and is a recognized authority on historic sites archaeology, having served as Chairman of the North American Fur Trade Conference in 1965 and Program Chairman for the Society for Historical Archaeology in 1973. From 1973 until 1976, he was a member of the Board of Directors of the Society for Historical Archaeology.

EDUCATION . . .

B.A., Anthropology and History, University of Nebraska, 1950
M.A., Anthropology, University of Minnesota, 1956

TECHNICAL PUBLICATIONS . . .

Author of 15 articles or reports and coauthor of seven articles or reports with ten additional manuscripts either in press or being prepared for publication. These reports have been published in *North Dakota Outdoors, North Dakota History, The Plains Anthropologist, The Beaver Magazine, The Minnesota Archaeologist, The Michigan Archaeologist, Ramsey County History,* and in the *Bureau of American Ethnology Bulletins.*

NANCY L. WOOLWORTH

WOOLWORTH RESEARCH ASSOCIATES

PRESENT POSITION . . . .

In her position with Woolworth Research Associates, Mrs. Woolworth is responsible for ethnohistorical research, literature and archives research, and archaeological and historical field investigations on a variety of projects in Minnesota, Wisconsin, and surrounding states. She is also a director of the White Bear Lake Historical Society and serves as a member of the Power Plant Siting Advisory Committee of the Minnesota Environmental Quality Council.

EXPERIENCE SUMMARY . . .

Mrs. Woolworth has assisted in the direction of archaeological excavations at Grand Portage National Monument since 1961. She has studied historical architecture at a number of sites in North Dakota and Canada and has conducted field research to locate approximately 400 historic sites in western Wisconsin and eastern Minnesota.

In 1968, she published her first book, The *White Bear Lake Story* and in 1973 prepared the study for the architectural reconstruction of a Metis fur trading post.

EDUCATION . . .

B.A., Education, The University of Michigan, 1954
M.A., History, The University of Michigan, 1959
Post graduate studies in American History and American Studies,
University of Minnesota, 1965-74.

PUBLICATIONS . . .

In addition to her book length study, *The White Bear Lake Story,* Mrs. Woolworth has published 12 articles in such journals as *North Dakota History, The Detroit Society for Geneological Research Magazine, Ramsey County History, Central States Archaeological Journal, The Michigan Archaeologist,* and *Minnesota History.*