LATE PREHISTORIC SETTLEMENT PATTERNS IN THE UPPER GREAT LAKES[1]

by

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ABSTRACT

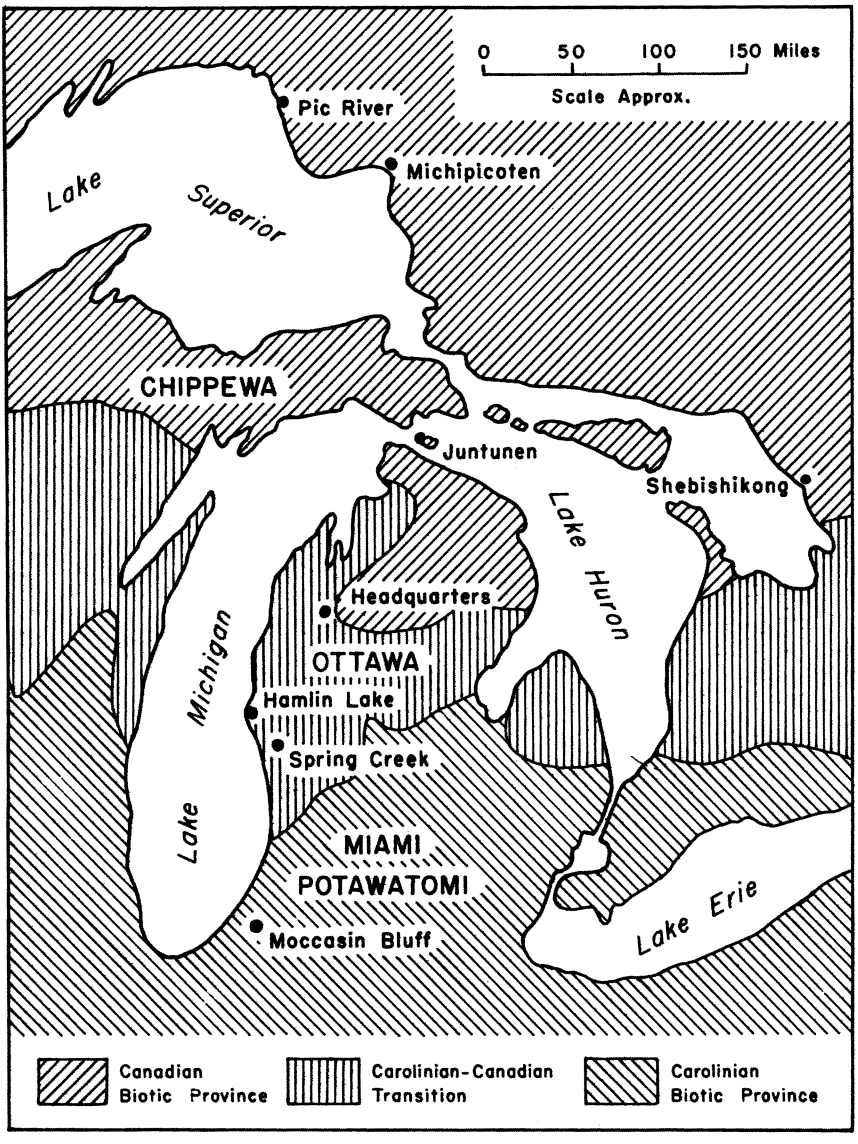
Known cultural adaptations to specific ecological settings are projected back into the prehistoric period in an attempt to elucidate late prehistoric cultural patterns in the Upper Great Lakes region.

Modern Biotic Communities and Historic Adaptations

The Upper Great Lakes region has proven to be an excellent area for the study of man's relationship to his environment. Several major environmental zones are present and there are documentary accounts of early historic adaptations to these environments as well as prehistoric sites indicating the pattern of development of these adaptations. Over the past few years the main emphasis in Michigan archaeology has been on the study of the nature and relationship of these adaptations.[2]

The environmental areas which we intend to deal with in this paper are the Carolinian biotic province, the Canadian biotic province and the vaguely defined transition between these two areas (see map). Since they have been described in detail elsewhere[3] we shall only mention some of the key characteristics here.

The Carolinian biotic province is located in the southern part of the Upper Great Lakes area. It is marked by essentially southern plant and animal species and both soils and climate are amenable to agriculture. The Miami and Potawatomi were groups adapted to this area in the early historic period.


0 50 100 150 Miles
Scale Approx.
Pic River
Michipicoten
Lake Superior
CHIPPEWA
Juntunen
Shebishikong
Lake Huron
Headquarters
OTTAWA
Hamlin Lake
Spring Creek
Lake Michigan
MIAMI
POTAWATOMI
Moccasin Bluff
Lake Erie
Canadian Biotic Province
Carolinian-Canadian Transition
Carolinian Biotic Province

The Canadian biotic province is marked by a mixture of the southern plant and animal species found in the Carolinian biotic province and those more characteristic of the still more northern Hudsonian biotic province. This mixture, however, is unique and readily recognized by the naturalist. The archaeologist, too, can readily recognize distinctive cultural adaptations to this area in both prehistoric and early times. The Chippewa are an example of this type of adaptation in the early historic period.

Between these two zones is a further area of transition. This is not easy to delineate because of the transitional and mixed nature of the Canadian biotic province itself. It has been suggested[4] that this transition needs to be defined on a "more-or-less" basis rather than as an abrupt "either-or" situation. An important reason for this transition is the "Lake Effect" which causes warmer temperatures and a longer growing season along the littoral of lakes Michigan and Huron than would normally be characteristic of these areas. There are more regular occurrences of plant and animal species of a southern nature in this transition zone than is characteristic of the Canadian province. Some groups of Chippewa inhabited this transitional area but this may have been a late event. The Ottawa are perhaps the best example of an adaptation to this environment.

An article by George I. Quimby dealing with one historic adaptation has had considerable influence on the study of the archaeology in the Great Lakes region.[5] Quimby was dealing with the ethnographic data which could be gleaned from the journals of Alexander Henry who spent the winter of 1763-1764 with the Wawatam family, a Chippewa family who saved him after the 1763 massacre at Fort Michilimackinac. The final section of Quimby's paper is entitled "The Archaeology of the Wawatam family." Here he suggested the types of artifacts and sites that would mark the presence of this particular family and how they would fit together to reflect the settlement pattern and adaptation of the group.

We can visualize a cultural adaptation as a vast number of interrelationships between man and his surrounding environment, physical, biological and cultural. These exchanges with the environment can be studied as isolated systems of energy transfer. The subsistence activities of the Wawatam family represent such a study; certain animals were hunted in certain ways. The sites can be interpreted as a settlement system bounded by the geographical limitations of the land. In the above instance the relationship of subsistence activity to settlement pattern is obvious.

If we accept the interdependence of energy transfer and land use systems, we can also accept the interrelatedness of other elements of a cultural adaptation. Elements of cultural adaptations tend to vary with each other. Cultural change is expressed as variations in the integration of elements of cultural systems and explained by variation in the integration of the cultural system as a whole with the natural environment and with other systems.

In reality, cultural change, like environmental change, is a continuous process. In practice the particular "moment" must be observable. To the archaeologist the stable moment may be a period of thousands of years. This is the position

which we take in this paper; our moment for observation of an adaptation is the entire Late Woodland period. If we were to find all of the sites suggested by Quimby we could say that we have a system *like* that of the Wawatam family. We intend to look for cultural adaptations *like* those of groups specifically adapted to Upper Great Lakes biotic provinces, not the adaptations of particular groups.

What we are doing is not to be confused with the "direct historic" approach. The direct historic approach is concerned with the projection of ethnic groups back into the prehistoric period. We are concerned with projecting cultural adaptations, not people, back into the prehistoric period. The direct historic approach is concerned with tracing a genetically related people through space and time while our concern is with an adaptation which is stable at the time (the Late Woodland) it is studied.

The natural environments of the historic period in the Upper Great Lakes can be projected back, in general, into the late prehistoric period. The cultural environment was greatly altered during the early historic period by the incorporation of the area into the European economic network. However, since we recognize this alteration we can control it in a general way. The technological innovations from outside were superimposed upon existing adaptations which do not appear to have been substantially altered. The types of cultural adaptations, allowing for shifts of range and emphasis, of the early historic period probably existed, to use Quimby's words, at least "two to three hundred years earlier." Finding archaeological examples of certain aspects of these adaptations within the natural environmental zones where they were known to have occurred historically implies the existence of the main elements of the cultural adaptation during the prehistoric period.

The basic criteria which we shall use are settlement pattern and site composition. Factors of importance are site size, season of occupation and site specialization, particularly specialization related to a sexual division of labor. We can find ethnographic accounts of these factors as a starting point. The next step is to see if the expected archaeological pattern for a particular cultural adaptation can be found.

The first factor, site size, can be controlled by the amount and distribution of cultural material recovered at a site. We need to recognize variation in collecting techniques but even with great disparity it is usually possible to tell if a site is very small with a few flint chips in a sand dune, or very large with cultural debris covering several acres. Season of occupation can be determined by either the non-artifactual material, plant and animal remains, or often by site location alone. We would not expect winter camps to be located in exposed lake shore areas open to the prevailing western winds.

Non-artifactual remains can also demonstrate site specialization; hunting camps as opposed to fishing stations are one example. By extension, chipped stone tools found regularly associated with certain patterns of plant and animal exploitation can serve as indicators of these economic activities even when the

conditions do not favor preservation of these remains. Combinations of these factors, site location, faunal and floral materials and lithic assemblages, have been used in reconstructing settlement systems in the Upper Great Lakes.[6]

Sexual division of labor and female-male ratios at sites may be roughly indicated by ratios of artifacts generally associated with the specific activities of either sex. We can use a simple index of ceramics to chipped stone as a rough indicator of female and male activities. While not necessarily reflecting absolute numbers of females and males, we feel that this is a function of the relative emphasis of female and male activities at a site and, therefore, can be used as a rough indicator of group composition. Sites with many sherds and little chipped stone might indicate a predominantly female composition; sites with few sherds and much chipped stone could indicate the exact opposite. Although it cannot be demonstrated, we shall assume, for this paper, that this ratio does reflect actual numbers of females and males in a group. The ratio of females to males can then be correlated with the site size and season of occupation.

With this background we will examine the historic adaptations of the Chippewa to the Canadian province; the Ottawa to the Carolinian-Canadian transition zone and the Miami and Potawatomi to the Carolinian area. In each case we shall try to find sites indicative of the same *kind* of adaptation in the Late prehistoric period although not necessarily prehistoric adaptations of these specific peoples.

In spite of the great amount of archaeological field work which has been carried out in Michigan over the past few years there are still very few sites which we can use for this analysis. Only a limited number of sites can be placed in the time period with which we are concerned and many of these have produced only very small artifact samples. We have used virtually every Late Woodland site in Michigan which has been analyzed to the extent that the data we need are available (see map). Additional support or refutation will come from Late Woodland sites which have been tested, but not yet analyzed, by Michigan State University in the Grand Traverse region and by the University of Michigan in the Saginaw Valley.

The Chippewa Pattern

The term Chippewa is a vague one and has been applied to peoples over a large area which includes a number of different environmental situations and adaptations. We start with this pattern because it was the pattern suggested for the Wawatam family in Quimby's paper. That particular group was trapping for trade and we feel that this probably had two effects. It probably led to an emphasis on specialization, with the possible result that any attempt in maize agriculture in the more marginal areas was abandoned entirely and this food source was obtained exclusively by trade. It may also have led to the extension of the hunting territory of the Chippewa into areas to the south of their prehistoric range. For the prehistoric period the settlement and exploitative pattern

suggested by Quimby might have existed in the Northern Lake Michigan and Lake Huron area plus the Lake Superior drainage.

The Wawatam family spent the summer engaged in fishing activities on an island in Lake Huron. This was an extensive site occupied by a number of families. Individuals of both sexes were present and engaged in economic activities centered around the exploitation of fish. The dispersed nature of plant and mammal resources in this biotic zone meant that population concentration could take place only at summer camps based on fishing. This formed the main village for the group. All subsequent stages of the seasonal round, with the exception of the sugaring camp, were small sites which were repeatedly occupied for short periods of time. Since the intensive exploitation of maple sugar *may* be a post-contact development we would exclude this particular site type from our expected prehistoric settlement system.

The winter and early spring sites were small, in a variety of locations but usually slightly inland and away from the Lakes. In contrast to other adaptations, these smaller Chippewa camps were balanced between males and females. This is an instance where we would expect to find ceramics and chipped stone in *approximately* equal amounts.

The Juntunen site is a prehistoric example of the Chippewa type of summer village.[7] This site, located on Bois Bland Island in the Straits of Mackinac, is primarily a summer fishing camp. Ignoring the internal difference between phases, there are a total of 1,515 ceramic vessels represented at the site. The stone tool categories including cores, scrapers, bifaces and utilized flakes account for 1,743 items, so the ratio between these classes is .93, or approximately one-to-one. The ratio variation between phases runs between .6 and 1.6 so even with some variation there is a general unity for the entire time of occupation.

The winter camps for this type of adaptation might be similar to those described by James Wright,[8] a series of sites which he considered to be prehistoric and historic Chippewa in the broadest sense of the word. The ratio of pottery vessels to finished chipped stone artifacts at these sites averages .73 or slightly less than that at the Juntunen site but still near the one-to-one range. The ratio decrease may be caused by a more specific emphasis on hunting and less emphasis on foraging and vegetable food during the winter phase of the seasonal cycle. The range of variation is about the same as between phases at the Juntunen site, .22 to 1.27. Even the extreme of .22, approximately four stone artifacts for each vessel, is close to a balance when we compare it to the known extremes of other adaptive patterns. This ratio of .73 is again indicative of a balanced group composition at small sites, a characteristic of the Chippewa pattern.

In a general sense then, we have the key elements of the Chippewa settlement system represented in the Canadian biotic zone in the prehistoric period. In the case of the Juntunen site this pattern can be projected back, with some variation, into the early Late Woodland period of A.D. 800 to A.D. 1000.

The Ottawa Pattern

The Ottawa economic cycle and settlement system has been summarized by Vernon Kinietz.[9] The Ottawa were specifically adapted to the Carolinian-Canadian transition area and "their adaptation to this ecological zone was neither a simple one nor marginal to the more highly agricultural societies farther to the south."[10] Kinietz has described them as dependent on agriculture, hunting and fishing for their livelihood and Gary Wright has emphasized their role as traders in the regional symbiosis of the Late Woodland and early historic period.[11]

The Ottawa were semi-sedentary. They had agricultural villages which were moved occasionally "through fear of hostile tribes or because of the unproductiveness of unfertilized soil."[12] The former is particularly important because, as we shall see, these villages were defended only by women and old men for a large part of the year.

Hunting parties composed of all able males left the village in *both* summer and winter. Summer hunting parties consisted of both males and females but with males predominating. These hunting parties usually went no more than 75 to 100 miles from the village and, following W.B. Hinsdale's interpretation, probably were camped along the Lake shores.[13] This might have been particularly true for the Lake Michigan dune area in Michigan, the area of Ottawa occupation in the early historic period.

The winter hunts were an all-male activity. They were directed toward the interior areas and parties were usually made up of eight to ten males. A single winter camp would be established for these groups near the center of a preassigned winter hunting territory. Deer, beaver, fowl and fish were collected and eventually transported back to the main camp in a processed form.

The main village site for such a pattern would be a large scale camp occupied for several seasons. For most of the year the camp would be frequented by women and "old men no longer capable of accompanying the hunting parties."[14] Animal food would be coming into the camp in a processed form so the animal bone from such a site would be a poor measure of the amount of food being eaten.

The Spring Creek site in Muskegon County, Michigan, seems to fit this description in almost every detail.[15] This site was occupied in the tenth century A.D. and is located in the Carolinian-Canadian transition area. It indicates some time depth for this type of adaptation. The animal bone from the site suggests an emphasis on a few species of animals, a characteristic of a focal agricultural adaptation.[16] The animal bone represents only enough food to have supported three males for one year, but the occupation of the site was quite intensive. We must therefore assume that in addition to having an agricultural base, the site had processed meat coming into it.

Excavations at the Spring Creek site yielded a great quantity of ceramics. The vessel count for the 3,000 square feet of excavated area was 966. The

occupational intensity of the Juntunen and Spring Creek sites, measured in vessels per square foot of excavation, was .34 and .31 respectively. Actually, the occupational intensity of the Spring Creek site was much higher since the Juntunen site represents several hundred years of sporadic occupation while the Spring Creek site probably represents several seasons of intensive year around occupation.

At Spring Creek 966 vessels were recovered, but only 344 cores, bifaces, scrapers, retouched flakes and other tools were found. The ratio of vessels to all cores and tools is 2.8, three times the ratio for the Juntunen site. This is indicative of the female-male ratio at the site during the course of the entire year and exactly what we would expect of such a site.

Michigan State University has located a number of sites similar to Spring Creek in the relatively favorable environmental zone along the Lake Michigan shore between Grand Traverse Bay and the Straits of Mackinac. We would expect that this kind of favorable situation would allow a northern extension of a mixed economy involving both hunting and agriculture similar to that of the Ottawa pattern.

A summer camp for a group with this type of adaptation may be represented at Hamlin Lake in the dunes of Ludington State Park.[17] Here is a small camp which is marked exclusively by lithic debris. Since Late Woodland ceramics are occasionally found in the area of these dunes some women might have been present in the area. The biface to uniface ratio, which has been correlated with hunting as opposed to fishing activities in the Upper Great Lakes[18] indicates that this was primarily a hunting camp. The close similarity of core and preform types between this site and Spring Creek *may* indicate a contemporaniety between these sites, although neither cores nor preforms are particularly good horizon markers in this area.

The last type of site would be small male camps occupied during the winter months for specialized hunting activity. Michigan State University field parties have located such sites in the Upper Boardman and the north branch of the Manistee, and Earl J. Prahl has located several similar sites in the upper reaches of the Muskegon River Valley. Fel V. Brunett has a site in the Upper Manistee drainage which has been examined in detail and fits the expected pattern in almost every way. The Headquarters site is an area of extensive occupation covering an unknown area. It is in a second-growth scrub forest, and has produced artifacts and chippage but no cultural features or pottery. The overwhelming number of bifaces and the quantity of flakes of bifacial retouch indicate an emphasis on hunting. Both projectile points and preforms indicate a general continuity with the Spring Creek site.

With the pattern presented by the Spring Creek, Hamlin Lake and Headquarters sites we can see a prehistoric example of an Ottawa type of exploitation and settlement system. This type of adaptation, like that of the Chippewa, can be dated to the early Late Woodland period.

The Miami and Potawatomi Pattern

Both the Miami and the Potawatomi seem to have had the same type of economic and settlement system,[19] one particularly suited to the northern boundaries of the Carolinian biotic province. They lived in large permanent villages during the summer and large, but temporary, hunting camps in the winter. The pattern of summer activity included women working in the fields while men hunted near the villages. The village site would show a balance of male and female activities and evidence of some hunting.

Winter hunts were important for both the Miami and Potawatomi. The hunting parties were made up of both men and women. All but a few old people left the village on these expeditions. The sites for this season would be large sites with little evidence of permanent structure and with an artifact distribution suggesting a balance between female and male activities. They would probably be extensive rather than intensive occupations.

This is the pattern for which we have the least amount of evidence in Michigan. It is possible that the Moccasin Bluff site in Berrien County represents an example of a summer agricultural village. Quimby has suggested that this was either a Miami or Potawatomi site[20] and the animal bone analysis suggests the sorts of bone distribution one would expect for an agricultural village.[21] Unfortunately, the available artifact sample for this site is of questionable value. The chipped stone material in the University of Michigan collection consists almost entirely of artifacts and it may be that chippage was not saved. Such chippage could have contained an unknown quantity of small tools and retouched flakes and the absence of this material would skew our ratios.

The evidence for a distinctive settlement and land use system in southeastern Michigan is also confusing.[22] The large sites seem to show a preponderance of ceramics over stone tools but, again, there is some question about the sampling procedure for small flakes and tools. The brief University of Michigan excavations in 1962 seem to indicate a better balance between ceramics and tools, but these were all small tests at small sites. It is possible that this area was occupied by a people with a cultural adaptation similar to that of Iroquoian peoples to the east and unlike that of the Algonquin speakers with whom we are dealing.

This lack of a site which fits the Miami model is disturbing. However, no major Late Woodland sites have been excavated in this area in the past eighteen years. Sites of this pattern may never be found and excavated. The areas most favorable for Indian occupation in the Carolinian province are also those areas which are urban today or where agricultural activity has been most intensive for the longest period of time. The University of Michigan and Michigan State University field efforts have been directed toward the northern areas in the past few years in an attempt to salvage what we can before this area is destroyed by the expanding "vacationer" culture emanating from the long-settled and affluent areas to the south.

Summary

Settlement patterns and economic activities similar to those found in the Canadian biotic province and the Carolinian-Canadian transition area in the early historic period can be dated to the early Late Woodland period (see Figure). The evidence is not clear for the Carolinian area of the Upper Great Lakes but there are some suggestions that it may apply there as well. The figure also makes it clear that this analysis of settlement is three-dimensional; in addition to the dimensions of season and settlement type, we have added the dimension of group composition.

The Chippewa pattern is marked by large summer sites with evidence of balanced female-male group composition. The Juntunen site is a prehistoric example of this type of site. The winter sites also have a balanced composition but are considerably smaller and more numerous. James Wright's sites along the north shores of Lake Huron and Lake Superior are examples of this type.

The Ottawa pattern is more complex. It is marked by a large village occupied by the females for most of the year while males are away much of the time on both summer and winter hunts. The Spring Creek site is an example of this type of site. The summer hunting sites along the dunes had a primarily male composition with a few females in the group. The Hamlin Lake site in the dunes of Ludington State Park may be an example of such a site. The winter hunting camps were occupied exclusively by six to eight males who hunted within a restricted territory. The best example of this type of site so far reported in the Upper Great Lakes is the Headquarters site in the upper Manistee drainage.

To date, Moccasin Bluff is the only site we can offer in Michigan as an example of the Miami and Potawatomi pattern, and even then the evidence is equivocal.

In the instances where the data are available, the predicted pattern of group composition closely parallels the ratio of ceramic vessels to chipped stone tools. While not demonstrating the unquestioned validity of this ratio in reflecting group composition, it does suggest that it has a useful predictive value in some situations. In the Upper Great Lakes this ratio may turn out to have a great deal of value in studying site demography.

We are only beginning to understand the changing cultural adaptations of the Upper Great Lakes area, but the data which we have on Late Archaic as well as Early and Middle Woodland adaptations indicate different patterns of settlement and land use than we find for the Late prehistoric period.

One limitation of the backward projection of the Late prehistoric patterns is that they are based on agriculture and on the exchange of agricultural and non-agricultural products across ecological boundaries. The late prehistoric population was as great as that of the early historic period; perhaps more so. This population density was probably based on the same type of regional

PATTERN TYPE	BIOTIC PROVINCE	SEASON	PRIMARY SUBSISTENCE	SITE SIZE	SEXUAL COMPOSITION	PREHISTORIC EXAMPLES
CHIPPEWA	CANADIAN	Summer	Fishing and Hunting	Large	Balanced	Juntunen
		Winter	Hunting	Small	Balanced	Pic River Michipicoten Shebishikong
OTTAWA	CAROLINIAN-CANADIAN	Summer	Agriculture and Hunting	Large and Small	Unbalanced	Spring Creek and Hamlin Lake
		Winter	Hunting (Agriculture)	Large and Small	Unbalanced	Spring Creek and Headquarters
MIAMI POTAWATOMI	CAROLINIAN	Summer	Agriculture and Hunting	Large	Balanced	
		Winter	Hunting and Agriculture	Large	Balanced	Moccasin Bluff (?)

FIGURE: SETTLEMENT AND SUBSISTENCE TYPES. Patterns of settlement and subsistence associated with the Carolinian and Canadian biotic provinces and the transition between them in the early historic period and late prehistoric sites which fit these patterns.

symbiosis observed in the early historic period, but since such economic trade was based primarily on perishable materials, little is left for the archaeologist.

In the Late Archaic and Middle Woodland periods there is evidence of trade across ecological boundaries. Such trade, however, seems to center around exotic raw materials: copper, mica and marine shells as examples. Population densities in different ecological zones vary but not as greatly as they do in the late prehistoric period. Middle Woodland village sites are much rarer than Late Archaic sites in the same area. Exchange between regions may be limited to specific kinds of objects with ceremonial meaning. If there was an exchange of foodstuffs it did not lead to increased settlement size and density.

The Middle Woodland trade networks of the Upper Great Lakes may have served as the framework on which the Late Woodland regional symbiosis developed, although the character and extent of these relationships may have differed. Mechanisms which have been used to distribute hard goods were used to distribute food between ecological zones. The existence of the Late Woodland or late prehistoric exchange pattern is dependent upon the differential productivity allowed by an agricultural adaptation on one end of the exchange system.

These are all items of importance for the interpretation of Great Lakes prehistory. The type of analysis presented in this paper is but one of the techniques which must be used for the study of cultural adaptations and cultural change in the area. It must be combined with many specific interpretive techniques to develop as complete a picture as possible. No single technique or approach holds all of the answers.

NOTES

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2. Cleland (1966); Fitting (1966); G. Wright (1967); Yarnell (1964).
3. Cleland (1966: 4-12).
4. Fitting (1966: 146).
5. Quimby (1962).
6. Fitting (1968a).
7. McPherron (1967).
8. J. Wright (1965).
9. Kinietz (1940: 235-246).
10. Cleland (1966: 73-74).
11. G. Wright (1967).
12. Kinietz (1940: 236).
13. Hinsdale (1932: 33-34).
14. Kinietz (1940: 236).

15. Fitting (1968b).
16. Cleland (1966).
17. Fitting (1967).
18. Fitting (1968a).
19. Kinietz (1940: 171, 313).
20. Quimby (1952).
21. Cleland (1966: 211-223).
22. Greenman (1937, 1939); Fitting (1965).

REFERENCES

Cleland, Charles E.

1966 The prehistoric animal ecology and ethnozoology of the upper Great Lakes region. *Anthropological Papers, Museum of Anthropology, University of Michigan,* no. 29. Ann Arbor.

Fitting, James E.

1965 Late woodland cultures of southeastern Michigan. *Anthropological Papers, Museum of Anthropology, University of Michigan,* no. 24. Ann Arbor.

1966 Archaeological investigations of the Carolinian-Canadian edge area in Michigan. *The Michigan Archaeologist,* Vol. 12, no. 4 (December), pp. 143-149. Ann Arbor, Michigan Archaeological Society.

1967 The camp of the careful Indian: an upper Great Lakes chipping station. *Papers of the Michigan Academy of Science, Arts and Letters,* Vol. 52, pp. 237-242. Ann Arbor, The University of Michigan Press.

1968a Northern Lake Michigan lithic industries. *Anthropological Papers, Museum of Anthropology, University of Michigan,* no. 34, pp. 116-133. Ann Arbor.

1968b The Spring Creek site, 20 MU 3, Muskegon County, Michigan. *Anthropological Papers, Museum of Anthropology, University of Michigan,* no. 32, pp. 1-78. Ann Arbor.

Greenman, Emerson F.

1937 The Younge site, an archaeological record from Michigan. *Occasional Contributions from the Museum of Anthropology of the University of Michigan,* no. 6. Ann Arbor, University of Michigan Press.

1939 The Wolf and Furton sites, Macomb County, Michigan. *Occasional Contributions from the Museum of Anthropology of the University of Michigan,* no. 8. Ann Arbor, University of Michigan Press.

Hinsdale, W. B.

1932 Distribution of the aboriginal population of Michigan. *Occasional Contributions from the Museum of Anthropology of the University of Michigan,* no. 2. Ann Arbor, University of Michigan Press.

Kinietz, Vernon

1940 Indians of the western Great Lakes. *Occasional Contributions from the Museum of Anthropology of the University of Michigan,* no. 10. Ann Arbor, University of Michigan Press.

McPherron, Alan

1967 The Juntunen site and the late woodland prehistory of the upper Great Lakes area. *Anthropological Papers, Museum of Anthropology, University of Michigan,* no. 30. Ann Arbor.

Quimby, George I.

1952 The archaeology of the upper Great Lakes area. In *Archaeology of eastern United States,* pp. 99-109. Edited by James B. Griffin. Chicago, The University of Chicago Press.

Quimby, George I.
1962 A year with a Chippewa family, 1763-1764. *Ethnohistory,* Vol. 9, no. 3 (Summer), pp. 217-239. Bloomington, American Indian Ethnohistoric Conference.
Wright, Gary A.
1967 Some aspects of early and mid-seventeenth century exchange networks in the western Great Lakes. *The Michigan Archaeologist,* Vol. 13, no. 4 (December), pp. 181-197. Ann Arbor, Michigan Archaeological Society.
Wright, James V.
1965 A regional examination of Ojibway culture history. *Anthropologica,* N.S., Vol. 7, no. 2, pp. 189-227. Ottawa, Canadian Research Centre for Anthropology.
Yarnell, Richard A.
1964 Aboriginal relationships between culture and plant life in the upper Great Lakes. *Anthropological Papers, Museum of Anthropology, University of Michigan,* no. 23. Ann Arbor.